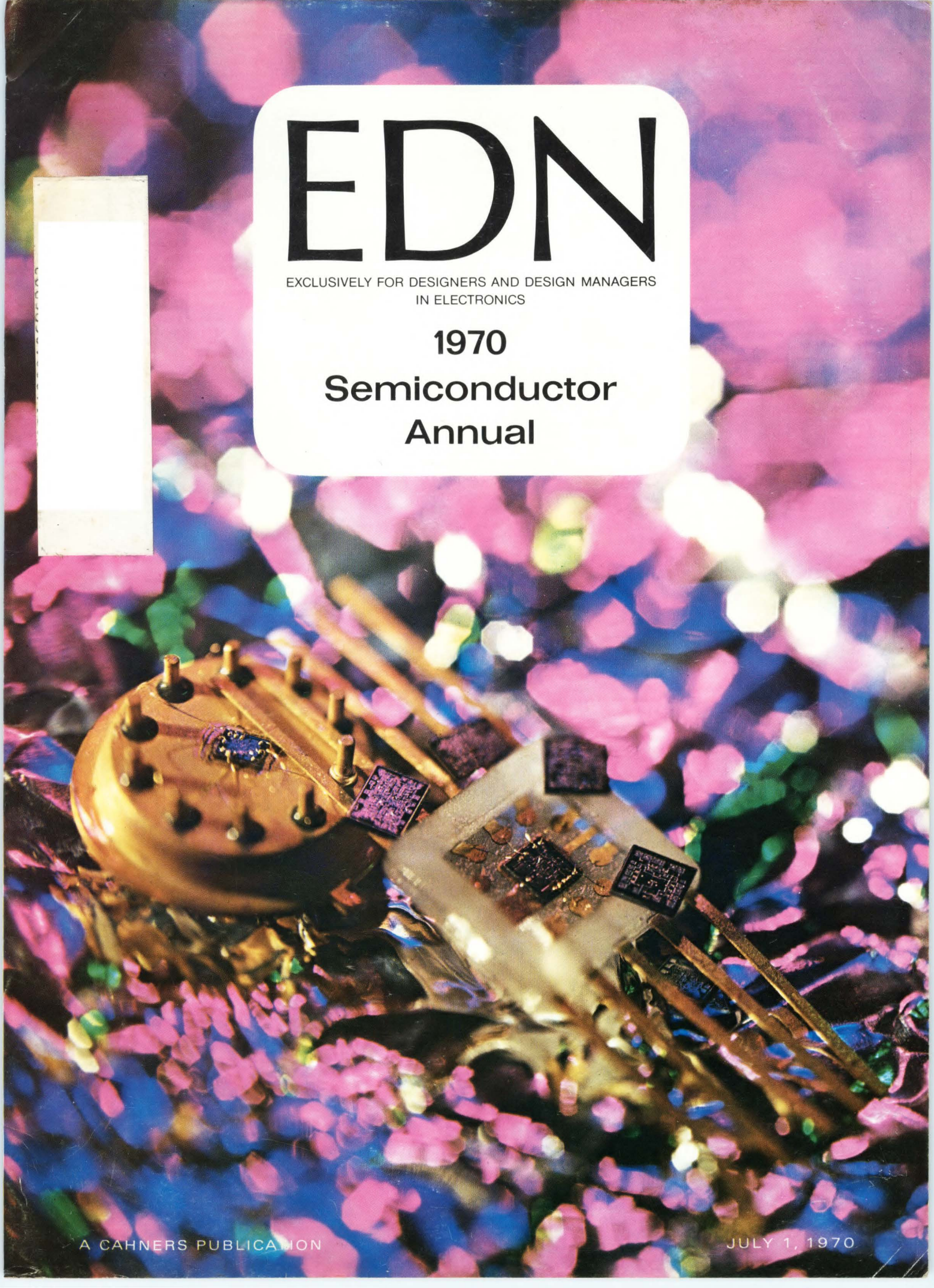
EDN

EXCLUSIVELY FOR DESIGNERS AND DESIGN MANAGERS IN ELECTRONICS

1970 Semiconductor Annual

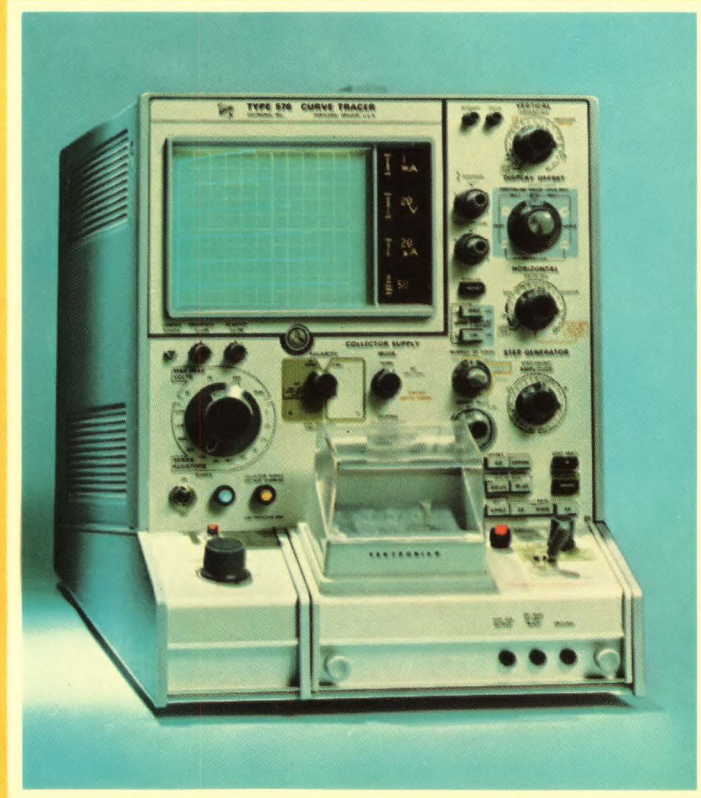


A CAHNERS PUBLICATION

JULY 1, 1970

Power hungry?

Dale makes an industrial wirewound for every appetite...



Tektronix, for example...

Dale offers you a wider choice in meeting industrial power resistor requirements: Silicone-coated HL types where maintenance of tolerance and low TC are important. Vitreous-enamel coated VL types where rugged environments are encountered. Tektronix uses the space-saving flat HL style in the collector supply of its versatile Type 576 Semiconductor Curve Tracer. For precision instruments like this, tolerances down to 1% are available, plus taps, sliders, lugs, leads—even special sizes to 1,000 watts. You name it—we're waiting.

PHONE 402—564-3131 for information or write for Catalog A

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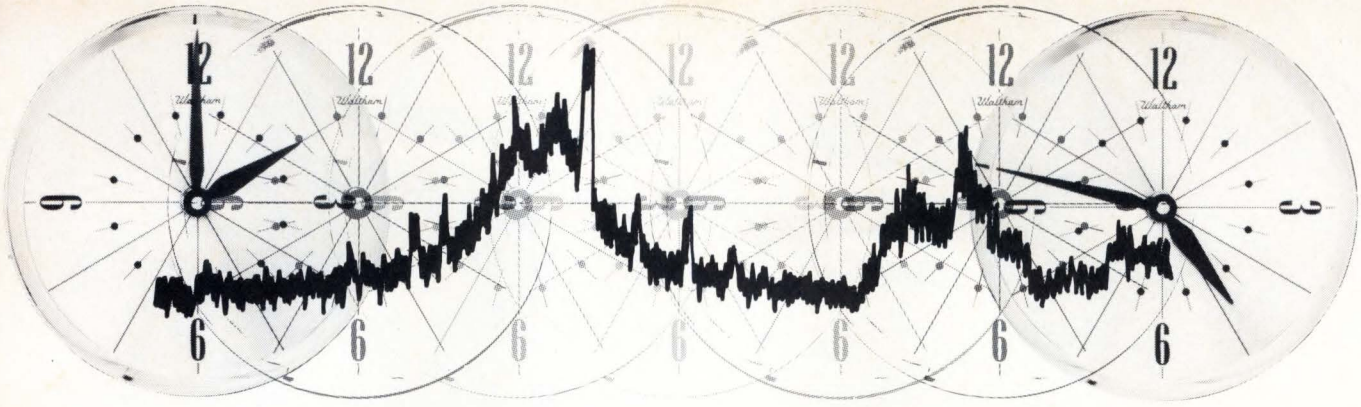
SEE OUR SPECIFICATIONS IN VSMF THE MICROFILM CATALOG FILE

CIRCLE NO. 1



A wave analyzer with a 10,000-second sweep time? Why?

090/6

...because, in low-frequency spectrum analysis work, you need to use a narrow-bandwidth window. The narrower the window you use, the slower you must sweep it across the frequency range to be analyzed. And the slower you sweep, the smaller a frequency range you can cover in any given time. Thus, until now, your choice has been either accuracy or range but not both.

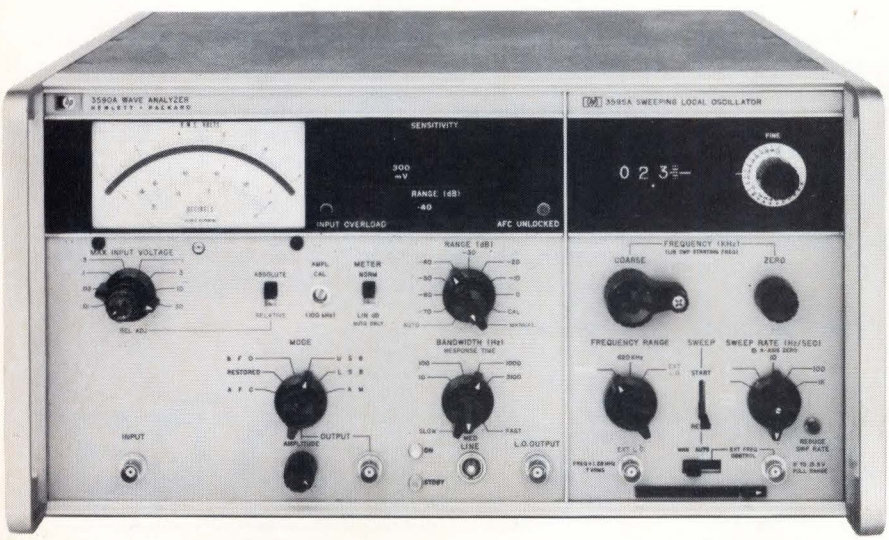
The new HP 3590A/3595A system solves that dilemma. The HP 3595A plug-in is a sweeping local oscillator with 10,000 seconds of sweep time available. By using it with the HP 3590A Wave Analyzer mainframe, you can scan the entire three-decade audio frequency range at 2 Hz per second, in one sweep. And, by adding an HP X-Y recorder, you can see the results on a single 11 x 17-inch graph.

In addition to extended sweep time, the 3590A/3595A combination also gives you a choice of five sweep rates (from 1 Hz to 1,000 Hz per second) and four filter bandwidths (from 10 Hz to 3,100 Hz), an 85 dB dynamic range over either of two frequency ranges (20 Hz to 62 kHz and 200 Hz to 620 kHz), 3 μV to 30 V sensitivity, and built-in autoranging for ease of operation.

The result is a systems-analysis tool ideally suited for work in the lower frequency ranges, with the capability to work in higher frequency ranges as well!

The 3590A Wave Analyzer mainframe is $3200; the new 3595A plug-in with the 10,000-second sweep time is $1250. Other plug-ins available for the 3590A are: the 3592A slave and program unit, for use with a second mainframe, $80; the 3593A with 3-digit mechanical display and 620-second maximum sweep time, $1100; and the 3594A with 5-digit electronic counter frequency display and 620-second maximum sweep time, $1600.

To get complete information on the HP 3590A and the various plug-ins, contact your local HP field engineer. Or, write to Hewlett-Packard, Palo Alto, California 94304. In Europe: 1217 Meyrin-Geneva, Switzerland.



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SIGNAL ANALYZERS

CIRCLE NO. 2

This is any digital logic system you can think of.

Gentlemen: I have a design for a digital logic system and I understand you have everything I need to put it together. Please send me complete information on the compatible system elements I checked below:

☐ **J Series logic modules.** A high quality line at moderate prices, using commercially available DTL and TTL circuits with noise-immune packaging.

☐ **T Series logic modules.** Proprietary IC's designed into noise-immune circuits. Highest fan-in and fan-out available.

☐ **Automated wiring services.** Computer generated listing; error-free verified wire-wrapping. Complete documentation provided.

☐ **Mini-computer.** A 16-bit processor with powerful instructions that conserve memory and an I/O structure with four different operating modes.

☐ **Analog instruments.** Low-level and high-level multiplexers, digitizers, D-to-A converters. 10, 12, or 15-bit resolution, choice of high or medium speeds, free-standing or coupled to the mini-computer.

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COMPANY _____ PHONE _____
ADDRESS _____ CITY _____ STATE & ZIP _____

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If you can't wait, call (213) 679-4511 ext. 3668 or 3391

XDS
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El Segundo, California

CIRCLE NO. 3

A CAHNERS PUBLICATION

EDN

EXCLUSIVELY FOR DESIGNERS AND DESIGN MANAGERS IN ELECTRONICS

TWELFTH EDITION

Vol. 15, No. 13 – July 1, 1970

1970 Semiconductor Annual

FEATURES

Cover photo by Ron Sloan of Arbogast Photography depicts a collection of Signetics integrated circuits in both flat pack and round packages before final seals are attached.

ABP CP MCB BPA

ibpa International Business Press Associates

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TI makes a molehill out of the mountain

Discrete selection is easier, faster with TI's *preferred semiconductors and components line.*

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Our new catalog details the specs on all 322 of TI's preferred semiconductors. With its applications and selection guide, cross-reference tables and typical circuit diagrams, this may be the most helpful catalog you've ever used.

Your choice includes: small signal and power transistors — both germanium and silicon — diodes, thyristors, rectifiers, resistors, regulators, light sensors.

To get your free copy, write Texas Instruments Incorporated, PO Box 5012, MS 308, Dallas, Texas 75222. Or just circle reader service card number 195.

*1970 world figure, D.A.T.A. Inc., publishers of ELECTRONIC DATA

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Editorial

Semiconductor Kaleidoscope

Semiconductor technology, the cornerstone of modern electronics, behaves like anything but a cornerstone. It moves around a lot and continually changes the nature of the edifice it supports. As a result, designers never can relax because today's optimum design is practically never the same as yesterday's.

Consider some advances that have transpired in recent months. A proliferation of both random-access and read-only memories on monolithic chips is available. Many read-onlies are electrically programmable, and one company has developed a read-only that can be erased with X-rays, then reprogrammed. Transistors with f_{max} as high as 15 GHz are here. Monolithic operational amplifiers exhibit specs that would not have been thought possible a couple of years ago. Light-emitting diode readouts are showing up often in new instruments. (Who said they would never be cheap enough?) Although a "computer on a chip" is not yet practical, the number of chips required is rapidly approaching the unity asymptote. And so on.

Endless variety of patterns is as characteristic of a designer's job as it is of the familiar kaleidoscope. Our purpose in publishing the EDN Semiconductor Annual is to help you make wiser selections from that infinity of options.

Because technology changes, EDN's coverage of technology must change. So this issue is different from last year's which was different from its forebear. Although we still devote considerable space to discrete semiconductor devices, you will notice a definite swing toward integrated circuits.

As always, we want to know how you feel about this issue. There is space set aside on the information retrieval card for your comments. Your suggestions will help us make next year's Semiconductor Annual even better.

Editor

We make components for guys who can't stand failures.

By the time they find the problem, the entire factory will be buried in ping pong balls. And there'll be a few thousand more applicants for advanced membership in the can't-stand-electronic-failures club.

If only we had been there in time. You see, we make resistors and capacitors for guys who can't stand failures. Guys like your most important customers, guys like you.

We build an extra measure of reliability into all our components to help you build extra reliability into all your systems—to head off problems like this.

To be specific, we make tin oxide resistors—now including both miniature RLR05's and flame proofs—and glass and Glass-K™ capacitors. They're the best you can get, though they'll cost you no more.

Take our tin oxide resistors—no other resistors can deliver the same stability and reliability over life. They offer guaranteed moisture resistance across all ohmic values, for reliability that can't be matched by metal film, wirewounds, carbon comps or metal glaze resistors.

This kind of extra performance comes in miniature size, too. Our new RLR05 (commercial style C3), developed for dense packaging applications, competes costwise with carbon comps.

And we lead the field with flame proof resistors. Ours will withstand overloads in excess of 100 times rated power without any trace of flame. And because they open rather than short under severe overload, they provide protection for the rest of the system—a vital consideration in critical and expensive EDP, telecommunications, and instrumentation gear.

Or take our glass capacitors. The Air Force has confirmed they have much better stability and much higher insulation resistance than the ceramic, mica, and other capacitor types tested. That's why our glass capacitors have been designed into so many major aerospace and missile projects. And why industry has designed them into the most important EDP and instrument applications.

Or our Glass-K™ capacitors—we developed them to give you the volumetric efficiency and economy of monolithic ceramic capacitors, but with the much improved stability and reliability that only a glass dielectric can add. Our Glass-K™ capacitors are now being used in pacemaker heart units and in several major EDP systems. And these Glass-K™ capacitors can now be used in BX characteristic applications.

As you might expect, both our resistors and capacitors meet Established and High Reliability standards, such as MIL-R-39017, MIL-R-55182, and Minuteman.

At Corning we make components for guys who can't stand failures. Guys like your most important customers. Guys like you.

And even though you might expect to pay a lot more for these features, you don't. Because as the largest manufacturer of these type components, our production volume affords us economies that enable us to be competitive in price.

So the next time you're designing a system, design-in an extra measure of performance. Reach for your CORNING® resistor and capacitor catalogs or look us up in EEM. Or for in-depth technical information write us at: Corning Glass Works, Electronic Products Division, Corning, New York 14830.

Then call your local CORNING authorized distributor for fast off-the-shelf delivery. He not only stocks components for guys who are demanding, but he offers service to match, too.

CORNING
ELECTRONICS

CIRCLE NO. 4

FREE SAMPLES

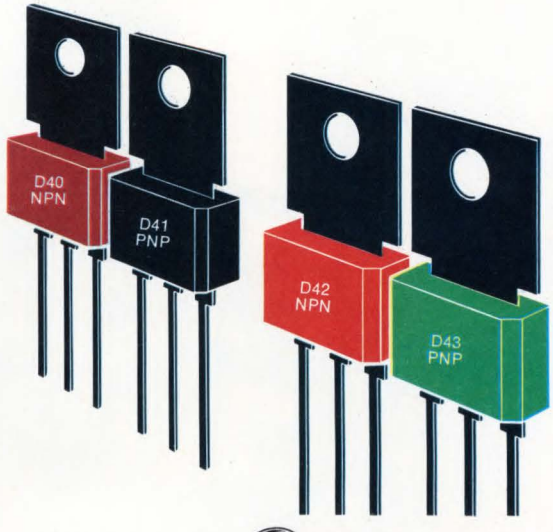
Celebrate GE's new NPN/PNP transistors with a complimentary pair

We're proud to announce the birth of another complementary pair of power transistors from General Electric. Housed in GE's silicon Power Pac package, these new 4-amp NPN/PNP transistors are color molded so you can tell NPN from PNP. And for a limited time only, you can get a pair free. That's right! To introduce you to GE's new arrivals, we're offering you a pair free. You may choose the new Power Pac types with round leads or their older brothers in the power tab package (with flat leads). You may even choose two that aren't complementary . . . still with our compliments. General Electric's complementary pairs feature low saturation voltage, excellent gain linearity and fast switching characteristics. They're compatible with either TO-5 or TO-66 mounting and designed for use in amplifiers (dc-1MHz.), regulators (series, shunt and switching), high-frequency inverters and converters and many other general purpose controls.

To get your sample power transistors along with a packet of application information, fill out the coupon on the opposite page and present it (or mail it) to your authorized General Electric semiconductor distributor (also shown on opposite page). Offer expires August 31, 1970. 220-90

Type No.	I_C (cont.) Amps.	$P_{Dis.}$ (T_C=25 C) Watts	$P_{Dis.}$ (T_A=25 C) Watts	V_{CE} (sat.) (max.)		V_{CEO} (sus.) Volts			h_{FE} (min. or range)				
				volts	amps	lo	med	hi	bias V_{CE}	bias I_C	lo	med	hi
D40D (NPN) D41D (PNP)	1.0	6.0	1.25	0.5	0.5	30	45	60	2V	0.1A	50–150	120–360	290①
D42C (NPN) D43C (PNP)	3.0	12.5	2.10	0.5	1.0	30	45	60	1V	1.0A	10	20	25②
D44C (NPN) D45C (PNP)	4.0	30.0	1.33	0.5	1.0	30	45	60	1V	1.0A	10	20	25②
D40N (NPN)	0.1	6.25	1.65	—	—	250	—	300	10V	.04A	—	20	—
D40C (NPN) (darlington)	0.5	6.0	1.25	1.5	0.5	30	40	50	5V	.2A	10K–60K	40K	—

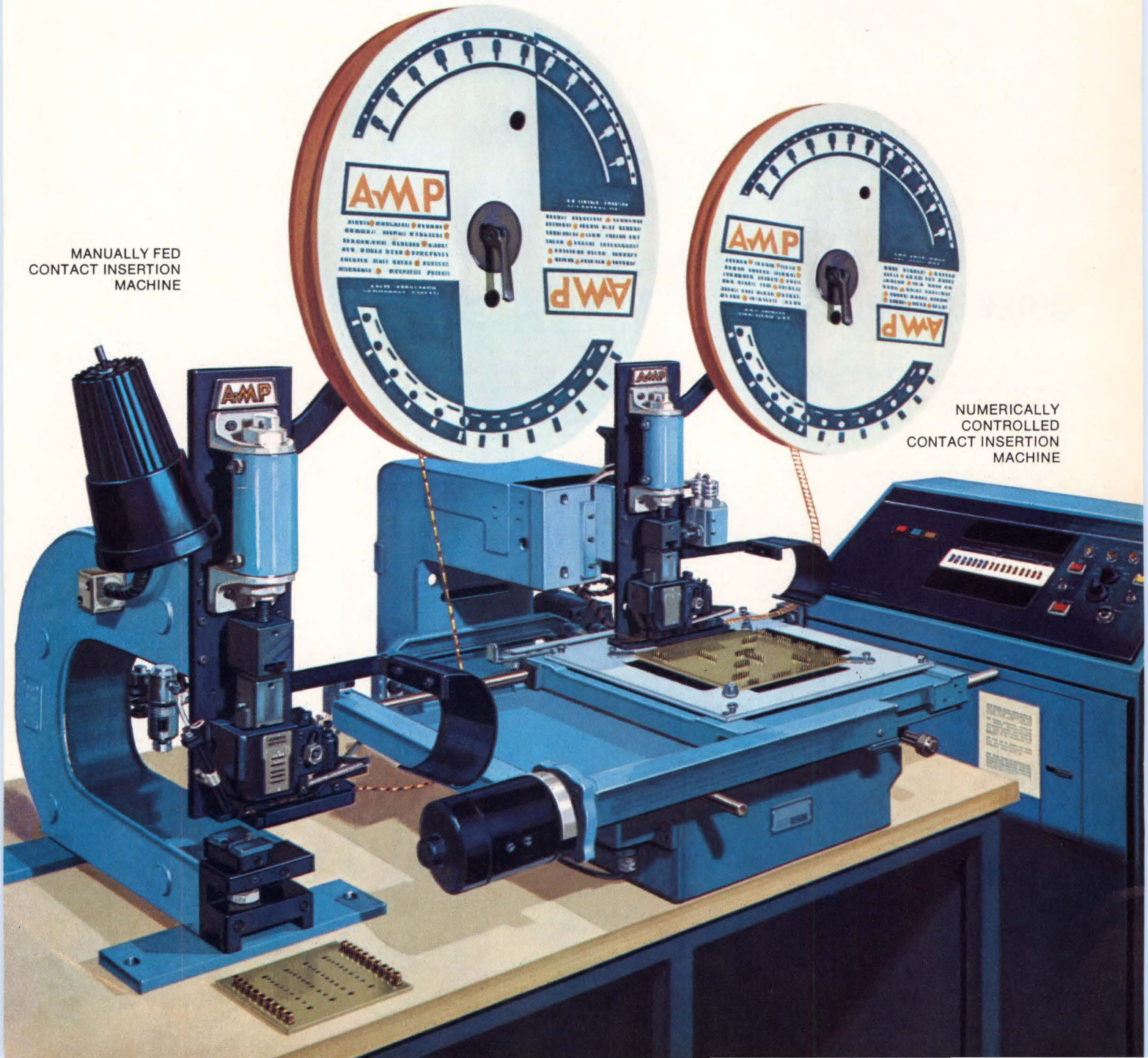
①Available in 30V NPN units only
②Available in 30V and 45V units only



GENERAL ELECTRIC

CIRCLE NO. 5

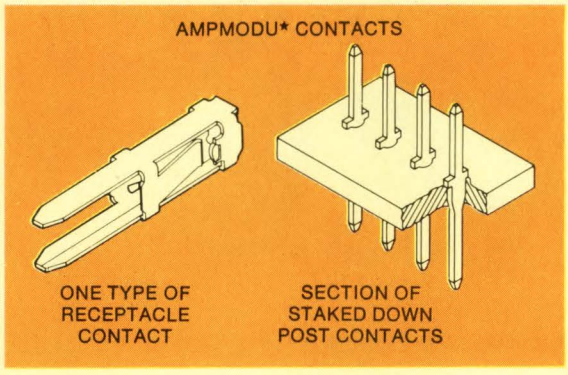
The most versatile system has tooling Manual to N/C.



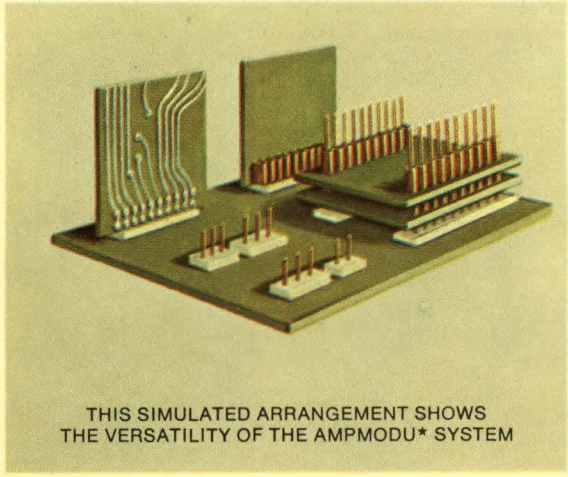
interconnection to match.

The two work together to substantially reduce your interconnection costs.

The AMPMODU★ interconnection system is designed to give you both positioning versatility and circuit flexibility. The post and receptacle contacts provide these because each one is a completely independent electro-mechanical module.

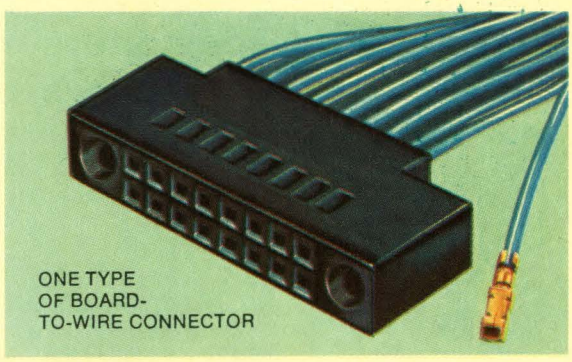


For board-to-board interconnection
The receptacles, for example, can be staked up, down or sideways. This means that you can arrange the daughter boards either perpendicular or parallel to the mother board.

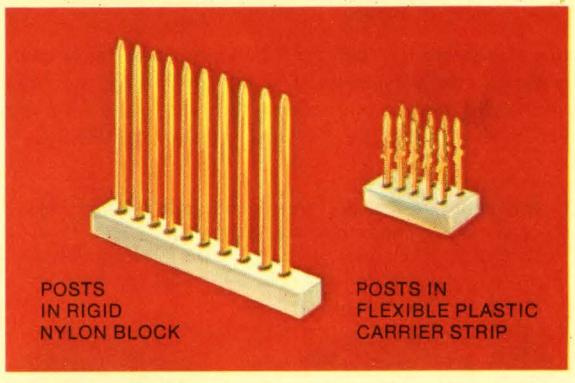


★Trademark of AMP Incorporated

◀ **Versatile, high-speed tooling**
You can stake these receptacles automatically at speeds up to 4000 per hour. Machines can be provided for application as fast as the operator can position the board, or for complete numerical control.



For board-to-wire interconnection
And these receptacles aren't limited to being stuck to boards. Some can be crimped to wires and housed in connector blocks. Others can be crimped to coaxial wires. And there's even a version that can be terminated to flat cable. All of this can be done by automatic machines.



For machine-wireable interconnection
The mating posts come in two versions: .031 x .062 and .025 x .025 in a variety of lengths. These can be furnished in a nylon block or in strip form to be inserted at random locations. The other end of the posts is available for wrap-type or our own unique TERMI-POINT★ automatic point-to-point clip wiring method.

That's our system—posts and receptacles that you can arrange virtually any way you want, and a complete line of application tooling to apply as many as you want. This precision relationship between tooling and contacts is the way we consistently lower your applied costs. We call it Economation.

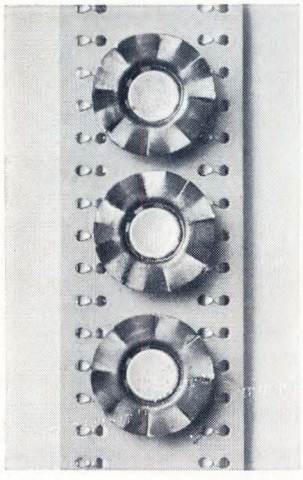
Find out more about the AMPMODU interconnection system and its application tooling. Write to **Industrial Division, AMP Incorporated, Harrisburg, Pa. 17105.**

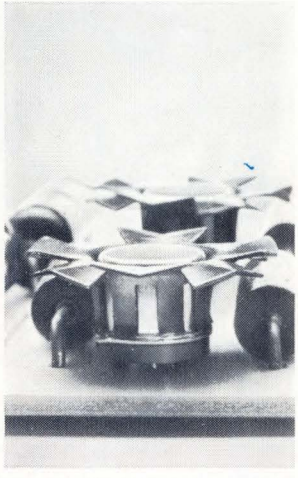
AMP
INCORPORATED

CIRCLE NO. 7

Tips on cooling off hot transistors

See how circuit designers use IERC heat dissipators to protect semiconductors...improve circuit performance and life.



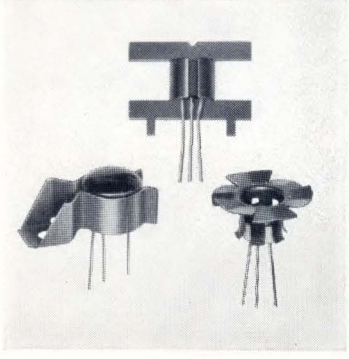


Fan-top dissipators for TO-5 and TO-18 cases drop temperatures dramatically; cost just pennies. T-shape adds almost nothing to board height; allows components to snuggle close to transistors. Spring fingers provide fast, press-on installation.

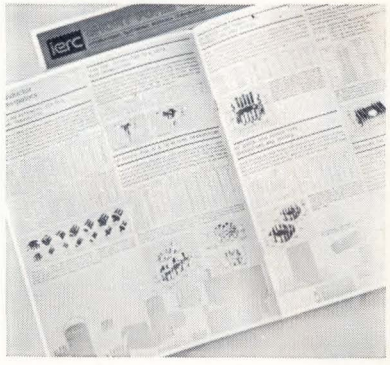
To cool off low-to-medium power transistors in TO-5 and TO-18 cases, use IERC's efficient LP's. Patented, staggered-finger design maximizes radiation and convection efficiency, radiates heat directly to ambient. Available in single or dual mounting for thermal mating of matched transistors.

IERC Therma-Link Retainers provide efficient thermal links between transistors and chassis or heat sinks. (Also, excellent dissipation when used on p-c boards.) Integral BeO washers reduce capacitance up to 2/3. Fast, no-snap installation; transistors are firmly held.

New! Dissipators and retainers for plastic and epoxy transistors. 3 new series for RO-97A, RO-97 and X-20's. Permit a jump of 10% to 33% in operating power.



Free 8-page short form catalog discusses IERC's complete line of dissipators, retainers and tube shields. Gives specifications, prices, how to order. Send for your copy today.



Special insulating coating — Insulube 448, a special non-hygroscopic finish developed by IERC, combines excellent dielectric properties, 50 K megs insulation resistance, and high heat emissivity. Also protects against salt spray, fungus, etc.

Tough heat dissipating problem? IERC engineers welcome your letterhead inquiry for specific information or assistance in selecting heat dissipators.

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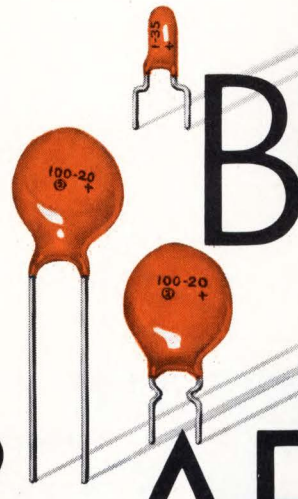
CIRCLE NO. 9



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CIRCLE NO. 8

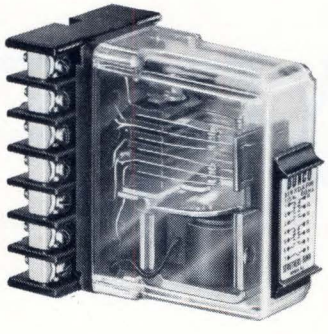
NOTICE

It is no longer accurate to call Struthers-Dunn "those relay people in Pitman, New Jersey."

Call us "the control people who can supply relays from Pitman, New Jersey . . . control systems and functional circuit cards . . . plus logic modules and solid state relays from the Systems Division in Bettendorf, Iowa."

Also, call Struthers-Dunn the only people in controls who are exclusively control-minded.

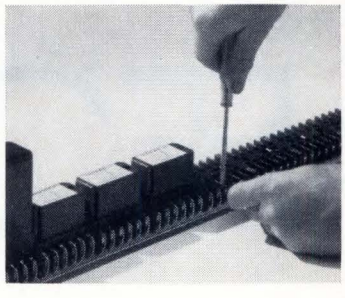
Above all, whenever and wherever you need to control production or processing equipment . . . call Struthers-Dunn!



RELAYS

World's largest line of aerospace, commercial, reed and industrial relays . . . and motor controls. Including thousands of types for specialized applications. Our vast experience in electromechanical relays and other controls has given us a solid background for production of even more sophisticated controls.

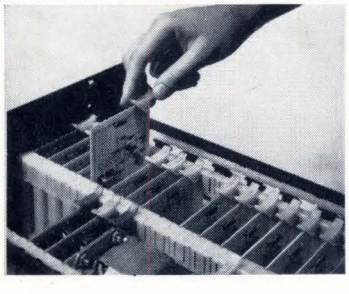
Catalog C/1010



SENSIPAK™ LOGIC MODULES

The "in-between" control system . . . hybrid solid-state modules with dry reed switching output. Replace several old-style component building blocks; mate with either relays or other solid-state circuitry. One Sensipak module can often replace several relays in a multiple relay system.

Catalog C/10100



COMPLETE SYSTEMS, INDIVIDUAL CIRCUIT CARDS

Complete machine and process control reduced to individual functions regulated by solid-state plug-in cards. Easy to specify, program, hook-up, use and maintain. No need for a designer or user to be a computer expert.

Catalog C/70100

KEEP UP WITH THE LATEST IN CONTROLS!

Check the Reader Service Card numbers listed below for any or all of these useful bulletins and catalogs.

#54 Stock/Standard Relay Catalog C/1010
#55 Control Systems Catalog C/70100
#56 Logic Module Catalog C/10100

HYBRID SOLID-STATE RELAYS

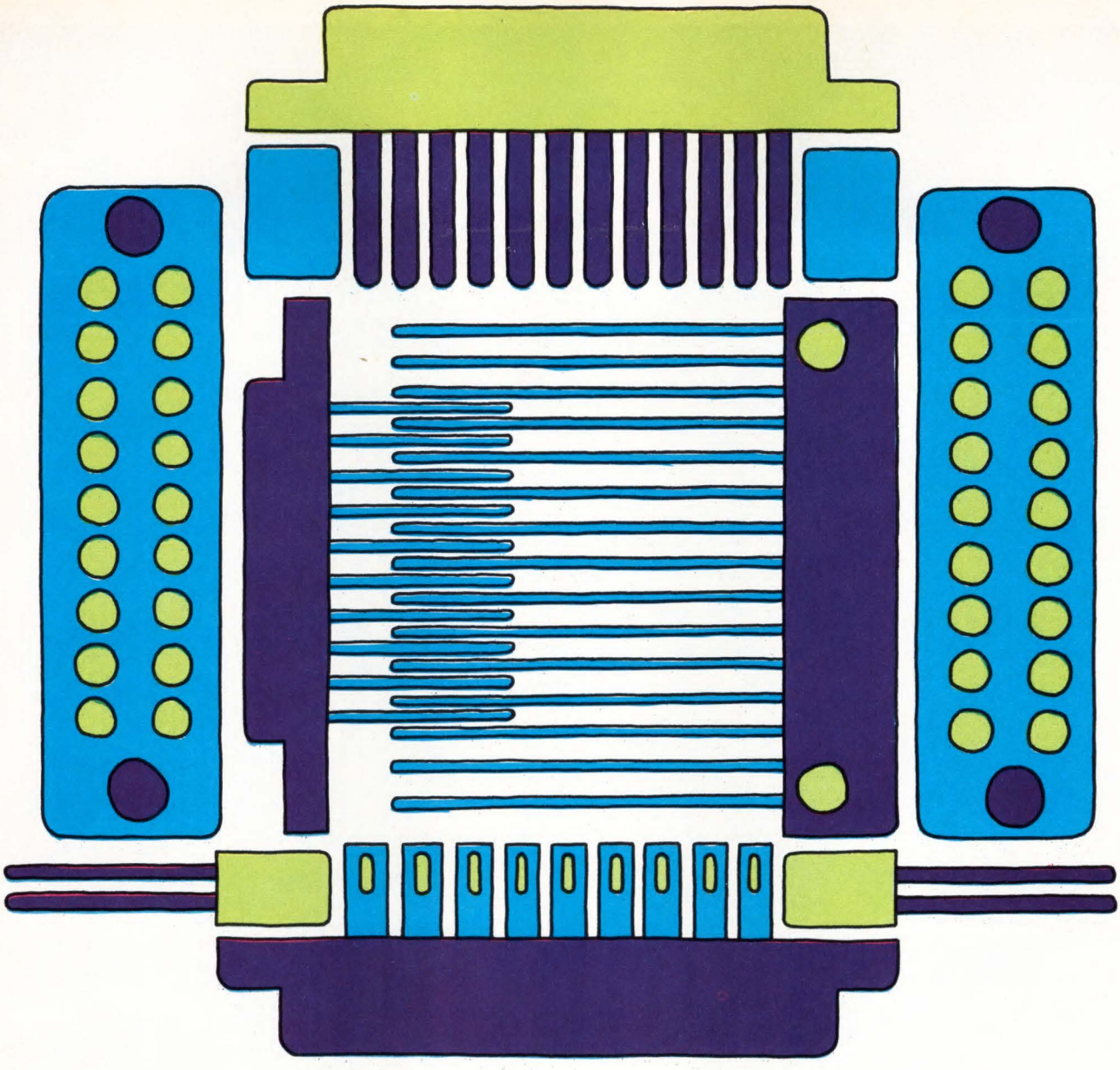
#57 Ultra & Micro-Sensitive Bulletin B/10616
#58 Precise Set-Point Bulletin B/10611
#59 AC Null Sensing Bulletin B/10614

S-D

STRUTHERS-DUNN, INC.

PITMAN, NEW JERSEY 08071

Canada: Struthers-Dunn Relay Div., Renfrew Electric Co., Ltd.



Winchester Electronics

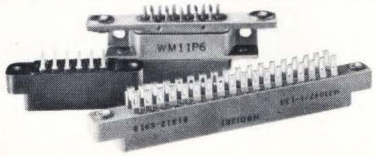
where in-stock printed circuit connectors are closing today's communications gap.

Typical of Winchester Electronics' capabilities in printed circuit connectors are our lines of card edge and board joiners pin and socket connector. And for even more exacting applications, our military approved HB/HBD series.

Available in single and double row terminations, these connectors not only meet MIL-C-21097 requirements but exceed them in quality and reliability at an economical price.

So, before you go to the expense of ordering a special printed circuit connector, look into the in-stock selection at Winchester Electronics. Just write Winchester Electronics, Main Street and Hillside Ave., Oakville, Conn. 06779.

WINCHESTER ELECTRONICS
DIVISION OF LITTON INDUSTRIES



CIRCLE NO. 10

RCA-TA7487 is new.
It offers 2 W with 10 dB gain (min.)
at 2 GHz for solid-state microwave designs.

RCA-TA7487 is a ceramic-metal coaxial unit.
It can do a big job for engineers
designing to achieve minimal space without
sacrificing solid-state power and
performance at UHF/microwave frequencies.

By the nature of its package, TA7487 features
low parasitic capacitances and inductances.
This introduces stability into your designs
for point-to-point microwave relay links,
S-band telemetry, distance measuring equipment,
and collision avoidance systems.

Here's a suggestion:
Use TA7487 as a driver for RCA-TA7205—
another RCA "overlay" transistor
in the industry's champion RF power line.

Ask your local RCA Representative
about TA7487 and other "overlay" units.
For technical data, write:
RCA Electronic Components,
Commercial Engineering,* Harrison, N. J. 07029.
In Europe: RCA International Marketing S.A.,
2-4 rue du Lièvre, 1227 Geneva, Switzerland.

RCA

The Collision-Avoidance Transistor

* Section 53G/UF7

CIRCLE NO. 11

Zero-In On 3A To 20A Economy With Rugged, New Silicon Power Complements!

The most spec for the least money!

That's the big story in back of these 20 new 3, 5, 8, 12 and 20 A silicon power transistors . . . spec'd to give you the option of choosing the exact current-gain level you need for a variety of industrial designs without having to "specialize."

They handle power up to 200 W . . . and they're complementary!

That means you can design circuit-simplified audio/servo amplifiers with no need for output transformers and associated labor of installation. And, in dc-coupled pulse generators, the series can provide both positive and negative pulse outputs when used as PNP/NPN pairs.

The 2N5867-86, 60-80 V family gives you your choice of capability vs. price, too — because it has gain spec'd at 3 points within each individual current category. The 12 A, 2N5879-82 group, for example, furnishes minimum beta of 35 at 2 A and 5 at 12 A plus a complete gain range of 20-100 at 6 A. Two saturation voltages characteristics (V_{CE} & V_{BE}) are given at 7 and 12 A, too, providing a broad picture of high efficiency operation in your design . . . and ensuring more "usable power" even up to junction temperatures of 200°C!

Motorola's exclusive EpiBase* fabrication process furthers inherent economy by furnishing more low-cost ways to replace germanium types while maintaining long-term reliability and stability in the most demanding applications.

Set your sights on the 2N5867-86 series for relay and solenoid drivers, inverters, converters, and audio/servo amplifiers . . . Box 20912, Phoenix, Arizona 85036 — get all the silicon power you need for the exact price you want to pay — today!

Type		I_C (Cont) A	P_D W	h_{FE} @ I_C (min/range)	$V_{CE(sat)}$ @I_C V	Rise & Fall Time μs	PRICE, 100-UP	
PNP	NPN						PNP	NPN
2N5867 2N5868	2N5869 2N5870	3	87½	35 @ 0.3A 20-100 @ 1.5A 5 @ 3A	1 @ 2A 2 @ 3A		$1.35 1.75	$1.25 1.60
2N5871 2N5872	2N5873 2N5874	5	100	35 @ 0.5A 20-100 @ 2.5A 5 @ 5A	1 @ 4A 2 @ 5A		1.60 1.95	1.40 1.75
2N5875 2N5876	2N5877 2N5878	8	150	35 @ 1A 20-100 @ 4A 5 @ 8A	1 @ 5A 3 @ 8A	1.0 @ I_C (max) / 2	2.45 2.85	1.70 2.00
2N5879 2N5880	2N5881 2N5882	12	160	35 @ 2A 20-100 @ 6A 5 @ 12A	1 @ 7A 4 @ 12A		3.70 4.20	2.70 3.00
2N5883 2N5884	2N5885 2N5886	20	200	35 @ 3A 20-100 @ 10A 5 @ 20A	1 @ 15A 4 @ 20A		4.10 4.50	3.75 4.25

*Trademark of Motorola Inc.

MOTOROLA
Silicon Power Transistors

CIRCLE NO. 12

MICROCIRCUIT CAPABILITIES

Other Devices

DIGITAL

- A Custom
- B Custom Arrays
- C Custom Wafer Processing
- D Demultiplexers
- E Diode Matrices
- F Drivers, display
- G Drivers, lamp/relay
- H Drivers, quad
- I Encoders
- J FET Switch Drivers
- K Hex Inverters
- L Interface
- M Line Drivers and Receivers
- N Multiplexers
- O One Shots

LINEAR

- A Amplifiers, hearing aid
- B Amplifiers, instrumentation
- C Amplifiers, low-level data
- D Amplifiers, video
- E Analog Switches
- F Chroma Demodulators
- G Communication Circuits
- H Converters, D/A
- I Custom
- J Detectors
- K D/A Current Source
- L D/A Resistor Ladder
- M Drivers, memory
- N Drivers, Nixie/decimal
- O Drivers, peripheral
- P Duplexers
- Q FM Detector Limiter Circuits
- R Line Drivers/Receivers
- S Microwave Circuits
- T Modulators
- U Monolithic Breadboards
- V Multiplexers
- W Multipliers
- X Phase Control Circuits
- Y Phase-Locked Loop Circuits
- Z Power Boosters
- a Stereo Decoders
- b Stereo Preamps
- c Switches, "0" voltage
- d TV Circuits
- e Transistor Arrays
- f Tuning Indicators

MOS

- A Converters, A/D-D/A
- B Custom
- C Custom High-and-Low Voltage Processing
- D Custom, wafer fabrication
- E Dividers, Frequency
- F TV Circuits

HYBRID (Thick-Thin Film, Multichip)

- A Active Filters
- B Amplifiers, audio
- C Amplifiers, hearing aid
- D Amplifiers, LOG IF
- E Amplifiers, low-level
- F Amplifiers, microwave
- G Amplifiers, reference
- H Amplifiers, Schmitt trigger
- I Amplifiers, sense
- J Amplifiers, video
- K Arithmetic circuits
- L Clamps, overvoltage
- M Converters, dc-dc
- N Converters, level
- O Core Drivers
- P Custom
- Q Decoder/Drivers, BCD-7-segment
- R Decoder/Drivers, BCD-7-segment with memory
- S Decoder/Drivers, BCD-7-segment with decade counters
- T Decoder/Drivers, BCD-16-line alphanumeric
- U Demodulators
- V Demultiplexers
- W Detectors
- X Drivers, clock
- Y Drivers, lamp
- Z FET Switches with Drivers
- a Filters
- b Frequency Synthesizers
- c Generators function
- d Generators, MOS memory
- e Inverters, dc-ac
- f Isolators, digital
- g Line Drivers/Receivers, quad
- h Logic Circuits
- i Memories, random-access
- j Modulators

		DIGITAL (Bipolar Monolithic)												
		RTL	DTL	TTL	ECL	HNIL	CTL	COUNTERS	DECODERS	ARITHMETIC UNITS	SHIFT REGISTERS	MEMORIES	OTHER	R. S. No.
Ams	ADVANCED MEMORY SYSTEMS, INC. 1276 Hammerwood Ave. Sunnyvale, CA 94086											●		84
Adv	ADVANCED MICRO DEVICES, INC. 901 Thompson Pl. Sunnyvale, CA 94086			●				●	●	●	●	●	B D N	85
Aml	AMELCO SEMICONDUCTOR 1300 Terra Bella Ave. Mountain View, CA 94040			●		●								86
AEL	AMERICAN ELECTRONIC LABS., INC. Box 552 Lansdale, PA 19446													
AMI	AMERICAN MICRO-SYSTEMS, INC. 3800 Homestead Rd. Santa Clara, CA 95051													
Amp	AMPEREX ELECTRONIC CORP. Providence Pike Slatersville, RI 02876		●	●				●	●					87
AD	ANALOG DEVICES, INC. 241-243 Binney St. Cambridge, MA 02142													
AIE	ATLANTIC INSTRUMENTS & ELECTRONICS, INC. 50 Hunt St. Watertown, MA 02172													
Ava	AVANTEK 2981 Copper Rd. Santa Clara, CA 95051													
BH	BELL & HOWELL Control Products Div., 706 Bostwick Ave. Bridgeport, CT 06605													
BB	BURR-BROWN RESEARCH CORP. Int'l. Airport Industrial Park Tucson, AZ 85706													
Bur	BURROUGHS CORP. Electronic Components Div., Box 1226 Plainfield, NJ 07061													
CTS	CTS MICROELECTRONICS, INC. 905 North West Blvd. Elkhart, IN 46514													
Crt	CARTESIAN, INC. 10432 N. Tantau Cupertino, CA 95014													
Cen	CENTRALAB ELECTRONICS DIV. Globe-Union, Inc., 5757 N. Green Bay Milwaukee, WI 53201													
Cen	CENTRALAB SEMICONDUCTOR DIV. Globe-Union, Inc., 4501 N. Arden Dr. El Monte, CA 91734													
Cer	CERMETEK, INC. 660 National Ave. Mountain View, CA 94040												L	88
CT	CIRCUIT TECHNOLOGY, INC. 160 Smith St. Farmingdale, NY 11735													
Col	COLLINS RADIO CO. 19700 Jamboree Rd. Newport Beach, CA 92663													
CC	COLUMBIA COMPONENTS, INC. 60 Madison Ave. Hempstead, NY 11550													

	LINEAR (Monolithic)								MOS (Monolithic)									HYBRID (Thick-Thin Film, Multichip)							
	DIFF AMPS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	SENSE AMPS	REGULATORS	OTHER	R. S. No.	SHIFT REGISTERS	COUNTERS	MEMORIES	ANALOG SWITCHES	MULTIPLEXERS	ARITHMETIC UNITS	LOGIC CIRCUITS	OTHER	R. S. No.	POWER DRIVERS	REGULATORS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	CONVERTERS (A/D - D/A)	OTHER	R. S. No.
	●	●		●	●	●	C I	89																	
	●	●		●	●	●		90	●	●	●	●	●				95		●	●		●	●		100
																								P	101
									●		●	●	●		●		96								
	●	●			●			91	●		●						97	●	●	●	●	●	●		102
		●					E H	92												●			●		103
																								P	104
																						●		P	105
																				●					106
	●	●						93												●	●		●		107
							N	94																	
																		●	●	●				D	108
									●	●	●	●	●	●	●	B	98								
																								E N P U W X h	109
																								o	110
																		●						L P g h	111
																								P	112
																B	99							P	113
																							●	P	114

- k Multiple Transistors
- l Multiplexers
- m Networks, ladder
- n Networks, resistor
- o Optoelectronic Circuits/Arrays
- p Oscillators
- q Overvoltage Crow Bars
- r Preamps, audio
- s Preamps, low noise
- t Reference Voltage Sources
- u Sequencers, phase
- v Shift Registers
- w Sources, microwave
- x Switches, analog
- y Switches, D/A
- z Switches, 4-bit
- aa Switches, ladder
- bb Switches, memory
- cc Switches, power ac
- dd Transient Suppressors
- ee VCOs

MICROCIRCUIT CAPABILITIES (Cont'd)

DIGITAL
- A Custom
- B Custom Arrays
- C Custom Wafer Processing
- D Demultiplexers
- E Diode Matrices
- F Drivers, display
- G Drivers, lamp/relay
- H Drivers, quad
- I Encoders
- J FET Switch Drivers
- K Hex Inverters
- L Interface
- M Line Drivers and Receivers
- N Multiplexers
- O One Shots

LINEAR
- A Amplifiers, hearing aid
- B Amplifiers, instrumentation
- C Amplifiers, low-level data
- D Amplifiers, video
- E Analog Switches
- F Chroma Demodulators
- G Communication Circuits
- H Converters, D/A
- I Custom
- J Detectors
- K D/A Current Source
- L D/A Resistor Ladder
- M Drivers, memory
- N Drivers, Nixie/decimal
- O Drivers, peripheral
- P Duplexers
- Q FM Detector Limiter Circuits
- R Line Drivers/Receivers
- S Microwave Circuits
- T Modulators
- U Monolithic Breadboards
- V Multiplexers
- W Multipliers
- X Phase Control Circuits
- Y Phase-Locked Loop Circuits
- Z Power Boosters
- a Stereo Decoders
- b Stereo Preamps
- c Switches, "O" voltage
- d TV Circuits
- e Transistor Arrays
- f Tuning Indicators

MOS
- A Converters, A/D-D/A
- B Custom
- C Custom High-and-Low Voltage Processing
- D Custom, wafer fabrication
- E Dividers, Frequency
- F TV Circuits

HYBRID (Thick-Thin Film, Multichip)
- A Active Filters
- B Amplifiers, audio
- C Amplifiers, hearing aid
- D Amplifiers, LOG IF
- E Amplifiers, low-level
- F Amplifiers, microwave
- G Amplifiers, reference
- H Amplifiers, Schmitt trigger
- I Amplifiers, sense
- J Amplifiers, video
- K Arithmetic circuits
- L Clamps, overvoltage
- M Converters, dc-dc
- N Converters, level
- O Core Drivers
- P Custom
- Q Decoder/Drivers, BCD-7-segment
- R Decoder/Drivers, BCD-7-segment with memory
- S Decoder/Drivers, BCD-7-segment with decade counters
- T Decoder/Drivers, BCD-16-line alphanumeric
- U Demodulators
- V Demultiplexers
- W Detectors
- X Drivers, clock
- Y Drivers, lamp
- Z FET Switches with Drivers
- a Filters
- b Frequency Synthesizers
- c Generators function
- d Generators, MOS memory
- e Inverters, dc-ac
- f Isolators, digital
- g Line Drivers/Receivers, quad
- h Logic Circuits
- i Memories, random-access
- j Modulators

		DIGITAL (Bipolar Monolithic)												
		RTL	DTL	TTL	ECL	HNIL	CTL	COUNTERS	DECODERS	ARITHMETIC UNITS	SHIFT REGISTERS	MEMORIES	OTHER	R. S. No.
CI	COMPONENTS, INC. Smith St. Biddeford, ME 04005													
CM	COMPUTER MICROTECHNOLOGY, INC. 610 N. Pastoria Ave. Sunnyvale, CA 94086								●			●		115
Con	CONTINENTAL DEVICE CORP. 12515 Chadron Ave. Hawthorne, CA 90250													
CS	CONTINENTAL SEMICONDUCTOR, INC. 59 Central Ave. East Farmingdale, NY 11735		●	●										116
Crs	CRYSTALONICS A Teledyne Co., 147 Sherman St. Cambridge, MA 02140													
Dks	DICKSON ELECTRONICS CORP. Box 1390 Scottsdale, AZ 85252													
Dio	DIONICS, INC. 65 Rushmore St. Westbury, NY 11590													
EA	ELECTRONIC ARRAYS, INC. 501 Ellis St. Mountain View, CA 94040													
ENL	ELECTRO-NUCLEAR LABS., INC. 115 Independence Dr. Menlo Park, CA 94025													
Eri	ERIE TECHNOLOGICAL PRODUCTS, INC. 644 W. 12th St. Erie, PA 16512													
FT	FABRI-TEK MICRO-SYSTEMS, INC. 1150 N.W. 70th St. Fort Lauderdale, FL 33309													
FMod	FAIRCHILD MICROWAVE & OPTOELECTRONICS DIV. 2513 Charleston Rd. Mountain View, CA 94040													
Fch	FAIRCHILD SEMICONDUCTOR 313 Fairchild Dr. Mountain View, CA 94040	●	●	●	●	●	●	●	●	●	●	●	B F G L M O	117
FM	FILM MICROELECTRONICS, INC. 17 A St., Highland Industrial Park Burlington, MA 01803													
GE	GENERAL ELECTRIC CO. Integrated Circuits Project, Airways Park East Syracuse, NY 13057													
GI	GENERAL INSTRUMENT CORP. Semiconductor Products Group, Box 600 Hicksville, L.I., NY 11802													
Hal	HALEX, INC. 3500 W. Torrance Blvd., Box 2940 Torrance, CA 90509													
HEI	HEI, INC. Jonathan Industrial Center Chaska, MN 55318													
HS	HELIOS SEMICONDUCTOR CO. York Industrial Park, Bldg. Q, Box 293 Stanton, CA 90680													
HD	HELIPOT Div. Beckman Instruments, 2500 Harbor Blvd. Fullerton, CA 92634													
HP	HEWLETT-PACKARD CO. 1501 Page Mill Rd. Palo Alto, CA 94304													

	LINEAR (Monolithic)								MOS (Monolithic)									HYBRID (Thick-Thin Film, Multichip)							
	DIFF AMPS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	SENSE AMPS	REGULATORS	OTHER	R. S. No.	SHIFT REGISTERS	COUNTERS	MEMORIES	ANALOG SWITCHES	MULTIPLEXERS	ARITHMETIC UNITS	LOGIC CIRCUITS	OTHER	R. S. No.	POWER DRIVERS	REGULATORS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	CONVERTERS (A/D - D/A)	OTHER	R. S. No.
																		●						X	128
											●						123							i	129
				●		●		118											●	●		●			130
																							●	x	131
																			●					G P t x	132
							I	119																	
									●		●			●	●		124								
																				●		●		o	133
																								P	134
																								O P R S T f	135
																						●		w	136
	●	●	●	●	●	●	D G I	120	●		●		●	●	●	A	125	●	●	●		●	●	B O K V b l x	137
																								P	138
	●	●	●	●		●	C X	121								E	126							P	139
						●		122	●	●	●	●	●	●	●		127	●	●	●	●	●		P X a a j u v	140
																						●		I m y bb	141
																								C P o	142
																		●	●		●	●		S	143
																		●	●		●		●	q z	144
																								F p	145

k Multiple Transistors
l Multiplexers
m Networks, ladder
n Networks, resistor
o Optoelectronic Circuits/Arrays
p Oscillators
q Overvoltage Crow Bars
r Preamps, audio
s Preamps, low noise
t Reference Voltage Sources
u Sequencers, phase
v Shift Registers
w Sources, microwave
x Switches, analog
y Switches, D/A
z Switches, 4-bit
aa Switches, ladder
bb Switches, memory
cc Switches, power ac
dd Transient Suppressors
ee VCOs

MICROCIRCUIT CAPABILITIES (Cont'd)

DIGITAL
- A Custom
- B Custom Arrays
- C Custom Wafer Processing
- D Demultiplexers
- E Diode Matrices
- F Drivers, display
- G Drivers, lamp/relay
- H Drivers, quad
- I Encoders
- J FET Switch Drivers
- K Hex Inverters
- L Interface
- M Line Drivers and Receivers
- N Multiplexers
- O One Shots

LINEAR
- A Amplifiers, hearing aid
- B Amplifiers, instrumentation
- C Amplifiers, low-level data
- D Amplifiers, video
- E Analog Switches
- F Chroma Demodulators
- G Communication Circuits
- H Converters, D/A
- I Custom
- J Detectors
- K D/A Current Source
- L D/A Resistor Ladder
- M Drivers, memory
- N Drivers, Nixie/decimal
- O Drivers, peripheral
- P Duplexers
- Q FM Detector Limiter Circuits
- R Line Drivers/Receivers
- S Microwave Circuits
- T Modulators
- U Monolithic Breadboards
- V Multiplexers
- W Multipliers
- X Phase Control Circuits
- Y Phase-Locked Loop Circuits
- Z Power Boosters
- a Stereo Decoders
- b Stereo Preamps
- c Switches, "0" voltage
- d TV Circuits
- e Transistor Arrays
- f Tuning Indicators

MOS
- A Converters, A/D-D/A
- B Custom
- C Custom High-and-Low Voltage Processing
- D Custom, wafer fabrication
- E Dividers, Frequency
- F TV Circuits

HYBRID (Thick-Thin Film, Multichip)
- A Active Filters
- B Amplifiers, audio
- C Amplifiers, hearing aid
- D Amplifiers, LOG IF
- E Amplifiers, low-level
- F Amplifiers, microwave
- G Amplifiers, reference
- H Amplifiers, Schmitt trigger
- I Amplifiers, sense
- J Amplifiers, video
- K Arithmetic circuits
- L Clamps, overvoltage
- M Converters, dc-dc
- N Converters, level
- O Core Drivers
- P Custom
- Q Decoder/Drivers, BCD-7-segment
- R Decoder/Drivers, BCD-7-segment with memory
- S Decoder/Drivers, BCD-7-segment with decade counters
- T Decoder/Drivers, BCD-16-line alphanumeric
- U Demodulators
- V Demultiplexers
- W Detectors
- X Drivers, clock
- Y Drivers, lamp
- Z FET Switches with Drivers
- a Filters
- b Frequency Synthesizers
- c Generators function
- d Generators, MOS memory
- e Inverters, dc-ac
- f Isolators, digital
- g Line Drivers/Receivers, quad
- h Logic Circuits
- i Memories, random-access
- j Modulators

		DIGITAL (Bipolar Monolithic)												
		RTL	DTL	TTL	ECL	HNIL	CTL	COUNTERS	DECODERS	ARITHMETIC UNITS	SHIFT REGISTERS	MEMORIES	OTHER	R. S. No.
Hgh	HUGHES AIRCRAFT CO. 500 Superior Ave. Newport Beach, CA 92663													
Hyr	HYBRIDYNE, INC. 1950 Cotner Ave. Los Angeles, CA 90025													
HI	HYBRINETICS, INC. 14630 Wicks Blvd. San Leandro, CA 94579													
Ind	INDUSTRO TRANSISTOR CORP. 35-10 36th Ave. Long Island City, NY 11106													
Ith	INTECH, INC. 1220 Coleman Ave. Santa Clara, CA 95050													
Itl	INTEL CORP. 365 Middlefield Rd. Mountain View, CA 94040											●		146
Int	INTELLUX, INC. 26 Coromar Dr. Goleta, CA 93017													
ICT	INTERNATIONAL CIRCUIT TECHNOLOGY CORP. 18225 Euclid Ave. Fountain Valley, CA 92708													
IInc	INTERSIL, INC. 10900 N. Tantau Ave. Cupertino, CA 95014											●		147
JW	J. W. MICROELECTRONICS CORP. Regional Technology Park, 4901 Stenton Ave. Philadelphia, PA 19144													
KT	KINETIC TECHNOLOGY, INC. 3393 Dela Cruz Blvd. Santa Clara, CA 95050													
LM	LANSDALE MICROELECTRONICS, INC. Advance Lane Colmar, PA 18915													
Led	LEDEX MICROELECTRONICS Ledex, Inc., 123 Webster St. Dayton, OH 45401													
Mac	MACRODATA 20440 Corisco St. Chatsworth, CA 91311													
Meg	MEGADYNE INDUSTRIES, INC. 1665 Buffalo Rd. Rochester, NY 14624													
MN	MICRO NETWORKS CORP. 5 Barbara Lane Worcester, MA 01604													
Mic	MICROPAC INDUSTRIES, INC. 905 E. Walnut St. Garland, TX 75040													
Mos	MOSTEK 4403 N. Central Expy. Dallas, TX 75205													
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	●	●	●	●	●		●	●	●	●	●		148
Mul	MULTITECH MICROELECTRONICS 583 Monterey Pass Rd. Monterey Park, CA 91754													
NPC	NPC SEMICONDUCTOR DIV. Nucleonic Products; 6660 Variel Ave. Canoga Park, CA 91306			●										149

	LINEAR (Monolithic)								MOS (Monolithic)									HYBRID (Thick-Thin Film, Multichip)							
	DIFF AMPS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	SENSE AMPS	REGULATORS	OTHER	R. S. No.	SHIFT REGISTERS	COUNTERS	MEMORIES	ANALOG SWITCHES	MULTIPLEXERS	ARITHMETIC UNITS	LOGIC CIRCUITS	OTHER	R. S. No.	POWER DRIVERS	REGULATORS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	CONVERTERS (A/D - D/A)	OTHER	R. S. No.
									●	●	●	●	●	●	●	E	156							P	163
																								P	164
																								P	165
	●	●				●		150										●	●	●					166
		●						151																	
									●		●						157								
																								P h	167
						●		152											●					P	168
	●	●			●	●	B W	153	●		●						158			●			●	X x y	169
																		●	●	●		●	●	P r x ee	170
																								a	171
																								P	172
																		●	●	●	●			P	173
									●	●	●			●	●		159								
																		●		●		●	●	P	174
																		●	●				●	P aa	175
																							●	P a	176
									●		●						160								
	●	●	●	●	●	●	F J P R S T W Z b f	154	●		●		●				161	●						P	177
																				●				P	178
	●	●				●		155	●							E	162			●					179

- k Multiple Transistors
- l Multiplexers
- m Networks, ladder
- n Networks, resistor
- o Optoelectronic Circuits/Arrays
- p Oscillators
- q Overvoltage Crow Bars
- r Preamps, audio
- s Preamps, low noise
- t Reference Voltage Sources
- u Sequencers, phase
- v Shift Registers
- w Sources, microwave
- x Switches, analog
- y Switches, D/A
- z Switches, 4-bit
- aa Switches, ladder
- bb Switches, memory
- cc Switches, power ac
- dd Transient Suppressors
- ee VCOs

MICROCIRCUIT CAPABILITIES (Cont'd)

DIGITAL
- A Custom
- B Custom Arrays
- C Custom Wafer Processing
- D Demultiplexers
- E Diode Matrices
- F Drivers, display
- G Drivers, lamp/relay
- H Drivers, quad
- I Encoders
- J FET Switch Drivers
- K Hex Inverters
- L Interface
- M Line Drivers and Receivers
- N Multiplexers
- O One Shots

LINEAR
- A Amplifiers, hearing aid
- B Amplifiers, instrumentation
- C Amplifiers, low-level data
- D Amplifiers, video
- E Analog Switches
- F Chroma Demodulators
- G Communication Circuits
- H Converters, D/A
- I Custom
- J Detectors
- K D/A Current Source
- L D/A Resistor Ladder
- M Drivers, memory
- N Drivers, Nixie/decimal
- O Drivers, peripheral
- P Duplexers
- Q FM Detector Limiter Circuits
- R Line Drivers/Receivers
- S Microwave Circuits
- T Modulators
- U Monolithic Breadboards
- V Multiplexers
- W Multipliers
- X Phase Control Circuits
- Y Phase-Locked Loop Circuits
- Z Power Boosters
- a Stereo Decoders
- b Stereo Preamps
- c Switches, "0" voltage
- d TV Circuits
- e Transistor Arrays
- f Tuning Indicators

MOS
- A Converters, A/D-D/A
- B Custom
- C Custom High-and-Low Voltage Processing
- D Custom, wafer fabrication
- E Dividers, Frequency
- F TV Circuits

HYBRID (Thick-Thin Film, Multichip)
- A Active Filters
- B Amplifiers, audio
- C Amplifiers, hearing aid
- D Amplifiers, LOG IF
- E Amplifiers, low-level
- F Amplifiers, microwave
- G Amplifiers, reference
- H Amplifiers, Schmitt trigger
- I Amplifiers, sense
- J Amplifiers, video
- K Arithmetic circuits
- L Clamps, overvoltage
- M Converters, dc-dc
- N Converters, level
- O Core Drivers
- P Custom
- Q Decoder/Drivers, BCD-7-segment
- R Decoder/Drivers, BCD-7-segment with memory
- S Decoder/Drivers, BCD-7-segment with decade counters
- T Decoder/Drivers, BCD-16-line alphanumeric
- U Demodulators
- V Demultiplexers
- W Detectors
- X Drivers, clock
- Y Drivers, lamp
- Z FET Switches with Drivers
- a Filters
- b Frequency Synthesizers
- c Generators function
- d Generators, MOS memory
- e Inverters, dc-ac
- f Isolators, digital
- g Line Drivers/Receivers, quad
- h Logic Circuits
- i Memories, random-access
- j Modulators

		DIGITAL (Bipolar Monolithic)												
		RTL	DTL	TTL	ECL	HNIL	CTL	COUNTERS	DECODERS	ARITHMETIC UNITS	SHIFT REGISTERS	MEMORIES	OTHER	R. S. No.
NS	NATIONAL SEMICONDUCTOR CORP. 2900 Semiconductor Dr. Santa Clara, CA 95051		●	●				●	●	●	●			180
Nor	NORTEC ELECTRONICS CORP. 3697 Tahoe Way Santa Clara, CA 95051												C	181
Nov	NOVA DEVICES, INC. 829 Woburn St. Wilmington, MA 01887													
Oak	OAK ELECTRO/NETICS CORP. Crystal Lake, IL 60014													
Opt	OPTRON, INC. 1201 Tappan Circle Carrollton, TX 75006													
Phl	PHILCO-FORD CORP. Tioga & C Sts. Philadelphia, PA 19134	●	●	●				●	●	●	●			182
PM	PRECISION MONOLITHICS, INC. 1500 Space Park Dr. Santa Clara, CA 95050													
QC	QUALIDYNE CORP. 3699 Tahoe Way Santa Clara, CA 95051											●	M	183
RCA	RCA/ELECTRONIC COMPONENTS 415 S. Fifth St. Harrison, NJ 07029		●		●									184
RI	RADIATION, INC. Microelectronics Div., Box 37 Melbourne, FL 32901		●	●								●	KM	185
Rad	RADIX MICROELECTRONICS CORP. 3150 Pullman St. Costa Mesa, CA 92627													
Rag	RAGEN SEMICONDUCTOR DIV. Ragen Precision Industries, 53 S. Jefferson Rd. Whippany, NJ 07981													
Ray	RAYTHEON CO. Semiconductor Div., 350 Ellis St. Mountain View, CA 94040		●	●				●		●		●		186
Sen	SENSOR TECHNOLOGY, INC. 7118 Gerald Ave. Van Nuys, CA 91406													
Sgn	SIGNETICS CORP. 811 E. Arques Ave. Sunnyvale, CA 94086		●	●	●			●	●	●	●	●		187
SG	SILICON GENERAL, INC. 7382 Bolsa Ave. Westminster, CA 92683													
Scx	SILICONIX, INC. 2201 Laurelwood Rd. Santa Clara, CA 95054		●						●				J	188
Sln	SLOAN TECHNOLOGY CORP. 139 Maryland El Segundo, CA 90245													
SSD	SOLID STATE DEVICES, INC. 12741 Los Nietos Rd. Santa Fe Springs, CA 90670													
SSE	SOLID STATE ELECTRONICS CORP. 15321 Rayen St. Sepulveda, CA 91343													
SSS	SOLID STATE SCIENTIFIC, INC. Commerce Dr. Montgomeryville, PA 18936	●	●											189

	LINEAR (Monolithic)								MOS (Monolithic)									HYBRID (Thick-Thin Film, Multichip)							
	DIFF AMPS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	SENSE AMPS	REGULATORS	OTHER	R. S. No.	SHIFT REGISTERS	COUNTERS	MEMORIES	ANALOG SWITCHES	MULTIPLEXERS	ARITHMETIC UNITS	LOGIC CIRCUITS	OTHER	R. S. No.	POWER DRIVERS	REGULATORS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	CONVERTERS (A/D - D/A)	OTHER	R. S. No.
		●		●	●	●		190	●	●	●	●	●	●	●		201	●		●					209
																C D	202								
																			●	●	●	●	●		210
																								P	211
																								o	212
	●	●		●				191	●	●	●		●	●			203	●	●	●	●	●	●		213
	●	●					B H K L	192															●		214
					●		A	193										●		●					215
	●	●	●	●	●	●		194	●	●	●	●	●	●	●		204								
		●			●		H V	196																	
																								P	216
									●			●			●	A	205								
	●	●			●	●	A B D	197																	
																								H P o	217
	●	●		●	●	●	y	198	●		●						206							H	218
	●	●		●	●	●	Ue	199																	
		●	●		●			200				●	●				207							x	219
																								P m	220
																		●	●	●	●			P	221
																				●			●		222
									●	●	●						208								

k	Multiple Transistors	r	Preamps, audio	y	Switches, D/A
l	Multiplexers	s	Preamps, low noise	z	Switches, 4-bit
m	Networks, ladder	t	Reference Voltage Sources	aa	Switches, ladder
n	Networks, resistor	u	Sequencers, phase	bb	Switches, memory
o	Optoelectronic Circuits/Arrays	v	Shift Registers	cc	Switches, power ac
p	Oscillators	w	Sources, microwave	dd	Transient Suppressors
q	Overvoltage Crow Bars	x	Switches, analog	ee	VCOs

MICROCIRCUIT CAPABILITIES (Cont'd)

DIGITAL
- A Custom
- B Custom Arrays
- C Custom Wafer Processing
- D Demultiplexers
- E Diode Matrices
- F Drivers, display
- G Drivers, lamp/relay
- H Drivers, quad
- I Encoders
- J FET Switch Drivers
- K Hex Inverters
- L Interface
- M Line Drivers and Receivers
- N Multiplexers
- O One Shots

LINEAR
- A Amplifiers, hearing aid
- B Amplifiers, instrumentation
- C Amplifiers, low-level data
- D Amplifiers, video
- E Analog Switches
- F Chroma Demodulators
- G Communication Circuits
- H Converters, D/A
- I Custom
- J Detectors
- K D/A Current Source
- L D/A Resistor Ladder
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- S Microwave Circuits
- T Modulators
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- V Multiplexers
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- a Stereo Decoders
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- K Arithmetic circuits
- L Clamps, overvoltage
- M Converters, dc-dc
- N Converters, level
- O Core Drivers
- P Custom
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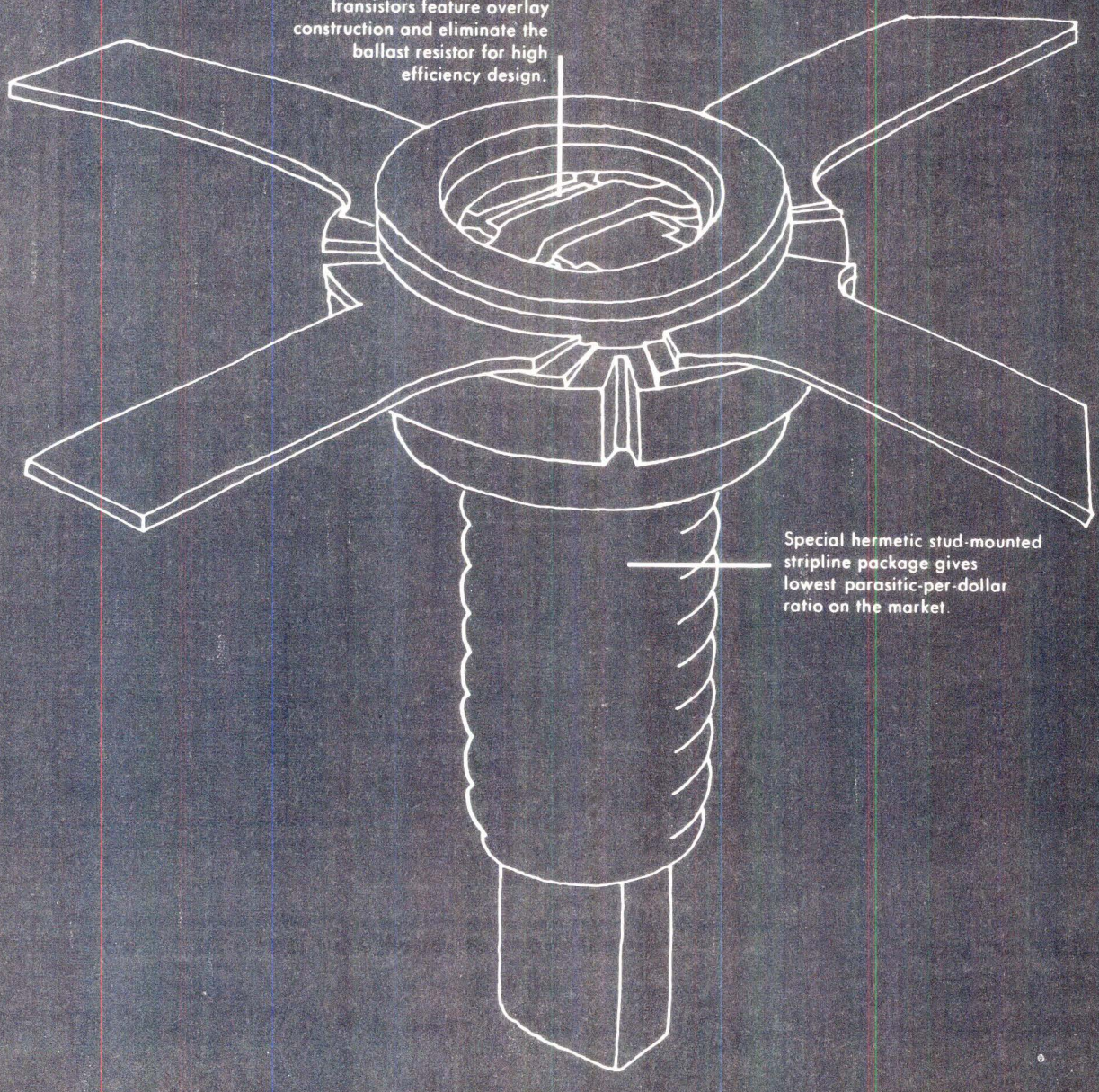
- R Decoder/Drivers, BCD-7-segment with memory
- S Decoder/Drivers, BCD-7-segment with decade counters
- T Decoder/Drivers, BCD-16-line alphanumeric
- U Demodulators
- V Demultiplexers
- W Detectors
- X Drivers, clock
- Y Drivers, lamp
- Z FET Switches with Drivers
- a Filters
- b Frequency Synthesizers
- c Generators function
- d Generators, MOS memory
- e Inverters, dc-ac
- f Isolators, digital
- g Line Drivers/Receivers, quad
- h Logic Circuits
- i Memories, random-access
- j Modulators

		DIGITAL (Bipolar Monolithic)												
		RTL	DTL	TTL	ECL	HNIL	CTL	COUNTERS	DECODERS	ARITHMETIC UNITS	SHIFT REGISTERS	MEMORIES	OTHER	R. S. No.
Sol	SOLITRON DEVICES, INC. 8808 Balboa Ave. San Diego, CA 92123													
Sol	SOLITRON DEVICES, INC. 256 Oak Tree Rd. Tappan, NY 10983													
SAM	SPACE AGE MICROCIRCUITS Box 426 Chatham, NJ 07928													
Spg	SPRAGUE ELECTRIC CO. Functional Circuit Operations, 115 Northeast Cutoff Worcester, MA 01606													
Spg	SPRAGUE ELECTRIC CO. Semiconductor Div., 115 Northeast Cutoff Worcester, MA 01606			●				●	●	●	●			223
Sta	STARNETICS CO., INC. 10639 Riverside Dr. North Hollywood, CA 91602													
SWM	STEWART-WARNER MICROCIRCUITS Div. of Stewart-Warner Corp., 730 E. Evelyn Ave. Sunnyvale, CA 94086		●	●	●									224
Syl	SYLVANIA ELECTRIC PRODUCTS, INC. 100 1st Ave. Waltham, MA 02154			●		●		●	●	●	●	●	L	225
TRW	TRW SEMICONDUCTOR DIV. 14520 Aviation Blvd. Lawndale, CA 90260													
Tec	TECNETICS, INC. Boulder Industrial Park Boulder, CO 80302													
PN	TELEDYNE PHILBRICK/NEXUS Allied Dr. at Rte. 128 Dedham, MA 02026													
TI	TEXAS INSTRUMENTS INCORPORATED Inquiry Answering Service, Box 5012, M/S 308 Dallas, TX 75222	●	●	●	●			●	●	●	●	●		226
Tns	TRANSITRON ELECTRONIC CORP. 168-182 Albion St. Wakefield, MA 01881			●				●	●	●	●	●		227
TL	TRIO LABS., INC. 80 Dupont St. Plainview, NY 11803													
UNI	UNISEM CORP. Subsidiary of United Aircraft Corp. Trevose, PA 19047			●									A	228
Unt	UNITRODE CORP. 580 Pleasant St. Watertown, MA 02172													
VS	VARADYNE SEMICONDUCTOR 2330 Michigan Ave. Santa Monica, CA 90404													
VA	VARIAN ASSOC. Solid State Div. Beverly, MA 01915													
WJ	WATKINS-JOHNSON 3333 Hillview Ave. Palo Alto, CA 94304													
WM	WESTERN MICROWAVE 16845 Hicks Rd. Los Gatos, CA 95030													
Zel	ZELTEX, INC. 1000 Chalomar Rd. Concord, CA 94520													

	LINEAR (Monolithic)								MOS (Monolithic)										HYBRID (Thick-Thin Film, Multichip)							
	DIFF AMPS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	SENSE AMPS	REGULATORS	OTHER	R. S. No.	SHIFT REGISTERS	COUNTERS	MEMORIES	ANALOG SWITCHES	MULTIPLEXERS	ARITHMETIC UNITS	LOGIC CIRCUITS	OTHER	R. S. No.	POWER DRIVERS	REGULATORS	OP AMPS	POWER AMPS	HIGH FREQUENCY AMPS	CONVERTERS (A/D - D/A)	OTHER	R. S. No.
	●	●			●			229	●	●	●		●				236								
																		●	●	●	●				239
																								P	240
																		●					●	g y	241
		●					a	230																	
																								P	242
			●					231										●			●	●			243
																		●	●		●	●	●		244
																			●					M a e s dd	245
	●	●				●		232											●	●		●			246
	●	●		●	●	●	G M R	233	●		●	●		●	●		237							k s	247
		●			●	●		234																	
																		●	●						248
											●						238						●	P m	249
																								cc	250
	●	●		●		●		235											●					A	251
																						●		J	252
																								F	253
																								A c	254
																				●					255

k Multiple Transistors
l Multiplexers
m Networks, ladder
n Networks, resistor
o Optoelectronic Circuits/Arrays
p Oscillators
q Overvoltage Crow Bars
r Preamps, audio
s Preamps, low noise
t Reference Voltage Sources
u Sequencers, phase
v Shift Registers
w Sources, microwave
x Switches, analog
y Switches, D/A
z Switches, 4-bit
aa Switches, ladder
bb Switches, memory
cc Switches, power ac
dd Transient Suppressors
ee VCOs

Microwave power without all those tradeoffs.



Get them all right now at your Raytheon distributor's. The microwave transistors that make your system work better and longer.

And featuring...

Our own 2N5108A. A high-efficiency one-GHz transistor with leakage current lower by 3 orders of magnitude than the 2N5108. Here's the whole tribe.

RAYTHEON L- AND S-BAND POWER TRANSISTORS

Transistor Designation	Package Type	Frequency (Avg.)	Power (Min.)	Gain (Min.)	Efficiency (Typ.)	Price 100-999
LS2501	Stripline	2.0 GHz	1.0 W	5 dB	30%	$48.00
LS1610	Stripline	1.0 GHz	10.0 W	6 dB	60%	60.00
LS1605	Stripline	1.0 GHz	5.0 W	6 dB	60%	42.00
LS1604	Stripline	1.0 GHz	4.0 W	6 dB	60%	30.00
LS1602	Stripline	1.0 GHz	2.0 W	6 dB	50%	21.00
LS1701	Stripline	1.0 GHz	1.0 W	7 dB	50%	17.00
LS1501	Stripline	1.0 GHz	1.0 W	5 dB	45%	12.00
2N5108A	TO-39 Case	1.0 GHz	1.0 W	5 dB	40%	9.30
2N5108	TO-39 Case	1.0 GHz	1.0 W	5 dB	35%	9.25
2N4428	TO-39 Case	500 MHz	0.75 W	10 dB	35%	5.00
2N3866	TO-39 Case	400 MHz	1.0 W	10 dB	40%	1.50
2N3553	TO-39 Case	175 MHz	2.5 W	10 dB	60%	3.18

We tossed out the ballast.

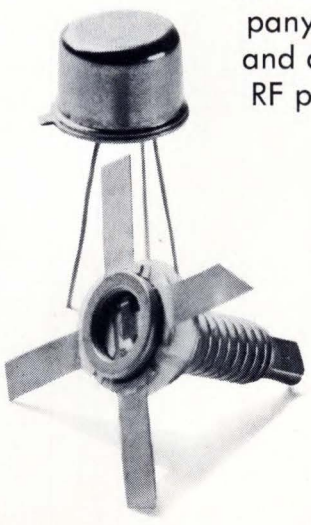
Exclusive Raytheon design eliminates the built-in ballast resistor. VSWR handling capability is increased at rated power, and so is system gain and efficiency, since you're not burning up watts on resistors you don't need.

And heated the seal.

Another exclusive. Our metal/ceramic temperature-sealed stipline packages completely do away with all the troubles inherent in epoxy seals, and allow our transistors to meet all the environmental requirements of MIL-S-19500.

Name your poison.

Or get them in TO-39 cases. And if these standard packages don't suit you, we'll put any transistor into any kind of custom package you need. Or we'll build it into a hybrid assembly to your specifications. Or we'll sell you the chip. Just ask the company that gets the ideas and delivers the goods in RF power, too. Raytheon Semiconductor, Mountain View, California. (415) 968-9211.



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Hallmark
Electronics Corp.
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Industrial Electronics Assoc.
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Cramer/Atlanta, Inc.
(404) 451-5421

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Schiller Park
Pace/Avnet
(312) 678-6310

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Avnet
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Cramer/Baltimore, Inc.
(301) 354-0100

Baltimore
Radio Electric Service
Company of Baltimore
(301) 823-0070

Rockville
Cramer/Washington, Inc.
(301) 424-2700

Rockville
Pioneer Washington
Electronics
(301) 427-3300

Silver Springs
Radio Electric
Service Company
(301) 588-5140

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Burlington
Avnet
(617) 272-3060

Newton
Cramer Electronics
(617) 969-7700

Michigan
Detroit
Avnet
(313) 538-1000

Minnesota
Bloomington
Cramer Electronics
(612) 881-8678

Minneapolis
Avnet
(612) 920-5866

Missouri
St. Louis
Hallmark Electronics
(314) 521-3800

New Jersey
Jersey City
KRS Electronics, Inc.
(201) 435-3600

Pennsauken
Cramer Pennsylvania
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Avnet
(505) 265-7926

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Baldwin, L.I.
Hamilton Electro Sales
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Cramer/Eastern, Inc.
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Cramer/Esco, Inc.
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Time Electronics Sales
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Labs, Ltd.
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RAYTHEON

CIRCLE NO. 13

DIGITAL MONOLITHIC

GATES

RTL

GATES				FLIP FLOPS			FAMILY CHARACTERISTICS							
t_{pd} (ns)	P_d (mW)	NOISE IMMUNITY + (V) −	FAN OUT	FREQ (MHz)	P_d (mW)	FAN OUT	SUPPLY VOLTS (V)	NO. OF CKTS	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
12	19	.3	5	4	50	5	3.6	37	●			RP,FP,DIP	MC900	Mot
12	19	.3	5	4	50	5	3.6	37		●		RP,FP,DIP	MC800	Mot
12	19	.3	5	4	50	5	3.6	37			●	RP,FP,DIP	MC700	Mot
28	60	.3	5	4	135	5	3.6	11		●		RP	SD3700	SSS
40	2	.3	3	10	15	3	8	10	●	●		RP	PL9900	Phl
40	2	.3	3	10	12	3	3.6	17	●	●		RP	9900	Fch
60	14	.3	4	4	17	3	3.6	23	●			RP	MC908	Mot
60	19	.3	4	4	24	3	3.6	23		●		RP	MC808	Mot
60	19	.3	4	4	24	3	3.6	23			●	RP	MC708	Mot
70	8	.2	5		12	4	8	9	●	●		RP	SNR510	TI
70	8	.2	5		12	4	8	5	●	●		RP	SNR5100	TI
	4	.3	4				8	7	●			RP	17900L	TI
	4	.3	4				8	7		●		RP	17800L	TI

DTL

GATES				FLIP FLOPS			FAMILY CHARACTERISTICS							
t_{pd} (ns)	P_d (mW)	NOISE IMMUNITY + (V) −	FAN OUT	FREQ (MHz)	P_d (mW)	FAN OUT	SUPPLY VOLTS (V)	NO. OF CKTS	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
4	10	.65	6	5	45	15	8	10		●		RP	SFC300	NPC
8	10	1	5				5	6	●			RP,DIP	RD200/300	RI
10	10	.8	7	9	25	7	8	10	●			RP	RD200	RI
15	45	7	57				5	1	●	●		DIP	8T18	Sgn
18	9	1	10	13	54	5	5	13	●	●		RP,FP	"A"	Scx
18	12	1	5				5	6		●		RP,DIP	RD500	RI
25	7	1	9	11	15.5	9	5	18	●	●		DIP	8400	Sgn
25	8	.75	8	5	35	10	8	38	●			FP,DIP	15930	TI
25	8	.75	8	5	35	10	8	38		●		FP,DIP	15830	TI
25	10	1	6	18	18	8	4,−2	12	●			DIP	CS700	Sgn
25	10	1	6	18	18	8	4,−2	12		●		DIP	NS700	Sgn
25	12	.75	8	5	35	10	8	5	●			FP	RSN15930	TI
25	12	.23					8	15	●			FP	53	TI
25	12	.23					8	15		●		FP	73	TI
25	33	.5	8	1	130	10	8	5	●			FP	PLR930	Phl
30	6	1	5	18	18	8	4,−2	25	●			DIP	SE100	Sgn
30	6	1	5	18	18	8	4,−2	25		●		DIP	NE100	Sgn
30	6	1	5	10	16	8	4,−2	14	●			RP,FP	MC200	Mot
30	6	1	4	10	16	6	4,−2	14		●		RP,FP	MC250	Mot
30	8	.5	8	5	35	12	6	32	●	●		RP,DIP	RM930	Ray
30	8	.7	8	5	40	10	5	16	●	●		FP	MIC930	ITT
30	16	1	8	10	25	8	4.5	8		●		DIP	SP600	Sgn
30	44	1	8	15	80	10	8	41	●	●		FP,DIP	SW930	SWM
30	50	1	8				6	15		●		DIP	FCH	Amp
35	8	1	6	5	10	6	5	17	●	●		DIP,FP	9930	Fch
35	22	1	8	5	35	12	5	54	●			FP,DIP	MC930	Mot
35	22	1	8	5	35	12	5	54		●		FP,DIP	MC830	Mot
35	40	1	8	20	70	10	8	7	●	●		FP,DIP	9930	Phl
35	50	1	8	5	35	12	5	9	●			DIP	MCE930	Mot
45	15	1	5				5	22	●			DIP	930	CS
45	60	1	8		130	10	8	18	●	●		DIP	DM900	NS
48	11	.55	11	5	55	10	6	36	●	●		RP,DIP	RM200	Ray
60	1	1	10	2.5	5	10	5	8	●	●		FP,DIP	9040	Fch
80	2.3	1	5	1.2	7	5	8	6	●	●		FP,DIP	CD2200	RCA
80	8	1	25	1.2	25	25	8	10	●	●		FP,DIP	CD2300	RCA
80	30	1	2			2	5.5	9	●			DIP	S1930	Scx
80	30	1	2			2	5.5	9		●		DIP	S1830	Scx
				5	100	12	5	4	●	●		FP	MIC9090	ITT
				2.5	5	6	5	4	●	●		DIP	9090	Fch
				7	100	8	6	8		●		DIP	FCJ	Amp

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TTL

GATES				FLIP FLOPS			FAMILY CHARACTERISTICS							
t_{pd} (ns)	P_d (mW)	NOISE IMMUNITY + (V) −	FAN OUT	FREQ (MHz)	P_d (mW)	FAN OUT	SUPPLY VOLTS (V)	NO. OF CKTS	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
1	5	1.1	12	20	30	12	5	20	●	●		DIP	RAY I	Ray
2		0.2					−4	1		●		DIP	FKH	Amp
5	20	1	35	75	60	30	5	6	●	●		DIP	8H00	Sgn
5	35	1.2	10	10	90	13	5	20		●		DIP	SP300	Sgn
5	35	1.2	10	10	90	13	5	29			●	DIP	LU300	Sgn
6	20	1,−1.5	11	30	70	11	7	17	●	●		FP,DIP	9620	Phl
6	22	1	11	50	55	11	5	40	●	●		DIP	RAY II	Ray
6	22	1	10	30	70	10	5	28		●		DIP, FP	US74H00	Spg
6	22	1	10	30	70	10	5	28	●			DIP, FP	US54H00	Spg
6	22	1	11	10	40	12	5	61	●	●		T085,DIP	SUHL II	Syl
6	22	1	11	50	40	10	5	11	●	●		FP	UA200	UNI
6	22	1	10	50	100	10	5	31	●			FP,DIP	54H	TI
6	22	1	10	50	100	10	5	31		●		FP,DIP	74H	TI
6	22	1	11	10	40	12	5	84	●	●		FP	SNG/SNF	TI
6	22	1	9				5	12		●		DIP	FHH	Amp
6	30	1.1	11	75	55	11	5	23	●	●		DIP	RAY III	Ray
6.5	23	1	10				5	11	●			DIP	S54H	Sgn
6.5	23	1	10				5	11		●		DIP	N74H	Sgn
7	22	1	10	50	100	10	5	11	●			FP	RSN54H00	TI
8	10	1	10	25	85	10	7	28	●			DIP	S5400	Sgn
8	10	1	10	25	85	10	7	28		●		DIP	N7400	Sgn
8	13	1	20	25	56	20	5	21	●			DIP	S8800	Sgn
8	13	1	20	25	56	20	5	21		●		DIP	N8800	Sgn
8	50	1	11	50	100	11	8	32	●			DIP	MC2100	Mot
8	50	1	9	50	100	9	7	32		●		DIP	MC2000	Mot
8	75	1	10	50	100	10	8	24	●			DIP	MC3100	Mot
8	75	1	10	50	100	10	7	24		●		DIP	MC3000	Mot
9	10	1	10	35	40	10	5	11	●			FP	RSN5400	TI
10	10	1	10	20	55	10	5	27	●			DIP,FP	US5400	Spg
10	10	1	10	20	55	10	5	27		●		DIP,FP	US7400	Spg
10	10	1	10	20	55	10	5	13	●			FP	UA5400	UNI
10	10	1	10	20	55	10	5	13		●		FP	UA7400	UNI
10	10	1	10	35	40	10	5	32	●			FP,DIP	54	TI
10	10	1	10	35	40	10	5	32		●		FP,DIP	74	TI
10	11	1	10	20	11	10	5	14	●	●		DIP	MIC9000	ITT
10	15	1	10	30	90	10	8	19	●	●		FP,DIP	SERIES II	Tns
10	15	1	15	10	30	15	5	58	●	●		T085,DIP	SUHL I	Syl
10	25	1	10	20	125	10	5	20		●		FP,DIP	PD7400	Phl
10	40	1	10	20	150	10	5	15		●	●	DIP	7400N	Syl
10	40	1	10	30	30	10	7	15	●			DIP	MC5400	Mot
10	40	1	10	30	30	10	7	15		●		DIP	MC7400	Mot
12	10	1	10				5	38		●		DIP	74	CS
12	35	1	15	30	20	15	8	44	●			DIP	MC500	Mot
12	35	1	12	30	20	12	7	44		●		DIP	MC400	Mot
13	10	.4	10	15	10	10	7	12		●		DIP	NC7400	NPC
13	10	1	10	30	20	10	5	18	●			DIP	54	ITT
13	10	1	10	30	20	10	5	18		●		DIP	74	ITT
13	30	1	10				5	12		●		DIP	FJH	Amp
15	10	1	10	15	45	10	5	40	●			DIP	DM7000	NS
15	10	1	10	15	45	10	5	40		●		DIP	DM8000	NS
16	70	1	10	20	70	10	5	19	●	●		DIP	9000	Fch
18	15	1	15	20	90	15	8	38	●	●		FP,DIP	SERIES I	Tns
18	15	1	15	20	90	15	8	15	●	●		FP,DIP	SERIES IV	Tns
25	5	1.2	17	4	90	17	4.5	9		●		DIP	SU300	Sgn
25	10	1	9				5	2	●			DIP	S8T00	Sgn
25	10	1	9				5	2		●		DIP	N8T00	Sgn
30	30	1	15				5	1	●			DIP	IM5001M	IInc
30	30	1	15				5	1		●		DIP	IM5001C	IInc
32	4.5	1	7	9	9	7	4	12	●			DIP	SE400	Sgn
32	4.5	1	7	9	9	7	4	12		●		DIP	NE400	Sgn
33	1	1	10	5	3.8	10	5	13	●			FP,DIP	54L	TI
33	1	1	10	5	3.8	10	5	13		●		FP,DIP	74L	TI
60	1	1	10	3	6	10	5	11	●			FP	DM70L00	NS
60	1	1	10	3	6	10	5	11		●		FP	DM80L00	NS
60	1	1	6	4	12	6	5	24	●			RP,DIP	500	Aml
					70	9	5	4		●		DIP	FHJ	Amp
				10	80	10	5	6		●		DIP	FJJ	Amp

ECL

GATES				FLIP FLOPS			FAMILY CHARACTERISTICS							
t_{pd} (ns)	P_d (mW)	NOISE IMMUNITY + (V) −	FAN OUT	FREQ (MHz)	P_d (mW)	FAN OUT	SUPPLY VOLTS (V)	NO. OF CKTS	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
1	240	.25	70	300	250	70	0,−5.2	12		●		DIP	MC1600	Mot
2.3	60	.225					1.32,−3.2	28		●		DIP	ECL2500	TI
4	100	.25	25	100	140	25	0,−5.2	27		●		DIP	MC1200	Mot
4	100	.25	25	100	140	25	0,−5.2	27	●			DIP	MC1000	Mot
4	110	.25	25	70	140	25	0,−5.2	24	●			FP	SW1200	SWM
4	110	.25	25	70	140	25	0,−5.2	24		●		DIP	SW1000	SWM
4	250	.25	25	120	140	25	0,−5.2	1	●			DIP	MC1227	Mot
4	250	.25	25	120	140	25	0,−5.2	1		●		DIP	MC1027	Mot
7.3	175	.25	12				0,−5.2	4			●	FP	CD2150	RCA
7.5	50	.25	25	50	50	25	0,−5.2	20	●			DIP	MC300	Mot
7.5	50	.25	25	50	50	25	0,−5.2	20		●		DIP	MC350	Mot
8	40	.25	15	15	100	15	0,−5.2	11	●			RP	SW300	SWM
8	40	.25	15	15	100	15	0,−5.2	11		●		RP	SW350	SWM

HNIL

GATES				FLIP FLOPS			FAMILY CHARACTERISTICS							
t_{pd} (ns)	P_d (mW)	NOISE IMMUNITY + (V) −	FAN OUT	FREQ (MHz)	P_d (mW)	FAN OUT	SUPPLY VOLTS (V)	NO. OF CKTS	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
80	300	5	36	4	200	5	12	17	●	●		RP,DIP	300	Aml
80	300	5	36	4	200	5	12	17	●	●		RP,DIP	SD300	SSS
95	300	6.5	30				25	2	●	●		FP	MIC9100	ITT
125	170		10	3	160	10	20	15		●		DIP	MC660	Mot
145	400	6.5	7		400	6	20	4	●	●		DIP	9100	Fch
200		80 (PULSE)					28	6	●			DIP	H100	Scx
200		80 (PULSE)					28	6		●		DIP	H400	Scx

CTL

GATES				FLIP FLOPS			FAMILY CHARACTERISTICS							
t_{pd} (ns)	P_d (mW)	NOISE IMMUNITY + (V) −	FAN OUT	FREQ (MHz)	P_d (mW)	FAN OUT	SUPPLY VOLTS (V)	NO. OF CKTS	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
7	1000	1	12	35	420	12	4.5,−2	10			●	DIP	9900	Fch
7	1000	1	12	35	420	12	4.5,−2	11			●	DIP	ITT900	ITT

COUNTERS

FREQ (MHz)	RESPONSE TIME (ns)	DISS (mW)	NO. OF INPUTS	NO. OF OUTPUTS	TEMP MIL	TEMP IND	TEMP COM	OPERATION UP	OPERATION DOWN	OPERATION PRESET	OPERATION SYM	OPERATION ASYM	DESCRIPTION	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS
.5		200	2	11		●	●	●			●		DECIMAL (NIXIE)	DIP	BIP2611-1	Bur	BREAKDOWN VOLTAGE 15V
.25		200	2	11		●	●	●			●		DECIMAL (NIXIE)	DIP	BIP2610-1	Bur	BREAKDOWN VOLTAGE 55V
2	150	140	2	4	●	●		●		●			DECADE	DIP, TO5	9958	Fch	
2	150	280			●	●		●			●		BINARY	DIP, TO8	372CJ	Aml	
2	150	280			●	●		●			●		DECADE	DIP, TO8	371CJ	Aml	NOISE IMMUNITY = 5VDC
3	280	16	4	4	●			●			●		BINARY	DIP	SN54L93	TI	RIPPLE
3	280	16	4	4		●		●			●		BINARY	DIP	SN74L93	TI	RIPPLE
7		150				●		●				●	DECADE	DIP	FCJ141	Amp	NOISE IMMUNITY = 1VDC
8		160				●					●		÷16	DIP	FJJ211	Amp	
10	37	45	8	4	●	●		●		●	●		DECADE	DIP	8292	Sgn	
10	37	45	8	4	●	●		●		●	●		BINARY	DIP	8293	Sgn	
10		80	6	4		●		●		●	●		BCD-DECADE	DIP	FJJ141	Amp	
10		160				●					●		÷12	DIP	FJJ251	Amp	
15	90	300	2	4		●		●			●		BINARY	DIP, TO5	9989	Fch	RIPPLE
15		195	6	6	●	●		●		●		●	VARIABLE MODULO	DIP, FP	9305	Fch	PROGRAMMABLE
18	18	300	9	5	●	●		●		●	●		DECADE	DIP	9310	Fch	PARALLEL PRESET
18	18	300	9	5	●	●		●		●	●		BINARY	DIP	9316	Fch	PARALLEL PRESET
18	18	300	9	5	●	●		●		●	●		BINARY	DIP, FP	MIC9316	ITT	PARALLEL PRESET

COUNTERS, Digital Bipolar Monolithic (Cont'd)

FREQ (MHz)	RESPONSE TIME (ns)	DISS (mW)	NO. OF INPUTS	NO. OF OUTPUTS	TEMP			OPERATION					DESCRIPTION	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS
					MIL	IND	COM	UP	DOWN	PRESET	SYM	ASYM					
18	20	160	4	4	●			●			●		BINARY	DIP	S5493	Sgn	
18	20	160	4	4		●		●			●		BINARY	DIP	N7493	Sgn	
18	20	160	4	4	●			●			●		BINARY	DIP	US5493	Spg	
18	20	160	4	4		●		●			●		BINARY	DIP	US7493	Spg	
18	23	320	17	5	●	●		●	●	●			DECADE	DIP	9320	Fch	PARALLEL PRESET
18	23	320	17	5	●		●	●	●	●			BINARY	DIP	9326	Fch	PARALLEL PRESET
18	23	320	9	5	●	●		●	●	●	●		DECADE	DIP	9330	Fch	PARALLEL PRESET
18	23	320	9	5	●	●		●	●	●	●		BINARY	DIP	9336	Fch	PARALLEL PRESET
18	60	155	4	4	●						●		÷12	DIP	5492J	ITT	
18	60	155	4	4		●					●		÷12	DIP	7492J	ITT	
18	60	155	4	4	●						●		÷12	DIP	S5492	Sgn	
18	60	155	4	4		●					●		÷12	DIP	N7492	Sgn	
18	60	155	4	4	●						●		÷12	DIP	SN5492	TI	÷2, ÷6
18	60	155	4	4		●					●		÷12	DIP	SN7492	TI	÷2, ÷6
18	60	160	6	4	●			●			●		DECADE	DIP	5490J	ITT	
18	60	160	6	4		●		●			●		DECADE	DIP	7490J	ITT	
18	60	160	6	4		●		●			●		DECADE	DIP	NC7490	NPC	
18	60	160	6	4	●			●			●		DECADE	DIP	S5490	Sgn	
18	60	160	6	4		●		●			●		DECADE	DIP	N7490	Sgn	
18	60	160	6	4	●			●			●		DECADE	DIP	US5490	Spg	
18	60	160	6	4		●		●			●		DECADE	DIP	US7490	Spg	
18	60	160	4	4	●						●		÷12	DIP	US5492	Spg	
18	60	160	4	4		●					●		÷12	DIP	US7492	Spg	
18	60	160	6	4	●			●			●		DECADE	DIP	SN5490	TI	
18	60	160	6	4		●		●			●		DECADE	DIP	SN7490	TI	
18	75	128	4	4	●			●			●		BINARY	DIP	5493J	ITT	
18	75	128	4	4		●		●			●		BINARY	DIP	7493J	ITT	
18	75	128	4	4	●			●			●		BINARY	DIP	SN5493	TI	RIPPLE
18	75	128	4	4		●		●			●		BINARY	DIP	SN7493	TI	RIPPLE
20	18	300	9	5	●	●		●		●	●		BINARY	DIP	9310	Adv	
20	18	300	9	5	●	●		●		●	●		DECADE	DIP	9316	Adv	
20	20	150	7	4		●		●		●	●		BINARY	DIP, FP	SM160	Syl	
20	20	150	7	4		●		●		●	●		DECADE	DIP, FP	SM170	Syl	
20	20	350	13	5	●	●		●	●	●	●		DECADE	DIP	9306	Fch	PARALLEL PRESET
20	23	225	8	5		●		●	●	●	●		BINARY	DIP, FP	SM180	Syl	
20	23	225	8	5		●		●	●	●	●		DECADE	DIP, FP	SM190	Syl	
20		250	10	4	●			●		●		●	MODULO-N DIVIDER	DIP	DM7520	NS	
20		250	10	4		●		●		●		●	MODULO-N DIVIDER	DIP	DM8520	NS	
25	34	125	11	1		●		●		●	●		BINARY	DIP, FP	SM143	Syl	PROG. DIVIDER
25	34	125	11	1		●		●		●	●		DECADE	DIP, FP	SM153	Syl	PROG. DIVIDER
25	50	140	8	4	●	●				●	●	●	÷12	DIP	8288	Sgn	STORAGE REGISTER
25		180			●			●			●		BINARY	DIP	TRC2521	Tns	RIPPLE
25		180				●		●			●		BINARY	DIP	TRC2522	Tns	RIPPLE
25		180			●			●			●		BINARY	DIP	TRC2523	Tns	RIPPLE
25		180				●		●			●		BINARY	DIP	TRC2524	Tns	RIPPLE
25		180			●			●			●		DECADE	DIP	TRC2525	Tns	RIPPLE
25		180				●		●			●		DECADE	DIP	TRC2526	Tns	RIPPLE
25		180			●			●			●		DECADE	DIP	TRC2527	Tns	RIPPLE
25		180				●		●			●		DECADE	DIP	TRC2528	Tns	RIPPLE
30	15	315	6	6	●			●	●		●		HEXADECIMAL	DIP	S8284	Adv	BINARY OUTPUT
30	15	315	6	6		●		●	●		●		HEXADECIMAL	DIP	N8284	Adv	BINARY OUTPUT
30	15	315	6	6	●	●		●	●	●	●		HEXADECIMAL	DIP	8284	Sgn	BINARY OUTPUT
30	15	315	6	7	●	●		●	●	●	●		DECADE	DIP	8285	Sgn	
30	15	315	6	6	●			●	●	●	●		DECADE	DIP	S8285	Adv	
30	15	315	6	6		●		●	●	●	●		DECADE	DIP	N8285	Adv	
30	16	200				●		●					UNIVERSAL	DIP	MC4023	Mot	
30	20	160	4	4	●			●			●		BINARY	DIP	MC5493	Mot	RIPPLE-THRU
30	20	160	4	4		●		●			●		BINARY	DIP	MC7493	Mot	RIPPLE-THRU
30	20	160	6	4	●			●		●	●		DECADE	DIP	MC5490	Mot	
30	20	160	6	4	●			●		●	●		DECADE	DIP	MC7490	Mot	
30	30	160	7	4	●			●					DECADE	DIP	MC5490	Mot	
30	30	160	7	4		●		●					DECADE	DIP	MC7490	Mot	
30	37	250	8	6	●			●	●	●	●		DECADE	DIP	DM7560	NS	
30	37	250	8	6		●		●	●	●	●		DECADE	DIP	DM8560	NS	
30	37	250	8	6	●			●	●	●	●		BINARY	DIP	DM7563	NS	
30	37	250	8	6		●		●	●	●	●		BINARY	DIP	DM8563	NS	
30		150	6	4	●			●		●	●		DECADE	FP, DIP	MC938	Mot	
30		150	6	4		●		●		●	●		DECADE	FP, DIP	MC838	Mot	
30		150	6	4	●						●		÷16	FP, DIP	MC939	Mot	
30		150	6	4		●					●		÷16	FP, DIP	MC839	Mot	
32	27	325	8	6	●			●	●	●	●		DECADE	DIP	SN54192	TI	
32	27	325	8	6		●		●	●	●	●		DECADE	DIP	SN74192	TI	
32	27	325	8	6	●			●	●	●	●		BINARY	DIP	SN54193	TI	
32	27	325	8	6		●		●	●	●	●		BINARY	DIP	SN74193	TI	
32	50	160	6	4	●			●			●		DECADE	DIP	DM7530	NS	÷5 and ÷2
32	50	160	6	4		●		●			●		DECADE	DIP	DM8530	NS	÷5 and ÷2
32	50	160	4	4	●						●		÷12	DIP	DM7532	NS	÷6, ÷3, AND ÷2
32	50	160	4	4		●					●		÷12	DIP	DM8532	NS	÷6, ÷3, AND ÷2
32	50	160	4	4	●			●			●		BINARY	DIP	DM7533	NS	
32	50	160	4	4		●		●			●		BINARY	DIP	DM8533	NS	
35	180	130	8	4	●	●		●		●	●	●	DECADE	DIP	8280	Sgn	STORAGE REGISTER
35	180	130	8	4	●	●		●		●	●	●	BINARY	DIP	8281	Sgn	STORAGE REGISTER
40	25	125	4	1	●	●		●				●	DECADE	DIP	SM90	Syl	DIVIDER BI-QUINARY
50	50	190	8	4	●	●		●		●	●		DECADE	DIP	8290	Sgn	BI-QUINARY
50	50	190	8	4	●	●		●		●	●		BINARY	DIP	8291	Sgn	BI-QUINARY
		180				●		●					BINARY	TO99, 91	MC877	Mot	
		180					●	●					BINARY	TO99, 91	MC777	Mot	

PLASMA DRY STRIPPER

AN ECONOMICAL, RAPID, AND SAFE METHOD FOR REMOVING PHOTORESIST FROM SILICON WAFERS

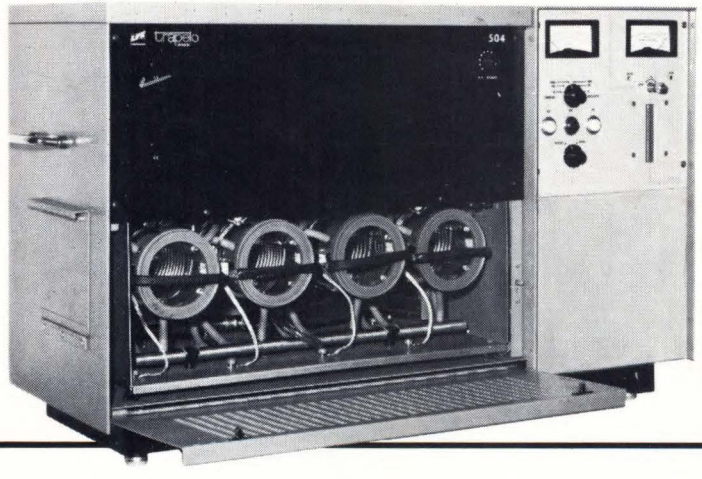
NEW

PDS-302

STRIPS 100 WAFERS IN 5-10 MIN.

IDEALLY SUITED FOR:

- R & D laboratories
- pilot-lines
- small-scale I.C. mfg.
- multi-station dry stripping
- automated model optional



PDS-504 AUTOMATED

STRIPS 200 WAFERS IN 5-10 MIN.

HIGHEST THROUGHPUT:

- automatically tuned
- automatic, optimium process controlled
- high density wafer stacking — 50/chamber
- low operating temperatures

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■ pre-clean wafers of wax and organic residue ■ dry strip all types of photoresist ■ pre-clean and de-ionize wafers before diffusion ■ remove erroneous test-probe ink spots ■ remove epoxy and solder flux ■ surface-treat plastic encapsules to increase bonding ■ treat photomask emulsions for longer life.

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CIRCLE NO. 14

DECODERS

NO. OF INPUTS	NO. OF OUTPUTS	DISS (mW)	RESPONSE TIME (ns)	TEMP MIL	TEMP IND	TEMP COM	DESCRIPTION	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS
2	8	120	21		•		2/4	DIP	SN74156	TI	DUAL,OPEN COLL. OUTPUT
2	8	120	21	•			2/4	DIP	SN54156	TI	DUAL,OPEN COLL. OUTPUT
2	8	120	21		•		2/4	DIP	SN74155	TI	DUAL,TOTEM POLE OUTPUT
2	8	120	21	•			2/4	DIP	SN54155	TI	DUAL,TOTEM POLE OUTPUT
3	8	140	50	•			BINARY TO 1/8	DIP	CM1400	CM	DISPLAY DRIVER
3	8	210	11	•			3-BIT BINARY TO 1/8	DIP	MC1243	Mot	
3	8	210	11		•		3-BIT BINARY TO 1/8	DIP	MC1043	Mot	
4	4	1000	25			•	2-BIT LATCH	DIP	9968	Fch	DUAL
4	8	85	20	•	•		BINARY TO OCTAL	DIP	8250	Sgn	
4	8	100	14		•		BINARY TO 1/8	DIP	MC4006	Mot	
4	8	340	18	•	•		4-BIT LATCH	DIP	9308	Fch	DUAL
4	10	60			•		NIXIE DRIVER	DIP	8T01	Sgn	
4	10	45		•	•		DECIMAL	DIP	9960	Fch	DRIVER
4	10	75	25		•		BCD TO BINARY	DIP	MC8301	Mot	
4	10	75	25	•			BCD TO BINARY	DIP	MC9301	Mot	
4	10	95			•		BCD TO DECIMAL	DIP	FJL101	Amp	DISPLAY DRIVER
4	10	95	20	•	•		BCD TO DECIMAL	DIP	8251	Sgn	
4	10	95		•			BCD TO DECIMAL	DIP,FP	US5441	Spg	DRIVER
4	10	95			•		BCD TO DECIMAL	DIP,FP	US5441	Spg	DRIVER
4	10	100		•	•		1/10	DIP	9315	Fch	DISPLAY DRIVER
4	10	100		•			NIXIE DRIVER	DIP	DM7840	NS	
4	10	100			•		NIXIE DRIVER	DIP	DM8840	NS	
4	10	105			•		BCD TO DECIMAL	DIP	MC7441	Mot	DRIVER
4	10	105			•		BCD TO DECIMAL	DIP	NC7441	NPC	DRIVER
4	10	105			•		BCD TO DECIMAL	DIP	MC7441	Mot	HIGH LEVEL DRIVER
4	10	110			•		BCD TO DECIMAL	DIP	SN7441A	TI	DRIVER
4	10	125			•		BCD TO DECIMAL	DIP	FCL111	Amp	DISPLAY DRIVER
4	10	140	26	•			BCD TO DECIMAL	DIP	DM7842	NS	
4	10	140	26		•		BCD TO DECIMAL	DIP	DM8842	NS	
4	10	140	20	•			BCD TO DECIMAL	DIP	SN5442	TI	
4	10	140	20		•		BCD TO DECIMAL	DIP	SN7442	TI	
4	10	140	20	•			EXCESS-3 TO DECIMAL	DIP	SN5443	TI	
4	10	140	20		•		EXCESS-3 TO DECIMAL	DIP	SN7443	TI	
4	10	140	20	•			EXCESS-3-GRAY TO DECIMAL	DIP	SN5444	TI	
4	10	140	20		•		EXCESS-3 GRAY TO DECIMAL	DIP	SN7444	TI	
4	10	145	22	•	•		1/10	DIP	9301	Fch	
4	10	145	22	•	•		1/10	FP,DIP	MIC9301	ITT	
4	10	145	22	•	•		1/10	DIP	9301	Adv	
4	10	215	50		•		BCD TO DECIMAL	DIP	SN7445	TI	DRIVER (30V OUT)
4	10	215	50	•			BCD TO DECIMAL	DIP	SN5445	TI	DRIVER (30V OUT)
4	10	215	50		•		BCD TO DECIMAL	DIP	SN74145	TI	DRIVER (15V OUT)
4	10	215	50	•			BCD TO DECIMAL	DIP	SN54145	TI	DRIVER (15V OUT)
5	6	160	4	•			DATA DISTRIBUTOR	DIP	MC1229	Mot	
5	6	160	4		•		DATA DISTRIBUTOR	DIP	MC1029	Mot	
5	6	160	4	•			DATA DISTRIBUTOR	FP	SW1229	SWM	
5	6	160	4		•		DATA DISTRIBUTOR	DIP	SW1029	SWM	
5	6	175	10.5		•		DATA DISTRIBUTOR	DIP	MC4002	Mot	DUAL
5	6	330	12	•	•		DEMULTIPLEXER	FP,DIP	SM220	Syl	DUAL
5	8	135	100	•	•		4-BIT LATCH	DIP	9959	Fch	BUFFER-STORAGE
6	1	150	11		•		4-CHANNEL DATA SELECTOR	DIP	MC4000	Mot	
6	1	170	5	•			4-CHANNEL DATA SELECTOR	DIP	MC1228	Mot	DUAL
6	1	170	5		•		4-CHANNEL DATA SELECTOR	DIP	MC1028	Mot	DUAL
6	4	40	30	•			4-BIT LATCH	DIP	5475J	ITT	
6	4	40	30		•		4-BIT LATCH	DIP	7475J	ITT	
6	4	40	40	•	•		STORAGE REGISTER	FP,DIP	SM60	Syl	4-BITS
6	4	60		•	•		4-BIT LATCH	DIP	RL60/70	Ray	
6	4	160	30	•			4-BIT LATCH	DIP,FP	US5475	Spg	
6	4	160	30		•		4-BIT LATCH	DIP,FP	US7475	Spg	
6	4	270	14	•			TRUE/COMPLEMENT	DIP	SN54H87	TI	4-BIT
6	4	270	14		•		TRUE/COMPLEMENT	DIP	SN74H87	TI	4-BIT
6	8	50	20	•	•		8-BIT POSITION SCALER	DIP	8243	Sgn	OPEN-COLLECT OR OUTPUT
6	8	50	250	•	•		SEVEN SEGMENT	DIP	9317	Fch	DISPLAY DRIVER
6	8	125	14		•		BINARY TO 1/4	DIP	MC4007	Mot	DUAL
6	8	150	22	•	•		1/4	DIP	9321	Fch	DUAL
6	8	160	30		•		4-BIT LATCH	DIP	MC7475	Mot	DUAL
6	8	160	7	•			4-BIT LATCH	DIP	DM7550	NS	BUFFER-STORAGE
6	8	160	7		•		4-BIT LATCH	DIP	DM8550	NS	BUFFER-STORAGE
6	8	165	100	•			BCD TO 7-SEGMENT	DIP	SN5449	TI	DISPLAY DRIVER (OPEN COLLECTOR)
6	8	165	100		•		BCD TO 7-SEGMENT	DIP	SN7449	TI	DISPLAY DRIVER (OPEN COLL.)
6	8	165	250	•	•		SEVEN SEGMENT	DIP	9307	Fch	DISPLAY DRIVER
6	8	200	<45		•		BINARY TO 2/8	DIP	MC4040	Mot	
6	8	240	<45		•		7-SEGMENT	DIP	MC4039	Mot	CHARACTER GENERATOR
6	8	240	<45		•		1/8	DIP	MC4038	Mot	INVERTING/NONINVERTING
6	8	245	6.5		•		BINARY TO 1/4	DIP	MC1042	Mot	DUAL
6	8	250	17	•	•		8-BIT LATCH	DIP	9334	Fch	ADDRESSABLE

NO. OF INPUTS	NO. OF OUTPUTS	DISS (mW)	RESPONSE TIME (ns)	TEMP MIL	TEMP IND	TEMP COM	DESCRIPTION	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS
6	8	265	100		•		BCD TO 7-SEGMENT	DIP	SN7447	TI	DISPLAY DRIVER (15V OUT)
6	8	265	100	•			BCD TO 7-SEGMENT	DIP	SN5447	TI	DISPLAY DRIVER (15V OUT)
6	8	265	100		•		BCD TO 7-SEGMENT	DIP	SN7446	TI	DISPLAY DRIVER (30V OUT)
6	8	265	100	•			BCD TO 7-SEGMENT	DIP	SN5446	TI	DISPLAY DRIVER (30V OUT)
6	8	265	100	•			BCD TO 7-SEGMENT	DIP	SN5448	TI	DISPLAY DRIVER
6	8	265	100		•		BCD TO 7-SEGMENT	DIP	SN7448	TI	DISPLAY DRIVER
6	8	350	250	•	•		SEVEN SEGMENT	DIP	9327	Fch	DISPLAY DRIVER
6	8				•		BCD TO 7-SEGMENT	DIP	CD2500E	RCA	DRIVER
6	16	170	20	•			1/16	DIP	SN54154	TI	
6	16	170	20		•		1/16	DIP	SN74154	TI	
6	16	175	21	•	•		1/16	DIP	9311	Fch	
6	16	200	500	•			16-CHANNEL MULTIPLEXER	DIP	RS1000	RI	ANALOG
7	1	100	19	•			8-INPUT MULTIPLEXER	DIP	DM7210	NS	
7	1	100	19		•		8-INPUT MULTIPLEXER	DIP	DM8210	NS	
8	1	100	32	•			8-BIT PARITY CHECKER	DIP	DM7220	NS	GENERATOR
8	1	100	32		•		8-BIT PARITY CHECKER	DIP	DM8220	NS	GENERATOR
8	2	150	22		•		4-BIT PARITY TREE	DIP	MC4010	Mot	DUAL
8	2	150	30	•	•		COMPARATOR	FP DIP	SM130	Syl	2,4-BIT WORDS
8	2	150	30	•	•		8-BIT PARITY CHECKER	FP DIP	SM120	Syl	GENERATOR
8	4	40	10	•	•		4-BIT COMPARATOR	DIP	8242	Sgn	QUAD
8	8	175		•	•		4-BIT LATCH	DIP	8275	Sgn	
9	2	175	17	•			COMPARATOR	DIP	DM7200	NS	2,4-BIT WORDS
9	2	175	17		•		COMPARATOR	DIP	DM8200	NS	2,4-BIT WORDS
9	5	250	25	•	•		8-INPUT ENCODER	DIP	9318	Fch	PRIORITY
9	6	250	45		•		SINGLE-ERROR DETECTOR	DIP	MC4041	Mot	HAMMING CODE, PARITY GEN.
10	2	20	4	•	•		CARRY	DIP	RL40	Ray	ANTICIPATED CARRY
10	2	20	4	•	•		SERIES CARRY DECODER	T085,DIP	SM40	Syl	
10	2	110	150		•		10-BIT PARITY CHECK	DIP	FCH291	Amp	
10	2	132	18	•	•		4-INPUT MULTIPLEXER	FP,DIP	SM210	Syl	DUAL
10	2	150	30		•		8-BIT PARITY TREE	DIP	MC4008	Mot	
10	2	170	40	•			8-BIT ODD/EVEN PARITY	DIP	SN54180	TI	GENERATOR
10	2	170	40		•		8-BIT ODD/EVEN PARITY	DIP	SN74180	TI	GENERATOR
10	4	45	10	•	•		2-INPUT MULTIPLEXER	DIP	8267	Sgn	4-BIT OUTPUT OPEN-COLL.
10	4	45	10	•	•		2-INPUT MULTIPLEXER	DIP	8266	Sgn	4-BIT OUTPUT
10	4	125	10	•	•		2-INPUT MULTIPLEXER	DIP	9322	Fch	QUAD
10	4	150	24	•	•		4-BIT MULTIPLEXER	DIP	9309	Adv	DUAL
10	4	150	24	•	•		4-INPUT MULTIPLEXER	FP DIP	MIC9309	ITT	DUAL
10	4	150	24	•	•		4-INPUT MULTIPLEXER	DIP	9309	Fch	DUAL
10	4	175	20	•	•		4-BIT LATCH	DIP	9314	Fch	
11	1	90	5	•	•		CARRY EXTENDER	DIP	8261	Sgn	USE 8260 FOR LOOK AHEAD
11	1	130	20	•			8-BIT MULTIPLEXER	DIP	SN54152	TI	
11	1	130	20		•		8-BIT MULTIPLEXER	DIP	SN74152	TI	
11	1	150	18	•			8-CHANNEL DATA SELECTOR	DIP	MC1238	Mot	
11	1	150	18		•		8-CHANNEL DATA SELECTOR	DIP	MC1038	Mot	
11	3	20	75	•			COMPARATOR	DIP	SN54L85	TI	4-BIT
11	3	20	75		•		COMPARATOR	DIP	SN74L85	TI	4-BIT
11	3	210	25	•	•		5-BIT COMPARATOR	DIP	9324	Fch	
11	3	50	150		•		5-BIT COMPARATOR	DIP	FCH281	Amp	
12	2	135	24	•	•		8-INPUT MULTIPLEXER	DIP	9312	Fch	
12	2	135	24	•	•		8-INPUT MULTIPLEXER	FP,DIP	MIC9312	ITT	
12	2	135	24	•	•		8-BIT MULTIPLEXER	DIP	9312	Adv	
12	2	145	20	•			8-BIT MULTIPLEXER	DIP	SN54151	TI	STROBED
12	2	145	20		•		8-BIT MULTIPLEXER	DIP	SN74151	TI	STROBED
12	2	150	20	•	•		8-BIT MULTIPLEXER	DIP	8230	Sgn	
12	2	160	20	•	•		8-BIT MULTIPLEXER	DIP	8232	Sgn	INHIBIT ON COMP. OUTPUT
12	2	160	20	•	•		8-BIT MULTIPLEXER	DIP	8231	Sgn	OPEN-COLLECT OR OUTPUT
12	2	170	22	•			1-OF-4 DATA SELECTOR	DIP	SN54153	TI	DUAL
12	2	170	22		•		1-OF-4 DATA SELECTOR	DIP	SN74153	TI	DUAL
12	2	205	14	•			8-BIT PARITY CHECK	DIP	MC1246	Mot	GENERATOR
12	2	205	14		•		8-BIT PARITY CHECK	DIP	MC1046	Mot	GENERATOR
12	2	270	33	•	•		12-BIT PARITY CHECK	DIP	9348	Fch	GENERATOR
15	4	325	17	•	•		3-INPUT MULTIPLEXER	DIP	8263	Sgn	4-BIT OUTPUT
18	4	350	25	•	•		3-INPUT MULTIPLEXER	DIP	8264	Sgn	4-BIT OUTPUT OPEN COLL.
21	1	200	20	•			16-BIT MULTIPLEXER	DIP	SN54150	TI	
21	1	200	20		•		16-BIT MULTIPLEXER	DIP	SN74150	TI	
		100	25		•		4-CHANNEL DATA SELECT	DIP	MC9801	Mot	DUAL
		100	25			•	4-CHANNEL DATA SELECT	DIP	MC9701	Mot	DUAL
		115			•		BCD-DECIMAL	DIP	MC9860	Mot	DUAL
		115				•	BCD-DECIMAL	DIP	MC9760	Mot	DUAL
		150	25		•		4-CHANNEL DATA DISTRIB.	DIP	MC9807	Mot	DUAL
		150	25			•	4-CHANNEL DATA DISTRIB.	DIP	MC9707	Mot	DUAL
		200	200	•	•		BCD TO DECIMAL	DIP	380CJ	Aml	NOISE IMMUNITY = 5VDC
		250	70		•		4-BIT DECODER	DIP	FCH301	Amp	
		250	8	•			QUAD LATCH	DIP	MC1240	Mot	
		250	8		•		QUAD LATCH	DIP	MC1040	Mot	
		300	<45		•		BCD-BINARY/BINARY-BCD	DIP	MC4001	Mot	

ARITHMETIC UNITS

CARRY	DISS (mW)	CARRY FAN OUT	TEMP MIL	TEMP IND	TEMP COM	DESCRIPTION	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS
5	147	5	•			FULL ADDER	FP,DIP	SN5480	TI	
5	147	5		•		FULL ADDER	FP,DIP	SN7480	TI	
8	105	5	•			FULL ADDER	DIP,FP	US5480	Spg	
8	105	5		•		FULL ADDER	DIP,FP	US7480	Spg	
8	110	25	•			FULL ADDER	FP	SW1219	SWM	
8	110	25		•		FULL ADDER	DIP	SW1019	SWM	
8	110	25	•			FULL SUBTRACTOR	FP	SW1221	SWM	
8	110	25		•		FULL SUBTRACTOR	DIP	SW1021	SWM	
8	145	25	•			FULL ADDER	DIP	MC1219	Mot	
8	145	25		•		FULL ADDER	DIP	MC1019	Mot	
8	150	7	•	•		FULL ADDER	DIP	9304	Fch	DUAL
8	150	7	•	•		FULL ADDER	FP,DIP	MIC9304	ITT	DUAL
8	150	7	•	•		FULL ADDER	DIP	9304	Adv	DUAL
8	185	10	•	•		FULL ADDER	DIP	8268	Sgn	COMPLEMENTARY,SUM AVAILABLE
8	195	5	•			FULL ADDER	DIP,FP	US5482	Spg	2-BIT BINARY
8	195	5		•		FULL ADDER	DIP,FP	US7482	Spg	2-BIT BINARY
8	390	5	•			FULL ADDER	DIP,FP	US5483	Spg	4-BIT BINARY
8	390	5		•		FULL ADDER	DIP,FP	US7483	Spg	4-BIT BINARY
11	115	25	•			SUBTRACTOR	DIP	MC1221	Mot	
11	115	25		•		SUBTRACTOR	DIP	MC1021	Mot	
11	290	10	•			FULL ADDER	DIP	DM7283	NS	4-BIT
11	290	10		•		FULL ADDER	DIP	DM8283	NS	4-BIT
11			•			CARRY/SAVE, FULL ADDER	DIP	SN54H183	TI	DUAL
11				•		CARRY/SAVE, FULL ADDER	DIP	SN74H183	TI	DUAL
12	165	10	•			2-BIT FULL ADDER	DIP	MC15482	Mot	
12	165	10	•			2-BIT FULL ADDER	DIP	MC25482	Mot	
12	165	10		•		2-BIT FULL ADDER	DIP	MC17482	Mot	
12	165	10		•		2-BIT FULL ADDER	DIP	MC27482	Mot	
12		12	•			4-BIT ARITHMETIC	DIP	SN54181	TI	FUNCTION GENERATOR
12		12		•		4-BIT ARITHMETIC	DIP	SN74181	TI	FUNCTION GENERATOR
13	90	10	•	•		FULL ADDER	FP,DIP	SM10	Syl	
13	90	11/6	•	•		FULL ADDER	DIP	RL10	Ray	
13	125	11/6	•	•		FULL ADDER	DIP	RL20/30	Ray	
13	125	10	•	•		FULL ADDER	FP,DIP	SM20	Syl	DEPENDENT CARRY
13	125	10	•	•		FULL ADDER	FP,DIP	SM30	Syl	INDEPENDENT CARRY
13	180	10	•	•		CARRY LOOK-AHEAD	DIP	9342	Fch	
17	245	5	•			FULL ADDER	FP,DIP	SN5482	TI	2-BIT
17	245	5		•		FULL ADDER	FP,DIP	SN7482	TI	2-BIT
25	400	12	•	•		4-BIT ARITHMETIC	DIP	8260	Sgn	LOOK-AHEAD CAP.
34		5	•			2-BIT FULL ADDER	DIP	5482J	ITT	
34		5		•		2-BIT FULL ADDER	DIP	7482J	ITT	
34		5	•			4-BIT FULL ADDER	DIP	5483J	ITT	
34		5		•		4-BIT FULL ADDER	DIP	7483J	ITT	
35	245	5	•			FULL ADDER	DIP	SN5483	TI	4-BIT
35	245	5		•		FULL ADDER	DIP	SN7483	TI	4-BIT
42	400	10	•	•		4-BIT ARITHMETIC	DIP	9340	Fch	ADD,SUBTRACT
42	450	10	•	•		4-BIT ARITHMETIC	DIP	9341	Fch	ADD,SUBTRACT,DECODE
55	105	5	•			FULL ADDER	DIP	MC5480	Mot	
55	105	5		•		FULL ADDER	DIP	MC7480	Mot	
60	190	5	•			FULL ADDER	FP	MC996	Mot	DUAL
60	190	5	•			FULL SUBTRACTOR	FP	MC997	Mot	DUAL
60	225	5		•		FULL ADDER	FP,DIP	MC896	Mot	DUAL
60	225	5			•	FULL ADDER	FP,DIP	MC796	Mot	DUAL
60	225	5		•		FULL SUBTRACTOR	FP,DIP	MC897	Mot	DUAL
60	225	5			•	FULL SUBTRACTOR	FP,DIP	MC797	Mot	DUAL
60			•			LOOK-AHEAD, CARRY GEN.	DIP	SN54182	TI	
60				•		LOOK-AHEAD, CARRY GEN.	DIP	SN74182	TI	
62	110	10	•			FULL ADDER	DIP	S5400	Sgn	
62	110	10		•		FULL ADDER	DIP	N7400	Sgn	
125	265	5		•		4-BIT FULL ADDER	DIP	MC9804	Mot	PARALLEL
125	265	5			•	4-BIT FULL ADDER	DIP	MC9704	Mot	PARALLEL

SHIFT REGISTERS

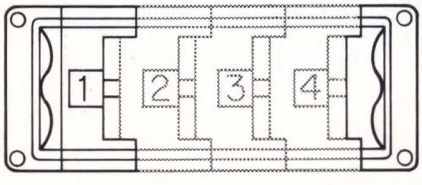
BITS PER UNIT	DUAL	FREQ (MHz)	DISS (mW)	FAN OUT	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY VOLTS (V)	IN S	IN P	OUT S	OUT P	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS
4		5	19	10	2	.8	5	•		•		•			DIP	SN74L99	TI	RIGHT/LEFT SHIFT
4		5	19	10	2	.8	5	•		•			•		DIP	SN54L99	TI	RIGHT/LEFT SHIFT
4		5	19	10	2	.7	5	•	•	•	•	•			DIP	SN54L95	TI	RIGHT/LEFT SHIFT
4		5	19	10	2	.7	5	•	•	•	•		•		DIP	SN74L95	TI	RIGHT/LEFT SHIFT
4		5	25	10	2	.8	5					•			DIP	SN54L98	TI	DATA SELECTOR STORAGE
4		5	25	10	2	.8	5						•		DIP	SN74L98	TI	DATA SELECTOR STORAGE

Never underestimate the power of the thumb.

Over ten years ago, Digitran developed the thumbwheel switch. This new device created new importance to the thumb by giving it (and the guy it belongs to), a new power... the power of accurate switching control.

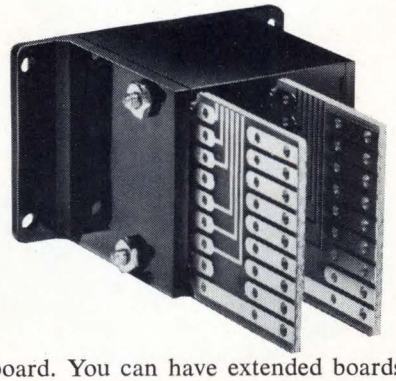
Perhaps a good name might have been **"ACCU-SWITCH,"** for the compact and cleverly designed product had a nice, solid, stop-action between each position. This made it very difficult to switch to the wrong position. The audible and definite click, click, between each position was, and still is, quite an improvement over most other types of switches (even copycat switches).

Maybe they should have named it **"MODU-SWITCH,"** because the second unique feature was the simple way one switch could be added to another to form as many units in a row as the owner of the thumb desired. Each switch fits perfectly together in building-block fashion with standard end sections containing back panel mounting holes.



"COMPAC-SWITCH" might have been an excellent name as well, since Digitran's design allowed the engineer to reduce the size of his panel. We'd like to see someone mount four typical rotary switches in a row and consume only 2.76" in length X 1.15" in height, not to mention the space savings behind the panel. Didn't rotary switches go out with high button shoes?

How about **"VERSI-SWITCH,"** because the entire stationary commutator and termination system on Digitran's switches are produced on printed circuit boards. It staggers the circuit and packaging engineer's imagination on what he can do, (or have us do) to the P/C board on the back end of these switches. You can plug them into a P/C connector. You can wire to them. You can interconnect easily from board to board. You can have extended boards with all kinds of additional circuitry on them. (i.e.: IC's, discretes, etc.) You can have "wire wrap" terminals and, oh yes, Digitran switches are available with replaceable lighting to illuminate each position.



Actually, the boss, who dreamed up the name Digitran, liked the names listed below best and although there are many other variations, the two major product lines are as follows:

DIGISWITCH® medium sized—sealed or unsealed 8, 10, 12 or 16 positions

MINISWITCH® miniature—sealed or unsealed 8 or 10 positions

For those of you who are still not filled in on the details of our thumbwheel switches, please write and we will send you our new complete catalog. Convince us that you have a project that can use our switches, and you can pretty easily put your thumb on a free sample.

THE DIGITRAN COMPANY

A Subsidiary of Becton, Dickinson and Co. B-D

855 So. Arroyo Pkwy., Pasadena, Cal. 91105 Phone (213) 449-3110 TWX 910-588-3794

CIRCLE NO. 15

A significant advance in silicon rectifier power handling capacity

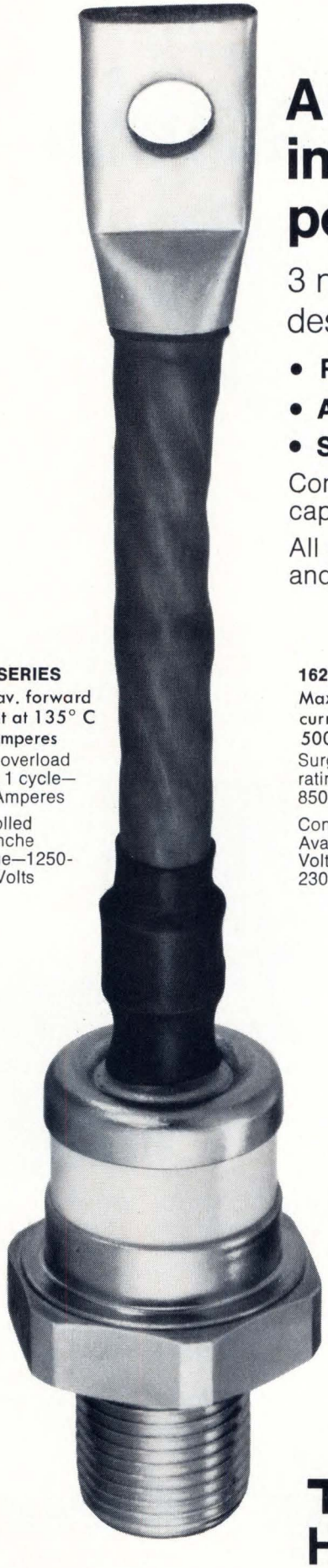
3 new series of silicon rectifiers from Tung-Sol permit designers to meet extremely high power requirements.

- **Reverse voltage ratings to 5000 Volts**
- **Average forward current to 500 Amperes**
- **Surge overload ratings up to 8500 Amperes**

Controlled avalanche characteristics provide transient handling capability that results in increased reliability.

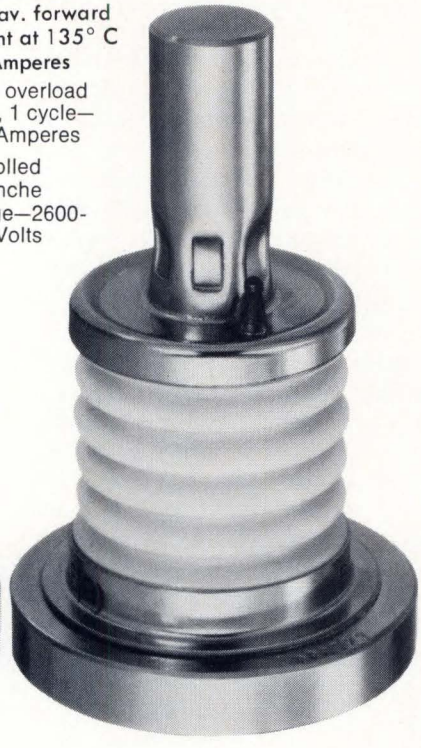
All units feature ceramic-to-metal seals, mount in any position and are supplied in either polarity.

1511 SERIES
Max. av. forward current at 135° C
420 Amperes
Surge overload rating, 1 cycle—6000 Amperes
Controlled Avalanche Voltage—1250-3500 Volts



1621 SERIES
Max. av. forward current at 135° C
500 Amperes
Surge overload rating, 1 cycle—8500 Amperes
Controlled Avalanche Voltage—1100-2300 Volts

1611 SERIES
Max. av. forward current at 135° C
470 Amperes
Surge overload rating, 1 cycle—5200 Amperes
Controlled Avalanche Voltage—2600-5000 Volts



Write for technical data bulletins—
Tung-Sol Division, Wagner Electric Corporation
630 West Mt. Pleasant Ave., Livingston, N.J. 07039
Twx: 710-994-4865 • Phone: (201) 992-1100; (212) 732-5426

TUNG-SOL
High Power Silicon Rectifiers

Trademark TUNG-SOL Reg. U. S. Pat. Off. and Marcas Registradas

CIRCLE NO. 16

SHIFT REGISTERS, Digital Bipolar Monolithic (Cont'd)

BITS PER UNIT	DUAL	FREQ (MHz)	DISS (mW)	FAN OUT	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY VOLTS (V)	IN S	IN P	OUT S	OUT P	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS
4		7	380	40	3		5	●		●			●		DIP	9997	Fch	
4		10	175	10	2	.8	5	●	●	●		●			DIP	SN5494	TI	
4		10	175	10	2	.8	5	●	●	●			●		DIP	SN7494	TI	
4		20	200	10	2.4	.4	5	●		●		●	●		DIP,FP	SM110	Syl	RIGHT/LEFT SHIFT
4		22	165	14	3.2	.25	5		●	●		●	●		DIP	8270	Sgn	
4		22	165	14	3.2	.25	5		●	●		●	●		DIP	8271	Sgn	COMPLEMENTARY OUTPUT
4		25	200	15			7	●	●	●	●	●			DIP	TSR2512	Tns	
4		25	200	15			7	●	●	●	●		●		DIP	TSR2513	Tns	
4		25	200	7			7	●	●	●	●	●			DIP	TSR2531	Tns	
4		25	200	7			7	●	●	●	●		●		DIP	TSR2514	Tns	
4		25	300	6	2	.8	7		●	●		●	●		DIP	9300	Fch	
4		25	300	6	2	.8	7		●	●		●	●		FP,DIP	MIC9300	ITT	
4		25	300	6	2	.8	7	●	●	●	●	●	●		DIP	9300	Adv	
4		30	180	10	2.4	.3	8						●		DIP	MC4012	Mot	
4		31	250	10	2	.7	5	●	●	●	●	●			DIP	SN5495	TI	RIGHT/LEFT SHIFT
4		31	250	10	2	.7	5	●	●	●	●		●		DIP	SN7495	TI	RIGHT/LEFT SHIFT
4		37	250	10	2.4	.4	5	●		●		●			DIP	DM7580	NS	RIGHT/LEFT SHIFT
4		37	250	10	2.4	.4	5	●		●		●			DIP	DM8580	NS	RIGHT/LEFT SHIFT
5	●	10	400	12	2.6	.4	5		●		●	●	●		DIP	8200	Sgn	"1" INPUT
5	●	10	400	12	2.6	.4	5		●		●	●	●		DIP	8201	Sgn	"0" INPUT
5		10	240	10	2	.8	5	●	●	●	●	●			DIP	SN5496	TI	RIGHT/LEFT SHIFT
5		10	240	10	2	.8	5	●	●	●	●		●		DIP	SN7496	TI	RIGHT/LEFT SHIFT
8		6	175	10	2.5	.4	5	●		●		●			DIP,FP	US5491	Spg	
8		6	175	10	2.5	.4	5	●		●			●		DIP,FP	US7491	Spg	
8		6.5	17.5	10	2.4	.3	8	●		●		●			DIP	5491J	ITT	
8		6.5	17.5	10	2.4	.3	8	●		●			●		DIP	7491J	ITT	
8		6.5	17.5	10	2	.7	5	●		●		●			DIP	SN54L91	TI	
8		6.5	17.5	10	2	.7	5	●		●			●		DIP	SN74L91	TI	
8		18	175	10	2.5	.4	7	●		●		●			DIP	S5400	Sgn	
8		18	175	10	2.5	.4	7	●		●			●		DIP	N7400	Sgn	
8		18	175	10	2	.8	5	●		●		●			DIP	SN5491A	TI	
8		18	175	10	2	.8	5	●		●			●		DIP	SN7491A	TI	
8	●	20	300	6	2	.8	7	●		●		●	●		DIP	9328	Fch	
8		20	180	5	2.4	.4	5	●			●	●			DIP	DM7570	NS	
8		20	180	5	2.4	.4	5	●			●		●		DIP	DM8570	NS	
8		20	200	10	2.4	.4	5		●	●		●			DIP	DM7590	NS	
8		20	200	10	2.4	.4	5		●	●			●		DIP	DM8580	NS	
8		20	300	6	2	.8	7	●			●	●	●		DIP	9303	Fch	CONVERTER
8		20	340	10	2.6	.4	5	●		●		●	●		DIP	8276	Sgn	
8		30	175	10	2.4	.3	8	●		●		●			DIP	MC5491	Mot	
8		30	175	10	2.4	.3	8	●		●			●		DIP	MC7491	Mot	
8			265	10	2	.8	7	●		●		●	●		DIP	9338	Fch	MULTIPLE PORT (RAM)
10		10	400	12	2.6	.4	5		●		●	●	●		DIP	8202	Sgn	"1" INPUT
10		10	400	12	2.6	.4	5		●		●	●	●		DIP	8203	Sgn	"0" INPUT
			225	5			3.6	●			●		●		DIP	MC894	Mot	
			225	5			3.6	●			●			●	DIP	MC794	Mot	

MEMORIES

BITS PER UNIT	ACCESS TIME (ns)	DISS (mW)	DECODE READ Amps	DECODE WRITE Amps	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY VOLTS (V)	DESCRIPTION	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
8	25	350			2,	.3	4.5	RAM	●	●		DIP	9030	Fch
8	30	450			2,	.4	5	CAM		●		DIP	8220	Sgn
8	65	200	●	●	2,	.4	5	CAM	●	●		DIP	8222	Sgn
8								RAM		●		DIP	ECL2550	TI
16	6.5	250			−.8,	−1.6	−5	RAM		●		DIP	CD2155	RCA
16	17	250	●	●	−.8,	−1.8	−5.2	RAM		●		DIP	MC1236/37	Mot
16	17	250	●	●	−.8,	−1.8	−5.2	RAM	●			DIP	MC1236/37	Mot
16	20	175			2,	.9	5	RAM	●			DIP	TMC3263	Tns
16	20	175			2,	1	5	RAM		●		DIP	TMC3264	Tns
16	20	175			2,	1	5	RAM		●		DIP	TMC3262	Tns
16	20	250			OPEN COLL,	.45	5	RAM	●	●		DIP	RL80	Ray
16	20	250			2,	.8	5	RAM		●		DIP	TMC3162	Tns
16	20	250			2,	.8	5	RAM		●		DIP	TMC3164	Tns
16	20	250			2,	.9	5	RAM	●			DIP	TMC3163	Tns
16	20	250			3,	.5	5	RAM		●		DIP	MC4304/5	Mot
16	20	250			3,	.5	5	RAM		●		DIP	MC4004/5	Mot
16	20	275	●	●	2.1,	.9	5	RAM	●			FP,DIP	SN5484	TI
16	20	275	●	●	2.1,	.9	5	RAM		●		FP,DIP	SN7484	TI
16	20	275			2.1,	.9	5	RAM		●		FP,DIP	SN7481	TI
16	20	275			2.1,	.9	5	RAM	●			FP,DIP	SN5481	TI
16	20	300						RAM	●				IM5502M	IInc
16	20	300						RAM		●			IM5502C	IInc
16	25	250			2,	.45	4.5	RAM	●	●		FP,DIP	9033	Fch

BITS PER UNIT	ACCESS TIME (ns)	DISS (mW)	DECODE READ (Amps)	DECODE WRITE (Amps)	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY VOLTS (V)	DESCRIPTION	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
16	25	250			2,	.45	4.5	RAM	●	●		DIP	MIC9300	ITT
16	35	250			2,	.9	5	RAM	●	●		DIP	SM80	Syl
16	35	350			2,	.8	5	CAM	●	●		DIP	4102	Fch
64	35	350			2,	.45	4.5	RAM	●	●		DIP	9035	Fch
64	40	500	●	●				RAM	●				IM5501M	IInc
64	40	500	●	●				RAM		●			IM5501C	IInc
64	45	350			OPEN COLL,	.45	5	RAM	●	●		DIP	RL5100/6100	Ray
64	50	300			2,	.9	5	RAM	●	●		DIP	SM280	Syl
64	60	350	●	●	2,	.8	4.5	RAM	●	●		DIP	4103	Fch
64	60	400	●	●	2,	.8	7	RAM	●			DIP	CM2100	CM
64	60	500	●	●	3.5,	.45	5	RAM		●		DIP	3101	Itl
64	60	550			2,	.8	5	RAM		●		DIP	TMC6464	Tns
128	40	1200	●	●	2,	.8	4.5	RAM	●	●		DIP	4027	Fch
128	45	260	●	●	3,	.45	5	ROM		●		DIP	XC170/171	Mot
256	30	300			2,	.9	5	ROM	●	●		DIP	SM323	Syl
256	35	270	●		2.1,	.9	5	ROM		●		DIP	SN7488	TI
256	50	310			2,	.8	6	ROM	●			DIP	S8224	Sgn
256	50	310			2,	.8	6	ROM		●		DIP	N8224	Sgn
256	50	350			2,	.8	4.5	ROM	●	●		DIP	9034	Fch
256	80	500	●	●	2,	.8	5	RAM	●	●		DIP	4100	Fch
256	100	550						RAM	●				IM5503M	IInc
256	100	550						RAM		●			IM5503C	IInc
512	70	600			2,	.8	4.5	ROM	●	●		DIP	4104	Fch
1024	60	500	●	●	3.5,	.45	5	ROM		●		DIP	3301	Itl

LINEAR MONOLITHIC

SENSE AMPS

THRESHOLD (mV)	RESP TIME (ns)	GAIN	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY (V)	DISS (mW)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	DUAL	STROBE	ADJ THRESH
.5	60	600									MC1546	Mot	●		●
.5	60	600									MC1446	Mot			
2	40	1.5K	3	−.5	12,−6	200	●			FP	μA710B	Fch			
2	40	1.5K	3	−.5	12,−6	300		●		TO-99, DIP	μA710C	Fch			
2	40	1.5K	3.2	−.5	12,−6	200	●			ROUND, DIP	SG710B	SG			
2	40	1.5K	3.2	−.5	12,−6			●		ROUND, DIP	SG710C	SG			
2	40	1.7K	3	−.5	12,−6	300	●			TO-99, FP	μA710	Fch			
2	40	1.7K	3.2	−.5	12,−6	300	●			ROUND	SG710	SG			
4	40	1.5K	4.5	0	12,−6	300	●			ROUND, DIP	S5711	Sgn	●	●	
4	40	1.5K	4.5	0	12,−6	300		●		ROUND, DIP	N5711	Sgn	●	●	
4	40	1.5K	4.5	0	12,−6	300	●			TO-100, FP	μA711	Fch	●	●	
4	40	1.5K	4.5	−.5	12,−6	300		●		TO-100, FP	μA711C	Fch	●	●	
15					±5			●		DIP	SG7520	SG		●	●
15					±5			●		DIP	SG7521	SG		●	●
15					±5			●		DIP	SG7522	SG		●	●
15					±5			●		DIP	SG7523	SG		●	●
15					±5			●		DIP	SG7524	SG		●	●
15					±5			●		DIP	SG7525	SG		●	●
17	20	85	5.9	.35	±6		●			ROUND, FP,DIP	MC1540	Mot	●	●	
17	20	85	5.9	.35	±6			●		ROUND, FP,DIP	MC1440	Mot		●	●
17	30	75	4.9	.35	±5	140	●			FP, DIP	MC1541	Mot		●	●
17	30	75	4.9	.35	±5	140		●		FP, DIP	MC1441	Mot		●	●
20	10										MC1543	Mot	●		●
21.5	40	1.7K	3.2	−.5	12,−6	750	●			DIP	MC1514	Mot	●	●	
21.5	40	1.5K	3.2	−.5	12,−6	750		●		DIP	MC1414	Mot	●	●	
10/50							●				SC150	Scx		●	●
10/50								●			SC450	Scx		●	●
	40	800	3.2	−.5	12,−6	300		●		TO-99, FP	LA710C	NPC			
	40	1K	3.2	−.5	12,−6	300	●			TO-99, FP	LA710	NPC			
	40	1K	3.2	−.5	12,−6	300	●			TO-99, FP	LA710A	NPC			
	40	1.5K	3.2	−.5	12,−6	300	●			TO-5,FP,DIP	RM710B	Ray			
	40	1.5K	3.2	−.5	12,−6	300		●		To-5,FP,DIP	RM710C	Ray			
	40	1.5K	3.2	−.5	12,−6	680	●			TO-100	SG711	SG	●	●	
	40	1.5K	3.2	.5	12,−6		●			ROUND, FP,DIP	MC1711	Mot	●		
	40	1.5K	3.2	−.5	12,−6	400	●	●		TO-100, DIP	SG711B	SG	●	●	

SENSE AMPS, Linear Monolithic (Cont'd)

THRES-HOLD (mV)	RESP TIME (ns)	GAIN	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY (V)	DISS (mW)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	DUAL	STROBE	ADJ THRESH
	40	1.5K	3.2	−.5	12,−6	400	●	●		TO-100, DIP	SG711C	SG	●	●	
	40	1.5K	3.2	.5	12,−6			●		ROUND, FP,DIP	MC1711C	Mot	●		
	40	1.5K	3.5	−.5	12,−6	300	●			TO-100	LA711	NPC	●	●	
	40	1.5K	3.5	−.5	12,−6	300		●		TO-100	LA711C	NPC	●	●	
	40	1.5K	4.5	−.5	12,−6	300	●			TO-5,FP,DIP	RM711B	Ray	●	●	
	40	1.5K	4.5	−.5	12,−6	300		●		TO-5,FP,DIP	RM711C	Ray	●	●	
	40	1.7K	3.2	−.5	12,−6	300	●			TO-5,FP,DIP	RM710	Ray			
	40	1.7K	3.2	−.5	12,−6	300	●			TO-5,FP,DIP	RM710A	Ray			
	40	1.7K	4.5	−.5	12,−6	300	●			TO-5,FP,DIP	RM711	Ray	●	●	
	40	1.7K									MC1710	Mot			
	40	1.7K									MC1710C	Mot			
	40	1.8K	3.2	−.5	12,−6	300	●			ROUND	SG710A	SG			
	40	1.9K	3.2	−.5	12,−6	680	●			TO-100	SG711A	SG	●	●	
	40	1.9K	4.5	−.5	12,−6	300	●			TO-5,FP,DIP	RM711A	Ray	●	●	
	40	40K			12,−3	600	●			ROUND	VA106	VS		●	
	40						●			ROUND,FP,DIP	S5710	Sgn		●	
	40							●		ROUND,FP,DIP	N5710	Sgn		●	
	200	60K			±15,+5			●		TO-100	ICB8001C	IInc			
	200	60K			±15,+5		●			TO-100	ICB8001M	IInc			
	400									DIP	μA731	Fch			
		45	2	−2	12,−6			●		SIM. TO-5	SFC2525	NPC			
		1.3K				110		●		ROUND,FP,DIP	SN72710	TI			
		1.3K				220		●		DIP	SN72720	TI	●		
		1.5K	3.2	−.5				●		DIP, TO-5	LM710C	NS			
		1.5K	3.2	−.5			●			TO-5	LM711	NS	●		
		1.5K	3.2	−.5				●		DIP, TO-5	LM711C	NS	●		
		1.5K	3.2	−.5	12,−6	200		●		ROUND, FP	PA7710C	Phl			
		1.5K	3.5	−.5	12,−6	300	●			ROUND	PA7711	Phl	●	●	
		1.5K			12,−6		●			TO-91,100,116	TCD1711	Tns			
		1.5K			12,−6			●		TO-91,100,116	TCD2710	Tns			
		1.5K			12,−6			●		TO-91,100,116	TCD2711	Tns			
		1.5K			12,−6		●			TO-91,100,116	TCD4711	Tns			
		1.5K			12,−6			●		TO-91,100,116	TCD5711	Tns			
		1.5K			12,−6		●			TO-91,100,116	TCD6711	Tns			
		1.5K			12,−6			●		TO-91,116	TCD7711	Tns			
		1.5K			12,−6		●			TO-91,116	TCD8711	Tns			
		1.5K			12,−6			●		TO-91,116	TCD9711	Tns			
		1.5K			12,−6		●			FP, TO-5, DIP	MIC711	ITT			
		1.6K				110	●			ROUND,FP,DIP	SN52710	TI			
		1.6K				130	●			ROUND,FP,DIP	SN52711	TI	●		
		1.6K				130		●		ROUND,FP,DIP	SN72711	TI	●		
		1.7K	3.2	−.5	12,−6	200	●			ROUND,FP	PA7710	Phl			
		1.7K	3.2	−.5			●			TO-5	LM710A	NS			
		1.7K			12,−6		●			TO-91,100,116	TCD1710	Tns			
		1.7K			12,−6		●			FP, TO-5, DIP	MIC710	ITT			
		2.1K			6,−3					ROUND,FP,DIP	SE518	Sgn			
		2.1K			6,−3					ROUND,FP,DIP	NE518	Sgn			
		25K			±15	600		●			LA306	NPC			
		40K	24	0			●			TO-5, FP	LM106	NS			
		40K	24	0				●		TO-5	LM206	NS			
		40K	24	0				●		TO-5	LM306	NS			
		40K			±15	600		●			LA106	NPC			
		40K			±15	600		●			LA206	NPC			
					±5	110		●		FP, DIP	NE525	Sgn		●	●
					±5			●		DIP	QC7520N	QC		●	●
					±5			●		DIP	QC7521N	QC		●	●
					±5			●		DIP	QC7522N	QC		●	●
					±5			●		DIP	QC7523N	QC		●	●
					±5			●		DIP	QC7524N	QC		●	●
					±5			●		DIP	QC7525N	QC		●	●
					±5		●			FP, DIP	QC1541	QC		●	●
					±5			●		FP, DIP	QC1441	QC		●	●
					±5		●			DIP	QC5524J	QC		●	●
					±5		●			DIP	QC5525J	QC		●	●
					±5		●			ROUND,FP,DIP	SE526	Sgn			
					±5			●		ROUND,FP,DIP	NE526	Sgn			
					±5			●		DIP	N7522B	Sgn		●	●
					±5			●		DIP	N7523B	Sgn		●	●
					±5			●		DIP	N7524B	Sgn		●	●
					±5			●		DIP	N7525B	Sgn		●	●
					5	500		●		DIP	N7520B	Sgn		●	●
					5	500		●		DIP	N7521B	Sgn		●	●
					±10			●		ROUND, FP	QC1440	QC		●	●
					±10		●	●		ROUND, FP	QC1540	QC		●	●
							●				L132	Scx	●	●	
								●			L432	Scx	●	●	
								●			PA424	GE			

OP AMPS

GAIN (OPEN LOOP)	FREQ RANGE (MHz)	OUTPUT VOLTS (P/P)	SLEW RATE (V/μs)	INPUT OFFSET (mV)	DRIFT (μV/°C)	SUPPLY VOLTS (V)	INPUT BIAS (mA)	CMR (dB)	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS INT COMP	REMARKS SHORT PROOF	REMARKS INV INPUT	REMARKS NON-INV INPUT	REMARKS DUAL
1.5	10	±4	5	5		±6	800	90	2M	50	●			ROUND,FP	MC1520	Mot			●	●	
1.5		5		1	4		6K	95	5K	700	●			FP	SN5511	TI					
1.5				1.6	5	12,−6	1.6K	98		200		●		FP,DIP	RC4443C	Ray					●
1.7				.6	3.5	12,−6	1.3K	100		200	●			FP,DIP	RM4443	Ray					●
2	.4			2.5	2	±12		100		40K				ROUND,FP	831	Aml					
2.3						12,−6		80		200				TO-99	TAA243	Amp					
2.6	30	±5.3		2	5	12,−6	4K	80	25K	200				TO-5,FP	RM702	Ray					
2.7		10.6		2	5		4K	80	25K	200	●			ROUND,FP,DIP	SN52702	TI					
2.7		10.6		5			5K	80	20K	200		●		ROUND,FP,DIP	SN72702	TI					
3.4	30	±5.3		1.5	20	12,−6	2.5K	92	32K	200	●			FP	μA702B	Fch			●	●	
3.4	30	±5.3		1.5	20	12,−6	2.5K	92	32K	200		●		TO-99	μA702C	Fch			●	●	
3.4		±5.3		1.5	5	12,−6	2.5K	92	32K	200		●		ROUND,FP	PA7712C	Phl			●	●	
3.4					5	12,−6		92		200				TO-99	TAA241	Amp					
3.5	5	±5.2	1	3		±6	25	65	600K	25		●		ROUND,FP	MC1431	Mot			●	●	
3.5	5	±5.2	1	3		±6	25	65	2M	25	●			ROUND,FP	MC1531	Mot			●	●	
3.6	9	±5	1.5	1.1	±2.5	12,−6	2K	100	40K	200	●			ROUND,FP,DIP	MC1712	Mot			●	●	
3.6	9	±5	1.5	1.1	±2.5	12,−6	2K	95	35K	200		●		ROUND,FP,DIP	MC1712C	Mot			●	●	
3.6	30	±5		.7	2.5	12,−6		100	67K	300	●			FP,DIP,TO-5	MIC712	ITT					
3.6	30	±5.3		0.5	10	12,−6	2K	100	40K	200	●			TO-99,FP	μA702A	Fch			●	●	
3.6		±5.3		.5	2.5	12,−6	2K	100	40K	200	●			ROUND,FP	PA7712	Phl			●	●	
3.6					2.5	12,−6		100		200				TO-99	TAA242	Amp					
4.5	1			.5	5	6,−3					●			ROUND,FP,DIP	SE515	Sgn					
4.5	1			.5	5	6,−3						●		ROUND,FP,DIP	NE515	Sgn					
5	1.5	±5		1	±5	±6	5K	90	15K	25		●		TO-5	SFC2430	NPC			●	●	
5	5	±5.2	1	1		±6	3K	75	15K	25		●		ROUND,FP	MC1430	Mot			●	●	
5	5	±5.2	1	1		±6	3K	75	20K	25	●			ROUND,FP	MC1530	Mot			●	●	
7	2	±2.5	.7	1	±10	±6	1.2K	90	45K	1.7		●		ROUND,FP	MC1435	Mot			●	●	●
7	2	±2.5	.7	1	±10	±6	1.2K	90	45K	1.7	●			ROUND,FP	MC1535	Mot			●	●	●
7		20		6	10	±12	80	100	2.5K	100		●		DIL	PA223	GE		●	●	●	
7		10		2	10	±6	2K	90	35K	100		●		DIL	PA238	GE		●	●	●	
10	.02			2	10	±12		80	50K					ROUND,FP	739	Aml					●
10	1	±11		±10		±15	1K		200K			●		TO-5	T52	PN					
10		10		5	70	±6	300	90	200K	1.5K	●			ROUND,FP	819B	Aml		●			
10						±3−±20					●				L130	Scx	●●		●	●	
10						±3−±20					●				L133	Scx	●●		●	●	3
10						±3−±20						●			L430	Scx	●●		●	●	
10						±3−±20						●			L433	Scx	●		●	●	3
14		±14		1	6	±15		90	10M	150	●			TO-91,99,116	TOA7709	Tns					
15	1	±12	±60		15	±15	75	74	100M	75	●			FP(TO-86),TO-99	RA-2510	RI	●		●	●	
15	2	±12	±120		15	±15	75	74	100M	75	●			FP(TO-86),TO-99	RA-2520	RI	●		●	●	
15		±10		±5		±15	4	65	25M			●		ROUND	801A	AD			●	●	
15		±10		±5		±15	4	65	25M			●		ROUND	801B	AD			●	●	
15		±10		±5		±15	4	65	25M		●			ROUND	801S	AD			●	●	
15			.4	7.5	30	±2−±18	7		10K		●				LM308	NS		●	●	●	
15			.4	.5	5	±2−±18		7		10K	●				LM308A	NS		●	●	●	
18		±11							400K		●			ROUND,FP,DIP	SE516	Sgn					
18		±11							400K			●		ROUND,FP,DIP	NE516	Sgn					
20	20							90	150K		●			DIP	μA749	Fch		●			●
20	20							90	150K					TO-99	μA749D	Fch		●			●
20		+2.8,−4	1	1		±15	300	90	150K	5K	●			DIP	μA739C	Fch		●	●	●	●
25		±14		1	6	±15		90	25M	150	●			TO-91,99,116	TOA7809	Tns					
25		±14		2	6	±15		90	50M	150		●		TO-91,99,116	TOA8809	Tns					
25			.4	.5	5	±2−±20	2		30K		●				LM108	NS		●	●		
25			.4	2	15	±2−±20	2		30K		●				LM108A	NS		●	●		
25			.4	2	15	±2−±20	20		30K		●				LM208	NS		●	●		
30	.5	±12	±30		15	±15	75	74	50M	75	●			FP(TO-86),TO-99	RA-2500	RI	●		●	●	
30		±13	65	2		±18	400	92	1M	75		●		TO-100,DIP	715C	Adv	●		●	●	
30		±13	65	2		±18	400	92	1M	75	●			TO-100,DIP	715	Adv	●		●	●	
31.6	.7	±10	.6	±6		±15	600	90	300K	4K	●			ROUND	3057/01	BB			●	●	
40		24		1	5	±15	25	90	2M	150	●			ROUND,FP	808A	Aml		●			
40		24		1	10	±15	50	90	2M	150	●			ROUND,FP	808B	Aml		●			
40		24		2	4	±15	50	90	750K	150				ROUND,FP	808C	Aml		●			
40		24		5	10	±15	300	90	200K	2.5K	●			ROUND,FP	809B	Aml		●			
40		24		1	5	±15	200	90	250K	1.5K	●			FP	810B	Aml		●			●
40		24		1	5	±15	200	90	250K	1.5K	●			ROUND,FP	811B	Aml		●			
40		24		1	5	±15	1K	90	100K	1.5K				ROUND,FP,DIP	811C	Aml		●			
40				1			100		400K						RSN52709	TI			●	●	
40		24		5	10	±15	1K	90	100K	2K				ROUND,DIP	809C	Aml		●			
44	.9	±10	.9	±4		±15	500	90	300K	4K	●			ROUND	3056/01	BB			●	●	
44	.9	±10	.9	±6		±15	600	80	300K	4K	●			ROUND	3053/01	BB			●	●	
44	1	±10	1.2	±3		±15	400	90	300K	4K	●			ROUND	3050S/01	BB			●	●	
44	1	±10	1.2	±3		±15	400	90	300K	4K	●			ROUND	3050/01	BB			●	●	
44	1	±10	1.2	±3		±15	400	90	300K	4K	●			ROUND	3051/01	BB			●	●	
44	1	±10	1.2	±4		±15	500	90	300K	4K	●			ROUND	3052/01	BB			●	●	
44	1	±10	1.2	±3		±15	400	90	300K	4K	●			ROUND	3054S/01	BB			●	●	
44	1	±10	1.2	±3		±15	400	90	300K	4K	●			ROUND	3054/01	BB			●	●	

OP AMPS, Linear Monolithic (Cont'd)

GAIN (OPEN LOOP)	FREQ RANGE (MHz)	OUTPUT VOLTS (P/P)	SLEW RATE (V/μs)	INPUT OFFSET (mV)	DRIFT (μV/°C)	SUPPLY VOLTS (V)	INPUT BIAS (mA)	CMR (dB)	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS INT COMP	REMARKS SHORT PROOF	REMARKS INV INPUT	REMARKS NON-INV INPUT	REMARKS DUAL
44	1	±10	1.2	±3		±15	400	90	300K	4K	●			ROUND	3055/01	BB				●	
45	.7	±14	.25	1		±15	200	90	400K	150	●			ROUND,FP,DIP	MC1709	Mot			●	●	
45	.7	±14	.25	1		±15	200	90	250K	150		●		ROUND,FP,DIP	MC1709C	Mot			●	●	
45	1	±14	.25	1	±3	±15	200	110	150K	30		●		DIP	MC1437	Mot			●	●	●
45	1	±14	.25	1	±3	±15	200	110	400K	30	●			DIP	MC1537	Mot			●	●	●
45	1	±14		1	3	±15		90	400K	150	●			TO-5,DIP	MIC709	ITT					
45	1	±14		.6	1.8	±15		90	700K	150	●			TO-5,DIP	MIC709A	ITT					
45	7	±13	5,−2	2		±15	87	96	600K	150	●			FP(TO-86)	RA-909	RI	●		●	●	
45	7	±13	5,−2	2		±15	87	96	600K	150	●			TO-99	RA-2909	RI	●		●	●	
45	7	±13	4,−1.7	1		±15	87	96	600K	150	●			FP(TO-86)	RA-909A	RI	●		●	●	
45	7	±13	4,−1.7	1		±15	87	96	600K	150	●			TO-99	RA-2909A	RI	●		●	●	
45		±13		1	3	±15	200	90	400K	150	●			TO-99,FP	μA709	Fch		●	●	●	
45		±13		0.6	1.8	±15	100	110	700K	150	●			TO-99,FP	μA709A	Fch		●	●	●	
45		±13		2		±15	100	90	250K	150	●			TO-99,FP	μA709C	Fch		●	●	●	
45		±14	.25	1	3	±9−±15	200	90	400K	150	●			FP,DIP	LA709	NPC			●	●	
45		±14	.25	2	6	±9−±15	100	90	250K	150		●		FP,DIP	LA709C	NPC			●	●	
45		±14	.25	1	3	±9−±15	200	90	400K	150	●			TO-5,FP	LM709	NS			●	●	
45		±14	.25	2	6	±9−±15	300	90	250K	150		●		TO-5,FP	LM709C	NS			●	●	
45		±14	.4	1	2	±9−±15	180	90	400K	150	●			TO-5,FP,DIP	RM709	Ray			●	●	
45		±14	.4	.2	1	±9−±15	100	80	700K	150	●			TO-5,FP,DIP	RM709A	Ray			●	●	
45		±14		.5	1.8	±15	100	115	750K	150	●			ROUND,FP	PA7709A	Phl			●	●	
45		±14		1	1.5	±9−±15	100		700K	150	●			DIP	RM4709A	Ray			●	●	●
45		±14		1	1.5	±9−±15	200		400K	150	●			DIP	RM4709	Ray			●	●	●
45		±14		1	1.5	±9−±15	400		150K	150		●		DIP	RC4709C	Ray			●	●	●
45		±14		1	3	±15		90	700K	150	●			TO-91,99,116	TOA4709	Tns					
45		±14		1	3	±15		90	400K	150	●			TO-91,99,116	TOA1709	Tns					
45		±14		1	6	±15		90	400K	150		●		TO-91,99,116	TOA3709	Tns					
45		±14		1					400K		●			ROUND,FP,DIP	S5709	Sgn					
45		±14		1					400K			●		ROUND,FP,DIP	N5709	Sgn					
45		±14		1	3	±15	200	90	400K	150	●			ROUND,FP	PA7709	Phl			●	●	
45		±14		2	6	±15		90	3M	150		●		TO-91,99,116	TOA8709	Tns					
45		±14		2	6	±15		90	250K	150		●		TO-91,99,116	TOA2709	Tns					
45		±14		2		±15	300	90	250K	150	●			TO-5,FP,DIP	RM709B	Ray			●	●	
45		±14		2		±15	300	90	250K	150		●		TO-5,FP,DIP	RM709C	Ray			●	●	
45		±14		2		±15	300	90	250K	150		●		ROUND	PA7709C	Phl			●	●	
45		26		.5	3	±15	100	90	400K	150	●			ROUND,FP	709A	Aml					
45		26		1	3	±15	200	90	400K	150	●			ROUND,FP	709B	Aml					
45		26		2			300	90	250K	150		●		ROUND,FP,DIP	SN72709	TI					
45		26		2		±15	500	90	100K	150				ROUND,FP	709C	Aml					
45		26		3			200	90	400K	150	●			ROUND,FP,DIP	SN52709	TI					
50				5			500				●			TO-5	CA3056A	RCA	●		●	●	
60	.5	±13	.8	1	±5	±15	500	100	1M	100	●			ROUND,FP,DIP	MC1533	Mot			●	●	
60	.5	±13	.8	1	±5	±15	500	100	600K	100		●		ROUND,FP,DIP	MC1433	Mot			●	●	
60		24		1	5	±15	250	90	1M	150	●			ROUND,FP	805B	Aml		●			
60		24		3	5	±15	750	90	500K	150				ROUND,FP	805C	Aml		●			
60		24		.1	3	±15	250	90	1M	150	●			ROUND,FP	807B	Aml		●			
80	2	±10	3	±5	±10	±15	40		3M		●			TO-101	UC4000	Sol					
80	2	±10	3	±10	±20	±15	60		3M		●			TO-101	UC4001	Sol					
80	2	±10	3	±10	±40	±15	80		3M		●			TO-101	UC4002	Sol					
80	2	±10	3	±5	±10	±15	50		3M			●		TO-101	UC4000C	Sol					
80	2	±10	3	±10	±20	±15	100		3M			●		TO-101	UC4001C	Sol					
80	2	±10	3	±10	±40	±15	150		3M			●		TO-101	UC4002C	Sol					
100	.5	±12	.3	2		±15	50	80	2M		●			ROUND,FP,DIP	SSS741	PM	●	●	●	●	
100	.5	±12	.2	2		±15	50	80	2M		●			FP,DIP	SSS747	PM	●	●	●	●	●
100	.5	±12	.3	1.8		±15	50	80	2M		●			ROUND,FP,DIP	SSS101A	PM			●	●	
100	.5	±12	.3	1.8		±15	50	80	2M		●			ROUND,FP,DIP	SSS107	PM	●	●	●	●	
100	.7	±14	.6	.8	3	±15	150		1M		●			TO-99	UC4741	Sol	●	●	●	●	
100	.7	±14	.6	.8		±15	150		1M			●		TO-99	UC4741C	Sol	●	●	●	●	
100	.7	±14	.6	.9	3	±15	150	90	1M	150		●		TO-99	LA741C	NPC	●	●	●	●	
100	1	±10	.5	4	10	±15	100	80	2M			●			A3000	Ith					
100	1	±10	.5	4	10	±15	50	80	2M			●			A3001	Ith					
100	1	±10	.5	4	10	±15	25	80	2M			●			A3002	Ith					
100	1	±10	.5	2	5	±15	25	80	2M			●			A3003	Ith					
100		±10	.5	2		±15	200	90	1M			●		TO-99,DIP	μA741C	Fch	●	●	●	●	
100		±13		1	2	±15		90	1M	150	●			TO-5,DIP	ICB8741M	IInc					
100		±13		2	3			90	10M	150		●		TO-5	ICB8008C	IInc					
100		±13		2	3	±15		90	10M	150	●			TO-5	ICB8008M	IInc					
100		±13		2	3			90	1M	150		●		TO-5,FP,DIP	ICB8741C	IInc					
100		±14	.5	2		±18	200	90	1M			●		TO-5,FP,DIP	RM741C	Ray	●	●	●	●	
100		±14	.5	2		±15	200	90	1M			●		DIP,FP	RC4741C	Ray	●	●	●	●	●
100		±14		2		±15		90	3M			●		TO-91,99,116	TOA8741	Tns					
100		±14		2		±15		90	1M			●		TO-91,99,116	TOA2741	Tns					
100		24		2	5	±15	1K	90	100K	1.5K				FP,DIP	810C	Aml		●			●
100		26		2	3	±15	300	90	150K	150				ROUND,FP,DIP	741C	Aml		●			
100		28		2			200	90	1M			●		ROUND,FP,DIP	SN72741	TI	●				
120	.5	±14	.4	3	3	±5−±20	40		4M		●			TO-99	UC4101A	Sol		●	●	●	
120	.5	±14	.4		3.2	±5−±20	70		2M			●		TO-99	UC4201A	Sol		●	●	●	
120	1	±13	34	1		±15	200	110	300K	4K	●			ROUND	MC1539	Mot		●	●	●	
120	1	±13	34	1		±15	200	110	300K	4K		●		ROUND	MC1439	Mot		●	●	●	
140	.5	±10	.4	±6	±6	±20	500		300K		●			TO-99	UC4101	Sol		●	●	●	
140	.5	±10	.4	±10	±8	±20	1.5K		150K			●		TO-99	UC4201	Sol		●	●	●	
150	12	±12	±7	3		±15	15	100	300M			●		FP(TO-86),TO-99	RA-2605	RI	●	●	●	●	
150		±14		2	6	±5-±20	100	90	400K			●		TO-5,FP	LM201	NS		●	●	●	
150		±14		2	6	±5-±20	100	90	400K			●		TO-5,FP	LM201	Scx					
150		±14		2	6	±5-±20	250	90	400K			●		TO-5,FP,DIP	RC101C	Ray		●	●	●	

We're only Second in ECL II...

BUT IN THIS HORSE RACE – THAT'S NOT BAD !

Although we have a winning line of ECL's—Motorola's still a few circuits ahead. But we're announcing that we can match their 28 most popular MECL II units right now—with more to come!* So if you've been afraid to take advantage of the high-speed characteristics of these unique new ECL devices because you don't like sole-sourcing—relax. Go ECL II with confidence. Now you've got Stewart-Warner to back up Motorola...or vice versa.

STEWART-WARNER ECL II CIRCUIT FUNCTION	MILITARY 55°C. to 125°C.	INDUSTRIAL 0°C. to 75°C.
6-Input OR/NOR Gate	SW1201	SW1001
6-Input OR/NOR Gate	SW1202	SW1002
6-Input OR/NOR Gate	SW1203	SW1003
Dual 4-Input Complementary Gate	SW1204	SW1004
Dual 4-Input Complementary Gate	SW1205	SW1005
Dual 4-Input Complementary Gate	SW1206	SW1006
Triple 3-Input NOR Gate	SW1207	SW1007
Triple 3-Input NOR Gate	SW1208	SW1008
Triple 3-Input NOR Gate	SW1209	SW1009
Quad 2-Input NOR Gate	SW1210	SW1010
Quad 2-Input NOR Gate	SW1211	SW1011
Quad 2-Input NOR Gate	SW1212	SW1012
85 mHz AC-Coupled J-K Flip-Flop	SW1213	SW1013
Dual Clocked R-S Flip-Flop (Positive)	SW1214	SW1014
Dual Clocked R-S Flip-Flop (Negative)	SW1215	SW1015
Dual Clocked Single Rail R-S Flip-Flop (Positive)	SW1216	SW1016
Translator – Saturated Logic to ECL	SW1217	SW1017
Translator – ECL to Saturated Logic	SW1218	SW1018
Full Adder	SW1219	SW1019
Quad Line Receivers	SW1220	SW1020
Full Subtractor	SW1221	SW1021
"D" Type Clocked Master-Slave Flip-Flop	SW1222	SW1022
Expandable Dual 2-Input OR/NOR Gate	SW1224	SW1024
Dual 4-5 Input Expander	SW1225	SW1025
Data Distributor	SW1229	SW1029
Quad Exclusive – OR	SW1230	SW1030
Quad Exclusive – NOR	SW1231	SW1031
Dual Clocked Single Rail R-S Flip-Flop (Negative)	SW1233	SW1033

For data sheets, circle reader service card.

**We also offer 11 ECL's in the 300 and 350 series.*

SYMBOL OF EXCELLENCE

STEWART-WARNER MICROCIRCUITS DIVISION

STEWART-WARNER CORPORATION

730 EAST EVELYN AVENUE · SUNNYVALE, CALIFORNIA 94086

CIRCLE NO. 18

OP AMPS, Linear Monolithic (Cont'd)

GAIN (OPEN LOOP)	FREQ RANGE (MHz)	OUTPUT VOLTS (P/P)	SLEW RATE (V/μs)	INPUT OFFSET (mV)	DRIFT (μV/°C)	SUPPLY VOLTS (V)	INPUT BIAS (mA)	CMR (dB)	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS INT COMP	REMARKS SHORT PROOF	REMARKS INV INPUT	REMARKS NON-INV INPUT	REMARKS DUAL
150		±14		2	6	±5-±20	250	90	400K			●		TO-5,FP,DIP	RM4101C	Ray	●	●	●	●	
150		±14		2		±5-±20	250	90	400K			●		TO-99,DIP	301	Adv		●	●	●	
160	.5	±14	.4	2	6	±20	70	90	2M			●		TO-99	UC4301A	Sol		●			
160	1	±13		.7	3	±5-±22		96	4M	150	●			TO-5	ICB8101A	IInc					
160	1	±13		.7	3	±5-±22		96	4M	150		●		TO-5,FP,DIP	ICB8201AC	IInc					
160	1	±13		2	6	±5-±18		90	2M	150		●		TO-5,FP,DIP	ICB8301AC	IInc					
160	4	±14	2	.7	3	±3-±20	30	100	35M		●			TO-5,FP,DIP	RM4131	Ray	●	●	●	●	
160	4	±14	2	1.5	5	±3-±20	70	100	3M			●		TO-5,FP,DIP	RC4131	Ray	●	●	●	●	
160		±14		.7	3	±5-±20	30	96	4M		●			TO-99,DIP	101A	Adv		●	●	●	
160		±14		.7	3	±5-±20	30	96	4M		●			TO-99,DIP	107	Adv	●	●	●	●	
160		±14		.7	3	±5-±20	30		4M		●				SG107	SG	●	●	●	●	
160		±14		.7	3	±5-±20	30	96	4M		●			TO-5	RM101A	Ray		●	●	●	
160		±14		.7	3	±5-±20	30	96	4M			●		TO-99,DIP	201A	Adv		●	●	●	
160		±14		.7	3	±5-±20	30	96	4M			●		TO-99,DIP	207	Adv	●	●	●	●	
160		±14		1	3	±5-±20	120	90	800K		●			TO-5,FP,DIP	RM4101	Ray	●	●	●	●	
160		±14		1	6	±5-±20	120	90	800K		●			TO-5,FP	LM101	Scx		●	●	●	
160		±14		1	6	±5-±20	120	90	800K		●			TO-5,FP	LM101	NS		●	●	●	
160		±14		1	3	±5-±20	120	90	800K		●			TO-5,FP,DIP	RM101	Ray		●	●	●	
160		±14		1		±5-±20	120	90	800K		●			TO-99,DIP	101	Adv		●	●	●	
160		±14		1		±5-±20	120	90	800K			●		TO-99,DIP	201	Adv		●	●	●	
160		±14		1.5	5	±5-±20	70	96	2M			●		TO-5	SG201A	SG		●	●	●	
160		±14		1.5	5	±5-±20	70	96	2M			●		TO-5	RM101AC	Ray		●	●	●	
160		±14		1.5	5	±5-±20	70	96	2M			●		TO-5	LM201A	NS		●	●	●	
160		±14		1.5	5	±5-±20	70	96	2M			●		TO-5	LM201A	Scx		●	●	●	
160		±14		1.5	5	±5-±20	70	96	2M			●		TO-5	LM207	NS	●	●	●	●	
160		±14		2	6	±5-±15	70	90	2M			●		TO-5	SG301A	SG		●	●	●	
160		±14		2	6	±5-±15	70	90	2M			●		TO-5	LM301A	NS		●	●	●	
160		±14		2	6	±5-±15	70	90	2M			●		TO-99,DIP	301A	Adv		●	●	●	
160		±14		2	6	±5-±20	70	90	2M			●		TO-99,DIP	307	Adv	●	●	●	●	
160		±14		2	6	±5-±20	70		2M			●			SG307	SG	●	●	●	●	
160		±14		2	6	±5-±15	70	90	2M			●		TO-5	LM307	NS	●	●	●	●	
160		±14		3	3	±5-±20	30	96	4M		●			TO-5	SG101A	SG		●	●	●	
160		±14		3	3	±5-±20	30	96	4M		●			TO-5	LM101A	Scx		●	●	●	
160		±14		3	3	±5-±20	30	96	4M		●			TO-5	LM101A	NS		●	●	●	
160		±14		.7		±5-±20	30	96	4M		●				LA107	NPC	●		●	●	
160		±14		.7			30	96	4M		●			TO-5	LM107	NS	●	●	●	●	
160		±14		1.5		±5-±20	70	96	2M			●			LA207	NPC	●	●	●	●	
200	.005	±13	.5	2		±15	80	90	2M	75	●			ROUND	SG741C	SG					
200	.005	±14	.5	1		±15	80	90	2M	75	●			ROUND	SG741	SG					
200	.25	±14	.16	0	5	±6	10	70	10M	2K	●			TO-99	UC4250	Sol		●	●	●	
200	.25	±14		0	5	±6	15	70	10M	2K		●		TO-99	UC4250C	Sol		●	●	●	
200	1	±13	2.5	2			8				●				MC1556	Mot	●		●	●	
200	1	±13	2.5	2			8					●			MC1456	Mot	●		●	●	
200	1	±14	.8	1			200				●			ROUND,FP,DIP	MC1741	Mot	●		●	●	
200	1	±14	.8	1			200					●		ROUND,FP,DIP	MC1741C	Mot	●		●	●	
200	12	±12	±7	2	5	±15	2	100	200M		●			FP(TO-86),TO-99	RA-2600	RI	●	●	●	●	
200		±10	.5	1		±15	200	90	1M		●			TO-99	μA741	Fch	●	●	●	●	
200		±10	.5	1		±15	200	90	1M		●			TO-5,DIP	MIC741	ITT	●	●	●	●	
200		±14	.5	1		±22	200	90	1M		●			TO-5,FP,DIP	RM741	Ray	●	●	●	●	
200		±14	.5	1		±15	200	90	1M		●			DIP,FP	RM4741	Ray	●	●	●	●	●
200		±14	.5	1		±15	80	90	2M	75	●			DIP	VA747	VS	●	●	●	●	●
200		±14	.5	1		±15	200	90	1M		●			TO-99	VA741	VS		●	●	●	
200		±14	.5	1			80	90	2M	75	●			TO-99,DIP	748	Adv		●	●	●	
200		±14	.5	1			80	90	2M	75	●			DIP	747	Adv	●	●	●	●	●
200		±14	.5	1		±15	80	90	2M	75	●			TO-99,DIP	741	Adv		●	●	●	
200		±14	.5	2		±15	80	90	2M	75		●		TO-99,DIP	741C	Adv		●	●	●	
200		±14	.5	2			80	90	2M	75		●		DIP	747C	Adv	●	●	●	●	●
200		±14	.5	2			80	90	2M	75		●		TO-99,DIP	748C	Adv		●	●	●	
200		±14		1		±15		90	1M		●			TO-91,99,116	TOA1741	Tns					
200		±14		1		±15		90	10M		●			TO-91,99,116	TOA7741	Tns					
200		26		1	3	±15	200	90	1M	150	●			ROUND,FP	741B	Aml		●			
200				1		±15					●			DIP	μA747	Fch	●	●	●	●	●
200				1		±15						●		DIP	μA747C	Fch	●	●	●	●	●
200				1		±15					●			TO-99	μA748	Fch		●	●	●	
200				1		±15						●		TO-99	μA748C	Fch		●	●	●	
300		±14		2		±5-±15	1.5	100		40M		●			LA308	NPC		●	●	●	
500	1	±32	2	2			8K					●		TO-99	MC1436	Mot	●		●	●	
500	1	±32	2	2			8K				●			TO-99	MC1536	Mot	●		●	●	
1M				.5			75	120							SSS725	PM					
1M			6	20					10^{12}		●			TO-99	μA740	Fch	●	●	●	●	
1M			6	20					10^{12}			●		TO-99	μA740C	Fch	●	●	●	●	
3M				1	.6			120			●			TO-99	μA725	Fch					
3M				1	.6			120				●		TO-99	μA725B	Fch					
	.02	±2.5		.57		±6		77	4K	60	●			TO-5	CA3007	RCA			●	●	
	.02	20	1.4	3										ROUND	ULNX2139D	Spg		●	●	●	
	.5	22		2.6		±12	83	100	1.5M		●			DIP	CA3033	RCA			●	●	
	.5	22		2.6	±12		83	100	1.5	M		●		DIP	CA3047	RCA			●	●	
	.5	32		2.9		±18	103	108	1M		●			DIP	CA3033A	RCA			●	●	
	.5	32		2.9		±18	103	108	1M			●		DIP	CA3047A	RCA			●	●	
	1	±20	.5	±10		±24	100		3M		●			TO-99	UC4200	Sol					
	1	±20	.5	±15		±24	250		3M			●		TO-99	UC4200C	Sol					
	1	±20	.5	±15		±24	250		3M			●		DIP	UC4200C2	Sol					
	1.5	8		1		12	3.5K	85	20K	600	●			TO-99	μA730	Fch					
	1.5	7.5		2		12	4.5K	80	15K	600		●		TO-99	μA730C	Fch					
	2	±10	3	±10		±15	200		1M			●		DIP	UC4000C2	Sol					
	4	±10	80								●				L174	Scx		●	●	●	

GAIN (OPEN LOOP)	FREQ RANGE (MHz)	OUTPUT VOLTS (P/P)	SLEW RATE (V/μs)	INPUT OFFSET (mV)	DRIFT (μV/°C)	SUPPLY VOLTS (V)	INPUT BIAS (mA)	CMR (dB)	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS INT COMP	REMARKS SHORT PROOF	REMARKS INV INPUT	REMARKS NON-INV INPUT	REMARKS DUAL
	4	±10	80									•			L474	Scx			•	•	
	15	±3.5		2.2		±6			100K	70	•			TO-5	CA3002	RCA			•	•	
	15	6.75		1.08		±6	5.3K	94	14K	200	•			FP	CA3008	RCA			•	•	
	15	6.75		.9		±6	2.5K	94	20K	160	•			FP	CA3008A	RCA			•	•	
	15	6.75		1.08		±6	5.3K	94	14K	200	•			TO-5	CA3010	RCA			•	•	
	15	6.75		.9		±6	2.5K	94	20K	160	•			TO-5	CA3010A	RCA			•	•	
	15	6.75		1.08		±6	5.3K	94	14K	200		•		DIP	CA3029	RCA			•	•	
	15	6.75		.9		±6	2.5K	94	20K	160		•		DIP	CA3029A	RCA			•	•	
	15	6.75		1.08		±6	5.3K	94	14K	200	•			DIP	CA3037	RCA			•	•	
	15	6.75		.9		±6	2.5K	94	20K	160	•			DIP	CA3037A	RCA			•	•	
	30			1.4		±6		98	195K	8K	•			TO-5	CA3000	RCA			•	•	
	40	10		2		−6,12	3K	85	25K	130	•			TO-5	CA3031/702A	RCA			•	•	
	40	10		5		−6,12	5K	80	20K	200		•		TO-5	CA3032/702C	RCA			•	•	
	50	14		1.37		±12	9.6K	103	7.8K	92	•			TO-5	CA3015	RCA			•	•	
	50	14		1		±12	4.7K	103	10K	85	•			TO-5	CA3015A	RCA			•	•	
	50	14		1.37		±12	9.6K	103	7.8K	92	•			FP	CA3016	RCA			•	•	
	50	14		1		±12	4.7K	103	10K	85	•			FP	CA3016A	RCA			•	•	
	50	14		1.37		±12	9.6K	103	7.8K	92		•		DIP	CA3030	RCA			•	•	
	50	14		1		±12	4.7K	103	10K	85		•		DIP	CA3030A	RCA			•	•	
	50	14		1.37		±12	9.6K	103	7.8K	92	•			DIP	CA3038	RCA			•	•	
	50	14		1		±12	4.7K	103	10K	85	•			DIP	CA3038A	RCA			•	•	
		±10	10	3		±12-±15			10^{12}	.8		•		TO-5	LM202	NS		•			
		±10	10	5		±12-±15			10^{12}	.8		•		EPOXY	LA302	NPC		•			
		±10	10	5		±12-±15			10^{12}	.8		•		TO-5	LM302	NS	•	•			
		±10		2		±12-±15			10^{12}	.8	•			TO-5	LM102	NS		•	•	•	
		±13		2	6	±15			10^{12}	.8	•			TO-5	RM102	Ray	•				
		±13	10	2		±12-±15			10^{12}	.8	•			TO-5	LA102	NPC		•			
		±14		1		±5-±20	120	90	800K		•			TO-5,FP,DIP	LA101	NPC		•	•	•	
		±14		.7		±5-±20	30	96	4M		•			TO-5	LA101A	NPC		•	•	•	
		±14		2		±5-±20	250	90	400K			•		TO-5,FP,DIP	LA201	NPC		•	•	•	
		±14		2		±18	70	90	2M			•		TO-5	LA301A	NPC		•	•	•	
			15								•				L120	Scx	•				
			15								•				L420	Scx	•				
						±3-±22					•			DIP	UC4747	Sol	•	•	•	•	•
						±9					•			TO-5,FP	SFC2530	NPC			•	•	
						±9					•			TO-5,FP	SFC2531	NPC			•	•	
												•		DIP	UC4747C	Sol	•	•	•	•	•

POWER AMPS

PWR OUT (W)	FREQ (kHz)	OUTPUT (V)	SUPPLY VOLTS (V)	GAIN	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
.15	2000	12	21	200	11	1	•			TO-99	μA716	Fch
.15	2000	14	21	200	11	1		•		TO-99	μA716C	Fch
.55	8000	3	9		55	130	•			TO-5	CA3020	RCA
1	15		22		55	1				DIP	PA222	GE
1	100		22		100	2				DIP	PA234	GE
1	8000		0,9		55	200	•			TO-5	CA3020A	RCA
1			9		15					ROUND	TAA300	Amp
1				36				•		ROUND	MC1454	Mot
1.1	250	4	±8	36	10	.2	•			ROUND	MC1554	Mot
2	100		24		40	1.5	•			DIP	PA237	GE
5	100		34			.6	•			DIP	PA246	GE

HF AMPS

FREQ RANGE (MHz)	GAIN (dB)	NOISE FIGURE (dB at MHz)	CMR (dB)	SUPPLY VOLTS (V)	MAX INPUT (V)	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PACKAGE TYPE	MFRS TYPE	MFR	REMARKS
5	80			12	±4	500	10K		•			PA189	GE	
25	70				.3				•		DIP	μA757C	Fch	DUAL
30	21	6@1		24	±4	1.6K	1.5	•			DIP	SA20	Syl	

HF AMPS, Linear Monolithic (Cont'd)

FREQ RANGE (MHz)	GAIN (dB)	NOISE FIGURE (dB at MHz)	CMR (dB)	SUPPLY VOLTS (V)	MAX INPUT (V)	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PACKAGE TYPE	MFRS TYPE NO.	MFR	REMARKS
30	21	8@1		24	±4	1.6K	1.5	●			DIP	SA21	Syl	
30	50		46	4.8,−6	±2	180	50		●		TO-99, FP	μA751C	Fch	
35	52	5		6		10K	16	●			ROUND	MC1553	Mot	
40	29			±6		6K	35	●			TO-99,TO-91	SFC2510	NPC	VIDEO AMP.
40	34	5		6		10K	16	●			ROUND	MC1552	Mot	
40	39		85		±1	6K	35		●		ROUND, FP	SN7510	TI	
40	39								●		ROUND	MC1410	Mot	
40	40		85		±1	6K	35	●			ROUND, FP	SN5510	TI	
40	40			±6	±5	6K	35	●			ROUND, FP	MC1510	Mot	
50	25			10		1.8K	150	●			ROUND	SG1402	SG	
50	25			10		1.8K	150		●		ROUND	SG2402	SG	
50	25			10		1.8K	150		●		ROUND, DIP	SG3402	SG	
50	60/31	7@10.7		12	±5			●			TO-100	μA719	Fch	DUAL
50	60/31	7@10.7		12	±5				●		TO-100	μA719C	Fch	DUAL
50	80	7@10.7		12	±5				●		P	μA717E	Fch	
60	24			12							ROUND	901	Aml	VIDEO
75	18			±5		10K	25		●		ROUND,FP,DIP	MC1545	Mot	
75	19								●		ROUND,FP,DIP	MC1445	Mot	
100	14	7.7@11.7	88	±6	±2.5	140K	45	●			TO-5	CA3001	RCA	
100		6@10.7		12	±5				●		P	μA703E	Fch	INTERNAL BIASING NETWORK
100								●			DIP, FP	SE510	Sgn	DUAL
100									●		DIP, FP	NE510	Sgn	DUAL
100								●			DIP, FP	SE511	Sgn	
100									●		DIP, FP	NE511	Sgn	
110	15			12,−6							ROUND	903	Aml	VHF
120	4	20@100	101	±6	±3.5	1.4K	2K	●			TO-5	CA3005	RCA	
120	4	38@.001	110	±6	4,−2.5	110	5.5K	●			TO-5	CA3028B	RCA	
120	30			20		1K	5	●				CMC6020	Con	
120	15/46			±6	±5	4K	20	●			TO-100, FP	μA733	Fch	INTERNAL SER./SHUNT FDBK. DIFF. IN&OUT
120	15/46			±6	±5	4K	20		●		TO-100	μA733C	Fch	INTERNAL SER./SHUNT FDBK. DIFF. IN&OUT
120	20/52		86	±8		4K			●		TO-100, DIP	733C	Adv	DIFF. VIDEO AMP.
120	20/52		86	±8		4K		●			TO-100, DIP	733	Adv	DIFF. VIDEO AMP.
120		12@100	98	±6	±3.5	1.2K	2.2K	●			TO-5	CA3004	RCA	
120		20@100		6	2.1	590	12.5K	●			TO-5	CA3028A	RCA	
120		20@100	101	±6	±3.5	1.4K	2K	●			TO-5	CA3006	RCA	
120						250K		●			ROUND, DIP	S5733	Sgn	DIFF I/0
120						250K			●		ROUND, DIP	N5733	Sgn	DIFF I/0
120						250K	20	●			ROUND	SG733	SG	
120						250K	20	●	●		ROUND, DIP	SG733C	SG	
150	18			±8		90	95		●		ROUND, FP	PA7601	Phl	
150	45	6						●			ROUND	MC1590	Mot	
150		5		6			18	●			ROUND,FP,DIP	SE501	Sgn	
150		5		6			18		●		ROUND,FP,DIP	NE501	Sgn	
150		6.5@30		12	±5			●			TO-99	μA703	Fch	INTERNAL BIASING NETWORK
150		6.5@30		12	±5				●		TO-99	μA703C	Fch	INTERNAL BIASING NETWORK
150									●		TO-5	LM703L	NS	RF/IF AMP
160		80@150		±12				●			ROUND, FP	PA7600	Phl	BANDPASS AMP.
200	25	5		±6		1.8K	100	●			ROUND, FP	MC1550	Mot	
200	26			12		2.5K	50	●	●		ROUND, DIP	SG3401	SG	
200	28			12		2.5K	25	●			ROUND	SG1401	SG	
200	28			12		2.5K	25	●			ROUND	SG2401	SG	
250	20			24							ROUND, DIP	911	Aml	IF
250								●			TO-5	LM171	NS	RF/IF AMP
250									●		TO-5	LM271	NS	RF/IF AMP
250									●		TO-5	LM371	NS	RF/IF AMP
300	26							●			ROUND	MC1110	Mot	
	36					70K		●			ROUND	MC1526	Mot	
	38					40K			●		ROUND	MC1429	Mot	
	38					50K		●			ROUND	MC1529	Mot	
	43					3K		●			ROUND	MC1525	Mot	
	73					2.6K		●			ROUND	MC1519	Mot	

VOLTAGE REGULATORS

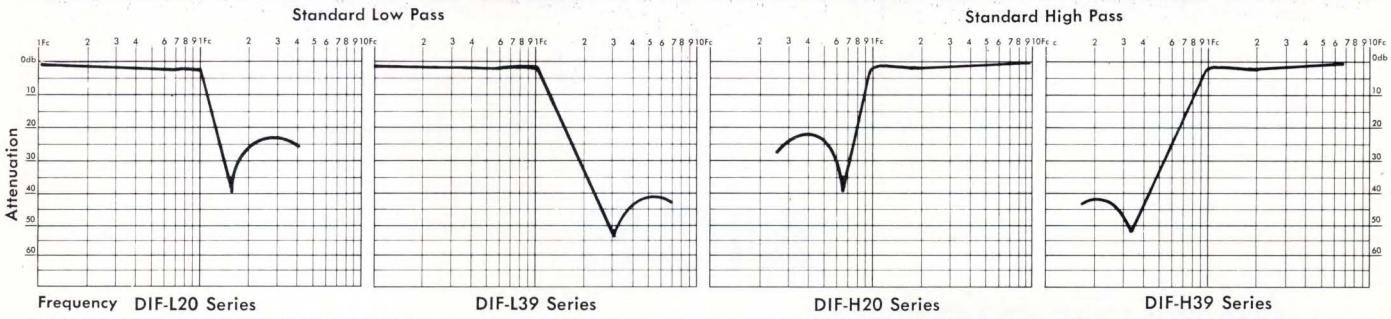
OUTPUT RANGE (V)	OUTPUT CURRENT mA	INPUT RANGE (V)	REGULATION LINE (%/V)	REGULATION LOAD (%)	TEMP MIL	TEMP IND	TEMP COM	PACKAGE TYPE	MFRS TYPE NO.	MFR
5	>200,>1K	7-35	.005	.6	●			TO-5, TO-3	LM109	NS
5	>200,>1K	7-35	.005	.6		●		TO-5, TO-3	LM209	NS
5	>200,>1K	7-35	.005	.6		●		TO-5, TO-3	LM309	NS
5		7-35	.005	.6	●			TO-3	LM109	ICT
4-16	150	9-24	.2	.1		●		TO-5	NC109T	GI
17	200,500	20			●			ROUND	MC1560	Mot

ESC Introduces ... The Dual In-line LC Filter Series - compatible with integrated circuit boards

To meet the demand for a standard miniature filter, ESC has designed and developed the DIF (Dual In-line Filter) series. DIF filters are passive, stable networks that fit any commercial dual in-line connector or hole spacing. They meet the requirements of MIL-F-18327C, grade 5, class R operating temperature range of −55°C to +105°C.

In addition to the standard DIF filters shown here, other characteristics can be custom designed to your specifications in this case size e.g. linear phase, band pass, telemetering filters.

.76"L x .46"W x .25"H



Type	DIF-L20 Series	DIF-L39 Series	DIF-H20 Series	DIF-H39 Series
Insertion Loss	.5 db maximum at .1Fc		.5 db maximum at 10Fc	
Ripple	Less than ±1 db in passband			
Attenuation in stopband	20 db minimum at 1.4 Fc & higher	39 db minimum at 2.5 Fc & higher	20 db minimum at .715 Fc & lower	39 db minimum at .4Fc & lower

Other LC Filters designed by ESC include:
• Low Pass • High Pass • Band Pass • Single Sideband • RFI • Telephone Line Simulators
• Miniature • Printed Circuit • Audio • Mobile Communications • Telemetering
• Special Applications — all to MIL-F-18327

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CIRCLE NO. 19

VOLTAGE REGULATORS, Linear Monolithic (Cont'd)

OUTPUT RANGE (V)	OUTPUT CURRENT mA	INPUT RANGE (V)	REGULATION LINE (%/V)	REGULATION LOAD (%)	TEMP MIL	TEMP IND	TEMP COM	PACKAGE TYPE	MFRS TYPE NO.	MFR
17	200,500	20				●		ROUND	MC1460	Mot
2-20	12	8-30	.1	.1		●		TO-5,FP	LA300	NPC
2-20	12	8-30	.2	.1		●		TO-5	LM300	NS
2-20	40	8-30	.1	.1		●		ROUND,DIP	SG200	SG
2-20	40	8-30	.1	.1		●		ROUND,DIP	SG300	SG
3-22	1K	6-25	1		●				PA264	GE
2-30	12	8.5-40	.1	.1		●		TO-5,FP,DIP	LA200	NPC
2-30	12	8.5-40	.1	.1	●			TO-5,FP,DIP	LA100	NPC
2-30	12	8.5-40	.2	.1	●			TO-5,FP	LM100	NS
2-30	12	8.5-40	.2	.1		●		TO-5	LM200	NS
2-30	40	8.5-40	.1	.1	●			ROUND,DIP	SG100	SG
12-30		15-35							CMC-5130	Con
4.5-30	20	8-40	.06	.02		●		TO-5	LM305	NS
4.5-30	40	8-40	.025	.03			●	ROUND,DIP	SG305	SG
−(0-30)	25	−(8-50)	.1	.01		●		TO-5	LM304	NS
3-34	1K	6-25	1		●			SPL	PA265	GE
2-37	150	9.5-40	.01	.03	●			ROUND, DIP	723	Adv
2-37	150	9.5-40	.01	.03		●		ROUND,DIP	723C	Adv
2-37	150	9.5-40	.01	.03	●			ROUND, DIP	SG723	SG
2-37	150	9.5-40	.01	.03		●		ROUND, DIP	SG723C	SG
2-37	150	9.5-40	.01	.03/V	●			MET. CAN, DIP	μA723	Fch
2-37	150	9.5-40	.01	.03/V		●		MET. CAN, DIP	μA723C	Fch
2-37	150	9.5-40	.01	.03/V	●			TO-5,DIP	MK723	ITT
2-37	150		.01	.03	●			ROUND	VA-723	VS
3-37	150	9.5-50	.002	.01		●		TO-5	ICB8723C	IInc
3-37	150	9.5-50	.002	.01	●			TO-5	ICB8723M	IInc
−(0-40)	20	−(8-50)	.1	.01	●			FP,TO-5	LM104	NS
−(0-40)	25	−(8-50)	.01		●				LA104	NPC
−(0-40)	25	−(8-50)				●			LA204	NPC
−(0-40)	25	−(8-50)	.1	.01		●		TO-5	LM204	NS
−(.015-40)	25	−(8-50)				●			LA304	NPC
2.5-40		7-50							CMC-5050	Con
4.5-40	12	8.5-50	.06	.02	●			TO-5,FP	LM105	NS
4.5-40	12	8.5-50	.03	.02		●		TO-5,FP	LA305	NPC
4.5-40	20	8.5-50	.06	.02		●		TO-5	LM205	NS
4.5-40	40	8.5-50	.025	.03	●			ROUND	SG105	SG
4.5-40	40	8.5-50	.025	.03		●		ROUND	SG205	SG
4.5-40		8.5-50	.03	.02	●			TO-5,FP	LA105	NPC
4.5-40		8.5-50	.03	.02		●		TO-5,FP	LA205	NPC
8-40	200	3-37.8	.02		●				TVR2000	Tns
8-40	200	3-37.5	.02			●			TVR2001	Tns
	200,500	35				●		ROUND	MC1461	Mot
	200,500	35						ROUND	MC1469	Mot
	200,500	40			●			ROUND	MC1561	Mot
	200,500	40						ROUND	MC1569	Mot
	500	−40			●				MC1563	Mot
	500	−35				●			MC1463	Mot
					●			DIP	MC1566	Mot
						●		DIP	MC1466	Mot

MOS

SHIFT REGISTERS

BITS PER UNIT	DUAL	FREQ (MHz)	DISS (mW/BIT)	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY VOLTS (V)	REMARKS CLOCK	REMARKS STATIC	REMARKS DYNAMIC	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
4	●	3.0		9.99	.01	6	1	●		●			DIP	CD4015D	RCA
4		40.0	0.2	6	0	6	1	●					DIP	MS610	Rag
8		1.0	1.6	−1.5	−8.0	+10	1	●		●	●		DIP	MM408/508	NS
8		1.0	1.6	−1.5	−8.0	+10	1	●		●	●		DIP	MM409/509	NS
8		1.0		9.95	.05	+20	1	●		●			DIP, FP	SCL5402	SSS
8		1.0	43MW	−1	−11	−27	2	●			●		FP	MEM3008PS	GI
8		2.5		9.99	.01	6	1	●		●			DIP	CD4014D	RCA
8		0.25		9.95	.05	+20	1	●			●		DIP, FP	SCL5408	SSS
12		0.1	216MW	−1	−11	−27	1	●			●		FP	MEM3012SP	GI
12		1.0	270MW			−30	2	●		●	●		FP	SP01C/SP51C	AMI
16	●	0.5		−3	−10	−16	2		●		●		TO-100	PL5R32C	Phl
16	●	1.0	4.0	+4.5	+0.4	−25	2	●			●		TO-100	HSSR2016	Hgh
16	●	1.0				−20	2		●	●	●		TO-5	216-D	ITT

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[THE INDUSTRY'S FIRST ION-IMPLANTED MOS DEVICES]

Because our MOS integrated circuits are ion-implanted, they can handle 20 MHz data. And they're pin compatible with P-channel MOS.

Ion-implantation gives them ultimate automatic gate registration without process complications.

Example: our HDSR2164 dual 64-bit TTL compatible shift register. It's loaded with Tomorrow features. Like greater than 10 MHz operation. Low clock capacitance (typically, 25pf) and low power dissipation (typically 0.1 mW per bit per MHz at operating frequencies over 10 MHz). And it's priced at $24.95 per unit in quantities over 100 pieces.

For literature, data sheets, and name of nearest distributor, please write: Hughes MOS Division, 500 Superior Avenue, Newport Beach, CA 92663.

HUGHES

HUGHES AIRCRAFT COMPANY
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HUGHES STANDARD MOSINC DEVICES

COUNTERS

HCTR0107: Reversible Decade Counter with Seven-Segment Decoder and Drivers @ $12.50

HCTR0507: Seven Stage Binary Counter, 7 Outputs, @ $7.00

HCTR0201: RST Flip-Flop @ $1.65

HCTR0102: Commercial/Entertainment Binary Divider @ $0.80

STATIC SHIFT REGISTERS

HSSR2016: Dual-16 Bit @ $5.95

HSSR2064: Dual-64 Bit @ $16.00

DYNAMIC SHIFT REGISTERS

HDSR3066: Triple-66 Bit @ $17.50

HDSR4064: Quad-64 Bit @ $23.50

ION-IMPLANTED MOS (IMOS) SHIFT REGISTERS

HDSR2164: 10 MHz/ Dual-64 Bit Dynamic Shift Register @ $24.95

LISR0064: 20 MHz/ 64 Bit Dynamic Shift Register @ $35.00 (1 up)

MULTIPLEXERS

HMUX1756: 4 Bit D-to-A Converter @ $39.80

HMUX1784: 4 Bit D-to-A Converter @ $39.80

HMUX2542: Dual 2-Bit Commutator @ $29.95

HMUX2641: 4-Bit Commutator @ $29.95

LOGIC ELEMENTS

HLOG2304: Triple 3, Dual 2 NOR Gates @$4.00

HLOG2306: Dual J-K Flip-Flop @ $4.00

MULTIPLES

HMUL 1444: General Purpose Quad @ $10.25

HMUL1445: General Purpose Quad @ $14.75

HMUL1884: Quad Dual-Switch @ $16.25

HMUL2661: Six-Channel Switch @ $15.75

DUALS

HDSW8550: High Level Switch @ $5.60

HDIG8551: Amplifier @ $7.45

DISCRETES

HDGP1000: General Purpose Switch @ $0.70

HDGP1001: General Purpose 30-ohm Switch @ $0.80

HDIG1030: General Purpose @ $3.10

HDIG1886: Electrometer @ $3.55

HDSW2106: Low-Resistance, 20-ohm Switch @ $4.40

HDSW3005: General Purpose Low-Leakage Switch @ $3.30

HDSW8318: General Purpose Switch @ $2.75

HDSW8348: General Purpose 50-ohm Switch @ $4.10

SUBSYSTEMS

HSUB0525: TV Sync Circuit @ $15.00

HSUB5021: Differential Digital Analyzer @ $18.00

COMPLEMENTARY MOS

LCOS4007: Dual Complementary Pair plus Inverter @ $20.00 (1 up)

Note: All prices for 100 and over quantities except as noted.

SAMPLE KITS

#1 Electrometers @ $9.75 each

#2 Switches @ $21.90 each

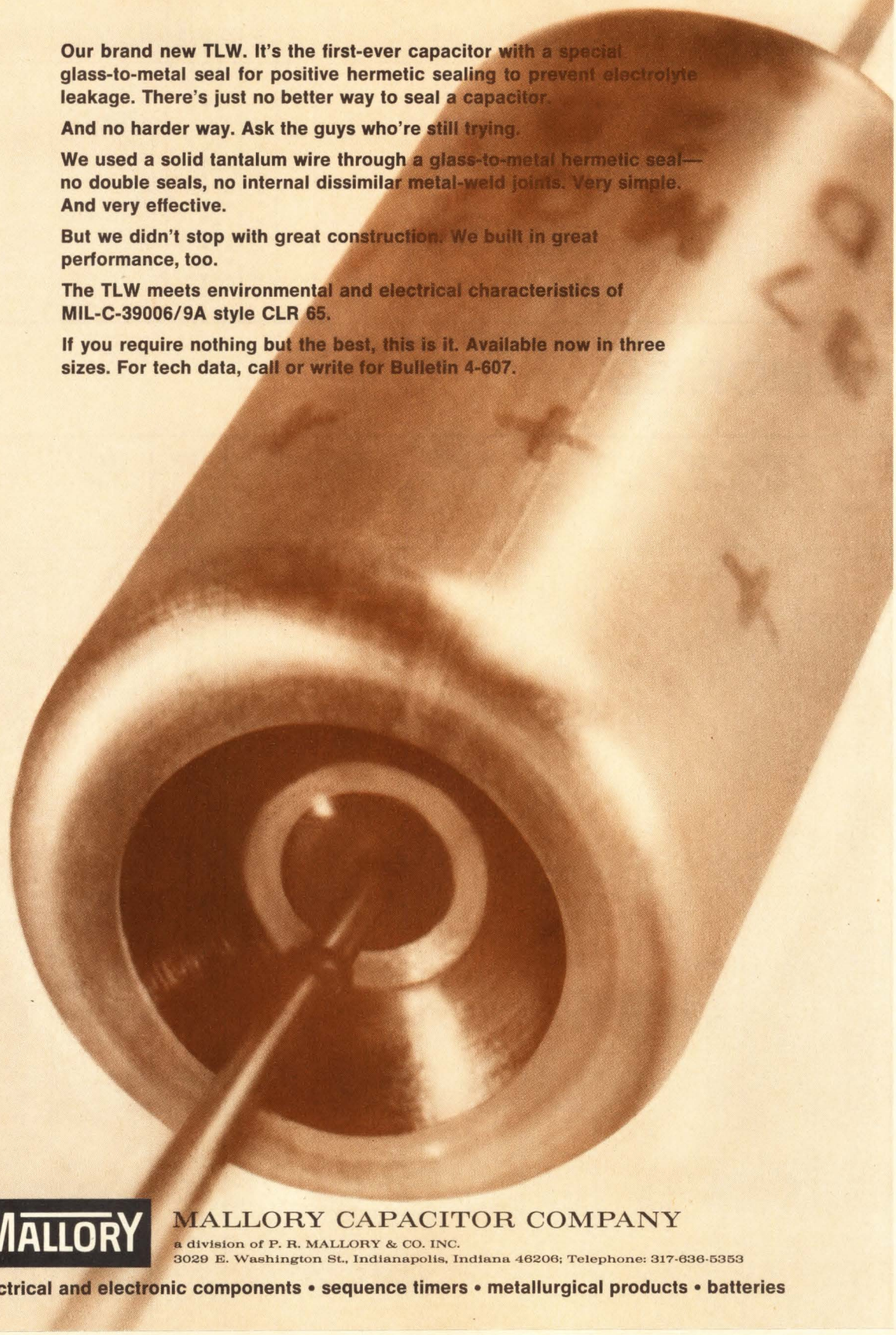
#3 Multiplexers @ $149.75 each

#4 Counters @ $33.56 each

CIRCLE NO. 6

BITS PER UNIT	DUAL	FREQ (MHz)	DISS (mW/BIT)	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY VOLTS (V)	REMARKS CLOCK	REMARKS STATIC	REMARKS DYNAMIC	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
16	●	1.0				−12	2	●		●	●		TO-5	216-SA	ITT
16	●	1.0				−12	2	●		●	●		TO-5	2100-SA	ITT
16	●	1.0	1.6	−1.5	−8.0	+10	1	●		●	●		TO-99	MM404/504	NS
16	●	1.0	1.7	−1.5	−8.0	−10	1	●		●	●		TO-78	MOS404/504	NPC
16	●	1.0	200MW	−1	−10	−27	2	●			●		TO-100	3304	Fch
16	●	1.0		−1	−11	−30	2	●			●		TO-100	S2001K	Sgn
16	●	2	125MW	4.0	0.4	−12	2	●		●			DIP	SS-6-8211	GI
16	●	2	125MW	4.0	0.4	−12	2	●		●			TO-77	SS-6-8212	GI
16	●							●					TO-99/100	TMS3016LR	TI
18		2.5		9.99	.01	6		●		●			FP	CD4006D	RCA
20	●	1.0	48MW			−18	2		●	●	●		FP	RD02C/RD52C	AMI
21		0.25	146MW	−1	−11	−27	1	●			●		TO-74	MEM3021/3021B	GI
21								●					TO-99/100	TMS3021LR	TI
25	●	0.5		−1	−10	−27	2		●		●		TO-100	3303	Fch
25	●	1.0	0.4			−10					●		TO-99	UC7330	Sol
25	●	1.0	0.8	−1.5	−8.0	+10	2		●	●	●		TO-99	MM400/500	NS
25	●	1.0	0.8	−1.5	−8.0	+10	2		●	●	●		TO-99	MM401/501	NS
25	●	1.0	1.2	−1.5	−8.0	−10	2		●	●	●		TO-78	MOS400/500	NPC
25	●	1.0		−1	−11	−30	2	●			●		TO-100	S2002K	Sgn
25	4	1.0	220MW	4.0	0.4	−12	1	●		●			DIP	SL-6-4025	GI
25	●							●					TO-99/100	TMS3000LR	TI
25		0.25	200MW	−1	−10	−27	1	●			●		TO-100	3300	Fch
25		5.0				25	4		●		●		TO-74	FDJ-111	Amp
32	●	1.0	1.6	−1.5	−8.0	+10	1	●		●	●		TO-99	MM405/505	NS
32	●	1.0	1.6	−1.5	−8.0	−12	1	●		●	●		TO-100	MM4050/5050	NS
32	●	1.0	1.6	−1.5	−8.0	−12	1	●		●	●		TO-100	MM4051/5051	NS
32	●	1.0	1.7	−1.5	−8.0	−10	1	●		●	●		TO-78	MOS405/505	NPC
32	●	1.0		−1	−11	−30	2	●			●		TO-100	S2003K	Sgn
32	●	1.5	2.0	−0.5	−10	−24	1	●			●		DIP	1003	EA
32	●	1.5	2.0	−0.5	−10	−24	1	●			●		DIP	1007	EA
32	●							●					TO-99/100	TMS3001LR	TI
32	4	1.0	1.0	−0.5	−10	−24	1		●		●		DIP	1201	EA
32	4	1.0	220MW	4.0	0.4	−12	1	●		●			DIP	SL-6-4032	GI
32	4	3.0	0.6	−0.5	−10	−24	2		●		●		DIP	1200	EA
40	●	1.0	140MW			−18	2	●		●	●		ROUND	RS03G/RS53G	AMI
48	●	2.0		−2	−10	−26	2		●		●		TO-100	PL5R96C	Phl
50	●	0.5		−3	−10	−16	2		●		●		TO-100	PL5R100C	Phl
50	●	1.0	0.8	−1.5	−7.0	−10	2		●	●	●		TO-78	MOS402/502	NPC
50	●	1.0	0.8	−1.5	−8.0	+10	2		●	●	●		TO-99	MM402/502	NS
50	●	1.0	0.8	−1.5	−8.0	+10	2		●	●	●		TO-99	MM403/503	NS
50	●	1.0	10MW			−5.3	2		●	●	●		DIP	RD12H/RD62H	AMI
50	●	1.0	10MW			−5.3	2		●	●	●		ROUND	RD12F/RD62F	AMI
50	●	1.0	10MW			−5.3	2		●	●	●		FP	RD12C/RD62C	AMI
50	●	1.0	120MW			−18	2		●	●	●		ROUND	RD05G/RD55G	AMI
50	●	1.0	120MW			−18	2		●	●	●		FP	RD05D/RD55D	AMI
50	●	1.0	125MW	4.0	0.4	−12	1	●		●			TO-77	SL-6-2050	GI
50	●	1.0		−1	−11	−30	2	●			●		TO-100	S2004K	Sgn
50	●	2.0						●			●			MC1161G	Mot
50	●	5.0	120MW			−18	2		●	●	●		FP	RD07C/RD57C	AMI
50	●	5.0	120MW			−18	2		●	●	●		ROUND	RD07F/RD57F	AMI
50	●	5.0	120MW			−18	2		●	●	●		FP	RD08D/RD58D	AMI
50	●	5.0	120MW			−18	2		●	●	●		ROUND	RD08F/RD58F	AMI
50	●	10.0	120MW			−18	2		●	●	●		FP	RD10C/RD60C	AMI
50	●	10.0	120MW			−18	2		●	●	●		ROUND	RD10F/RD60F	AMI
50	●							●					TO-99/100	TMS3002LR	TI
64	●	1.0	0.3	−1.5	−8.0	−12	2		●	●	●		DIP	MM4015/5015	NS
64	●	1.0	4.0	+4.5	+0.4	−25	2	●			●		TO-100	HSSR2064	Hgh
64	●	1.0	125MW	4.0	0.4	−12	1	●		●			TO-77	SL-6-2064	GI
64	●	4.0	0.8	−1.5	−8.0	+10	2		●	●	●		TO-100	MM410/510	NS
64	●	5.0	0.2	−2	−10	−25	2		●		●		TO-100	PL5R128AC	Phl
64	●	10.0	300MW	−1.5	−8.0	−13	2		●		●		TO-99	HDSR2164	Hgh
64	3								●				TO-99/100	TMX3305LR	TI
64	4	1.0	300MW	+4.5	+0.4	−10	2		●		●		TO-100	HDSR4064	Hgh
64		0.2		−0.5	−5.5	−14	1	●		●			TO-100	SCL5130	SSS
64		1.0	300MW	−0.5	−10	−24	1				●		DIP	1203	EA
64		1.0	3	−1	−10	−27	1	●			●		TO-100	3305/6	Fch
64		1.0		−0.5	−11.5	−17.5	1	●		●			TO-100	SCL5132	SSS
64		2		−2	−11	−27	4		●		●		TO-74/87	MEM3064B	GI
64		2.0	0.2	−2	−11	−27	4		●		●		TO-100	3320	Fch
64		3.0	300MW	−0.5	−10	−24	2		●		●		DIP	1202	EA
64		5		−2	−11	−27	4		●		●		TO-74/87	MEM3064	GI
64		20.0	25MW@5MHZ	−2.0	−5.0	−12	2		●		●		TO-99	LISR0064	Hgh
66	3	1.0	0.4	−2.0	−11	−10	2		●		●		TO-100	HDSR3066	Hgh
66	3	1.0	1.0						●		●			MC1141G	Mot
66	3	1.0	240MW			−18	2		●	●	●		ROUND	RD13G/RD63G	AMI
66	3								●				TO-99/100	TMX3304LR	TI
100	●	1.0	0.8	−1.5	−7.0	−10	2		●	●	●		TO-78	MOS406/506	NPC
100	●	1.0	0.8	−1.5	−8.0	+10	2		●	●	●		TO-99	MM406/506	NS
100	●	1.0	0.8	−1.5	−8.0	+10	2		●	●	●		TO-99	MM407/507	NS
100	●	1.0		−1	−11	−30	2	●			●		TO-100	S2005K	Sgn
100	●	1.0				−12	2		●	●	●		TO-5	I2100	ITT
100	●	1.0					2		●	●				IM7706M/7707M	Iinc
100	●	1.0					2		●		●			IM7706C	Iinc
100	●	2.0		+4.5	−0.7	−10			●	●			DIP	1-406/7	Itl
100	●	2.0		+4.5	−0.7	−10			●		●		DIP	1-506/7	Itl

At last. A high-reliability capacitor you actually can rely on.



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And no harder way. Ask the guys who're still trying.

We used a solid tantalum wire through a glass-to-metal hermetic seal—no double seals, no internal dissimilar metal-weld joints. Very simple. And very effective.

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The TLW meets environmental and electrical characteristics of MIL-C-39006/9A style CLR 65.

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Electrical and electronic components • sequence timers • metallurgical products • batteries

CIRCLE NO. 21

SHIFT REGISTERS, MOS (Cont'd)

BITS PER UNIT	DUAL	FREQ (MHz)	DISS (mW/BIT)	OUTPUT HIGH (V)	OUTPUT LOW (V)	SUPPLY VOLTS (V)	REMARKS CLOCK	REMARKS STATIC	REMARKS DYNAMIC	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
100	●	2.0						●			●			MC1160G	Mot
100	●							●					TO-99/100	TMS3003LR	TI
128	●	1.0		−1	−11	−28	2	●			●		DIP	1002P	Mos
128	●							●					TO-99/100	TMS3012JR	TI
200		1.0	0.6	−0.5	−10	−26	1		●		●		DIP, TO-99	1221	EA
250		5.0	0.2	−2	−10	−25	2		●		●		TO-100	PL5R250AC	Phl
256	●	1.0		−1.5	−10	−28	2		●		●		DIP	1003P	Mos
256		1.0	0.6	−0.5	−10	−26	1		●		●		DIP,TO-100	1205	EA
256		2.0	50MW			−18	2		●	●	●		DIP	RD14H/RD64H	AMI
256		2.0	50MW			−18	2		●	●	●		ROUND	RD14G/RD64G	AMI
256		3.0	0.6	−0.5	−10	−12	2		●		●		DIP, TO-1001204		EA
256		5.0	0.2	−2	−10	−25	2		●		●		TO-100	PL5R256AC	Phl
426		2.0	110MW			−10	2		●	●	●		FP	RD15D/RD65D	AMI
426		2.0	110MW			−10	2		●	●	●		ROUND	RD15G/RD65G	AMI
512		1.0					2		●	●	●			IM7716M/7716C	IInc

MEMORIES

BITS PER UNIT	ACCESS TIME (μs)	DISS (mW)	OUTPUT High (V)	OUTPUT Low (V)	SUPPLY VOLTS (V)	DESCRIPTION	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	PKG TYPE NO.	MFR
16	.015	.0001			−15	CMOS RAM	●			FP	CD4005	RCA
16	.015	.0001			−15	CMOS RAM	●			DIP	CD4005D	RCA
32	1.5	90	4.0	0.4	−12	R/W RAM	●			DIP,FP	RA-6-4803	GI
64	0.2	250	−1	−11	−35	R/W RAM		●		DIP	MC1170L	Mot
64	0.2	500	−1	−10	−27	R/W RAM		●		DIP	3530	Fch
128	1.0	135	−1.0	−10	−26	R/W RAM		●		DIP	1400	EA
256	0.05	250			−18	R/W RAM		●		DIP	MK4001P	Mos
256	0.75	91	−1.0	−10	−12	ROM		●		DIP	3100	EA
256	0.8	700	+4.5	−0.7	−10	R/W RAM		●		DIP	11011	Itl
256	0.9				−15	RAM		●		DIP,FP	UC7550	Sol
256	0.9				−15	RAM	●			DIP,FP	UC6550	Sol
256	1.0	90	−1.0	−10	−12	ROM		●		DIP	3000	EA
256	1.0	90	−1.0	−10	−12	MULTI-FUNCTION ROM		●		DIP	3001	EA
256	1.0	100	2.5	0.4	±12	FUNCT. GEN. ROM	●	●		TO-99	MM420/520	NS
256	1.0	200	−1	−10	−25	R/W RAM		●		DIP		Phl
256	1.0				−18	R/W RAM		●		DIP	MK4002P	Mos
256	1.1	700	+4.5	−0.7	−10	RAM		●		DIP	1101	Itl
256			+2.6	+0.4	−15	ASYN. BUFFER		●		DIP	4003P	Mos
256						RAM				DIP	TMS4003JR	TI
1024	0.6	250				ROM	●	●			IM7601M/7601C	IInc
1024	0.6	250				ROM	●	●			IM7602M/7602C	IInc
1024	1.0	250	2.5	0.4	±12	ROM	●	●		DIP	MM421/521	NS
1024	1.0	250	2.5	0.4	±12	ROM	●	●		DIP	MM422/522	NS
1024	1.0				−25	ROM	●			DIP,FP	UC6500	Sol
1024	1.0				−25	ROM		●		DIP,FP	UC7500	Sol
1024	1.0				−25	ROM	●			DIP,FP	UC6510	Sol
1024	1.0				−25	ROM		●		DIP,FP	UC7510	Sol
1024	2.0		−2	−10	−25	DYNAMIC ROM		●		FP	PM1024C	Phl
1024	2.5	250	−1	−10	−27	ROM		●		DIP	3501	Fch
1024	500				−25	ROM	●			DIP,FP	UC6525	Sol
1024	500				−25	ROM		●		DIP,FP	UC7525	Sol
1024		250	−1	−10	−27	STATIC ROM		●		DIP	PMS1024C	Phl
2048	0.7	240	−1	−10	−27	ROM		●		DIP	3507	Fch
2048	0.75	350				ROM	●	●			IM7603M/7603C	IInc
2048	0.75	450	−1	−10	−27	ROM		●		DIP	3580/84	Fch
2048	1.0	150			−30	ROM	●	●		DIP	MB01I/MB51I	AMI
2048	1.0	150	0.3	−24	−28	ROM		●		DIP	MEM2048	GI
2048	1.0	350	2.5	0.4	±12	ROM	●	●		DIP	MM423/523	NS
2048	1.0	350	−1	−10	−27	ROM		●		DIP		Phl
2048						ROM				DIP	TMX4500JC	TI
2048						ROM				DIP	TMX4600JC	TI
2048						ROM				DIP	TMX4700JC	TI
2048						ROM					TMX2600JC	TI
2240	0.8	350			−24	CHAR. GEN. ROM		●		DIP	MK2100P	Mos
2240	1.0	250	2.5	0.4	±12	CHAR. GEN. ROM		●		DIP	SK0001	NS
2240	1.0	250	2.5	0.4	±12	CHAR. GEN. ROM		●		DIP	SK0002	NS
2240	1.0	300	−1	−10	−27	CHAR. GEN. ROM		●		DIP		Phl
2240	1.0	350			−22	CHAR. GEN. ROM		●		DIP	MK2000P	Mos
2240	1.0				−24	CHAR. GEN. ROM		●		DIP	MK2300P	Mos
2240						CHAR GEN ROM				DIP	TMS2403JC	TI
2240						CHAR. GEN. ROM				DIP	TMS4103JC	TI
2560	0.7	140			−17	ROM	●	●		DIP	MA01M/MA51M	AMI
2560	0.7	350			−12	CHAR. GEN. ROM		●		DIP	MK2400P	Mos

BITS PER UNIT	ACCESS TIME (μs)	DISS (mW)	OUTPUT High (V)	OUTPUT Low (V)	SUPPLY VOLTS (V)	DESCRIPTION	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	PKG TYPE NO.	MFR
2560	0.70	400				ROM	●	●			IM7604M/7604C	IInc
2560	0.70	400				ROM	●	●			IM7605M/7605C	IInc
2560	0.75	90	−1.0	−10	−12	ROM		●		DIP	3500	EA
2560	0.75	90	−1.0	−10	−12	CHAR. GEN. ROM		●		DIP	3501	EA
4096	1.2	100	−1.0	−10	−12	ROM		●		DIP	3300	EA
4096	1.2	100	−1.0	−10	−12	CODE CONV. ROM		●		DIP	3307	EA
4096						SINE FCTN. ROM				DIP	TMS4305JC	TI
4096						ROM					TMS4300JC	TI

COUNTERS

NO. OF INPUTS (TOTAL)	NO. OF OUTPUTS (TOTAL)	FREQ (MHz)	DISS (mW)	RESPONSE TIME (ms)	TEMP MIL	TEMP IND	TEMP COM	OPERATION UP	OPERATION DOWN	OPERATION PRESET	OPERATION SYN	OPERATION ASYN	OPERATION CMOS	DESCRIPTION	PKG TYPE	MFRS TYPE NO.	MFR
1	1	0.1		5.0		●								FREQ. DIVIDER	TO-72	HCTR0102	Hgh
2	6	5.0				●				●		●		FREQ. DIVIDER	TO-100	HCTR0206	Hgh
3	2	0.5				●				●		●		FREQ. DIVIDER	TO-99	HCTR0201	Hgh
3	6	0.75				●								FREQ. DIVIDER	DIP	PD474	GE
3	8	0.5				●								FREQ. DIVIDER	DIP	PD455	GE
4	7	250				●								FREQ. DIVIDER	DIP	MOS5002	NPC
4	10	2.5	300	.65		●		●	●					BINARY	FP	MEM1050B	GI
9	13	0.5		1.0		●		●	●	●	●	●		BCD DISPLAY, DRIVER	DIP	MEM1056BCD	GI
11	5	1.0	300	1K		●		●	●	●	●	●		BCD DISPLAY DRIVER	FP	HCTR0107	Hgh
11	8	0.5		1.4		●				●			●	BINARY 8-STAGE RIPPLE	DIP,FP	SCL5407	SSS
11	8	2.0		.35	●					●			●	BINARY 8-STAGE RIPPLE	DIP,FP	SCL5401	SSS
11	10	1.0		1.0		●		●	●	●	●			BCD DISPLAY DRIVER	DIP, FP	MEM1056	GI
		4.0	.4	.15	●								●	7 STAGE RIPPLE	TO-5,FP	CD4004/T	RCA
		0.2				●								÷7 FREQ. DIVIDER	DIP	SAJ100	Amp

ANALOG SWITCHES

RES r_{ds} (on) (Ω)	ANALOG SIGNALS (V)	DUAL	DESCRIPTION	DISS (mW)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
400	±7	●	SPDT QUAD ANALOG SW. CMOS					DIP	MS611	Rag
600	±10	●	DPDT DIFF. ANALOG SW.	200		●	●	TO-100	MM450/550	NS
600	±10	●	DPDT DIFF. SW.			●	●	FP	MH453/553	NS
600	±10	3	3PST 3 MOS TRANSISTOR PKG.			●	●	TO-100	MM455/555	NS
600	±10	4	SP4T 4 CHAN. ANALOG SW.	200		●	●	TO-100	MM451/551	NS
600	±10	4	SP4T 4 CHANNEL ANALOG COMMUTATOR			●	●	FP	MM454/554	NS
600	±10	4	4PST 4 MOS TRANSISTOR PKG.	200		●	●	FP	MM452/552	NS
3K	±7		2 CHANNEL ANALOG SW. CMOS					DIP	MS612	Rag
								FP	TMS6000FR	TI
								DIP	TMS6000JR	TI
								DIP	TMS6005JR	TI
								DIP	TMS6009JR	TI

MULTIPLEXERS

NO. OF CHANNELS	RES/MAX r_{ds} (on) (Ω)	DISS (mW)	TIME ON (ms)	TIME OFF (μs)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
4	50				●	●		FP	MX04C/MX54C	AMI
4	600	300	0.3	0.8		●		TO-86	HMUX2542	Hgh
4	600	300	0.3	0.8		●		TO-86	HMUX2641	Hgh

♦ CIRCLE NO. 22

MULTIPLEXERS, MOS (Cont'd)

NO. OF CHANNELS	RES/MAX r_{ds} (on) (Ω)	DISS (mW)	TIME ON (μs)	TIME OFF (μs)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
4	650	200			●	●		FP	3700	Fch
4	800	200	2.0	4.0	●			FP	HMUX1756	Hgh
4	900	200	2.0	4.0	●			FP	HMUX1784	Hgh
6	150				●	●		FP	MX02D/MX52D	AMI
6	180				●			FP	UC6410	Sol
6	180					●		FP	UC7410	Sol
6	400	900			●			FP	MEM2009	GI
6	550	200			●	●		FP	3701	Fch
6	1K	300			●			FP	MEM2017	GI
8	400	200				●		DIP	3705	Fch
8						●		DIP	MC1150L	Mot
8						●		DIP	MC1151L	Mot
10	150	1750			●			DIP	MU-6-2281	GI
10	150				●	●		FP	MX03C/MX53C	AMI
16	1K	150				●		FP	PL4516C	Phl

LOGIC FAMILIES

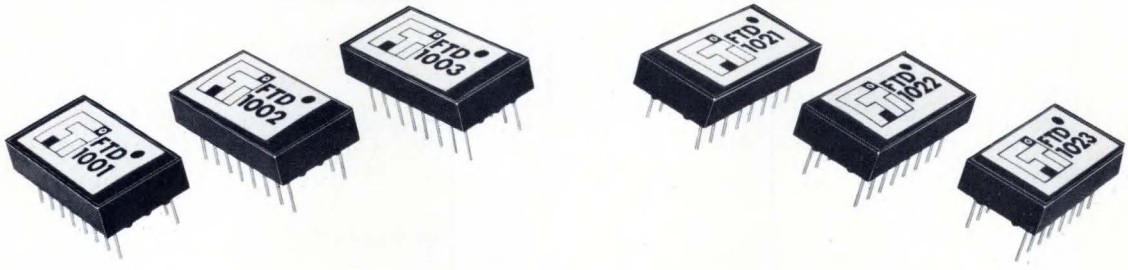
GATES t_{pd} (ns)	GATES DISS (mW)	GATES LOGIC High (V)	GATES LOGIC Low (V)	FLIP-FLOPS FREQ (MHz)	FLIP-FLOPS DISS (mW)	FAMILY CHARACTERISTICS SUPPLY VOLTS (V)	TEMP MIL	TEMP IND	TEMP COM	NO. OF CKTS	PKG TYPE	MFRS TYPE NO.	MFR
3.5μs	0.5				0.5	−30	●	●		3	ROUND	LP04A/LP54A	AMI
50	5	9.95	.05	1.0		+20	●			7	DIP, FP	SCL5101 SCL5201	SSS
150	1K	−1.0	−10			−24		●		7	DIP	1800	EA
65-260	0.4	9.99	0.01	4	0.0	+10	●			14	DIP, FP	CD4000	RCA
300	300	−2	−10	0.5	500	−29		●		6	DIP, FP	PL4C/PL4G	Phl
200-400	20.5	−1	−8	2.0	15	+10	●	●		4	TO-100	MM480/580	NS
350-1K	120				120	−18	●	●		3	FP	UL02C/UL52C	AMI
400-1K	200	−1	−10			−27		●		3	TO-100, DIP	3100	Fch
			0.5	200		−25		●		2	ROUND, FP	HLOG2300	Hgh
				1.0				●		2	DIP	MC1120	Mot
				2.0	0.1	−10		●		2		MC2590	Mot
						+16	●			1	DIP	MS603	Rag

HYBRID

VOLTAGE REGULATORS

OUTPUT VOLTS (V)	OUTPUT CURRENT (mA)	INPUT VOLTS (V)	REGULATION LINE (%/V)	REGULATION LOAD (%)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
3	250	7-40	.6MV/V	4.2MV	●			DIP	VR1030	Tec
3.9	3000 SHUNT				●			TO-36 OR MODULE	75TE3.9	TL
4.7	3000 SHUNT				●			TO-36 OR MODULE	75TE4.7	TL
5	25W			1					BN4009	Sol
5	250	9-40	1MV/V	7MV	●			DIP	VR1050	Tec
5	1000	9-20	2.5	2					BN4100	Sol
5	1000	9-30	2	1					BN4008	Sol
5	3000	8-32	.05MAX	.05	●				LM500	ICT
5.6	3000 SHUNT				●			TO-36 OR MODULE	75TE5.6	TL
3-6	750	10-40	0.05	0.05	●			TO-3	870	CTS
6	25W								BN4004	Sol
6	1000	10-21	2.5	2					BN4101	Sol
6	1000	10-31	2	1					BN4000	Sol
6	250	10-40	1.2MV/V	8.4MV	●			DIP	VR1060	Tec
6.8	3000 SHUNT				●			TO-36 OR MODULE	75TE6.8	TL
−(1-7)		−40	.04	.0025/MA	●			TO-5	NC523	GI
1-7		40	.04	.0025/MA	●			TO-5	NC520	GI

THE BCD TO 7-OUTPUT FAMILIES.



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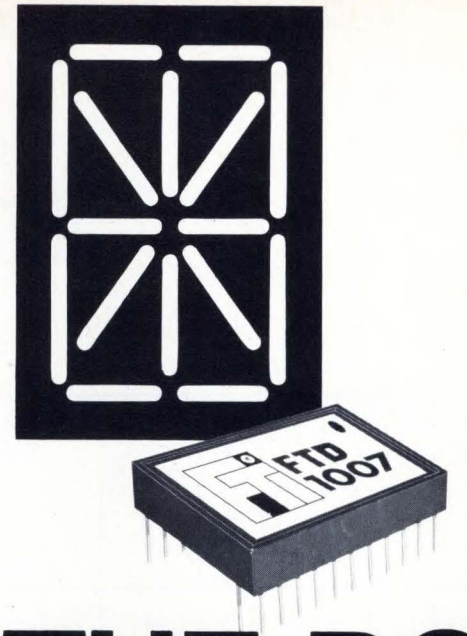
FABRI-TEK MICRO-SYSTEMS, INC.

...where Hybritronics® got its name.

CIRCLE NO. 23

VOLTAGE REGULATORS, Hybrid (Cont'd)

OUTPUT VOLTS (V)	OUTPUT CURRENT (mA)	INPUT VOLTS (V)	REGULATION		TEMP			PKG TYPE	MFRS TYPE NO.	MFR
			LINE (%/V)	LOAD (%)	MIL	IND	COM			
1-7		40	.04	.0025/MA	●			TO-5	NC521	GI
8	250	12-40	1.6M/V	11.2MV	●			DIP	VR1080	Tec
8.2	3000 SHUNT				●			TO-36 OR MODULE	75TE8.2	TL
9	25W			1					BN4005	Sol
9	1000	13-34	1	1					BN4016	Sol
10	250	14-40	2.0MV/V	14MV	●			DIP	VR1100	Tec
10	3000 SHUNT				●			TO-36 OR MODULE	75TE10	TL
−12	250	−(14-40)	.45MV/V	.05		●		DIP	VR2120	Tec
12	25W			1					BN4006	Sol
12	250	16-40	2.4MV/V	16.8MV	●			DIP	VR1120	Tec
12	1000	16-27	2	2					BN4102	Sol
12	1000	16-37	1	1					BN4001	Sol
12	3000 SHUNT				●			TO-36 OR MODULE	75TE12	TL
−15	250	−(17-40)	.45MV/V	.05		●		DIP	VR2150	Tec
15	500	19-40	.1MV/V	1MV		●		DIP	VR1150	Tec
15	1000	19-40	1	1					BN4014	Sol
15	3000 SHUNT				●			TO-36 OR MODULE	75TE15	TL
−18	250	−(20-40)	.45MV/V	.05		●		DIP	VR2180	Tec
18	500	22-40	.1MV/V	1MV		●		DIP	VR1180	Tec
18	1000	22-33	1.5	2					BN4103	Sol
18	1000	22-40	1	1					BN4002	Sol
18	3000 SHUNT				●			TO-36 OR MODULE	75TE18	TL
−20	250	−(22-40)	.45MV/V	.05		●		DIP	VR2200	Tec
20	500	24-40	.1MV/V	1MV		●		DIP	VR1200	Tec
8-20	50	11-30	.0005/V	.001/MA	●			FP	MN210	MN
8-20	50	11-30	.0005/V	.001/MA	●			FP	MN211	MN
8-20	50	11-30	.0005/V	.001/MA	●			FP	MN212	MN
−8 TO −20	50	11-30	.0005/V	.001/MA	●			FP	MN220	MN
−8 TO −20	50	11-30	.0005/V	.001/MA	●			FP	MN221	MN
−8 TO −20	50	11-30	.0005/V	.001/MA	●			FP	MN222	MN
10-20		30	.005	.0001/MA	●			TO-8	NC562	GI
10-20		30	.005	.0001/MA	●			TO-8	NC562B	GI
−22	250	−(24-40)	.45MV/V	.05		●		DIP	VR2220	Tec
22	2600 SHUNT				●			TO-36 OR MODULE	75TE22	TL
22	500	26-40	.1MV/V	1MV		●		DIP	VR1220	Tec
−24	250	−(26-40)	.45MV/V	.05		●		DIP	VR2240	Tec
24	1000	28-40	1	1					BN4003	Sol
24	500	28-40	.1MV/V	1MV		●		DIP	VR1240	Tec
25	1000	29-40	1.5	2					BN4104	Sol
26	25W			1					BN4022	Sol
27	500	31-40	.1MV/V	1MV		●		DIP	VR1270	Tec
27	2100 SHUNT				●			TO-36 OR MODULE	75TE27	TL
−28	250	−(30-40)	.45MV/V	.05		●		DIP	VR2280	Tec
28	1000	32-40	1	1					BN4010	Sol
30	25W			1					BN4018	Sol
8.5-30	50	35	.005	.05	●			TO-99	SH3200	Fch
−(8.5-30)	50	−35	.005	.05	●			TO-99	SH3201	Fch
12-30	100	18-40	0.05	0.1		●		TO-5	DVR100A	Dks
12-30	100	18-40	0.05	0.1	●			TO-5	DVR100B	Dks
−32	250	−(36-40)	.45MV/V	.05		●		DIP	VR2320	Tec
32	500	36-40	.1MV/V	1MV		●		DIP	VR1320	Tec
33	1700 SHUNT				●			TO-36 OR MODULE	75TE33	TL
−36	250	−40	.45MV/V	.05		●		DIP	VR2360	Tec
±8-36	100	12-48	0.1	0.1	●			TO-8	873	CTS
8-38		40	.1	.0025/MA	●			TO-5	NC531	GI
8-38		40	.1	.0025/MA	●			TO-5	NC530	GI
8-38		40	.1	.0025/MA	●			TO-5	NC511	GI
8-38		40	.1	.0025/MA	●			TO-8	NC501	GI
−(8-38)		−40	.1	.0025/MA	●			TO-8	NC503	GI
−(8-38)		−40	.1	.0025/MA	●			TO-5	NC513	GI
−(12-38)		−40	.005	.0001/MA	●			TO-8	NC583	GI
±12-38		40	.005	.0001/MA	●			TO-8	NC581	GI
±13-38		±40	.005	.001/MA	●			TO-8	NC572	GI
36	500	40	.1MV/V	1MV		●		DIP	VR1360	Tec
39	1450 SHUNT				●			TO-36 OR MODULE	75TE39	TL
5-40	100		0.01	0.1	●			TO-8	2802BG	Aml
5-40	100		0.01	0.1	●			TO-8	2803BG	Aml
47	1200 SHUNT				●			TO-36 OR MODULE	75TE47	TL
56	1000 SHUNT				●			TO-36 OR MODULE	75TE56	TL
8-57	2000	11-60	0.2/V	0.5	●			TO-3	878	CTS
8-57	2000	11-60	0.5/V	0.5	●			TO-3	879	CTS
3-60			.001%/%	.01+3MV		●			UR-1	SAM
30-60	150		0.05	0.05	●				807	HD
60-120	150		0.05	0.05	●				808	HD



THE BCD TO 16-SEGMENT ALPHANUMERIC DECODER/DRIVER.

ANOTHER EXAMPLE OF HYBRITRONICS®.

Hybritronics® allows us to offer to you for the first time an ASCII compatible BCD to 16-segment alphanumeric decoder/driver. Using a 6-bit input code, **64 output combinations are available** for driving 16-segment incandescent or light-emitting diode displays. □ The FTD-1007 is contained in a 24-pin dual in-line package. Each output sinks 25 mA continuously and the unit operates from standard logic power supplies. The circuit is T^2L and DTL compatible and has uncommitted collector outputs. □ Write or call today for further information. Contact Emory Lane, Marketing Department, Fabri-Tek Micro-Systems, Inc., 1150 N. W. 70th Street, Fort Lauderdale, Florida 33309. Telephone (305) 933-9351.

FABRI-TEK
MICRO-SYSTEMS, INC.

... where Hybritronics® got its name.

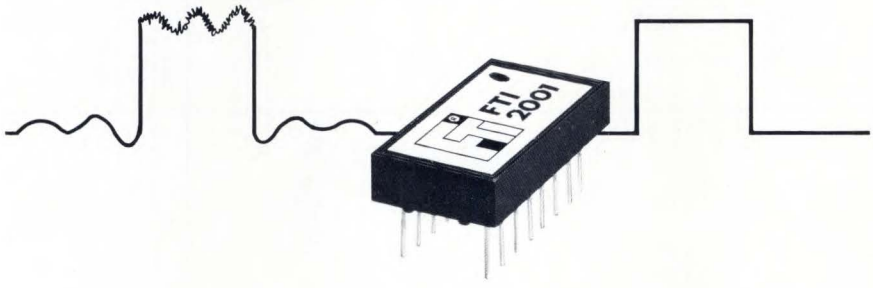
CIRCLE NO. 24

Hybrid (Cont'd)

OP AMPS

GAIN (OPEN LOOP)	FREQ RANGE (MHz)	OUTPUT VOLTS (P/P)	SLEW RATE (V/μs)	INPUT OFFSET (mV)	DRIFT (μV/°C)	SUPPLY VOLTS (V)	INPUT BIAS (mA)	CMR (dB)	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS INT COMP	REMARKS SHORT PROOF	REMARKS INV INPUT	REMARKS NON-INV INPUT	REMARKS DUAL
.95	10	27.6	10	30		±6-28	350	34	75K	25	●				862	CTS			●	●	
1	2	±10		±5	±1000	±12-16	0.1		10/12			●			C800	PN			●	●	
1.5				1	25		.005	80			●		●		20-008	BH	●	●	●	●	
1.5				1	25		.005	80			●		●		20-248	BH	●	●	●	●	
1.5				1	25		.005	80			●		●		20-108	BH	●	●	●	●	
2	30		.3	10		±20	100		.5M				●	TO-5	NH0005C	NS			●	●	
2	30		1	10		±20	50		1M		●			TO-5	NH0005	NS			●	●	
2				.2	5		150	100			●		●		20-007	BH	●	●	●	●	
2				.2	5		100	100			●		●		20-247	BH	●	●	●	●	
2				.2	5		150	100			●		●		20-107	BH	●	●	●	●	
2.2	2.5	±12	100	.2	3	15		80	90K(DIFF)	50	●			TO-5	NC210A	GI			●	●	
2.2	2.5	±12	100	1	5	15		80	90K(DIFF)	50	●			TO-5	NC210B	GI			●	●	
4	30		1	3		±20	25		1M		●			TO-5	NH0005A	NS			●	●	
10	1	±Ivcc-2I	3	±.3-3	±10-50	±4-24	30PA	76	10^{12}			●		TO-8	1402	PN			●	●	
10	4	±10	3	5	100	±10	5PA	80	10″		●			TO-8	M501D	AD	●		●	●	
10		±10	.1	1		±20	100		.5M		●			TO-5, FP	NH0001	NS		●	●	●	
10		±10	.1	1		±20	100		.5M				●	TO-5, FP	NH0001C	NS		●	●	●	
10		±36	.1	1		±40	100		.5M		●			TO-5, FP	NH0004	NS			●	●	
10		±36	.1	1		±40	100		.5M				●	TO-5, FP	NH0004C	NS			●	●	
15			.5	7.5		±22	1.5K		.1M				●	TO-5	LH201	NS	●	●	●	●	
20	1	±10	5	±2	±30	±14-16	1000	100	300M			●		TO-8	1406	PN			●	●	
20	1.0	±10	1.2	±2	±50	±15	0.1	60	10″	2K		●		DIP	3350/03	BB	●		●	●	
20	300	±10	70	.5		±20	2K	90	.1M				●	TO-5	NH0003C	NS			●	●	
20	300	±10	70	.5		±20	2K	90	.1M		●			TO-5	NH0003	NS			●	●	
20k	2	±14	.5		.6	±15	12	100	10^{9}	100	●			DIP	3002	SSE	●		●	●	
25	0.1	±Ivcc-3I	0.3	±1-5	±10-20	±2-18	30	94	10^{9}			●		DIP	1404	PN			●	●	
25			.5	5		±22	500		.3M		●			TO-5,FP,DIP	LH101	NS	●	●	●	●	
30				5	25	±15	.02	80	10″	2K	●				2809B	Aml		●			
30				5	25	±15	.02	70	10″	2K		●			2809C	Aml		●			
32	4	±10	12		50				10^{10}						ATF404	Amp			●		
40	30	±11	8	±10	±25-55	±12-18	.15	80	10^{12}		●			TO-8	1407	PN			●	●	
45	1.0	±10	0.9	±0.5	±5	±15	±20	80	50M	5K		●		DIP	3352/03	BB	●		●	●	
45	1.0	±10	0.9	±0.5	±5	±15	±50	80	50M	5K		●		DIP	3226/03	BB	●		●	●	
45	1.0	±10	0.6	±1.0	±30	±15	±80	80	50M	5K		●		DIP	3227/03	BB	●		●	●	
45				3	15	±15	.02	80	10″	150	●				2709B	Aml		●			
45				3	15	±15	.02	70	10″	150		●			2709C	Aml		●			
50		±13		5			30	70			●				46830	Mul			●	●	●
100	1.0	±10	1.2	±2.0	±10	±15	0.02	60	10″	2K		●		DIP	3349/03	BB	●				
100	1.5	±10	0.6		±10	±11-16	60	86	80M			●			CIA-2	PN			●	●	
100	2	±11	0.5		10				10M						ATF401	Amp			●	●	
100	4	±10	3	2	75	±10-22	.01	80	10″		●				ND501A	Nov			●	●	
100	4	±10	3	1	25	±10-22	.01	80	10″		●				ND501B	Nov			●	●	
100	4	±10	3	1	25	±10-22	.005	80	10″		●				ND501C	Nov			●	●	
100	4	±10	3	5	100	±10-22	.01	80	10″		●				ND501D	Nov			●	●	
100	4	+10	3	±1-2	±25-75	±10-22	5-25PA	80	10^{11}			●			1408	PN			●	●	
100	4	±10	3	2	75	±10	5PA	80	10″		●			TO-8	M501A	AD	●		●	●	
100	4	±10	3	1	25	±10	5PA	80	10″		●			TO-8	M501B	AD	●		●	●	
100	4	±10	3	1	25	±10	5PA	80	10″		●			TO-8	M501C	AD	●		●	●	
100		±(1.2-12)		1		±(3-18)	5	150	10M	10-200	●	●	●	TO-99	QC1735	QC			●	●	
100				3	5	±15	.02	90	10″	250	●				2404B	Aml		●			
100				3	5	±30	.02	90	10″	250	●				2405B	Aml		●			
160		±14		5	6	±5-22	280	90	800K		●			TO-5, FP	LAH101	NPC	●	●	●	●	
300	1.5	±10	6	ADJ	50	±12-18		66	10″	1K		●		DIP	830	Zel	●		●	●	
300	12	±11	50	±5	±50	±10-18	.02	74	10″	500		●		DIP	1405	PN		●	●	●	
500	1.5	±10	6	ADJ	25	±12-18		86	5×10^{8}	1K		●		DIP	820	Zel	●		●	●	
100k	1	±14	1.2	±.025	±.25	±8-20	0.1		1M	200		●			1412	PN	●		●	●	
UNITY	30		160	100		±5-20	10K		.18M	6			●	TO-5	NH0002C	NS			●		
UNITY	30		160	100		±5-20	10K		.18M	6	●			TO-5	NH0002	NS			●		
	.4		.5			±15	PHOTO	INPUT				●		TO-5	682	ENL					
	4				15			94				●		DIP	ZA101D1	Zel	●	●			
	10	8				15-20	PHOTO	INPUT				●		TO-5	686	ENL					
		±10				±15			10^{10}		●			TO-8	2404BG	Aml			●	●	
		±10				±15			10^{10}		●			TO-8	2709BG	Aml			●	●	
		±10				±15			10^{10}		●			TO-8	2809BG	Aml			●	●	
		±20				±30			10^{10}		●			TO-8	2405BG	Aml			●	●	

THE NOISE-ELIMINATING DATA FILTER.



ANOTHER EXAMPLE OF HYBRITRONICS®

Fabri-Tek Micro-Systems, Inc., using the latest in Hybritronics® techniques, has isolated noise responsible for erratic system operation. Now high common-mode noise levels **can be tolerated without disturbing data transmission.** □ Packaged in a 16-pin epoxy dual in-line configuration, the FTI-2001 data filter actually reconstructs the T^2L or DTL input pulse while transformer-isolating input from output. Input digital information rates can range from DC to 2 MHz. And the uncommitted collector output is compatible with DTL, T^2L, and HTL logic interfaces. □ The FTI-2001 derives its power from the input signal and requires **no external DC power connections**. For complete details, contact Emory Lane, Marketing Department, Fabri-Tek Micro-Systems, Inc., 1150 N. W. 70th Street, Fort Lauderdale, Florida 33309. Telephone (305) 933-9351.

FABRI-TEK
MICRO-SYSTEMS, INC.

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CIRCLE NO. 25

Hybrid (Cont'd)

POWER AMPS

PWR OUT (W)	FREQ (kHz)	OUTPUT (V)	SUPPLY VOLTS (V)	GAIN	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
2	10	11-16		PWR55DB				●			BHA0001	Sol
5	20	11-20		PWR55DB				●			BHA0004	Sol
15	20	14-40		PWR55DB				●			BHA0002	Sol
	100	±10	±(8-18)	AV = 1	15	10	●			TO-8	Q66A	PN
	4000	±(6-26)	±(10-30)	AV = 1	4	9	●				823	HD
	20,000	±10	±12	AV = 1	1000	12	●			FP,TO-5	PC260 NC260	GI
	50,000	±11	±12	AV = 1	200	6	●		●	TO-5	NC0002	GI

HF AMPS

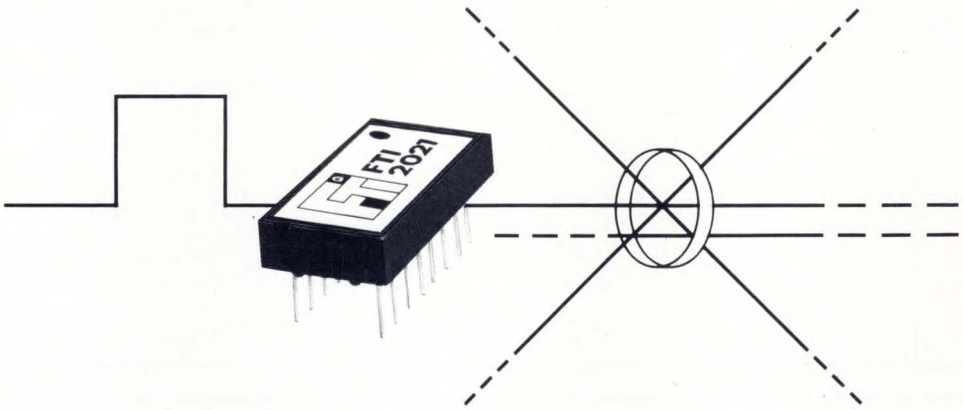
FREQ (MHz)	GAIN (db)	NOISE FIGURE (dB@MHz)	SUPPLY VOLTS (V)	MAX INPUT (V)	INPUT Z (Ω)	OUTPUT Z (Ω)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
1	50		18	5	9K	33		●			MS100	Syl
1	50		18	5	4K	33		●			MS100A	Syl
30	32	2.5	±12		50,100,200						IMP-1-30	VA
30	40	7	12		68	150		●		FP	MS500	Syl
30	40	14	12		68	150		●		FP	MS501	Syl
0-30			21	-6	5M		●			TO-100, FP	SH3000	Fch
30		10@30			75	200					ATF412	Amp
60	32	2.5	±12		50,100,200						IHP-1-60	VA
70	32	2.5	±12		50,100,200						IHP-1-70	VA
75	100	3μV	±15		10"		●	●	●		V2000	CC
0-100	AV = 800		±12	±3	30K			●		TO-100	HX610	Hal
30-100	12	4@60	5-16	1.9			●				861	CTS
30-100	40	2.5	12								MHA70	FMod
.01-250	20		15		50	<8					ICZ-1	VA
.01-250	20		15		75	<8					ICZ-1	VA
.01-250	20		15		90	<8					ICZ-1	VA
.01-250	20		15		300	<8					ICZ-1	VA
300	25	4.0	12								MHA300B	FMod
500			28								5670	Aml
500	25	4.0	12								MHA500	FMod
	52	4@1			30K	800					ATF416	Amp

CONVERTERS (A/D–B/A)

NO. OF BITS	SETTLING TIME (μs)	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR	REMARKS	
4	0.1		●		FP	MN213	MN	0 TO 9.375V OUTPUT	D/A
4	0.1		●		FP	MN201	MN	0 TO 9.375V OUTPUT	D/A
5-6	5.0	●			TO-8	CDAS2	Crs		D/A
8	0.5	●			TO-8	CDAS1	Crs		D/A
8	3	●			FP	H2208	UNI	SIX OUTPUT RANGES	D/A
8	3.3/V					845-U5	HD	0 TO 5V OUTPUT	D/A
8						845-U10	HD	0 TO 10V OUTPUT	D/A
8						845-B5	HD	-5 TO +5V OUTPUT	D/A
8						845-B10	HD	-10 TO +10V OUTPUT	D/A
10	0.3		●			MDA-10H	AD		D/A
10	3	●			FP	H2210	UNI	SIX OUTPUT RANGES	D/A
10	20		●			DAC-10H	AD		D/A
10			●		DIP	UM1500	Spg		D/A
12	3	●			FP	H2212	UNI	SIX OUTPUT RANGES	D/A
4-12			●			UM1504	Spg		D/A
4-12			●			UM1400	SPG		D/A
8-12	0.1	●	●	●		D3000	CC		D/A
8-12	.05	●	●	●		A4000	CC	BINARY OR BCD	A/D

ANOTHER EXAMPLE OF HYBRITRONICS®.

THE 800 mA INHIBIT CORE DRIVER.



A transformer-coupled, high performance inhibit core driver in a 16-pin dual in-line package is now available because of Hybritronics®. This thick-film circuit has extremely high packaging density . . . with no sacrifice in operating characteristics. □ The FTI-2021 will deliver a clean 800 mA current pulse to its core stack load at a conservative repetition rate of 1.5 MHz and a 30 to 40 percent duty cycle. The unit interfaces with DTL and T^2L logic and operates from 5 and 14 VDC power supplies. The output pulse has a propagation delay of 40 ns, a rise time of 100 ns or less and the fall time is 40 ns or less for a typical core stack application. □ Emory Lane, Marketing Department, will furnish more details. Please call or write Fabri-Tek Micro-Systems, Inc., 1150 N. W. 70th Street, Fort Lauderdale, Florida 33309. Telephone (305) 933-9351.

FABRI-TEK
MICRO-SYSTEMS, INC.

. . . where Hybritronics® got its name.

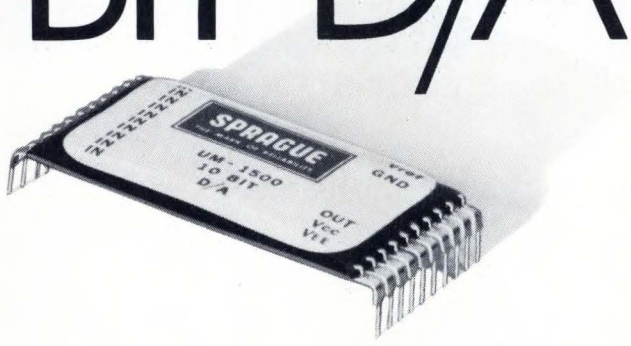
CIRCLE NO. 26

POWER DRIVERS

Hybrid (Cont'd)

OUTPUT I (mA)	OUTPUT V (V)	DISS (mW)	NO. OF INPUTS	DUAL	LATCH	DESCRIPTION	TEMP MIL	TEMP IND	TEMP COM	PKG TYPE	MFRS TYPE NO.	MFR
10	100	250	1			NEON/GAS TUBE	●			TO-99	SH2101	Fch
32	4.2		8			XFMR DRIVER	●			FP	HX635	Hal
135	12	500	1			NEON/GAS TUBE	●			TO-99, FP	SH2100	Fch
150	40		8			QUAD		●		DIP	UD4181	Spg
150	40		8			QUAD	●			FP	UD4131	Spg
150	40	800	5			CORE/CABLE/ LAMP			●	DIP	SH2002-P	Fch
150	40	800	5			CORE/CABLE/ LAMP	●			TO-100, FP	SH2002	Fch
150	40		6			HI-I			●	TO-100	NH0011C	NS
150	40		5			DTL COMP	●	●		FP OR TO-5	PH2002	Phl
150	40		6			HI-I			●	DIP	NH0011CN	NS
250	.35		4				●			TO-5	2001 BE	Aml
250	40		5			CORE/CABLE/ LAMP				TO-100, FP	SH2001	Fch
250	40		5			RELAY/LAMP	●		●	TO-5	NC2001	GI
250	40		5			DTL COMP	●	●		FP OR TO-5	PH2001	Phl
250	40		6			HI-I	●			TO-100	NH0011	NS
250	70		6			HI-V,HI-I			●	DIP	NH0016	NS
300	−24		1			CORE		●		FP	MS220	Syl
300	40	400	8			QUAD	●			FP	MN204	MN
300	45		2			RELAY/LAMP			●	DIP	NH0006CN	NS
300						MOS CLOCK DR.	●			TO-5	NC0007	GI
300						MOS CLOCK DR.			●	TO-5	NC0007C	GI
350			2	●			●			TO-8	851	CTS
400	45		2			RELAY/LAMP			●	DIP	NH0008CN	NS
400	45		2			RELAY/LAMP	●			TO-5	NH0006	NS
400	45		2			RELAY/LAMP			●	TO-5	NH0006C	NS
500	30					20 CLOCK DR.	●	●		TO-8	MS302	Syl
500	30					20 CLOCK DR.	●			TO-8	NC0009	GI
500	30					20 CLOCK DR.			●	TO-8	NC0009	GI
±500	30		2			MOS CLOCK DR.	●	●		TO-5	MS303	Syl
±500	To 32	100				MOS CLOCK DR.		●			CC132	CI
500	50		6			HI-V,HI-I			●	DIP	NH0017CN	NS
500	65	800	5			RELAY/LAMP ETC.	●	●		TO-100	MS401	Syl
500	100		6			HI-V,HI-I			●	DIP	NH0018CN	NS
600	45		2			RELAY/LAMP	●			TO-5	NH0008	NS
600	45		2			RELAY/LAMP			●	TO-5	NH0008C	NS
700			2				●			TO-8	850	CTS
750	40	500	4			RELAY/LAMP DR.				DIP	CH2001A	Cer
±1000	−(6-27) +4.4 To-14	500				MOS CLOCK DR.		●			CC133	CI
±1000	+(0.6-27)	750	1			MOS CLOCK DR.		●		DIP	CH1033	Cer
1500			1			PULSE DIFFERENTIATOR		●			LMD3	Led
2000	45		1			PULSE AMPLIFIER		●			LMD7	Led
7000			1			PULSER DRIVER		●			LMD70	Led
3A	40						●				BHB0006A	Sol
3A	40						●				BHB0006	Sol
5A	60						●				BHB0005	Sol
5A	60						●				BHB0005A	Sol
	2.5-5		3			SUHL CLOCK DR.		●		FP	MS301	Syl
	2.5-5		3			SUHL CLOCK DR.		●		FP	MS300	Syl
	±6.75	85	2	●		LINE XMTR		●		DIP	CM1150	Cer
	±10		4			QUAD LINE		●		DIP	UD5001	Spg
	−26	15		●		INTERFACE				TO-8	NC612	GI
	−26	15		●		TTL/MOS				FP	PC612	GI
	30					MOS CLOCK DR.				TO-8	NC611	GI
	32	340	1			20 CLOCK DR.		●		DIP	CH1034	Cer
	32	430				20 CLOCK DR.		●			CC134	CI
	32	100		●		MOS CLOCK DR.		●			CC136	CI

10-BIT D/A



5 BUCKS/BIT

A HYBRID CIRCUIT PRICE/PERFORMANCE BREAKTHROUGH.

Check these specs:

- ±½ LSB accuracy
- 100 kHz bit rate
- 25 kΩ output impedance
- 5 ppm/°C T_C max.
- 0 to +70°C operating temperature

Now you can get a complete thin-film 10-bit D/A converter—buffer amp, ladder switch, and tantalum nitride ladder network—all in a single package with DIP compatible pinning. And for $5.00 per bit.

We've also got a 4-bit D/A, a 4-bit expander module to get 8 bits, and a three package kit to get 12 bits.

Find out about all of them.

PRICE? DELIVERY? LOCAL DISTRIBUTORS? TECHNICAL LITERATURE?
GET THE ANSWERS AT ANY OF THE NUMBERS LISTED BELOW.

4SS-9189R3

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Power Rectifiers	ROM (UC7525)	**VHF/UHF Amplifiers** (2N4417, 2N4223)	741 family	**RF Power Transistors**
Rectifiers	Shift Registers (UC7350)	**Switching Junctions** (2N4391)	101 family	**Small Signal Transistors**
	Multiplexers (UC7410)	**Low Noise Junctions** (2N5592, 2N5593, 2N5594)	**Dual Matched Pairs** (2N2920, 2N4044, 2N4878)	**PNP-NPN Industrial Transistors**
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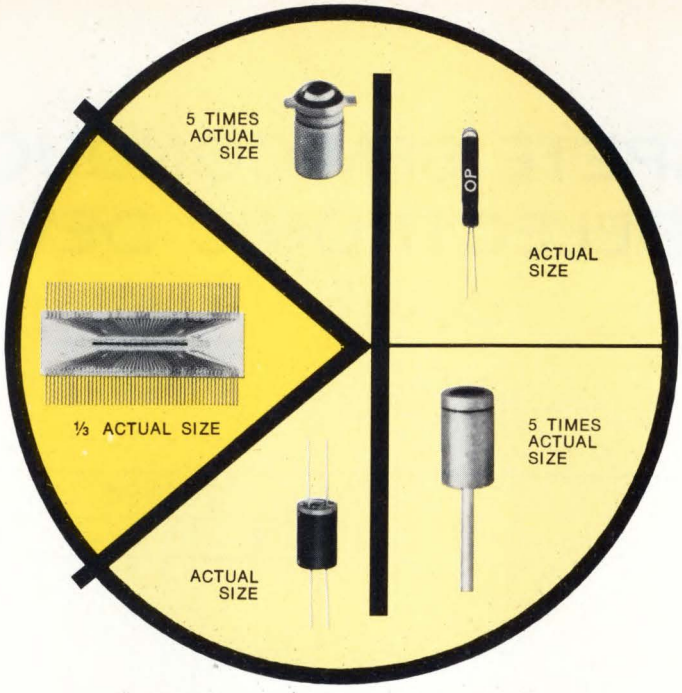
In Europe: SOLIDEV LTD., Tubs Hill House, London Rd., Sevenoaks, Kent, U.K.

CIRCLE NO. 69



OPTRON is a "SHOPPER STOPPER!"

OPTRON'S full line of standard optoelectronic devices/arrays and complete custom capabilities put an end to your "shopping around" for the best combination of price, reliability and delivery

Whether you're a shopper by nature or *by necessity*, you can now stop looking because OPTRON is your best optoelectronics source. For example, our line of off-the-shelf standard devices meet most design applications.

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OP 600 Light sensor transistor — industry-accepted standard for tape and card reader applications
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OP 620 High speed light sensor transistor — for applications requiring ultimate in switching speeds vs. sensitivity
OP 666 Light sensor (photometric standard)
OP 900 Light sensor diode — for applications where linearity and switching speed are primary parametric considerations

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mount on 0.100″ centers

OP 400 Light sensor transistor — industry-accepted standard
OP 420 High speed NPN silicon light sensor
OP 490 Light sensor diode — for applications where linearity and switching speeds are primary parametric considerations
1N2175 Light sensor duo-diode

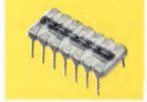
HERMETIC COAXIAL PACKAGE
(round lens optional)
mount on 0.075″ centers

OP 700 NPN silicon light sensor
OP 790 Light sensor diode

HERMETIC PACKAGE
Photo detectors energized by an OP 100 gallium arsenide diode:

OP 1020 Isolator (OP 620 detector)
OP 1030 Isolator (OP 300 detector)
OP 1060 Isolator (OP 600 detector)
OP 1090 Isolator (OP 900 detector)

But, that's not all!



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CIRCLE NO. 28

1970 DISCRETE SEMICONDUCTORS AND OPTOELECTRONIC DEVICES

MANUFACTURERS' ABBREVIATIONS		TRANSISTORS																						
		Ge				Si				Special														
		SMALL SIGNAL	COMPUTER	HIGH FREQUENCY	POWER	SMALL SIGNAL	COMPUTER	HIGH FREQUENCY	POWER	BILATERAL	CHOPPER	JFETs	MOSFETs	MATCHED	UNIJUNCTION	AVALANCHE	BACK	BEAM LEAD	HOT CARRIER	MIXER/DETECTOR	PARAMP	PIN	STEP RECOVERY	
Aer	AERTECH INDUSTRIES, 825 Stewart Dr., Sunnyvale, CA 94086																●		●	●			●	
AB	ALLEN-BRADLEY CO., 1201 S. 2nd St., Milwaukee, WI 53204																							
Al	ALPHA INDUSTRIES, INC., 381 Elliot St., Newton Upper Falls, MA 02164																		●	●	●	●	●	
Aml	AMELCO SEMICONDUCTOR, 1300 Terra Bella Ave., Mountain View, CA 94040					●	●	●				●	●	●										
AEL	AMERICAN ELECTRONIC LABS., INC., Box 552, Lansdale, PA 19446															●				●	●	●		
AMD	AMERICAN MICRO DEVICES, INC., Standard Rectifier Div., Box 5415, Santa Ana, CA 92704																							
AMI	AMERICAN MICRO-SYSTEMS, INC., 3800 Homestead Rd., Santa Clara, CA 95051												●											
ASC	AMERICAN SEMICONDUCTOR CORP., 4 N. Hickory Ave., Arlington Heights, IL 60004															●								
Amp	AMPEREX ELECTRONIC CORP., Providence Pike, Slatersville, RI 02876	●	●	●	●	●			●					●		●				●				
AD	ANALOG DEVICES, INC., 241-243 Binney St., Cambridge, MA 02142																							
AS	ATLANTIC SEMICONDUCTOR, INC., 905 Mattison Ave., Asbury Park, NJ 07712															●						●		
Ava	AVANTEK, 2981 Copper Rd., Santa Clara, CA 95051					●	●	●	●					●										
Bel	BELL, F. W., INC., 4949 Freeway Dr. E, Columbus, OH 43229																							
Brd	BRADLEY SEMICONDUCTOR CORP., 275 Welton St., New Haven, CT 06506															●								
Car	CARBORUNDUM CO., Electronics Branch, Box 339, Niagara Falls, NY 14302																							
Crt	CARTESIAN, INC., 10432 N. Tantau Ave., Cupertino, CA 95014												●											
Cen	CENTRALAB SEMICONDUCTOR DIV., Globe-Union, Inc., 4501 N. Arden Dr., El Monte, CA 91734																							
Clx	CLAIREX ELECTRONICS, INC., 560 S. 3rd Ave., Mount Vernon, NY 10550																							
CEL	CLARK ELECTRONICS LABS., 1570 E. Edinger, Santa Ana CA 92705																							
Cod	CODI SEMICONDUCTOR, Pollitt Dr. S, Fairlawn, NJ 07410															●				●		●		
Col	COLLINS RADIO CO., 19700 Jamboree Rd., Newport Beach, CA 92663																							
Com	COMMUNICATIONS TRANSISTOR CORP., 301 Industrial Way, San Carlos, CA 94070							●	●															
CI	COMPONENTS, INC., Smith St., Biddeford, ME 04005																							
Con	CONTINENTAL DEVICE CORP., 12515 Chadron Ave., Hawthorne, CA 90250					●	●	●				●				●								
CS	CONTINENTAL SEMICONDUCTOR, INC., 59 Central Ave., East Farmingdale, NY 11735	●	●	●	●	●	●	●			●					●								
Crs	CRYSTALONICS, A Teledyne Co., 147 Sherman St., Cambridge, MA 02140					●			●	●	●	●		●							●			
Dlc	DELCO RADIO DIV., General Motors Corp. 700 E. Firmin St., Kokomo, IN 46901				●				●															
Dks	DICKSON ELECTRONICS CORP., Box 1390, Scottsdale, AZ 85252																							
DI	DIODES, INC., 20235 Nordhoff St., Chatsworth, CA 91311															●								
Dio	DIONICS, INC. 65 Rushmore St., Westbury, NY 11590					●	●	●						●										
ECC	ECC CORP., 1010 Pamela Dr., Euless, TX 76039																							
EGG	EG&G, INC., Electronic Products Div., 170 Brookline Ave., Boston, MA 02215																					●		
Ens	EASTERN DELTA CORP., 29-09 Broadway, Fairlawn, NJ 07410																							

Key to Other Special Devices

Manufacturers' Locator for Discrete Semiconductors and Optoelectronic Devices

- **A** Arc Suppressors, transient control
- **B** Chips, MOS capacitors
- **C** Chips, TC diode assemblies (LID)
- **D** Chips, transistor assemblies (LID)
- **E** Chips, Transistors, beam lead
- **F** Chips, transistors, dielectrically isolated
- **G** Chips, transistors, flip chip
- **H** Chips, zener assemblies (LID)
- **I** Chips, zener diode (LID)
- **J** Codistors
- **K** Diodes, arrays
- **L** Diodes, bulk GaAs oscillator
- **M** Diodes, constant current
- **N** Diodes, Gunn
- **O** Hall-effect devices
- **P** Networks, dynamic snubbers
- **Q** Networks, passive
- **R** Noise generators
- **S** Precision Voltage Standards
- **T** Pulsers
- **U** Resistors, magneto
- **V** Resistors, silicon
- **W** Selistors
- **X** Sensors, strain or pressure
- **Y** Switches, microwave
- **Z** Transistors, radiation hardened
- **a** Thermistors
- **b** Thermometers, cryogenic
- **c** Varactors, binary

DIODES																RECTIFIERS								THY-RISTORS				OPTOELECTRONICS																
																												Assemblies				Sensors										Emitters				
VOLTAGE VARIABLE CAPACITANCE	RF	COMPUTER	GENERAL PURPOSE	ASSEMBLIES	GaAs COMPUTER	LOGARITHMIC	MATCHED	STABISTOR	TUNNEL	VARACTOR	VARISTOR	VOLTAGE REFERENCE (TEMP. COMP.)	ZENER	ASSEMBLIES	BRIDGE	COPPER OXIDE	SELENIUM	SILICON	HOT CARRIER	TUNNEL	REVERSE BLOCKING DIODE	REVERSE BLOCKING TRIODE (SCRs)	BIDIRECTIONAL DIODE	BIDIRECTIONAL TRIODE	ISOLATORS	CHOPPERS	RESISTORS	COUPLERS	PHOTOCONDUCTIVE CELLS	PHOTOVOLTAIC CELLS	SOLAR CELLS	PHOTODIODES	PHOTOTRANSISTORS	PHOTOFETSs	PHOTOSCRs	LINEAR ARRAYS	AREA ARRAYS	LASERS	INFRARED	LIGHT	LINEAR ARRAYS	AREA ARRAYS	OTHER
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Semiconductor Manufacturers (Cont'd)

MANUFACTURERS' ABBREVIATIONS		TRANSISTORS																								
		Ge				Si				Special																
		SMALL SIGNAL	COMPUTER	HIGH FREQUENCY	POWER	SMALL SIGNAL	COMPUTER	HIGH FREQUENCY	POWER	BILATERAL	CHOPPER	JFETs	MOSFETs	MATCHED	UNIJUNCTION	AVALANCHE	BACK	BEAM LEAD	HOT CARRIER	MIXER/DETECTOR	PARAMP	PIN	STEP RECOVERY		
EC	EASTRON CORP., 25 Locust St., Haverhill, MA 01830																								
EI	EDAL INDUSTRIES, INC., 4 Short Beach Rd., East Haven, CT 06512															●									
ENL	ELECTRO-NUCLEAR LABS., INC., 115 Independence Dr. Menlo Park, CA 94025																								
ED	ELECTRONIC DEVICES, INC., 21 Gray Oaks Ave., Yonkers, NY 10710																								
ETC	ELECTRONIC TRANSISTORS CORP., 153-13 Northern Blvd., Flushing, NY 11354	●	●	●	●	●	●	●	●																
Eri	ERIE TECHNOLOGICAL PRODUCTS, 644 W. 12th St., Erie, PA 16512																								
FMod	FAIRCHILD MOD, 2513 Charleston Rd., Mountain View, CA 94040							●																	
Fch	FAIRCHILD SEMICONDUCTOR, 313 Fairchild Dr., Mountain View, CA 94040					●	●	●	●			●	●	●				●	●	●		●			
Fen	FENWAL ELECTRONICS, 63 Fountain St., Framingham, MA 01701																								
GHZ	GHZ DEVICES, INC., Kennedy Dr., North Chelmsford, MA 01863															●					●	●	●		
GE	GENERAL ELECTRIC CO., Semiconductor Products Dept., Electronics Park, Syracuse, NY 13201	●	●			●	●	●			●			●	●		●					●			
GI	GENERAL INSTRUMENT CORP., Semiconductor Products Group, Box 600, Hicksville, L.I., N.Y. 11802	●	●	●		●	●	●					●							●					
GSI	GENERAL SEMICONDUCTOR, INC., Box 3077, Tempe, AZ 85281								●																
GS	GENERAL SENSORS, INC., Box 231, Athens, TX 75751																								
GRC	GREEN RECTIFIER CORP., 1-10 30th St., Fairlawn, NJ 07410																								
HEI	HEI, INC., Jonathan Industrial Center, Chaska, MN 55318																								
HC	HEAT CO., INC., 235 Bay Rd., Glens Falls, NY 12801																								
HS	HELIOS SEMICONDUCTOR CO., York Industrial Park, Bldg. Q, Box 293, Stanton, CA 90680					●	●	●	●		●	●		●		●	●								
Hel	HELIOTEK, A Textron Co., 12500 Gladstone Ave., Sylmar, CA 90680																								
HP	HEWLETT-PACKARD CO., 1501 Page Mill Rd., Palo Alto, CA 94304					●		●								●		●	●	●		●	●		
ITT	ITT SEMICONDUCTORS, 3301 Electronics Way, West Palm Beach, FL 33402					●	●	●						●											
Ind	INDUSTRO TRANSISTOR CORP., 35-10 36th Ave., Long Island City, NY 11106	●	●	●		●	●	●	●					●											
II	INFRARED INDUSTRIES, INC., Photoconductor Div., Box 42, Waltham, MA 02154																								
Int	INTELLUX, INC., 26 Coromar Dr., Goleta, CA 93017																								
ICT	INTERNATIONAL CIRCUIT TECHNOLOGY CORP., 18225 Euclid Ave., Fountain Valley, CA 92708																								
IDC	INTERNATIONAL DIODE CORP., 90 Forrest St., Jersey City, NJ 07304	●	●	●	●	●	●	●	●		●			●	●	●	●			●					
IEC	INTERNATIONAL ELECTRONICS CORP., 316 S. Service Rd., Melville, NY 11749					●	●	●	●	●	●	●	●	●	●										
IRec	INTERNATIONAL RECTIFIER, Semiconductor Div., 233 Kansas St., El Segundo, CA 90245																								
Iinc	INTERSIL, INC., 10900 N. Tantau Ave., Cupertino, CA 95014					●						●	●	●											
Iso	ISOFILM INTERNATIONAL, 20131 Bahama St., Chatsworth, CA 91311																								
KMC	KMC SEMICONDUCTOR CORP., Parker Rd., Long Valley, NJ 07853					●		●								●	●			●					
KSC	KSC SEMICONDUCTOR CORP., KSC Way, Chelmsford, MA 01824	●		●	●																				
Kmt	KEMTRON ELECTRON PRODUCTS, INC., 14 Prince Pl., Newburyport, MA 01950																			●					
Kev	KEVLIN MFG., 26 Conn St., Woburn, MA 01801																								
Key	KEYSTONE CARBON, 1935 State St., Saint Marys, PA 15857																								
Lns	LANSDALE TRANSISTOR & ELECTRONICS CORP., Advance Lane, Colmar, PA 18915	●	●	●	●	●	●	●			●			●											

	DIODES	RECTIFIERS	THY-RISTORS	OPTOELECTRONICS		
						OTHER
	VOLTAGE VARIABLE CAPACITANCE					
	RF					
	COMPUTER					
	GENERAL PURPOSE					
	ASSEMBLIES					
	GaAs COMPUTER					
	LOGARITHMIC					
	MATCHED					
	STABISTOR					
	TUNNEL					
	VARACTOR					
	VARISTOR					
	VOLTAGE REFERENCE (TEMP. COMP.)					
	ZENER					
		ASSEMBLIES				
		BRIDGE				
		COPPER OXIDE				
		SELENIUM				
		SILICON				
		HOT CARRIER				
		TUNNEL				
			REVERSE BLOCKING DIODE			
			REVERSE BLOCKING TRIODE (SCRs)			
			BIDIRECTIONAL DIODE			
			BIDIRECTIONAL TRIODE			
				ISOLATORS	Assemblies	
				CHOPPERS		
				RESISTORS		
				COUPLERS		
				PHOTOCONDUCTIVE CELLS	Sensors	
				PHOTOVOLTAIC CELLS		
				SOLAR CELLS		
				PHOTODIODES		
				PHOTOTRANSISTORS		
				PHOTOFETSs		
				PHOTOSCRs		
				LINEAR ARRAYS		
				AREA ARRAYS		
				LASERS	Emitters	
				INFRARED		
				LIGHT		
				LINEAR ARRAYS		
				AREA ARRAYS		

OTHER
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Semiconductor Manufacturers (Cont'd)

MANUFACTURERS' ABBREVIATIONS		TRANSISTORS																							
		Ge				Si				Special															
		SMALL SIGNAL	COMPUTER	HIGH FREQUENCY	POWER	SMALL SIGNAL	COMPUTER	HIGH FREQUENCY	POWER	BILATERAL	CHOPPER	JFETs	MOSFETs	MATCHED	UNIJUNCTION	AVALANCHE	BACK	BEAM LEAD	HOT CARRIER	MIXER/DETECTOR	PARAMP	PIN	STEP RECOVERY		
MS	MS TRANSISTOR CORP., Subsidiary of Silicon Transistor Corp., 80-02 51st Ave., Elmhurst, NY 11373						●	●	●																
MSI	MSI ELECTRONICS INC., 34-32 57th St., Woodside, NY 11377																								
Meg	MEGADYNE INDUSTRIES, INC., 1665 Buffalo Rd., Rochester, NY 14624																								
MC	MICROPHASE CORP., 35 River Rd., Cos Cob, CT 06807																●			●					
Msm	MICROSEMICONDUCTOR CORP., 11250 Playa Ct., Culver City, CA 90230															●			●			●			
Mcw	MICROWAVE ASSOC., INC., Northwest Industrial Park, Burlington, MA 01803															●	●	●	●	●	●	●	●		
Mon	MONSANTO CO., Electronic Special Products, 10131 Bubb Rd., Cupertino, CA 95014																								
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC., 5005 E. McDowell Rd., Phoenix, AZ 85257	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●		●	●		
NPC	NPC SEMICONDUCTOR DIV., Nucleonic Products, 6660 Variel Ave., Canoga Park, CA 91306	●		●		●	●	●											●	●					
NE	NATIONAL ELECTRONICS, INC., Box 269, Geneva, IL 60134																								
NS	NATIONAL SEMICONDUCTOR CORP., 2900 Semiconductor Dr., Santa Clara, CA 95051					●	●	●				●	●	●											
NR	NORTON RESEARCH CORP., 70 Memorial Dr., Cambridge, MA 02142																								
Nuc	NUCLEAR SEMICONDUCTOR, INC., 537 Old Country Rd., San Carlos, CA 94070																								
Oak	OAK ELECTRO/NETICS CORP., Crystal Lake, IL 60014																								
OS	OHIO SEMITRONICS, INC., 1205 Chesapeak Ave., Columbus, OH 43212																								
Opc	OPCOA, INC., 330 Talmadge Rd., Edison, NJ 08817																								
OI	OPTOELECTRONICS, INC., 4380 Redwood Hwy., San Rafael, CA 94903																								
Opt	OPTRON, INC., 1201 Tappan Circle, Carrollton, TX 75006																								
PI	PARAMETRIC INDUSTRIES, INC., 742 Main St., Winchester, MA 01890															●	●	●	●	●	●	●	●		
Pen	PENNSYLVANIA ELECTRONICS TECHNOLOGY, INC., 1397 Frey Rd., Pittsburgh, PA 15235																								
Phl	PHILCO-FORD CORP., Union Meeting Rd., Blue Bell, PA 19422															●	●		●	●		●	●		
PE	PIONEER ELECTRIC & RESEARCH CORP., 743 Circle Ave., Forest Park, IL 60130																								
Pir	PIRGO ELECTRONICS, INC., 130 Central Ave., Farmingdale, L.I., NY 11735								●																
PC	POWER COMPONENTS, INC., Box 421, Scottdale, PA 15683															●									
PP	POWER PHYSICS, Box 626, Industrial Way W, Eatontown, NJ 07724				●				●					●											
PSI	POWER SEMICONDUCTORS, INC., 90 Munson St., Devon, CT 06460																								
PT	POWER TECH, INC., 9 Baker Ct., Clifton, NJ 07011								●																
QC	QUALIDYNE CORP., 3699 Tahoe Way, Santa Clara, CA 95051													●											
RCA	RCA/ELECTRONICS COMPONENTS, 415 S. Fifth St., Harrison, NJ 07029	●	●	●	●	●	●	●	●				●												
RI	RADIATION, INC., Microelectronics Div., Box 37, Melbourne, FL 32901																								
Ray	RAYTHEON CO., Semiconductor Div., 350 Ellis St., Mountain View, CA 94040					●	●	●	●	●	●			●				●							
Rct	RECTICO, INC., 20 Village Park Rd., Cedar Grove, NJ 07009																								
SM	SANFORD MILLER CORP., 89 Throop Ave., Brooklyn, NY 11206																								
ST	SARKES-TARZIAN, INC., 415 N. College Ave., Bloomington, IN 47401															●	●			●					
Shr	SCHAUER MFG., CORP., 4500-4 Alpine Ave., Cincinnati, OH 45242																								
Smc	SEMICON, INC., 10 North Ave., Burlington, MA 01803															●									
SD	SEMICONDUCTOR COMPONENTS, INC., 1353 E. Edinger, Santa Ana, CA 92705	●				●	●	●	●								●		●		●	●	●		
SMI	SEMI-ELEMENTS, INC., Saxonburg Blvd., Saxonburg, PA 16056	●	●		●	●	●		●						●	●				●	●	●			

DIODES
VOLTAGE VARIABLE CAPACITANCE
RF
COMPUTER
GENERAL PURPOSE
ASSEMBLIES
GaAs COMPUTER
LOGARITHMIC
MATCHED
STABISTOR
TUNNEL
VARACTOR
VARISTOR
VOLTAGE REFERENCE (TEMP. COMP.)
ZENER
RECTIFIERS
ASSEMBLIES
BRIDGE
COPPER OXIDE
SELENIUM
SILICON
HOT CARRIER
TUNNEL
THY-RISTORS
REVERSE BLOCKING DIODE
REVERSE BLOCKING TRIODE (SCRs)
BIDIRECTIONAL DIODE
BIDIRECTIONAL TRIODE
OPTOELECTRONICS
Assemblies
ISOLATORS
CHOPPERS
RESISTORS
COUPLERS
Sensors
PHOTOCONDUCTIVE CELLS
PHOTOVOLTAIC CELLS
SOLAR CELLS
PHOTODIODES
PHOTOTRANSISTORS
PHOTOFETSs
PHOTOSCRs
LINEAR ARRAYS
AREA ARRAYS
Emitters
LASERS
INFRARED
LIGHT
LINEAR ARRAYS
AREA ARRAYS
OTHER
EY
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NY
AY
Q

Semiconductor Manufacturers (Cont'd)

MANUFACTURERS' ABBREVIATIONS		TRANSISTORS																							
		Ge				Si				Special															
		SMALL SIGNAL	COMPUTER	HIGH FREQUENCY	POWER	SMALL SIGNAL	COMPUTER	HIGH FREQUENCY	POWER	BILATERAL	CHOPPER	JFETs	MOSFETs	MATCHED	UNIJUNCTION	AVALANCHE	BACK	BEAM LEAD	HOT CARRIER	MIXER; DETECTOR	PARAMP	PIN	STEP RECOVERY		
Smt	SEMTECH CORP., 652 Mitchell Rd., Newbury Park, CA 91320															●									
SSc	SENSITRON SEMICONDUCTOR, 221 W. Industry Ct., Deer Park, NY 11729							●	●							●									
Sen	SENSOR TECHNOLOGY, INC., 7118 Gerald Ave., Van Nuys, CA 91406																								
STC	SILICON TRANSISTOR CORP., E. Gate Blvd., Garden City, NJ 11532					●	●	●	●																
Scx	SILICONIX, INC., 2201 Laurelwood Rd., Santa Clara, CA 95054							●				●	●	●					●			●	●		
Slr	SOLAR SYSTEMS, Div. of Tyco, 4302 Warren Ave., Hillside, IL 60162																								
SSD	SOLID STATE DEVICES, INC., 12741 Los Nietos Rd., Santa Fe Springs, CA 90670	●		●		●	●	●	●		●			●	●	●			●						
SSE	SOLID STATE ELECTRONICS CORP., 15321 Rayen St., Sepulveda, CA 91343										●														
SSS	SOLID STATE SCIENTIFIC, INC., Commerce Dr., Montgomeryville, PA 18936					●	●	●					●												
Sol	SOLITRON DEVICES, INC., 256 Oak Tree Rd., Tappan, NY 10983															●			●	●					
Sol	SOLITRON DEVICES, INC., 1177 Blue Heron, Riviera Beach, FL 33404				●				●																
Sol	SOLITRON DEVICES, INC., 8808 Balboa Ave., San Diego, CA 92123					●		●			●	●	●	●											
SAM	SPACE AGE MICROCIRCUITS, Box 426, Chatham, NJ 07928																								
Spc	SPECTRONICS, INC., 541 Sterling Dr., Richardson, TX 75080																								
SGy	SPERRY GYROSCOPE CO., Marcus Ave., Great Neck, L.I., NY 11322																								
Spg	SPRAGUE ELECTRIC CO., Semiconductor Div., Pembroke Rd., Concord, NH 03301	●	●	●		●	●	●		●	●			●											
Sta	STARNETICS CO., INC., 10639 Riverside Dr., North Hollywood, CA 91602																								
SL	STOW LABS., INC., Kane Industrial Dr., Hudson, MA 01749																								
Syl	SYLVANIA ELECTRIC PRODUCTS, INC., 100 First Ave., Waltham, MA 02154															●	●	●		●		●			
Syn	SYNTRON, DIV., FMC Corp., 439 Lexington Ave., Homer City, PA 15748															●									
IRC	TRW SEMICONDUCTOR DIV., 71 Linden St., West Lynn, MA 01905															●									
TRW	TRW SEMICONDUCTOR DIV., 14520 Aviation Blvd., Lawndale, CA 90260						●	●	●							●					●	●	●		
TI	TEXAS INSTRUMENTS INCORPORATED, Inquiry Answering Service, Box 5012, M/S 308, Dallas, TX 75222	●	●	●	●	●	●	●	●	●	●	●	●	●	●								●		
TE	THOR ELECTRONICS CORP., 741 Livingston St., Elizabeth, NJ 07207	●			●	●			●			●		●	●	●				●					
Tns	TRANSISTRON ELECTRONIC CORP., 168-182 Albion St., Wakefield, MA 01881					●		●	●		●			●											
TL	TRIO LABS., INC., 80 Dupont St., Plainview, NY 11803																								
UNI	UNISEM CORP., Subsidiary of United Aircraft Corp., Trevose, PA 19047							●	●																
UDT	UNITED DETECTOR TECHNOLOGY, Box 5251, Santa Monica, CA 90405																								
UP	UNITED PAGE, INC., 481 Getty Ave., Dept. CM, Paterson, NJ 07503	●	●		●	●	●		●					●											
Unt	UNITRODE CORP., 580 Pleasant St., Watertown, MA 02172								●						●							●			
VI	VACTEC, INC., 2423 Northline Industrial Blvd., Maryland Heights, MO 63042																								
VA	VARIAN, Solid State Div., Beverly, MA 01915															●					●	●	●		
Var	VARO, INC., Semiconductor Div., 1000 N. Shiloh Rd., Garland, TX 75040																								
VE	VICTORY ENGINEERING CORP., Victory Rd., Springfield, NJ 07081																								
WJ	WATKINS-JOHNSON, 3333 Hillview Ave., Palo Alto, CA 94304																								
Wsn	WESTERN SEMICONDUCTOR DIV., 2200 S. Fairview St., Santa Ana, CA 92704					●			●																
Wst	WESTINGHOUSE ELECTRIC CORP., 3 Gateway Center, Pittsburgh, PA 15230						●	●	●																
YSI	YELLOW SPRINGS INSTRUMENTS, Box 279, Yellow Springs, OH 45387																								

	DIODES	RECTIFIERS	THYRISTORS	OPTOELECTRONICS		OTHER
	VOLTAGE VARIABLE CAPACITANCE					
	RF					
	COMPUTER					
	GENERAL PURPOSE					
	ASSEMBLIES					
	GaAs COMPUTER					
	LOGARITHMIC					
	MATCHED					
	STABISTOR					
	TUNNEL					
	VARACTOR					
	VARISTOR					
	VOLTAGE REFERENCE (TEMP. COMP.)					
	ZENER					
		ASSEMBLIES				
		BRIDGE				
		COPPER OXIDE				
		SELENIUM				
		SILICON				
		HOT CARRIER				
		TUNNEL				
			REVERSE BLOCKING DIODE			
			REVERSE BLOCKING TRIODE (SCRs)			
			BIDIRECTIONAL DIODE			
			BIDIRECTIONAL TRIODE			
				Assemblies	ISOLATORS	
					CHOPPERS	
					RESISTORS	
					COUPLERS	
				Sensors	PHOTOCONDUCTIVE CELLS	
					PHOTOVOLTAIC CELLS	
					SOLAR CELLS	
					PHOTODIODES	
					PHOTOTRANSISTORS	
					PHOTOFETSs	
					PHOTOSCRs	
					LINEAR ARRAYS	
					AREA ARRAYS	
				Emitters	LASERS	
					INFRARED	
					LIGHT	
					LINEAR ARRAYS	
					AREA ARRAYS	
a					V	
					c	
					QRYb	
					a	
					Y	
					A	
					KY	
					X	
					Q	
					AY	
					N	
					a	
					L	
a						

FETs, Junction

FETs (Junction)		RS No.	FREQUENCY (MHz) 1 to 10	10 to 20	20 to 50	50 to 75	75 to 100	100 to 150	150 to 200	200 to 500	> 500
Aml	AMELCO SEMICONDUCTOR 1300 Terra Bella Ave. Mountain View, CA 94040	256	●	●	●	●	●	●	●	●	●
Con	CONTINENTAL DEVICE CORP. 12515 Chadron Ave. Hawthorne, CA 90250	257	●	●	●	●	●	●	●	●	●
Crs	CRYSTALONICS, A Teledyne Co. 147 Sherman St. Cambridge, MA 02140	258	●	●	●	●	●	●	●	●	
Fch	FAIRCHILD SEMICONDUCTOR 313 Fairchild Dr. Mountain View, CA 94040	259	●	●	●	●	●	●	●	●	
HS	HELIOS SEMICONDUCTOR CO. York Industrial Park Bldg. Q, Box 293 Stanton, CA 90680	260		●				●		●	●
Ilnc	INTERSIL, INC. 10900 N. Tantau Ave. Cupertino, CA 95014	261	●	●	●	●	●	●	●	●	
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	262	●	●	●	●	●	●	●	●	
NS	NATIONAL SEMICONDUCTOR CORP. 2975 San Ysidro Way Santa Clara, CA 95051	263	●	●	●	●	●	●	●	●	
Scx	SILICONIX, INC. 2201 Laurelwood Rd. Santa Clara, CA 95054	264	●	●	●	●	●	●	●	●	●
Sol	SOLITRON DEVICES 8808 Balboa Ave. San Diego, CA 92123	265	●	●	●	●	●	●	●	●	
TI	TEXAS INSTRUMENTS INCORPORATED Inquiry Answering Service Box 5012, M/S 308 Dallas, TX 75222	266								●	
TE	THOR ELECTRONICS CORP. 741 Livingston St. Elizabeth, NJ 07207	267	●	●	●	●	●				

FETs, MOS

FETS (MOS)		RS No.	R_{ON} (Ω) < 50	50 to 100	100 to 500	500 to 1k	1k to 3k	3k to 5k	> 5k
Aml	AMELCO SEMICONDUCTOR 1300 Terra Bella Ave. Mountain View, CA 94040	268		●					
AMD	AMERICAN MICRO-SYSTEMS, INC. 3800 Homestead Rd. Santa Clara, CA 95051	269	●		●	●	●		
Col	COLLINS RADIO CO. 19700 Jamboree Rd. Newport Beach, CA 92663	270		●	●	●	●	●	●
Fch	FAIRCHILD SEMICONDUCTOR 313 Fairchild Dr. Mountain View, CA 94040	271		●					
Ilnc	INTERSIL, INC. 10900 N. Tantau Ave. Cupertino, CA 95014	272	●	●	●	●	●		

	FETS (MOS)		R_{ON} (Ω)						
		RS No.	< 50	50 to 100	100 to 500	500 to 1k	1k to 3k	3k to 5k	> 5k
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	273			●	●			
NS	NATIONAL SEMICONDUCTOR CORP. 2975 San Ysidro Way Santa Clara, CA 95051	274			●	●			
Scx	SILICONIX, INC. 2201 Laurelwood Rd. Santa Clara, CA 95054	275	●	●	●	●	●		
SSS	SOLID STATE SCIENTIFIC, INC. Commerce Dr. Montgomeryville, PA 18936	276	●						
Sol	SOLITRON DEVICES 8808 Balboa Ave. San Diego, CA 92123	277	●	●	●				
TI	TEXAS INSTRUMENTS INCORPORATED Inquiry Answering Service Box 5012, M/S 308 Dallas, TX 75222	278		●	●	●			

SCRs

	THYRISTORS (SCRs)		I_f (Amps)										
		RS No.	.05 to .5	.5 to 1	1 to 5	5 to 10	10 to 25	25 to 75	75 to 150	150 to 300	300 to 500	500 to 1k	> 1k
Cen	CENTRALAB SEMICONDUCTOR DIV. Globe-Union, Inc. 4501 N. Arden Dr. El Monte, CA 91734	279	●	●	●								
ECC	ECC CORP. 1011 Pamela Dr. Euless, TX 76039	280		●	●	●	●	●					
ETC	ELECTRONIC TRANSISTORS CORP. 153-13 Northern Blvd. Flushing, NY 11354	281	●										
Fch	FAIRCHILD SEMICONDUCTOR 313 Fairchild Dr. Mountain View, CA 94040	282	●	●	●								
GE	GENERAL ELECTRIC CO. Semiconductor Products Dept. Electronics Park Syracuse, NY 13201	283			●	●	●	●	●	●	●	●	●
HS	HELIOS SEMICONDUCTOR CO. York Industrial Park Bldg. Q, Box 293 Stanton, CA 90680	284			●	●							
IRec	INTERNATIONAL RECTIFIER Semiconductor Div. 233 Kansas St. El Segundo, CA 90245	285			●	●	●	●	●	●	●		
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	286		●	●	●	●	●					
NE	NATIONAL ELECTRONICS, INC. Box 269 Geneva, IL 60134	287						●	●	●	●	●	
Oak	OAK ELECTRO/NETICS CORP. Crystal Lake, IL 60014	288			●	●							
Pir	PIRGO ELECTRONICS, INC. 130 Central Ave. Farmingdale L.I., NY 11735	289				●	●						

Discrete Devices (Cont'd)

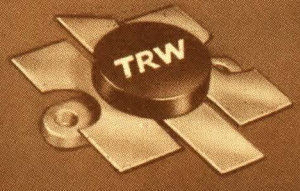
THYRISTORS (SCRs)		RS No.	I_f (Amps) .05 to .5	.5 to 1	1 to 5	5 to 10	10 to 25	25 to 75	75 to 150	150 to 300	300 to 500	500 to 1k	> 1k
PSI	POWER SEMICONDUCTORS, INC. 90 Munson St. Devon, CT 06460	290					●	●	●	●	●	●	●
RCA	RCA/Electronic Components 415 S. Fifth St. Harrison, NJ 07029	291			●	●	●	●					
SMI	SEMICON, INC. 10 North Ave. Burlington, MA 01803	292			●	●	●	●					
SSc	SENSITRON SEMICONDUCTOR 221 W. Industry Ct. Deer Park, NY 11729	293				●	●	●					
SSD	SOLID STATE LABS., INC. 844 E. 25th St. Paterson, NJ 07514	294		●	●	●	●						
Spg	SPRAGUE ELECTRIC CO. Semiconductor Div. Pembroke Rd. Concord, NH 03301	295	●	●									
Syn	SYNTRON, DIV. FMC Corp. 439 Lexington Ave. Homer City, PA 15748	296					●	●	●	●	●		
IRC	TRW SEMICONDUCTOR DIV. 71 Linden St. West Lynn, MA 01905	297		●	●	●	●						
TI	TEXAS INSTRUMENTS INCORPORATED Inquiry Answering Service Box 5012, M/S 308 Dallas, TX 75222	298		●									
TE	THOR ELECTRONICS CORP. 741 Livingston St. Elizabeth, NJ 07207	299	●	●	●	●	●	●	●				
Tns	TRANSITRON ELECTRONIC CORP. 168-182 Albion St. Wakefield, MA 01881	300	●	●	●	●	●	●					
Unt	UNITRODE CORP. 580 Pleasant St. Watertown, MA 02172	301	●	●	●								
Wst	WESTINGHOUSE ELECTRIC CORP. 3 Gateway Center Pittsburgh, PA 15230	302					●	●	●	●	●	●	

Diodes, Zener

DIODES (Zener)		RS No.	Power (Watts) < 1	1 to 3	3 to 5	5 to 10	10 to 25	25 to 50	> 50
AMD	AMERICAN MICRO DEVICES, INC. Standard Rectifier Div. Box 5415 Santa Ana, CA 92704	303	●						●
ASC	AMERICAN SEMICONDUCTOR CORP. 4 N. Hickory Ave. Arlington Heights, IL 60004	304	●	●	●	●	●	●	●
Amp	AMPEREX ELECTRONIC CORP. Providence Pike Slatersville, RI 02876	305	●						
Cen	CENTRALAB SEMICONDUCTOR DIV. Globe-Union, Inc., 4501 N. Arden Dr. El Monte, CA 91734	306	●	●	●	●			

40 Watt UHF

Octave bandwidth ϕ transistor



8-67

225-400 MHz...5dB gain...24V.

TRW introduces a new state-of-the-art line of broadband high power UHF transistors. The JO2001 transistor incorporates hybrid circuit techniques inside the packaged device to reduce the reactive part of the input impedance to nearly zero (hence j-zero). The devices give extremely broadband and reliable performance from simple and consistent matching circuits. Exceptionally low input Q's allow octave band widths from fixed tuned circuits without costly individual circuit trimming for simplicity and ease of manufacture.

The JO2001 provides a minimum of 40 watts with 5.0 dB gain across the 225-400 MHz band from a 24 volt source. Minimum efficiency is 50%.

Two or more of the devices can be paralleled simply for higher power levels. Delivery is immediate in production quantities. Order from factory or any TRW distributor.

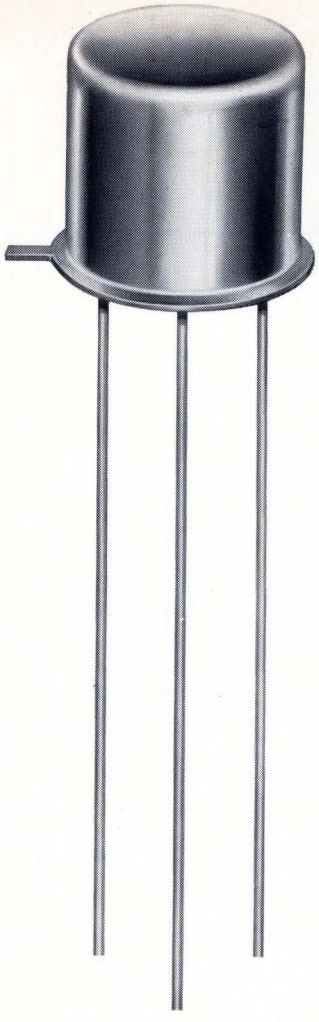
For complete information and applications assistance, contact TRW Semiconductor Division, 14520 Aviation Blvd., Lawndale, California 90260. Phone (213) 679-4561. TWX 910-325-6206.

TRW®

CIRCLE NO. 30

Discrete Devices *(Cont'd)*

DIODES (Zener)			Power (Watts)						
		RS No.	< 1	1 to 3	3 to 5	5 to 10	10 to 25	25 to 50	> 50
Cod	CODI SEMICONDUCTOR Pollitt Dr. S. Fairlawn, NJ 07410	307	●	●					
CI	COMPONENTS, INC. Smith St. Biddeford, ME 04005	308	●	●	●	●			
Con	CONTINENTAL DEVICE CORP. 12515 Chadron Ave. Hawthorne, CA 90250	309	●	●	●	●			
Dlc	DELCO RADIO DIV. General Motors Corp. 700 E. Firmin St. Kokomo, IN 46901	310							●
Dks	DICKSON ELECTRONICS CORP. Box 1390 Scottsdale, AZ 85252	311	●	●	●	●	●	●	●
DI	DIODES, INC. 20235 Nordhoff St. Chatsworth, CA 91311	312		●		●	●		
ETC	ELECTRONIC TRANSISTORS CORP. 153-13 Northern Blvd. Flushing, NY 11354	313	●	●	●	●	●	●	●
Fch	FAIRCHILD SEMICONDUCTOR 313 Fairchild Dr. Mountain View, CA 94040	314	●	●					
GI	GENERAL INSTRUMENT CORP. Semiconductor Products Group Box 600 Hicksville, L.I., NY 11802	315	●						
GSI	GENERAL SEMICONDUCTOR, INC. Box 3077 Tempe, AZ 85281	316	●	●	●	●	●	●	●
HS	HELIOS SEMICONDUCTOR CO. York Industrial Park Bldg. Q, Box 293 Stanton, CA 90680	317	●	●	●	●	●		
IDC	INTERNATIONAL DIODE CORP. 90 Forrest St. Jersey City, NJ 07304	318	●	●	●	●	●	●	●
IRec	INTERNATIONAL RECTIFIER Semiconductor Div. 233 Kansas St. El Segundo, CA 90245	319	●	●	●	●	●	●	
KSC	KSC SEMICONDUCTOR CORP. KSC Way Chelmsford, MA 01824	320		●					
Msm	MICROSEMICONDUCTOR CORP. 11250 Playa Ct. Culver City, CA 90230	321	●	●	●	●			
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	322	●	●	●	●	●	●	
NPC	NPC SEMICONDUCTOR DIV. Nucleonic Products 6660 Variel Ave. Canoga Park, CA 91306	323	●						
Oak	OAK ELECTRO/NETICS CORP. Crystal Lake, IL 60014	324	●						
PC	POWER COMPONENTS, INC. Box 421 Scottdale, PA 15683	325	●	●	●	●			



24¢

INDUSTRIAL SCR's

Only last month you couldn't touch an SCR in a metal package for anywhere near the price of plastic

Now you can . . . .

ID 100 Series

Anode current rating 500mA @ 100°C Case.

200μa max gate trigger current.
Peak On-Voltage 1.7V max @ 1 Amp.
TO-18 can with 0.5" leads.

(SSPI Product Group)

ID 200 Series

Anode current rating 1.6A @ 70°C Case.

200μa max gate trigger current.
Peak On-Voltage 2.2V max @ 4 Amps.
TO-5 can with 0.5" leads.

(SSPI Product Group)

- Sensing types start at 24c each in 100K lots. Comparably low prices on control types and smaller quantities.
- Typical Unitrode quality . . . from the people who introduced the first lead-mounted SCR's 12 years and millions of SCR's ago.
- Electrically equivalent to most widely used plastic devices.
- Used for lamp or relay driving, sensors, pulse-generators, timing circuits, motor controls, and process controllers.

IN STOCK READY TO DELIVER NOW • SEND FOR YOUR FREE SAMPLES AND COMPLETE SPECS

For Fast Action call Pete Jenner collect . . . today!

A PRODUCT OF THE WIDE RANGING SEMICONDUCTOR TECHNOLOGY OF

UNITRODE

580 Pleasant St., Watertown, Massachusetts 02172 • (617) 926-0404

CIRCLE NO. 31

	DIODES (Zener)	RS No.	Power (Watts) < 1	1 to 3	3 to 5	5 to 10	10 to 25	25 to 50	> 50
ST	SARKES-TARZIAN, INC. 415 N. College Ave. Bloomington, IN 47401	326	●	●	●	●	●	●	
Shr	SCHAUER MFG. CORP. 4500-4 Alpine Ave. Cincinnati, OH 45242	327		●					
Smi	SEMI-ELEMENTS, INC. Saxonburg Blvd. Saxonburg, PA 16056	328	●	●	●				
Smc	SEMICON, INC. 10 North Ave. Burlington, MA 01803	329	●	●	●	●	●		
SSc	SENSITRON SEMICONDUCTOR 221 W. Industry Ct. Deer Park, NY 11729	330	●	●	●	●	●	●	
SSD	SOLID STATE DEVICES, INC. 12741 Los Nietos Rd. Santa Fe Springs, CA 90670	331	●	●	●	●	●	●	●
SSL	SOLID STATE LABS., INC. 844 E. 25th St. Paterson, NJ 07514	332	●	●	●	●	●		
Sol	SOLITRON DEVICES, INC. 256 Oak Tree Rd. Tappan, NY 10983	333	●	●	●	●	●	●	●
IRC	TRW SEMICONDUCTOR DIV. 71 Linden St. West Lynn, MA 01905	334	●	●	●	●	●	●	
TRW	TRW SEMICONDUCTOR DIV. 14520 Aviation Blvd. Lawndale, CA 90260	335	●	●	●	●			
TI	TEXAS INSTRUMENTS INCORPORATED Inquiry Answering Service Box 5012, M/S 308 Dallas, TX 75222	336	●						
TE	THOR ELECTRONICS CORP. 741 Livingston St. Elizabeth, NJ 07207	337	●	●	●	●	●	●	
Tns	TRANSITRON ELECTRONIC CORP. 168-182 Albion St. Wakefield, MA 01881	338	●	●			●	●	
TL	TRIO LABS., INC. 80 DuPont St. Plainview, NY 11803	339							●
UP	UNITED PAGE, INC. 481 Getty Ave., Dept. CM Paterson, NJ 07503	340	●	●	●	●	●	●	
Unt	UNITRODE CORP. 580 Pleasant St. Watertown, MA 02172	341	●	●	●				
Wsn	WESTERN SEMICONDUCTOR DIV. 2200 S. Fairview St. Santa Ana, CA 92704	342	●						

Diodes, TC Reference

	DIODES (TC Reference)	RS No.	BREAKDOWN (Volts) .62 to 1	1 to 5	5 to 25	25 to 75	75 to 150	150 to 200
Cen	CENTRALAB SEMICONDUCTOR DIV. Globe-Union, Inc., 4501 N. Arden Dr. El Monte, CA 91734	343	●	●	●	●		

DIODES (TC Reference)			BREAKDOWN (Volts)					
		RS No.	.62 to 1	1 to 5	5 to 25	25 to 75	75 to 150	150 to 200
Cod	CODI SEMICONDUCTOR Pollitt Dr. S. Fairlawn, NJ 07410	344	●	●	●	●	●	●
CI	COMPONENTS, INC. Smith St. Biddeford, ME 04005	345			●	●	●	●
Con	CONTINENTAL DEVICE CORP. 12515 Chadron Ave. Hawthorne, CA 90250	346			●	●	●	●
Dks	DICKSON ELECTRONICS CORP. Box 1390 Scottsdale, AZ 85252	347	●	●	●	●	●	●
Fch	FAIRCHILD SEMICONDUCTOR 313 Fairchild Dr. Mountain View, CA 94040	348			●			
GE	GENERAL ELECTRIC CO. Semiconductor Products Dept. Electronics Park Syracuse, NY 13201	349			●			
GSI	GENERAL SEMICONDUCTOR, INC. Box 3077 Tempe, AZ 85281	350	●	●	●	●	●	●
HS	HELIOS SEMICONDUCTOR CO. York Industrial Park Bldg. Q, Box 293 Stanton, CA 90680	351		●	●			
IDC	INTERNATIONAL DIODE CORP. 90 Forrest St. Jersey City, NJ 07304	352	●	●	●	●	●	●
IRec	INTERNATIONAL RECTIFIER, Semiconductor Div. 233 Kansas St. El Segundo, CA 90245	353			●	●		
KSC	KSC SEMICONDUCTOR CORP. KSC Way Chelmsford, MA 01824	354			●			
Msm	MICROSEMICONDUCTOR CORP. 11250 Playa Ct. Culver City, CA 90230	355	●	●	●	●	●	●
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	356			●	●	●	●
SSc	SENSITRON SEMICONDUCTOR 221 W. Industry Ct. Deer Park, NY 11729	357			●	●		
SSD	SOLID STATE DEVICES, INC. 12741 Los Nietos Rd. Santa Fe Springs, CA 90670	358	●	●	●	●	●	●
Sol	SOLITRON DEVICES, INC. 256 Oak Tree Rd. Tappan, NY 10983	359	●	●	●	●	●	●
IRC	TRW SEMICONDUCTOR DIV. 71 Linden St. West Lynn, MA 01905	360			●			
TRW	TRW SEMICONDUCTOR DIV. 14520 Aviation Blvd. Lawndale, CA 90260	361	●	●	●	●	●	
TE	THOR ELECTRONICS CORP. 741 Livingston St. Elizabeth, NJ 07207	362	●	●	●	●		
Tns	TRANSITRON ELECTRONIC CORP. 168-182 Albion St. Wakefield, MA 01881	363	●					

DIODES (TC Reference)		RS No.	BREAKDOWN (Volts) .62 to 1	1 to 5	5 to 25	25 to 75	75 to 150	150 to 200
Wsn	WESTERN SEMICONDUCTOR DIV. 2200 S. Fairview St. Santa Ana, CA 92704	364		●	●	●		

Diodes, General Purpose

DIODES (General Purpose)		RS No.	PIV (Volts) 50 to 100	100 to 300	300 to 500	500 to 1k	1k to 5k	5k to 10k	10k to 25k	25k to 50k	> 50k
AMD	AMERICAN MICRO DEVICES, INC. Standard Rectifier Div. Box 5415 Santa Ana, CA 92704	365	●	●	●						
ASC	AMERICAN SEMICONDUCTOR CORP. 4 N. Hickory Ave. Arlington Heights, IL 60004	366	●	●	●						
Amp	AMPEREX ELECTRONIC CORP. Providence Pike Slatersville, RI 02876	367	●								
AIE	ATLANTIC SEMICONDUCTOR, INC. 905 Mattison Ave. Asbury Park, NJ 07712	368	●	●	●	●	●	●	●	●	●
Brd	BRADLEY SEMICONDUCTOR CORP. 275 Welton St. New Haven, CT 06506	369	●	●	●	●	●	●	●		
Cen	CENTRALAB SEMICONDUCTOR DIV. Globe-Union, Inc. 4501 N. Arden Dr. El Monte, CA 91734	370	●	●							
Cod	CODI SEMICONDUCTOR Pollitt Dr. S. Fairlawn, NJ 07410	371	●	●	●	●	●	●	●	●	●
Con	CONTINENTAL DEVICE CORP. 12515 Chadron Ave. Hawthorne, CA 90250	372	●	●	●						
Dio	DIONICS, INC. 65 Rushmore St. Westbury, NY 11590	373	●								
EDS	EASTERN DELTA CORP. 29-09 Broadway Fairlawn, NJ 07410	374	●	●	●	●	●	●			
EI	EDAL INDUSTRIES, INC. 4 Short Beach Rd. East Haven, CT 06512	375	●	●	●	●	●	●	●	●	●
ED	ELECTRONIC DEVICES, INC. 21 Gray Oaks Ave. Yonkers, NY 10710	376	●	●	●	●	●	●	●	●	●
ETD	ELECTRONIC TRANSISTORS CORP. 153-13 Northern Blvd. Flushing, NY 11354	377	●	●	●	●					
Fch	FAIRCHILD SEMICONDUCTOR 313 Fairchild Dr. Mountain View, CA 94040	378	●	●							
GE	GENERAL ELECTRIC CO. Semiconductor Products Dept. Electronics Park Syracuse, NY 13201	379	●	●							

DIODES (General Purpose)			PIV (Volts)								
		RS No.	50 to 100	100 to 300	300 to 500	500 to 1k	1k to 5k	5k to 10k	10k to 25k	25k to 50k	> 50k
GI	GENERAL INSTRUMENT CORP. Semiconductor Products Group Box 600 Hicksville, L.I., NY 11802	380	●								
GSI	GENERAL SEMICONDUCTOR, INC. Box 3077 Tempe, AZ 85281	381	●								
GRC	GREEN RECTIFIER CORP. 1-10 30th St. Fairlawn, NJ 07410	382	●	●	●	●					
HS	HELIOS SEMICONDUCTOR CO. York Industrial Park Bldg. Q, Box 293 Stanton, CA 90680	383	●	●	●	●	●	●			
HP	HEWLETT-PACKARD CO. 1501 Page Mill Rd. Palo Alto, CA 94304	384	●								
ITT	ITT SEMICONDUCTORS 3301 Electronics Way West Palm Beach, FL 33402	385	●	●							
IDC	INTERNATIONAL DIODE CORP. 90 Forrest St. Jersey City, NJ 07304	386	●	●	●	●	●	●	●	●	●
IRec	INTERNATIONAL RECTIFIER Semiconductor Div. 233 Kansas St. El Segundo, CA 90245	387	●	●	●	●					
Iso	ISOFILM INTERNATIONAL 20131 Bahama St. Chatsworth, CA 91311	388	●								
Kmt	KEMTRON ELECTRON PRODUCTS, INC. 14 Prince Pl. Newburyport, MA 01950	389	●	●	●						
Msm	MICROSEMICONDUCTOR CORP. 11250 Playa Ct. Culver City, CA 90230	390	●	●	●	●	●	●	●	●	●
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	391	●	●	●	●	●	●			
NPC	NPC SEMICONDUCTOR DIV. Nucleonic Products 6660 Variel Ave. Canoga Park, CA 91306	392	●	●							
Oak	OAK ELECTRO/NETICS CORP. Crystal Lake, IL 60014	393	●								
PI	PARAMETRIC INDUSTRIES, INC. 742 Main St. Winchester, MA 01890	394	●	●	●	●	●				
PC	POWER COMPONENTS, INC. Box 421 Scottdale, PA 15683	395	●	●	●	●	●				
QC	QUALIDYNE CORP. 3699 Tahoe Way Santa Clara, CA 95051	396	●								
Ray	RAYTHEON CO., SEMICONDUCTOR DIV. 350 Ellis St. Mountain View, CA 94040	397	●	●	●						
RCA	RCA/ELECTRONIC COMPONENTS 415 S. Fifth St. Harrison, NJ 07029	398	●	●	●	●					
ST	SARKES-TARZIAN, INC. 415 N. College Ave. Bloomington, IN 47401	399	●	●	●	●	●	●	●	●	●
Smi	SEMI-ELEMENTS, INC. Saxonburg Blvd. Saxonburg, PA 16056	400	●	●	●	●	●	●	●		

Discrete Devices *(Cont'd)*

DIODES (General Purpose)		RS No.	PIV (Volts) 50 to 100	100 to 300	300 to 500	500 to 1k	1k to 5k	5k to 10k	10k to 25k	25k to 50k	> 50k
Smc	SEMTECH CORP. 652 Mitchell Rd. Newbury Park, CA 91320	401	●	●	●	●	●	●	●	●	●
SSc	SENSITRON SEMICONDUCTOR 221 W. Industry Ct. Deer Park, NY 11729	402	●	●	●	●	●	●	●	●	●
SSD	SOLID STATE DEVICES, INC. 12741 Los Nietos Rd. Santa Fe Springs, CA 90670	403	●	●	●	●	●				
SSL	SOLID STATE LABS, INC. 844 E. 25th St. Paterson, NJ 07514	404	●	●	●	●	●				
Sol	SOLITRON DEVICES, INC. 256 Oak Tree Rd. Tappan, NY 10983	405	●	●	●	●	●	●	●	●	●
Syl	SYLVANIA ELECTRIC PRODUCTS, INC. 100 1st Ave. Waltham, MA 02154	406	●	●							
Syn	SYNTRON, DIV. FMC CORP. 439 Lexington Ave. Homer City, PA 15748	407	●	●	●	●	●				
IRC	TRW SEMICONDUCTOR DIV. 71 Linden St. West Lynn, MA 01905	408	●	●	●	●	●				
TRW	TRW SEMICONDUCTOR DIV. 14520 Aviation Blvd. Lawndale, CA 90260	409	●	●	●	●	●	●	●		
TI	TEXAS INSTRUMENTS INCORPORATED Inquiry Answering Service Box 5012, M/S 308 Dallas, TX 75222	410	●	●	●	●					
TE	THOR ELECTRONICS CORP. 741 Livingston St. Elizabeth, NJ 07207	411	●	●	●	●	●				
UP	UNITED PAGE, INC. 481 Getty Ave., Dept. CM Paterson, NJ 07503	412	●	●	●	●					
Var	VARO, INC., Semiconductor Div. 1000 N. Shiloh Rd. Garland, TX 75040	413	●	●	●	●	●	●	●	●	●
Wsn	WESTERN SEMICONDUCTOR DIV. 2200 S. Fairview St. Santa Ana, CA 92704	414	●	●	●						
Wst	WESTINGHOUSE ELECTRIC CORP. 3 Gateway Center Pittsburgh, PA 15230	415	●	●	●	●	●	●	●	●	●

Rectifiers

RECTIFIERS		RS No.	I_O (Amps) .5 to 1	1 to 5	5 to 10	10 to 25	25 to 50	50 to 100	100 to 300	300 to 400	> 400
AMD	AMERICAN MICRO DEVICES, INC. Standard Rectifier Div. Box 5415 Santa Ana, CA 92704	416	●	●	●	●	●	●	●	●	●
ASC	AMERICAN SEMICONDUCTOR CORP. 4 N. Hickory Ave. Arlington Heights, IL 60004	417	●								
Amp	AMPEREX ELECTRONIC CORP. Providence Pike Slatersville, RI 02876	418	●								

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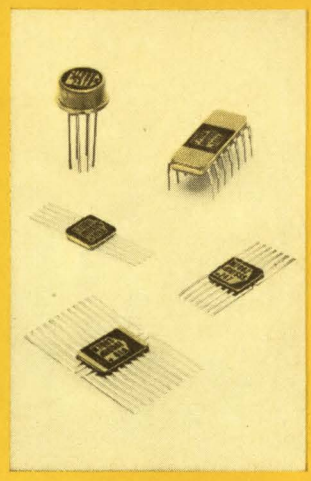

D/A MONOMODULES*

1 monoDAC-01	2 monoDAI-01B	3 monoDAR-01B
The world's first commercial, completely self-contained, monolithic, 6 bit, D/A converter. • Accuracy: ± ½ LSB from −55°C to +125°C • Slew Rate: 25 V/μs • Power Supply: ± 9V to ± 18V • Power Supply Rejection: 0.15%/V • Input Logic Levels: High 2.1V; Low 0.7V	The world's fastest, most accurate, 10 bit D/A converter. • Accuracy: 8 bits ± 1 bit from −25°C to +85°C • Settling Time: 150nS to 10 bits • Power Supply Rejection: 0.15%/V • Input Logic Levels: High 2.1V; Low 0.7V • Internal Voltage Reference • Operates from −55°C to +125°C	A compatible film resistive ladder network to be used with the mono DAI-01B. Available in a 24 lead flatpack. • Feedback and bias resistors included for best thermal tracking. • Operating Temperature Range: −55°C to +125°C • Accuracy compatible to mono DAI-01B • Low cost for high quantities
Price (note 1) $40.00	Price (note 1) $37.50	Price (note 1) $15.00

SSS** OPERATIONAL AMPLIFIERS

	4	5	6	7	8	9	10	11	12
Parameter	SSS 725	SSS 741	SSS 741B	SSS 747	SSS 747B	SSS 101A	SSS 201A	SSS 107	SSS 207
Offset Voltage (max.)	0.5mV	2mV	3mV	2mV	3mV	1.8mV	2mV	1.8mV	2mV
Offset Current (max.)	5nA	5nA	5nA	5nA	5nA	5nA	10nA	5nA	10nA
Bias Current (max.)	80nA	50nA	50nA	50nA	50nA	50nA	75nA	50nA	75nA
Voltage Gain (min.)	10^6	10^5	50,000	10^5	50,000	10^5	50,000	10^5	50,000
Temperature Range	−55°C to +125°C	−55°C to +125°C	−25°C to +85°C	−55°C to +125°C	−25°C to +85°C	−55°C to +125°C	−25°C to +85°C	−55°C to +125°C	−25°C to +85°C
Price (note 1)	$37.50	$27.00	$10.80	$60.00	$24.00	$30.00	$12.00	$33.00	$13.00

Note 1: Pricing for 100 Unit Quantity.

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Discrete Devices (Cont'd)

	RECTIFIERS		I_O (Amps)								
		RS No.	.5 to 1	1 to 5	5 to 10	10 to 25	25 to 50	50 to 100	100 to 300	300 to 400	> 400
AIE	ATLANTIC SEMICONDUCTOR, INC. 905 Mattison Ave. Asbury Park, NJ 07712	419	●	●	●	●	●				
Brd	BRADLEY SEMICONDUCTOR CORP. 275 Welton St. New Haven, CT 06506	420	●	●	●	●	●	●			
Cen	CENTRALAB SEMICONDUCTOR DIV. Globe-Union, Inc. 4501 N. Arden Dr. El Monte, CA 91734	421	●	●							
Cod	CODI SEMICONDUCTOR Pollitt Dr. S. Fairlawn, NJ 07410	422	●								
Con	CONTINENTAL DEVICE CORP. 12515 Chadron Ave. Hawthorne, CA 90250	423	●								
Dlc	DELCO RADIO DIV. General Motors Corp. 700 E. Firmin St. Kokomo, IN 46901	424		●		●			●		
Dks	DICKSON ELECTRONICS CORP. Box 1390 Scottsdale, AZ 85252	425	●	●	●	●					
DI	DIODES, INC. 20235 Nordhoff St. Chatsworth, CA 91311	426	●	●	●						
EDS	EASTERN DELTA CORP. 29-09 Broadway Fairlawn, NJ 07410	427	●	●	●	●	●	●	●	●	●
EI	EDAL INDUSTRIES, INC. 4 Short Beach Rd. East Haven, CT 06512	428	●	●	●	●	●	●	●	●	●
ED	ELECTRONIC DEVICES, INC. 21 Gray Oaks Ave. Yonkers, NY 10710	429	●	●	●	●	●				
ETD	ELECTRONIC TRANSISTORS CORP. 153-13 Northern Blvd. Flushing, NY 11354	430	●	●	●	●	●	●	●		
Eri	ERIE TECHNOLOGICAL PRODUCTS, INC. 644 W. 12th St. Erie, PA 16512	431	●	●	●	●					
Fch	FAIRCHILD SEMICONDUCTOR 313 Fairchild Dr. Mountain View, CA 94040	432	●								
GE	GENERAL ELECTRIC CO. Semiconductor Products Dept. Electronics Park Syracuse, NY 13201	433	●	●	●	●	●	●	●	●	●
GI	GENERAL INSTRUMENT CORP. Semiconductor Products Group Box 600 Hicksville, L.I., NY 11802	434	●	●	●	●					
GRC	GREEN RECTIFIER CORP. 1-10 30th St. Fairlawn, NJ 07410	435	●	●	●	●	●	●			
HC	HEAT CO., INC. 235 Bay Rd. Glens Falls, NY 12801	436		●							
HS	HELIOS SEMICONDUCTOR CO. York Industrial Park Bldg. Q, Box 293 Stanton, CA 90680	437	●	●	●	●	●	●	●		
ITT	ITT SEMICONDUCTORS 3301 Electronics Way West Palm Beach, FL 33402	438	●	●							

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Ask our solid-state specialists why RCA's broad line of industrial SCR's and triacs excel in quality, reliability, and performance. They'll tell you that RCA thyristors are subjected to some of the toughest quality assurance tests in the industry. Thus, they save design dollars by virtue of superior performance in critical applications.

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SCR Family	Rating		Triac Family	Rating	
	$I_{T(RMS)}$	V_{DROM}		$I_{T(RMS)}$	V_{DROM}
40740	10 A	600 V	2N5568	10 A	400 V
40752	20 A	600 V	2N5572	15 A	400 V
2N690	25 A	600 V	40671	30 A	600 V
2N3899	35 A	600 V	2N5443	40 A	600 V

NOTE: SCR ratings of 100, 200, & 400 volts and triac ratings of 200 & 400 volts are available in each family. Stud packages & isolated-stud packages are also available in each rating.

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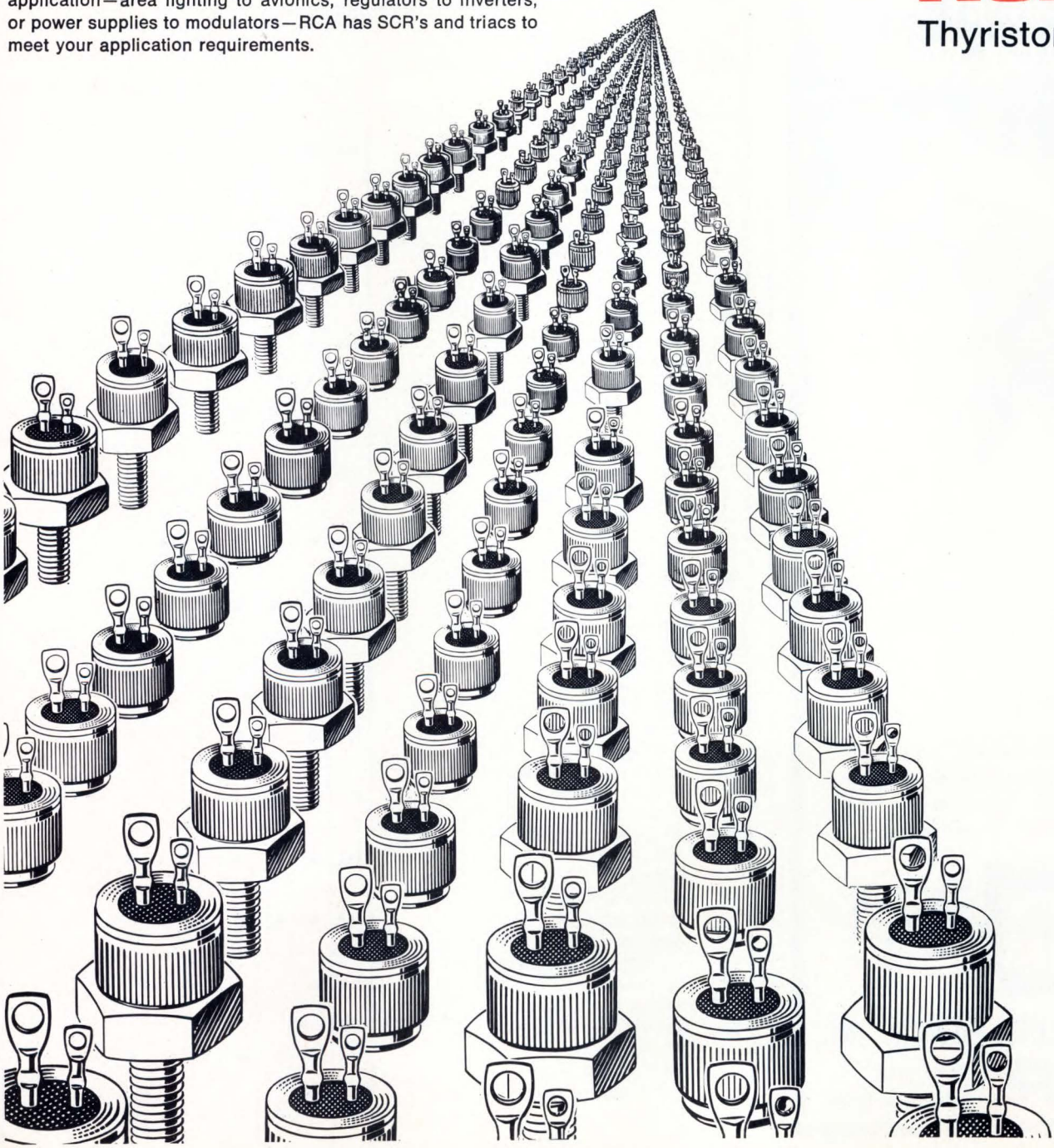
RCA

Thyristors



CIRCLE NO. 33

Discrete Devices (Cont'd)

	RECTIFIERS		I_O (Amps)								
		RS No.	.5 to 1	1 to 5	5 to 10	10 to 25	25 to 50	50 to 100	100 to 300	300 to 400	> 400
IDC	INTERNATIONAL DIODE CORP. 90 Forrest St. Jersey City, NJ 07304	439	●	●	●	●	●	●	●	●	●
IRec	INTERNATIONAL RECTIFIER Semiconductor Div. 233 Kansas St. El Segundo, CA 90245	440	●	●	●	●	●	●	●	●	●
Iso	ISOFILM INTERNATIONAL 20131 Bahama St. Chatsworth, CA 91311	441		●	●	●	●				
Kmt	KEMTRON ELECTRON PRODUCTS, INC. 14 Prince Pl. Newburyport, MA 01950	442	●								
Msm	MICROSEMICONDUCTOR CORP. 11250 Playa Ct. Culver City, CA 90230	443	●	●	●						
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	444	●	●	●	●	●	●	●	●	●
PC	POWER COMPONENTS, INC. Box 421 Scottdale, PA 15683	445	●	●							
PD	POWER PHYSICS Box 626 — Industrial Way West Eatontown, NJ 07724	446		●		●					
PSI	POWER SEMICONDUCTORS, INC. 90 Munson St. Devon, CT 06460	447							●	●	●
Rct	RECTICO, INC. 20 Village Park Rd. Cedar Grove, NJ 07009	448	●	●	●	●	●	●	●	●	●
SM	SANFORD MILLER CORP. 89 Throop Ave. Brooklyn, NY 11206	449		●	●	●	●	●	●	●	
ST	SARKES-TARZIAN, INC. 415 N. College Ave. Bloomington, IN 47401	450		●	●	●	●	●	●	●	●
SMI	SEMI-ELEMENTS, INC. Saxonburg Blvd. Saxonburg, PA 16056	451	●	●	●	●	●				
Smc	SEMICON, INC. 10 North Ave. Burkington, MA 01803	452	●	●	●	●	●				
Smt	SEMTECH CORP. 652 Mitchell Rd. Newbury Park, CA 91320	453	●	●	●	●	●	●	●	●	●
SSc	SENSITRON SEMICONDUCTOR 221 W. Industry Ct. Deer Park, NY 11729	454	●	●	●	●	●	●			
SSD	SOLID STATE DEVICES, INC. 12741 Los Nietos Rd. Santa Fe Springs, CA 90670	455	●	●	●	●	●	●	●	●	●
SSL	SOLID STATE LABS., INC. 844 E. 25th St. Paterson, NJ 07514	456	●	●	●	●					
Sol	SOLITRON DEVICES, INC. 256 Oak Tree Rd. Tappan, NY 10983	457	●	●	●	●	●	●			
Syl	SYLVANIA ELECTRIC PRODUCTS, INC. 100 1st Ave. Waltham, MA 02154	458	●								
Syn	SYNTRON, DIV. FMC CORP. 439 Lexington Ave. Homer City, PA 15748	459		●	●	●	●	●	●		
IRC	TRW SEMICONDUCTOR DIV. 71 Linden St. West Lynn, MA 01905	460		●	●	●	●	●			

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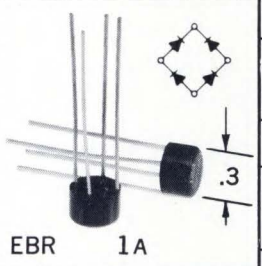
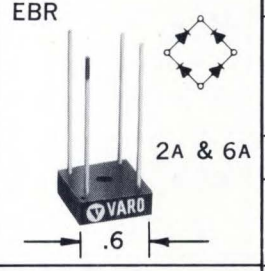
W 111	1A	.95
100V		
VE 18	1A	1.00
VS 148	2A	1.00
VH 148	6A	1.93
200V		
VE 27	1A	1.20
VE 28	1A	1.10
VS 247	2A	1.20
VS 248	2A	1.10
VH 247	6A	2.25
VH 248	6A	2.15
IN 4436	10A	4.15
VT 200	25A	5.35
400V		
VE 47	1A	1.30
VE 48	1A	1.20
VS 447	2A	1.30
VS 448	2A	1.20
VH 447	6A	2.59
VH 448	6A	2.49
IN 4437	10A	5.45
VT 400	25A	7.00
600V		
VE 67	1A	1.59
VE 68	1A	1.49
VS 647	2A	1.60
VS 648	2A	1.50
VH 647	6A	2.98
VH 648	6A	2.88
IN 4438	10A	7.45
VT 600	25A	9.85



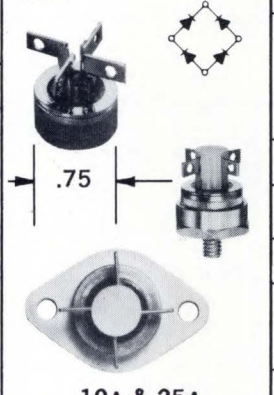
EBR 1A

EBR

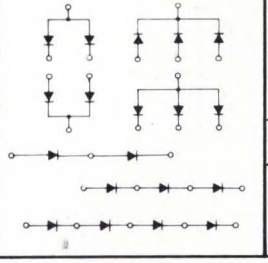


2A & 6A

IBR



10A & 25A ALSO AVAILABLE IN THESE CIRCUITS



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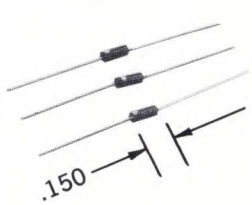
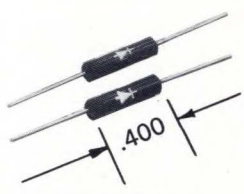
1000V	I_O	1-99
VA 10	50mA	1.36
VB 10	100mA	1.41
1500V		
VA 15	50mA	1.44
VB 15	100mA	1.51
2000V		
VA 20	50mA	1.55
VB 20	100mA	1.59
VC 20	2A	5.20
2500V		
VA 25	50mA	1.66
VB 25	100mA	1.72
3000V		
VA 30	25mA	1.93
VB 30	50mA	1.88
VC 30	2A	5.52
3500V		
VA 35	25mA	2.70
4000V		
VB 40	50mA	2.05
VC 40	2A	5.85
5000V		
VB 50	50mA	2.40
VC 50	1.5A	6.18
VF 5-5	5mA	1.60
VF 10-5	10A	1.77
VF 25-5	25mA	1.95
6000V		
VB 60	50mA	2.62
VC 60	1.5A	6.50

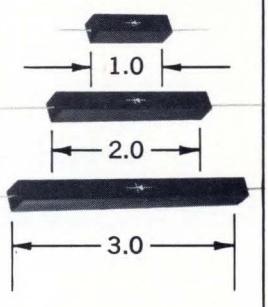
7000V	I_O	1-99
VC 70	1.5A	6.82
VF 5-7	5mA	1.71
VF 10-7	10mA	1.89
VF 25-7	25mA	2.08
8000V		
VC 80	1A	7.15
10,000V		
VF 5-10	5mA	1.96
VF 10-10	10mA	2.16
VF 25-10	25mA	2.38
12,000V		
VF 5-12	5mA	2.22
VF 10-12	10mA	2.44
VF 25-12	25mA	2.68
15,000V		
VF 5-15	5mA	2.30
VF 10-15	10mA	2.54
VF 25-15	25mA	2.80
20,000V		
VF 5-20	5mA	2.97
VF 10-20	10mA	3.27
VF 25-20	25mA	3.60
25,000V		
VF 5-25	5mA	3.72
VF 10-25	10mA	4.09
VF 25-25	25mA	4.51
30,000V		
VF 5-30	5mA	4.46
VF 10-30	10mA	4.91
VF 25-30	25mA	5.39
40,000V		
VF 5-40	5mA	5.95
VF 10-40	10mA	6.54
VF 25-40	25mA	7.20



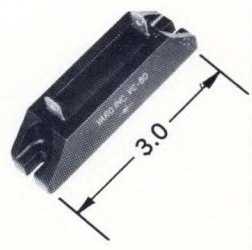
VA SERIES



VB SERIES



VF SERIES



VC SERIES

*Available with fast recovery characteristic

VARO

SEMICONDUCTOR DIVISION 1000 N. SHILOH ROAD, GARLAND, TEXAS 75040 (214) 272-4551

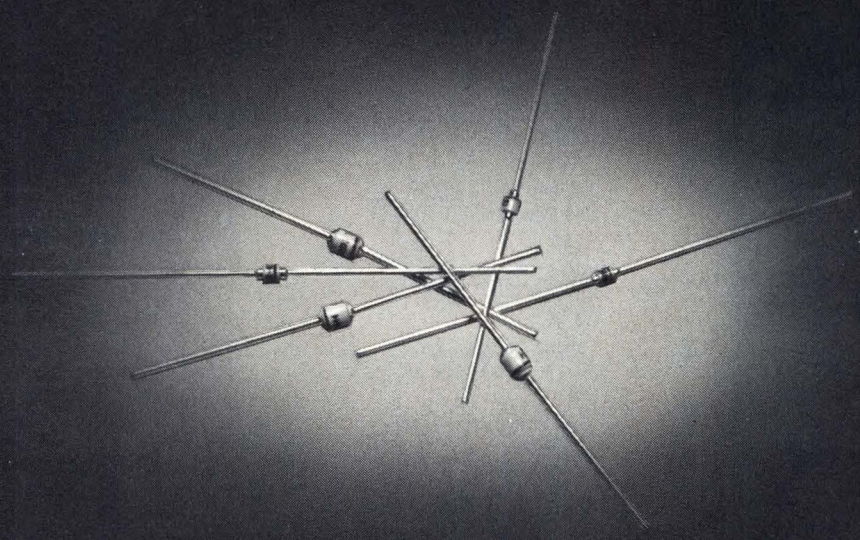
CIRCLE NO. 34

Discrete Devices (Cont'd)

RECTIFIERS			I_O (Amps)								
		RS No.	.5 to 1	1 to 5	5 to 10	10 to 25	25 to 50	50 to 100	100 to 300	300 to 400	> 400
TRW	TRW SEMICONDUCTOR DIV. 14520 Aviation Blvd. Lawndale, CA 90260	461	●	●	●	●	●				
TI	TEXAS INSTRUMENTS, INCORPORATED Inquiry Answering Service Box 5012, M/S 308 Dallas, TX 75222	462	●								
TE	THOR ELECTRONICS CORP. 741 Livingston St. Elizabeth, NJ 07207	463	●	●	●	●	●	●	●		
Tns	TRANSITRON ELECTRONIC CORP. 168-182 Albion St. Wakefield, MA 01881	464	●	●	●	●	●				
UP	UNITED PAGE, INC. 481 Getty Ave., Dept. CM Paterson, NJ 07503	465	●	●	●	●	●	●	●	●	●
Unt	UNITRODE CORP. 580 Pleasant St. Watertown, MA 02172	466	●	●	●	●					
Var	VARO, INC., SEMICONDUCTOR DIV. 1000 N. Shiloh Rd. Garland, TX 75040	467	●	●	●	●					
Wsn	WESTERN SEMICONDUCTOR DIV. 2200 S. Fairview St. Santa Ana, CA 92704	468	●								
Wst	WESTINGHOUSE ELECTRIC CORP. 3 Gateway Center Pittsburgh, PA 15230	469		●	●	●	●	●	●	●	●

Diodes, Microwave

DIODES (Microwave)			FREQUENCY (MHz)						
		RS No.	.3 to .5	.5 to 1	1 to 5	5 to 25	25 to 50	50 to 100	> 100
Aer	AERTECH INDUSTRIES 825 Stewart Dr. Sunnyvale, CA 94086	470	●	●	●	●			
Al	ALPHA INDUSTRIES, INC. 381 Elliot St. Newton Upper Falls, MA 02164	471	●	●	●	●			
AEL	AMERICAN ELECTRONIC LABS., INC. Box 552 Lansdale, PA 19446	472	●	●	●	●	●	●	●
Amp	AMPEREX ELECTRONIC CORP. Providence Pike Slatersville, RI 02876	473						●	
Cod	CODI SEMICONDUCTOR Pollitt Dr. S. Fairlawn, NJ 07410	474	●	●					
Con	CONTINENTAL DEVICE CORP. 12515 Chadron Ave. Hawthorne, CA 90250	475	●	●	●				
EC	EASTRON CORP. 25 Locust St. Haverhill, MA 01830	476	●	●	●				
GHZ	GHZ DEVICES, INC. Kennedy Dr. North Chelmsford, MA 01863	477	●	●	●	●	●	●	
HS	HELIOS SEMICONDUCTOR CO. York Industrial Park Bldg. Q, Box 293 Stanton, CA 90680	478			●				



All Microglass Zeners Look Alike...

Our 1, 3 and 5 watt microglass regulators look just like the "other" manufacturers' product. And ours meet all the same specs as the "others." But that's where the comparison ends!

ALL Centralab Semiconductor 1, 3 and 5 watt microglass zeners:

- are oxide-passivated to insure high parameter stability and protect against contamination
- have low leakage characteristics and reliability inherent in mesa construction
- have 1¼" leads to facilitate automatic insertion and reel tape operation, an important feature in high volume packaging.

And these days you have to be cost conscious. In small quantities our microglass zeners sell for as much as 60 cents less than the "others." And in large quantities we can and will meet or beat any competitive price.

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SEMICONDUCTOR
Division • GLOBE-UNION INC.
4501 NORTH ARDEN DRIVE
EL MONTE, CALIFORNIA 91734

zeners, temp.-compensated devices, tunnel diodes, rectifiers, scr's, semiconductor chips, hi-rel hybrids and photovoltaic products

CIRCLE NO. 35

Discrete Devices (Cont'd)

DIODES (Microwave)		RS No.	FREQUENCY (GHz) .3 to .5	.5 to 1	1 to 5	5 to 25	25 to 50	50 to 100	> 100
HP	HEWLETT-PACKARD CO. 1501 Page Mill Rd. Palo Alto, CA 94304	479	●	●	●	●			
KMC	KMC SEMICONDUCTOR CORP. Parker Rd. Long Valley, NJ 07853	480	●	●	●	●	●		
KSC	KSC SEMICONDUCTOR CORP. KSC Way Chelmsford, MA 01824	481	●	●					
Kmt	KEMTRON ELECTRON PRODUCTS, INC. 14 Prince Pl. Newburyport, MA 01950	482	●	●	●	●	●		
Kev	KEVLIN MFG. 26 Conn St. Woburn, MA 01801	483	●	●	●	●			
MSI	MSI ELECTRONICS INC. 34-32 57th St. Woodside, NY 11377	484	●	●	●				
MC	MICROPHASE CORP. 35 River Rd. Cos Cob, CT 06807	485	●	●	●	●	●	●	
Mcw	MICROWAVE ASSOC. Northwest Industrial Park Burlington, MA 01803	486	●	●	●	●	●	●	●
Mon	MONSANTO MICROWAVE PRODUCTS 11636 Administration Dr. St. Louis, MO 63141	487			●	●			
Mot	MOTOROLA SEMICONDUCTOR PRODUCTS, INC. 5005 E. McDowell Rd. Phoenix, AZ 85257	488			●	●			
PI	PARAMETRIC INDUSTRIES, INC. 742 Main St. Winchester, MA 01890	489	●	●	●	●	●	●	●
Phl	PHILCO-FORD CORP. Tioga & C Sts. Philadelphia, PA 19134	490	●	●	●	●	●	●	
Ray	RAYTHEON CO., SEMICONDUCTOR DIV. 350 Ellis St. Mountain View, CA 94040	491	●	●	●				
SMI	SEMI-ELEMENTS, INC. Saxonburg Blvd. Saxonburg, PA 16056	492	●	●	●				
Scx	SILICONIX, INC. 2201 Laurelwood Rd. Santa Clara, CA 95054	493	●	●	●	●			
Sol	SOLITRON DEVICES, INC. 256 Oak Tree Rd. Tappan, NY 10983	494	●	●	●	●	●	●	
Syl	SYLVANIA ELECTRIC PRODUCTS, INC. 100 1st Ave. Waltham, MA 02154	495			●	●	●	●	
TRW	TRW SEMICONDUCTOR DIV. 14520 Aviation Blvd. Lawndale, CA 90260	496	●	●	●	●			
TI	TEXAS INSTRUMENTS INC. Inquiry Answering Service Box 5012, M/S 308 Dallas, TX 75222	497							●
TE	THOR ELECTRONICS CORP. 741 Livingston St. Elizabeth, NJ 07207	498	●	●	●	●			
Unt	UNITRODE CORP. 580 Pleasant St. Watertown, MA 02172	499	●	●	●				
VA	VARIAN, SOLID STATE DIV. Beverly, MA 01915	500	●	●	●	●	●		

the fastest character generator west of hicksville

speed: 2MHz
price: $28.00* ea.

The first and only 2MHz character generator with horizontal output using ASCII coding ...all in one package

TYPICAL 5X7 BIT CHARACTER

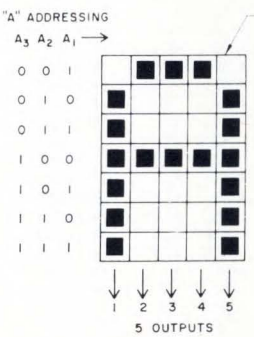


FIGURE 1

TYPICAL SCAN

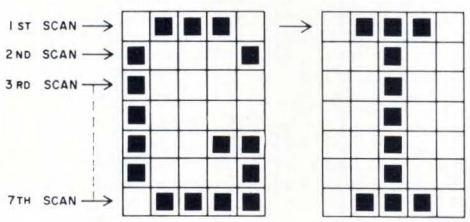


FIGURE 2

The new General Instrument one package MTOS Character Generator is the fastest, most reliable character generator available today. No other device can equal its performance at lower cost.

To achieve equivalent speed (>80 character capability) in conventional systems, extremely large and complex memories would be required, the cost and reliability of which would be adversely affected.

The General Instrument Character Generator (RO-1-2240) is an MTOS 2240-bit read only memory. It is organized into 64 permanent character storage locations of 35 bits each (5x7 character matrix) and 9 bits of addressing (arranged in 2 decoding matrices of 3 and 6 bits respectively) with 5 outputs. The 2240 bits of memory are constructed on a single monolithic chip utilizing exclusive MTOS (Metal-Thick-Oxide-Silicon) P-channel enhancement mode transistors. The new RO-1-2240 features:

- 500 ns Cycle Time
- 5x7 Bit Character Format/64 Characters
- Asynchronous/Synchronous Operation
- Output Buffers for TTL/DTL Interfacing
- 24 Lead Dual-in-Line Package

Another important feature of this unique character generator is its acceptance of ASCII coded inputs for 5x7 character selection. Three additional inputs are provided for the line of the character (figure 1). The "A" addressing code selects the 5 outputs applicable to the scan line active at the time (figure 2). The method employed is horizontal scan (or raster) designed specifically for standard video equipment and requiring no additional display hardware. The character generator provides the z (intensity) information for each character in a row through 7 runs, or scans, for the completed row of characters.

The RO-1-2240 MTOS Character Generators are available in production quantities and are in stock at your authorized General Instrument Distributor. For full information write General Instrument Corporation, Dept. 40, 600 West John St., Hicksville, N.Y. 11802, or call, in New York: 516-733-3333; in Boston: 617-329-1480; in Chicago: 312-774-7800; in Los Angeles: 213-873-6500. (In Europe, write to General Instrument Europe S.P.A., Piazza Amendola 9, 20149 Milano, Italy; in the U.K., to General Instrument Microelectronics Ltd., Stonefield Way, Victoria Road, South Ruislip, Middlesex, England.)

*In quantities of 100 pcs. Custom font available.

GENERAL INSTRUMENT

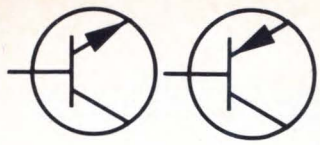
GENERAL INSTRUMENT CORPORATION • 600 WEST JOHN STREET, HICKSVILLE, L. I., NEW YORK

CIRCLE NO. 29

BIPOLAR TRANSISTOR

This numerical listing of EIA registered devices gives four important characteristics for bipolar transistors. A CROSS REFERENCE and TRANSISTOR MANUFACTURERS listing follows.

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN TYP •	f_{ae} * kHz f_{ab} MHz f_T • MHz f_{max} ▲ MHz
• 2N34	.15	40 •	40 •	.4
• 2N34A	.05	25 •	40 •	.6
2N35	.15	40 •	25 •	.8
• 2N36	.05	20 •	45 •	.5
• 2N37	.05	20 •	30 •	.8
• 2N38	.05	20 •	15 •	.5
• 2N43	.24	30	34	1.3
• 2N43A	.24	30	34	1.3
• 2N44	.24	30	18	1
• 2N44A	.24	30	18	1
• 2N45	.155	30	11	1
• 2N59	.18	25 •	90 •	1.8
• 2N59A	.18	40 •	90 •	1.8
• 2N59B	.18	50 •	90 •	1.8
• 2N59C	.18	60 •	90 •	1.8
• 2N60	.18	25 •	70 •	1.5
• 2N60A	.18	40 •	70 •	1.5
• 2N60B	.18	50 •	70 •	1.5
• 2N60C	.18	60 •	70 •	1.5
• 2N61	.18	25 •	45 •	1.5
• 2N61A	.18	40 •	45 •	1
• 2N61B	.18	50 •	45 •	1
• 2N61C	.18	60 •	45 •	1
• 2N63	.1	22	22 •	.6
• 2N64	.1	15	45 •	.8
• 2N65	.125	20 •	75 •	1
• 2N77	.035	25 •	55 •	.7
2N78	.065	15	45	9
2N78A	.065	20	45	9
2N94	.15	20 •	20	2
2N94A	.15	20 •	20	5
• 2N97	.05	30 •	13 •	1
2N98	.05	40 •	40 •	2.5
2N99	.05	40 •	40 •	3.5
2N103	.05	35 •	4 •	.75
• 2N104	.15	30 •	44 •	.7
• 2N105	.035	25 •	55 •	.75
• 2N106	.1	15 •	45 •	.8
• 2N107	.05	12 •	19 •	1
• 2N108	.05	20 •		
• 2N109	.165	35 •	75 •	
• 2N110	.2	50 •	3 •	5
• 2N111	.13	30 •	25 •	3
• 2N111A	.13	30 •	25 •	3
• 2N112	.13	30 •	30 •	5
• 2N112A	.13	30 •	30 •	5
• 2N113	.13	30 •	45 •	10
• 2N114	.13	30 •	75 •	20
2N117	.15	45 •	15 •	4
2N118	.15	45 •	29 •	5
2N118A	.15	45 •	54 •	8
2N119	.15	45	63 •	6
2N120	.15	45 •	200 •	7
2N122	9	120 •	3	7
• 2N123	.15	15	30	8
2N124	.05	10 •	18 •	.3
2N125	.05	10 •	36 •	5
2N126	.05	10 •	20 •	5
• 2N128	.025	10 •	19	45 ▲
• 2N129	.03	10	10	30
• 2N130A	.1	44	26 •	.7
• 2N131A	.1	30	45 •	.8
• 2N132A	.1	24	90 •	1
• 2N133A	.1	30	50 •	.8
• 2N135	.1	20 •	20	4.5
• 2N136	.1	20 •	40 •	6.5
• 2N137	.1	10 •	60 •	10
• 2N138	.15	20 •	44 •	
• 2N139	.035	12		13
• 2N140	.08	16 •	75	10
2N145	.065	20 •		
2N146	.065	20 •		
2N147	.065	20 •		
• 2N155	50	15	24	.18
• 2N156	20	30	25	4 *
• 2N158	20	60	21	4 *
• 2N158A	20	60	21	4 *
2N164	.065	1		
2N164A	.065	15	40 •	8
2N165	.065	15	72 •	5
2N166	.025	6 •	32 •	2
2N167	.065	30	17	9
2N167A	.075	30	17	9
2N168A	.065	15	23	8
2N169	.065	15	34	8
2N169A	.075	25 •	34	9
2N170	.025	6 •	20 •	2.5
2N172	.065	16 •		
• 2N173	150	45	35	10 *
• 2N174	150	55	25	10 *
• 2N174A	150	40	40	15 *
• 2N175	.02	10 •	65 •	.85
• 2N176	90	40 •	25 •	7 *
• 2N178	40	30	15	6 *
• 2N180	.15	30 •	60 •	.7
• 2N181	.15	30 •	60 •	.7
2N182	.1	25 •	25 •	3.8
2N183	.1	25 •	40 •	7.5
2N184	.1	25 •	60 •	15
• 2N185	.15	20 •	80 •	
• 2N186	.1	25 •	24 •	.8
• 2N186A	.2	25	24 •	.8
• 2N187	.1	25 •	36 •	1
• 2N187A	.2	25	36 •	1
• 2N188	.1	25 •	54 •	1.2
• 2N188A	.2	25	54 •	1.2
• 2N189	.2	25	35 •	.8
• 2N190	.2	25	50 •	1
• 2N191	.2	25	85 •	1.2
• 2N192	.2	25	125 •	1.5
2N193	.15	18	4	3
2N194	.05	18	8 •	3
2N194A	.15	18	5	3
• 2N206	.075	30 •	47 •	.78
• 2N207	.085	12	100	2
• 2N207A	.085	12	100	2
• 2N207B	.085	12	100	2
2N211	.05	10	5	3
2N212	.15	18	10	4
2N213	.18	25	70	3
2N213A	.18	25	100	.15
2N214	.18	25	50	.8
• 2N215	.150	30 •	44 •	.7
2N216	.05	18	7.5 •	3
• 2N217	.165	35 •	75 •	
• 2N218	.035	16 •		4.7
• 2N219	.08	9	75	10
• 2N220	.02	10 •	65 •	.85
• 2N223	.25	18	110 •	.6
• 2N224	.25	25 •	90 •	.51
• 2N225	.25			
• 2N226	.25	30 •	60 •	.4
2N228	.18	40 •	55	.6
2N229	.18	10	25	.6
• 2N231	.009	4 •	19	20 •
2N233	.15	10	10	2
2N233A	.15	18	10	2
• 2N234A	25	25	25 •	8 *
• 2N235A	25	40	40 •	.5
• 2N235B	25	40	60 •	.5
• 2N236A	25	40	40 •	.5
• 2N236B	25	40	60 •	.5
• 2N237	.15	45 •	50 •	.5
• 2N238	.15	20 •	45 •	1.3
• 2N240	.025	6	16	25 •
• 2N241	.1	25 •	73 •	1.3
• 2N241A	.2	25	50	1.3
• 2N242	25	45	40 •	5 *
2N243	.750	60	20 •	
2N244	.750	60	59 •	
• 2N249	.35	25 •	50 •	
• 2N250	25	30 •	30	12 *
• 2N250A	90	25	35	
• 2N251	25	60 •	30	12 *
• 2N251A	90	35	35	
• 2N252	.03	16		
2N253	.65	12 •	30	
2N254	.65	20 •	30	
• 2N255	25	14	30 •	
• 2N255A	20	15	30 •	.125
• 2N256	25	28		
• 2N256A	20	25	30 •	.125
• 2N257	25	35	40 •	5 *
• 2N257B	25	35	50 •	5 *
• 2N257G	25	35	40 •	5 *
• 2N257W	25	35	60 •	5 *
2N263	.125	45 •	45 •	20
2N264	.125	45 •	20 •	10
• 2N265	.075	25	140 •	1.5
• 2N268	25	60	40 •	6 *
• 2N268A	35	60	20	
• 2N269	.12	24	24	13
• 2N270	.25	25 •	70 •	
• 2N271	.13	30 •	45 •	10
• 2N271A	.13	30 •	45 •	10
• 2N272	.15	5 •	120 •	.5
• 2N273	.15	45 •	20 •	1
• 2N274	.12	40 •	60 •	30
• 2N277	50	40 •	35	10 *
• 2N278	50	50 •	35	10 *
• 2N279	.125	30	30 •	.3
• 2N280	.125	30	47 •	.3
• 2N281	.165	16	70 •	.35
• 2N283	.125	32 •	40 •	.5
• 2N284	.165	32 •	45 •	.35
• 2N284A	.165	60	45 •	.35
• 2N285A	25	35	150 •	.5
• 2N285B	25	35	150 •	.5
• 2N291	.18	25 •	45 •	
2N292	.065	15	8	5
2N293	.065	15	8	8
• 2N296	20	60	19	4 *
• 2N297	45	50	12	.005
• 2N297A	35	40	40	12 *
• 2N301	25	32		
• 2N301A	25	32		
• 2N302	.15	10 •	45 •	7
2N306	.18	15	75 •	.6
• 2N307	25	35	20	3 *
• 2N307A	25	35	20	3.5 *
• 2N308	.03	20 •		
• 2N309	.03	20 •		
• 2N310	.03	30 •		
• 2N311	.15	15	50 •	
• 2N312	.15	15 •	50 •	
• 2N315	.1	15	15	5
• 2N315A	.15	20	20	5
• 2N316	.1	10	20	12
• 2N316A	.15	15	20	12
• 2N317	.1	6	20	20
• 2N317A	.15	10	20	20
• 2N319	.225	20	25	1
• 2N320	.225	20	34	1.5
• 2N321	.225	20	53	2
• 2N322	.2	18	34	1
• 2N323	.2	18	53	1.5
• 2N324	.2	18	72	2
2N326	7	35	30	.15
• 2N327A	.25	40	9	.2
• 2N327B	.4	40	9	2
• 2N328A	.25	35	18	.3
• 2N328B	.4	35	18	3
• 2N329A	.39	30	36	.5
• 2N329B	.4	30	36	5
• 2N330A	.385	30	25 •	.5
• 2N331	.2	30 •	30	.4
2N332	.15	45 •	9	6
2N332A	.5	45	9	10
2N333	.15	45 •	18	8
2N333A	.5	45	18	11
2N334	.15	45 •	18	10
2N334A	.5	45	18	12
2N335	.15	45 •	36	11
2N335A	.5	45	37	13
2N335B	.5	60	37	13
2N336	.15	45 •	76	13
2N336A	.5	45	76	15
2N337	.125	30	20	20
2N337A	.5	35	55 •	30
2N338	.125	30	45	30
2N338A	.5	35	99 •	45
2N339	1	55	9	
2N339A	3	60	25	
2N340	1	85	9	
2N340A	3	85	25	
2N341	1	85	9	
2N341A	3	125	25	
2N342	1	60	9	
2N342A	1	85	9	
2N342B	1	85	9	6
2N343	1	60	29	
2N343A	1	60	28	6
2N343B	1	65	29	6
• 2N344	.02		22 •	50 ▲
• 2N345	.02	5	66 •	50 ▲
• 2N346	.02	5	10	75 ▲
• 2N350	65	30	20	6 *
• 2N350A	90	40	20	6 *
• 2N351	65	30	25	6 *
• 2N351A	90	40	25	6 *
2N356	.1	18	20	3
2N356A	.15	20	20	3
2N357	.1	15	20	6
2N357A	.15	20	25	6
2N358A	.15	15	25	9
2N358A	.1	12	20	9
• 2N359	.17	18	100	3.5
• 2N360	.17	30	50	2.5
• 2N361	.17	30	25	2.5
• 2N362	.17	18	90 •	2
• 2N363	.17	30	50 •	1.5
2N364	.15	30 •	15 •	2.5
2N365	.15	30 •	34 •	3
2N366	.15	30 •	95 •	3.5
• 2N367	.15	30 •	15 •	.7
• 2N368	.15	30 •	34 •	1
• 2N369	.15	30 •	95 •	1.3
• 2N370	.08	24 •	100 •	30
• 2N371	.08	24 •	80 •	30
• 2N372	.08	20 •	80 •	30
• 2N375	90	60	35	10 *
• 2N376	10	40	35	6 *
• 2N376A	90	40	35	6 *
2N377	.15	20	20	6
2N377A	.2	40	20	6
• 2N378	50	20 •	15 •	5 *
• 2N379	50	40 •	20 •	5 *
• 2N380	50	30 •	30 •	8 *
• 2N381	.225	50 •	35	3
• 2N382	.225	50 •	60	4
• 2N383	.225	50 •	75	5
• 2N384	.12	40	20	100
2N385	.15	25	30	6
2N385A	.2	40	30	8
• 2N386	12.5	60	20	
• 2N387	12.5	80	20	
2N388	.15	20	60	12
2N388A	.2	40	60	12
2N389A	85	60	12	2
2N389	85	60	12	
2N392		60	60	6 *
• 2N393	.025	6	40	
• 2N394	.15	30 •	20 •	4
• 2N394A	.15	30 •	20 •	7
• 2N395	.2	30 •	20 •	4.5
• 2N396	.2	30 •	30 •	8
• 2N396A	.2	30 •	30 •	5
• 2N397	.2	30 •	40 •	12
• 2N398	.05	105	20	
• 2N398A	.15	105	20	1
• 2N398B	.25	105	20	1
• 2N399	25	35	40 •	400 *
• 2N400	35	35	50 •	.5
• 2N401	25	40	40 •	.4
• 2N402	.18	25 •	25 •	.6
• 2N403	.18	25 •	35 •	.85
• 2N404	.15	24	40 •	12
• 2N404A	.15	35	40 •	12
• 2N405	.15	18	30	.65
• 2N406	.15	18	35 •	.65
• 2N407	.15	18	65 •	
• 2N408	.15	18	65 •	
• 2N409	.08	13 •	48 •	6.8
• 2N410	.08	13 •	48 •	6.8



GOOD NUMBERS TO KNOW:

2N5381 2N5383

REPLACE OLD 2N3904 and 2N3906 PLASTIC TRANSISTORS AND GAIN 3 WAYS. 360 mW P_D vs 310. T_J (max) =150°C vs 135. TO-18 PINNING.

These two new Sprague plastic transistors give you 20% more power dissipation, 15° C higher junction temperature, and industry standard TO-18 pinning when used as direct electrically interchangeable replacements for 2N3904 and 2N3906.

The 2N5381 and 2N5383 are two of twenty new TO-18 pinned plastic transistors from Sprague. Check the replacement chart, then make your move. Sprague industrial distributors have stock. The sales offices listed below can supply samples. Call them now. Or get complete specifications by writing Technical Literature Service, Sprague Electric Company, 471 Marshall Street, North Adams, Mass. 01247, or use the reader service number below.

OLD NUMBERS	NEW SPRAGUE TYPES	OLD NUMBERS	NEW SPRAGUE TYPES
2N3903	2N5380	MPS6514	TPS6514
2N3904	2N5381	MPS6515	TPS6515
2N3905	2N5382	MPS6516	TPS6516
2N3906	2N5383	MPS6517	TPS6517
2N4123	TP4123	MPS6518	TPS6518
2N4124	TP4124	MPS6519	TPS6519
2N4125	TP4125	MPS6520	TPS6520
2N4126	TP4126	MPS6521	TPS6521
MPS6512	TPS6512	MPS6522	TPS6522
MPS6513	TPS6513	MPS6523	TPS6523

SPRAGUE ELECTRIC CO., SEMICONDUCTOR DIV., CONCORD, N.H. 03301 (603) 224-1961

ALA. Huntsville, no charge call operator, WX4000 **ARIZ.** Phoenix (602) 279-5435 **CALIF.** Burlingame (415) 347-7701 Los Angeles, Bell Tel., (213) 870-0161, Gen. Tel., (213) 391-0611 San Diego (714) 278-7640 **COLO.** Denver (303) 756-3611 **CONN.** Trumbull (203) 261-2551 **DC.** Washington (202) 244-6006 **FLA.** Orlando (305) 831-3636 **ILL.** Schiller Park (312) 678-2262 **IND.** Indianapolis (317) 253-4247 **MASS.** Newton (617) 969-2520 North Adams (413) 664-4411 **MICH.** Jackson (517) 787-3934 **MINN.** Minneapolis (612) 335-7734 **MO.** St. Ann (314) 291-2500 **N.J.** Cherry Hill (609) 667-4444/(215) 467-5252 Wayne (201) 696-8200 **N.M.** Albuquerque (505) 265-1579 **N.Y.** Melville (516) 549-4141 Syracuse (315) 437-7311 **N.C.** Winston-Salem (919) 722-5151 **OHIO** Chagrin Falls (216) 247-6488 Dayton (513) 223-9187 Cincinnati, no charge call operator, Enterprise 3-8805 **TEX.** Richardson (214) 235-1256 **WASH.** Seattle (206) 632-7761.

SPRAGUE®
THE MARK OF RELIABILITY

15S-0133

CIRCLE NO. 36

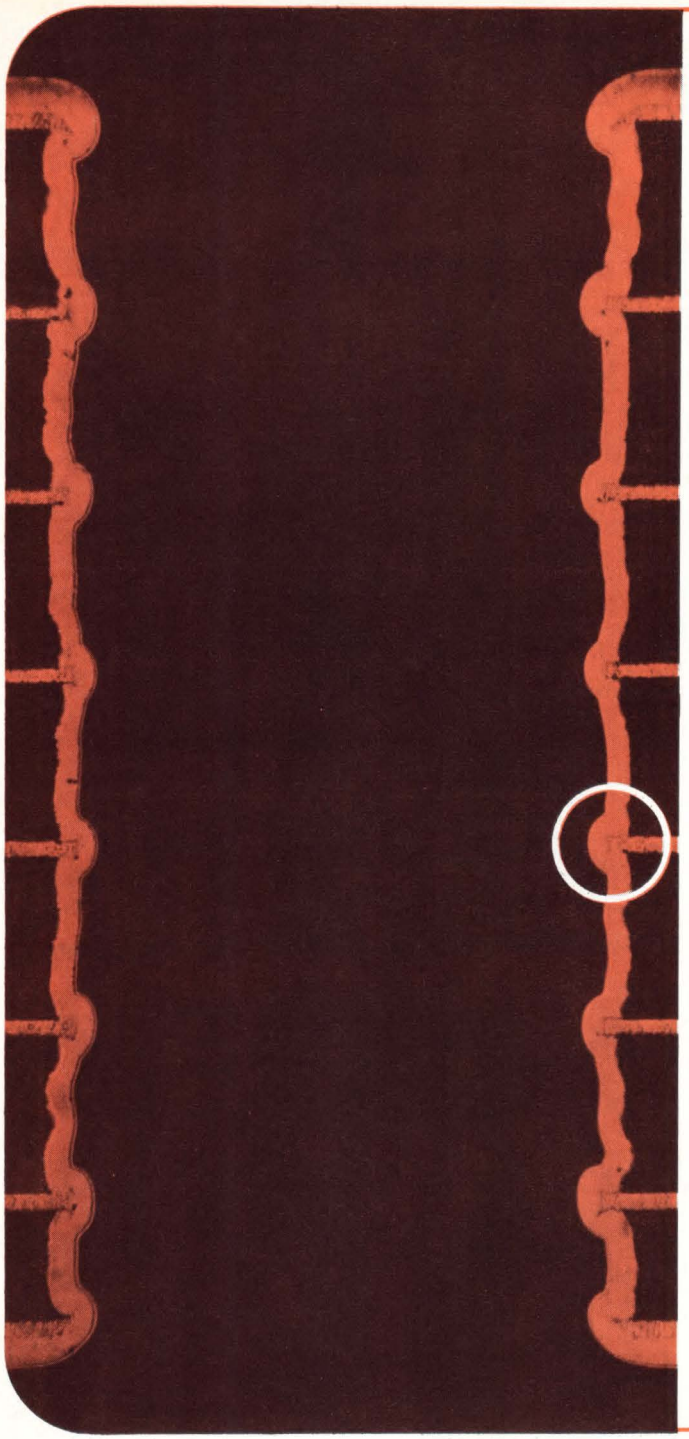
TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	$f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N411	.08	13 •	75 •	10
• 2N412	.08	13 •	75 •	10
• 2N413	.17	18 •	30 •	2.5
• 2N413A	.15	18	20	3.5
• 2N414	.17	15	80 •	8
• 2N414A	.15	15	30	5.5
• 2N414B	.2	30 •	60 •	7
• 2N414C	.2	30 •	60 •	7
• 2N415	.15	12 •	80 •	10
• 2N415A	.15	30 •	80 •	10
• 2N416	.17	12	80 •	10
• 2N417	.17	10	140 •	20
• 2N418	25	80	40	.4
• 2N419	25	45	9	.3
• 2N420	25	45	40	.4
• 2N420A	25	70	40	.4
• 2N422	.15	20	50 •	.8
2N424	85	80	12	
2N424A	85	80	12	2
• 2N425	.17	20	20	4
• 2N426	.17	10	30	6
• 2N427	.17	15	40	11
• 2N428	.17	12	60	17
• 2N428A	.15	30 •	100 •	12
2N438	.15	25	20	2.5
2N438A	.2	25	20	2.5
2N439	.15	20	30	5
2N439A	.2	20	30	5
2N440	.15	15	40	10
• 2N441	50	25	20	10 *
• 2N442	50	30	20	10 *
• 2N443	50	45	20	10 *
2N444	.15	15 •	15 •	.5
2N444A	.15	25	20	.5
2N445	.15	15 •	35 •	2
2N445A	.15	18	40	2
2N446	.15	15 •	60 •	5
2N446A	.15	15	60	5
2N447	.15	15 •	125 •	9
2N447A	.15	12	80	9
2N447B	.15	25 •	200 •	9
2N448	.065	15	8	5
2N449	.065	15	34	8
• 2N450	.15	12	30	10
• 2N456	50	40	10	
• 2N456A	150	20	30	200 *
• 2N456B	150	30	30	200 *
• 2N457	50	60	10	
• 2N457A	150	40	30	200 *
• 2N457B	150	40	30	200 *
• 2N458	50	40	10	
• 2N458A	150	40	30	200 *
• 2N458B	150	45	30	200 *
• 2N459	50	105 •	20	5 *
• 2N459A	106	105 •	40	5 *
• 2N460	.2	35	24 •	1.2
• 2N461	.2	35	32	4
• 2N464	.17	40	14	1
• 2N465	.17	30	27	1.1
• 2N466	.17	20	56	1.5
• 2N467	.17	15	112	2.7
• 2N469A	.05	15	75 •	1.8
2N470	.2	15	10	30
2N471	.2	30	10	30
2N471A	.2	30	10	8
2N472	.2	45	10	30
2N472A	.2	45	10	8
2N473	.2	15	20	30
2N474	.2	30	20	30
2N474A	.2	30	20	8
2N475	.2	45	20	30
2N475A	.2	45	20	8
2N476	.2	15 •	45 •	
2N477	.2	30 •	45 •	
2N478	.2	15	40	39
2N479	.2	30	40	39
2N479A	.2	30	40	8
2N480	.2	45	40	39
2N480A	.2	45	40	8
• 2N481	.15	12 •	50 •	3
• 2N482	.15	12 •	50 •	3.5
• 2N483	.15	12 •	60 •	5.5
• 2N484	.15	12 •	90 •	10
• 2N485	.15	12 •	50 •	7.5
• 2N486	.15	12 •	100 •	12
• 2N495	.15	25	15	
2N496	.15	10	15	
2N497	4	60	12	
2N497A	5	60	12	
2N498	4	100	12	

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	$f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N498A	5	100	12	
2N499	.03	18	6	200 •
• 2N499A	.06	12	50 •	170 •
• 2N501	.06	12	20	90 •
• 2N501A	.06	12	30	120 •
• 2N502	.06	20	9	260 •
• 2N502A	.075	30	15	260 •
• 2N502B	.075	30	20	620 ▲
• 2N503	.025	20	45 •	350 •
• 2N504	.03	25	16	50 ▲
• 2N505	.125	40 •	40 •	8
• 2N506	.05	40 •	40 •	.6
2N507	.05	40 •	25	.6
• 2N508	.2	18	99	4.5
• 2N508A	.2	30	99	4.5
• 2N511	150	30	20	.26
• 2N511A	150	40	20	.26
• 2N511B	150	45	20	.26
• 2N512	150	30	20	.28
• 2N512A	150	40	20	.28
• 2N512B	150	45	20	.28
• 2N513	150	30	20	.3
• 2N513A	150	40	20	.3
• 2N513B	150	45	20	.3
• 2N514	150	30	20	.43
• 2N514A	150	40	20	.43
• 2N514B	150	45	20	.43
2N515	.05	18	7.5 •	.3
2N516	.05	18	7.5 •	3
2N517	.05	18	7.5 •	3
• 2N518	.15	45 •	60 •	11
• 2N519	.1	25	27	1.5
• 2N519A	.15	25 •	35 •	.5
• 2N520	.15	20	20 •	3
• 2N520A	.15	25 •	100 •	3
• 2N521	.15	15 •	7 •	
• 2N521A	.15	25 •	150 •	
• 2N522	.2	8	120 •	18
• 2N522A	.15	25 •	200 •	
• 2N523	.2	6	200 •	25
• 2N523A	.15	25 •	250 •	
• 2N524	.225	30	25	2.5
• 2N524A	.225	30	25	2.5
• 2N525	.225	30	34	3
• 2N525A	.225	30	34	3
• 2N526	.225	30	53	3.5
• 2N526A	.225	30	53	3.5
• 2N527	.225	30	72	4
• 2N527A	.225	30	72	4
• 2N529	.15	15 •	18 •	2.5
• 2N530	.15	15 •	23 •	3
• 2N531	.15	15 •	28 •	3.5
• 2N532	.15	16 •	40 •	4
• 2N533	.15	15 •	38 •	4.5
• 2N535	.085	20	100 •	2
• 2N536	.085	20	150 •	2
• 2N538	34	60	20	.2 •
• 2N538A	34	60	20	.2 •
• 2N539	34	55	30	.2 •
• 2N539A	34	55	30	.2 •
• 2N540	34	55	45	.2 •
• 2N540A	34	55	45	.2 •
2N541	.2	15	80	39 •
2N542	.2	30	80	39 •
2N542A	.2	30	80	8
2N543	.2	45	80	39 •
2N543A	.2	45	80	8
2N545	.6	60	15	4
2N546	.6	30	15	4
2N547	.6	60	20	4
2N548	.6	30	20	4
2N549	.6	60	20	4
2N550	.6	30	20	4
2N551	.6	60	20	4
2N552	.6	30	20	4
• 2N553	35	80 •	40	25 *
• 2N554	10	16 •	50 •	6 *
• 2N555	10	30	50 •	6 *
2N556	.1	25 •	50 •	
2N557	.1	20 •	30 •	
2N558	.1	15	75 •	
2N559	.15	15	25	
2N560	.5	60	20	50
2N560A	.5	60	25 •	60
• 2N561	50	65	20	.65
• 2N563	.15	30 •	25 •	.8
• 2N564	.15	30 •	25 •	.8
• 2N565	.15	30 •	55 •	1
• 2N566	.15	30 •	55 •	1
2N567	.05	40 •	40 •	.6

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	$f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N568	.15	30 •	100 •	1.5
• 2N569	.15	30 •	150 •	2
• 2N570	.15	30 •	150 •	2
• 2N571	.15	30 •	200 •	3
• 2N572	.15	30 •	200 •	3
• 2N573	.15	30 •	200 •	3
• 2N574	187	55	9	.1 •
• 2N574A	187	60	9	.1 •
• 2N575	187	50	19	.15 •
• 2N575A	187	55	19	.15 •
2N576	.2	20	20	8
2N576A	.2	40	20	10
• 2N578	.12	14	10	5
• 2N579	.12	14	20	8
• 2N580	.12	14	30	15
• 2N581	.08	15	20	8
• 2N582	.12	14	40	14
• 2N583	.08	15	20	8
• 2N584	.12	14	40	14
• 2N585	.12	25	20	5
• 2N586	.25	45 •	35	
2N587	.2	30	20	
• 2N588	.03	15 •		250 ▲
• 2N589	90	100 •	20	
• 2N591	.05	32 •	70 •	.7
• 2N592		20 •	15	.4
2N594	.15	20	20	1.5
2N595	.15	15	35	3
2N596	.15	10	50	5
• 2N597	.25	40	40	8 •
• 2N598	.25	35	70	8 •
• 2N599	.25	25	100	16 •
• 2N600	.75	35 •	70	12
• 2N601	.75	30 •	100	
• 2N602		20	20	
• 2N603		20	30	
• 2N604		20	40	
• 2N609	.18	25 •	90 •	1.8
• 2N610	.18	25 •	65 •	1.5
• 2N611	.18	25 •	45 •	1
• 2N612	.18	25 •	25 •	.6
• 2N613	.18	25 •	35 •	.85
• 2N614	.125	15	4.5 •	3
• 2N615	.125	15	7.5 •	5
• 2N616	.125	12	25 •	9
• 2N617	.125	15 •	15 •	7.5
• 2N618	90	60	60	8.5 *
• 2N627	90	30	10	8 *
• 2N628	90	45	10	8 *
• 2N629	90	60	10	8 *
• 2N630	90	75	10	8 *
• 2N631	.17	18	200 •	3.5
• 2N632	.17	24	120 •	2.5
• 2N633	.17	30	60 •	1.5
2N634	.15	15	15	8
2N634A	.15	20	55 •	8
2N635	.15	15	25	12
2N635A	.15	20	100 •	12.5
2N636	.15	15	35	17
2N636A	.15	15	190 •	17
• 2N637	60	30	30	
• 2N637A	60	55	30	
• 2N637B	60	65	30	
• 2N638	60	30	20	
• 2N638A	60	55	20	
• 2N638B	60	65	20	
• 2N639	37	40	15	
• 2N639A	37	70	15	
• 2N639B	37	80	15	
2N647	.1	25	70 •	
2N649	.1	18	65 •	
• 2N650	.2	30	33	1.5
• 2N650A	.2	30	33	.75
• 2N651	.2	30	45	2
• 2N651A	.2	30	45	1
• 2N652	.2	30	80	2.5
• 2N652A	.2	30	80	1.25
• 2N653	.2	25	30	1.5
• 2N654	.2	25	50	2
• 2N655	.2	25	100	2.5
2N656	4	60	30	
2N656A	5	60	30	
2N657	4	100	30	
2N657A	5	100	30	
• 2N658	.21	18	25	5
• 2N659	.21	16	40	10
• 2N660	.21	14	60	15
• 2N661	.21	9	80	20
• 2N662	.21	14	30	8
• 2N663	37	25	25	15 *

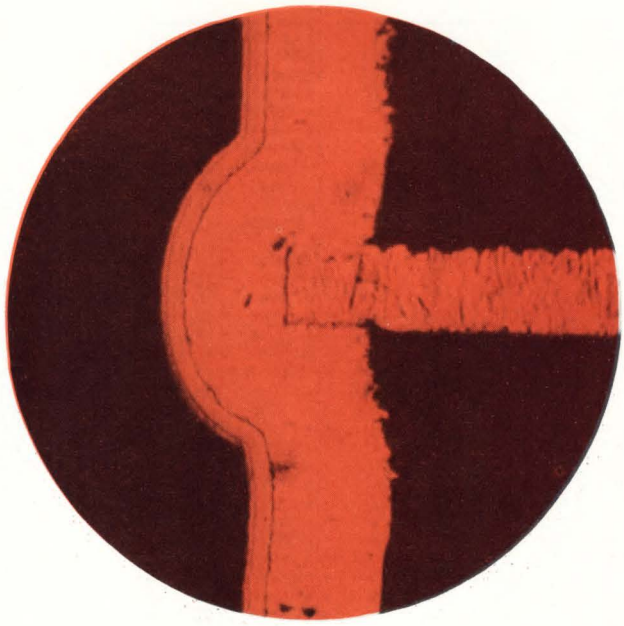
TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	$f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N665	37	40	40	20 *
• 2N669	90	30	75	5 *
• 2N670	.3	40	40	.5
• 2N671	1	40	40	.5
• 2N672	.3	25	100 •	.2
• 2N673	1	25 •		
• 2N677	90	20	20	
• 2N677A	90	30	20	
• 2N677B	90	60	20	
• 2N677C	90	70	20	
• 2N678	90	20	50	
• 2N678A	90	30	50	
• 2N678B	90	60	50	
• 2N678C	90	70	50	
• 2N679	.15	20	20	2
• 2N680	.15	20 •	35 •	
• 2N695	.075	15	25	250 •
2N696	.6	40	20	60 •
2N696A	.8	60 •	20	150 •
2N697	.6	40	40	80 •
2N697A	.8	60 •	40	150 •
2N698	.8	60	20	40 •
2N699	.6	80	40	80 •
2N699A	.8	120 •	40	180 •
2N699B	.87	80	40	70 •
• 2N700	.075	20	4	
• 2N700A	.075	25	4	
2N702	.3	25	20	150 •
2N702A	.3	25	20	
2N703	.3	25	40	150 •
2N703A	.3	25	40	
• 2N705	.3	15	25	300
• 2N705A	.15	15	25	300
2N706	.3	20	20	400 •
2N706A	.3	20	20	400 •
2N706B	.3	20	20	400 •
2N706C	.36	20	20	400 •
2N707	.3	28	9	400 ▲
2N707A	.3	71 •	30 •	500 •
2N708	.36	15	30	400
2N708A	.36	20	40	400
2N709	.3	6	20	800
2N709A		6	30	
• 2N710	.3	15	25	300
• 2N711	.3	12	20	300
• 2N711A	.15	7	25	150 •
• 2N711B	.15	7	30	150 •
2N715	.5	35	30 •	150 •
2N716	.5	40	30 •	150 •
2N717	.4	40	20	60 •
2N718	.4	40	40	80 •
2N718A	.5	50	40	80 •
2N719	.4	80	20	70 •
2N719A	.5	80	20	70 •
2N720	.4	80	40	80 •
2N720A	.5	80	40	80 •
• 2N721	.4	35	20	80 •
• 2N721A	1.8	50	32 •	80 •
• 2N722	.4	35	30	90 •
• 2N722A	.5	35	30	
• 2N726	.3	20	15	140 •
• 2N727	.3	20	40	140 •
2N728	.3	15	20	150
2N729	.3	30	20	150
2N730	.5	40	20	40 •
2N731	.5	40	40	50 •
2N734	.5	60	20 •	125 •
2N735	.5	60	40	135 •
2N736	.5	60	80	150 •
2N736A	.5	60	60	150 •
2N736B	.5	60	80	100 •
2N738	.5	80	20	120 •
2N739	.5	80	40	135 •
2N740	.5	80	80	150 •
2N740A	.5	80	80	100 •
• 2N741	.15	15	20	360 •
• 2N741A	.15	20	20	360 •
2N742	.5	60	20	
2N742A	.5	60	20	
2N743	.3	12	20	400 •
2N743A		15	50	
2N744	.3	12	40	400 •
2N744A		15	40	
2N752	.5	45	40	200 •
2N753	.3	20	40	200 •
2N754	.3	60	20	45 •
2N755	.3	80	20	45 •
2N756	.5	45	12	50
2N756A	.5	60	12	100
2N757	.5	45	18	50

(continued)



Left: Cross-section (enlarged 70 diameters) of plated hole through typical 8-plane Collins etch-back circuit board.

Enlargement below: Note absence of "nailheading" of inner circuit planes at drilled hole. Outer layer on plated hole is 0.0004-inch solderable tin plating.



EXPAND YOUR MARKETS WITH COLLINS ETCH-BACK BOARDS

Collins multilayer planar circuits meet the critical new government specifications for physical and electrical integrity.

These new etch-back circuits – offering unmatched performance and reliability at lower cost – help you expand your government and commercial markets... and help you serve those markets better.

Using Collins highly-automated, computer-controlled design and production facilities, you avoid the cost of establishing your own production capabilities for high-density multilayer circuits. Input to Collins facilities is available through data terminals in Boston and Los Angeles or directly to Collins in Dallas.

Collins new etch-back planar circuits are examples of the engineering and manufacturing excellence achieved at Collins through use of the C-System, a computer-controlled system which integrates design and production – as well as other management control functions – into a single network.

For complete information on how Collins etch-back planar circuits can improve your market position, contact Collins Radio Company, Dept. 300, Dallas, Texas 75207. Phone: (214) 235-9511.

COLLINS

COMMUNICATION / COMPUTATION / CONTROL

CIRCLE NO. 37

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN TYP •	f_{ae} * kHz f_{ab} MHz f_T • MHz f_{max} ▲ MHz
2N757A	.5	60	18	100
2N758	.5	45	18	50
2N758A	.5	60	18	100
2N758B	.5	60	18	50
2N759	.5	45	36	50
2N759A	.5	60	36	100
2N759B	.5	60	36	
2N760	.5	45	76	50
2N760A	.5	60	76	100
2N760B	.5	60	76	50
2N761	.5	50 •	20	50
2N762	.5	50 •	45	50
• 2N768	.035	10	25	175 •
• 2N769	.035	7	25	900 •
• 2N779A	.06	15	50	450 •
2N780	.3	45	35	60 •
• 2N781	.15	15	25	
• 2N782	.15	12	20	
2N783	.3	20	20	200 •
2N784	1	30 •	25	200 •
2N784A	.36	20	25	300 •
• 2N794	.12	12	30	25 •
• 2N795	.12	12	30	35 •
• 2N796	.12	12	50	50 •
2N797	.15	7	40	1000 •
• 2N827	.15	20	100	
• 2N828	.15	15	25	400 •
• 2N828A	.15	15 •	25	400 •
• 2N829	.15	15 •	80	400 •
2N834	.3	30	25	500 •
2N834A	1.2	30	25 •	500 •
2N835	.3	20	20	450 •
• 2N838	.15	30	30	
2N839	.3	45	20	45 •
2N840	.3	45	40	45 •
2N841	.3	45	80	65 •
2N842	.3	45	20	45 •
2N843	.3	45	45	65 •
2N844	.3	60	40	85 •
2N845	.3	80	40	85 •
• 2N846A	.06	15	20	450 •
2N849	.3	15	20	200 •
2N850	.3	15	40	200 •
2N851	.3	12	20	300 •
2N852	.3	12	40	300 •
• 2N858	.15	40	10	14 •
• 2N859	.15	40	35 •	14 •
• 2N860	.15	25	20 •	14 •
• 2N861	.15	25	25	22 •
• 2N862	.15	15	12	14 •
• 2N863	.15	15	25	22 •
• 2N864	.15	6	20	22 •
• 2N865	.15	6	45	52 •
• 2N869	.36	18	20	150 •
• 2N869A	.36	18	40	550 •
2N870	.5	60	40	80 •
2N871	.5	60	100	100 •
2N909	.4	30	110	80
2N910	.5	60	75	80 •
2N911	.5	60	35	70 •
2N912	.5	60	15	60 •
2N913	.36	25 •	75 •	350
2N914	.36	15	30	370 •
2N915	.36	50	50	360 •
2N915A		70 •	50	500 •
2N916	.36	25	50	400 •
2N916A		45 •	50	300 •
2N916B		60 •	50	500 •
2N917	.2	15	20	800 •
2N918	.2	15	20	900 •
2N919	.36	15	20	400 •
2N920	.36	15	40	400 •
2N921	.36	25	20	400 •
2N922	.36	25	40	400 •
• 2N923	.15	25	12	.8
• 2N924	.15	25	24	.8
• 2N925	.15	40	10	.8
• 2N926	.15	40	20	.8
• 2N927	.15	60	8	.8
• 2N928	.15	60	18	.8
2N929	.3	45	40	30
2N929A	.5	45	25	100 •
2N930	.3	45	100	30
2N930A	.4	45	60	100 •
2N930B		60 •	100	45 •
• 2N934	.15	13 •	40 •	35
• 2N935	.385	40	6	.2
• 2N936	.385	35	9	.3
• 2N937	.385	30	36	.5
• 2N938	.25	35	9	1
• 2N939	.25	35	18	2
• 2N940	.25	35	36	2
• 2N941	.25	8	25	10
• 2N942	.25	8	25	10
• 2N943	.25	18		1
• 2N944	.25	18		1
• 2N945	.25	50		1
• 2N946	.25	80		1
2N947	.36	15	30	300 •
2N955	.15	12 •	50 •	1000 •
2N955A	.15	12 •	50 •	1000 •
2N956	.5	50	100	100 •
2N957	.25	20	45	300 •
• 2N960	.15	15	20	460 •
• 2N961	.15	12	20	460 •
• 2N962	.15	12	20	460 •
• 2N963	.15	10	20	300 •
• 2N964	.15	15	40	460 •
• 2N964A	.15	15	40	460 •
• 2N965	.15	12	40	460 •
• 2N966	.15	12	40	460 •
• 2N967	.15	10	40	300 •
• 2N968	.15	15	20	320 •
• 2N969	.15	12	20	320 •
• 2N970	.15	12	20	320 •
• 2N971	.15	7	20	320 •
• 2N972	.15	15	40	320 •
• 2N973	.15	12	40	320 •
• 2N974	.15	12	40	320 •
• 2N975	.15	7	40	320 •
• 2N976	.1	10	80 •	900 •
• 2N978	.33	20	15	50
• 2N979	.06	15	30	100 •
• 2N980	.06	20	30	100 •
2N981	.5	3	36	
• 2N982	.06	15	50	450 •
• 2N983	.06	15	40	450 •
• 2N984	.06	10	70 •	350 •
• 2N985	.3	7	60	300 •
2N986	.5	60		
• 2N987	.086	40	100 •	100 •
2N988	.3	10	20	300 •
2N989	.3	10	20	300 •
• 2N990	.067	32	150 •	70
• 2N993	.067	32	150 •	70 •
• 2N994	.2	15 •	45	
• 2N995	.36	15	35	200 •
• 2N995A	1.2	20 •	35	200 •
• 2N996	.36	12	35	230 •
• 2N997	.6	40	1000	
2N998	.5	60	1600	
2N999	.5	60	7000	
2N1000	.15	25	40	7
• 2N1007	35	30	30 •	5 *
• 2N1008	.4	20	40	25 *
• 2N1008A	.4	40	40	25 *
• 2N1008B	.4	60	40	25 *
2N1010	.02	10	35 •	2
• 2N1011	35	70	30	5 *
2N1012	.15	22	40	3
2N1015	150	30	10	25 *
2N1015A	150	60	10	25 *
2N1015B	150	100	10	25 *
2N1015C	150	150	10	25 *
2N1015D	150	200	10	25 *
2N1015E	150	250	10	25 *
2N1016	150	30	10	30 *
2N1016A	150	60	10	30 *
2N1016B	150	100	10	30 *
2N1016C	150	150	10	30 *
2N1016D	150	200	10	30 *
2N1016E	150	250	10	30 *
• 2N1017	.215	30 •	70	20
• 2N1018	.215	30 •	70	25
• 2N1021	150	50	30	.43 •
• 2N1021A	150	50	30	.2 •
• 2N1022	150	55	30	.43 •
• 2N1022A	150	55	30	.2 •
• 2N1023	.12	40 •	60 •	120
• 2N1024	.25	15	9	1
• 2N1025	.25	35	9	1
• 2N1026	.25	35	18	2
• 2N1026A	.4	35	36 •	2
• 2N1027	.25	15	18	4
• 2N1028	.25	10	9	6
• 2N1029	90	20	20	
• 2N1029A	90	30	20	
• 2N1029B	90	60	20	
• 2N1029C	90	70	20	
• 2N1030	90	20	50	
• 2N1030A	90	30	50	
• 2N1030B	90	60	50	
• 2N1030C	90	70	50	
• 2N1031	90	20	20	
• 2N1031A	90	30	20	
• 2N1031B	90	60	20	
• 2N1031C	90	70	20	
• 2N1032	90	20	50	
• 2N1032A	90	30	50	
• 2N1032B	90	60	50	
• 2N1032C	90	70	50	
• 2N1034	.25	40	9	.2
• 2N1035	.25	35	18	.3
• 2N1036	.25	30	34	.5
• 2N1037	.25	35	9	.3
• 2N1038	20	30	30	10 *
• 2N1039	20	40	30	10 *
• 2N1040	20	50	30	10 *
• 2N1041	20	60	30	10 *
• 2N1042	20	30	20	10 *
• 2N1043	20	40	20	10 *
• 2N1044	20	50	20	10 *
• 2N1045	20	60	20	10 *
• 2N1046	60	50	60	20 •
• 2N1046A	30	5	20	20 •
• 2N1046B	30	50	10	20 •
2N1047	40	80	12	
2N1047A	40	80	12	2 •
2N1047B	40	80	12	90 *
2N1048	40	120	12	
2N1048A	40	120	12	2 •
2N1048B	40	120	12	90 *
2N1049	40	80	30	
2N1049A	40	80	30	2 •
2N1049B	40	80	30	90 *
2N1050	40	120	30	
2N1050A	40	120	30	2 •
2N1050B	40	120	30	90 *
2N1051	3	40	25 •	
2N1052	.6	200	20	12 •
2N1053	.6	180	20	12 •
2N1054	.6	125	20	12 •
2N1055	.6	100	3 •	4
• 2N1056	.24	75 •	32 •	1
• 2N1057	.24	30	34	1.5
• 2N1058	.15	18	10	4
2N1059	.18	15	50	10 *
2N1060	1.8	40	16.7 •	
• 2N1065		20	20	10 •
• 2N1066	.12	40 •	60 •	120
2N1067	5	30	15	1.5
2N1068	10	30	15	1.5
2N1069	50	45	10	1.2
2N1070	50	45	10	1.2
• 2N1072	2	75	20	70 •
• 2N1073	60	40	20	1.5
• 2N1073A	60	80	20	1.5
• 2N1073B	60	120	20	1.5
• 2N1078	20	45	30	
2N1079	60	60	20	
2N1080	60	60	20	
2N1081	6	40	20	
2N1082	.2	25	10	
• 2N1084	.6	50	20	25 •
2N1085		50	40	.01
2N1086	.065	9	17	8
2N1086A	.065	9	17	8
2N1087	.065	9	17	8
2N1090	.12	18	30	
2N1091	.12	15	40	10
2N1092	2	30	15	1.5
• 2N1093	.15	30 •	125 •	8
• 2N1097	.2	18	34	3
• 2N1098	.2	18	25	3
• 2N1099	150	80 •	35	10 *
• 2N1100	150	100 •	25	10 *
2N1101	.18	15	30	.01
2N1102	.18	25	30	.01
• 2N1107	.03	16 •		40
• 2N1108	.03	16 •		35
• 2N1109	.03	16 •		30
• 2N1110	.03	16 •		35
• 2N1111	.03	20 •		35
• 2N1111A	.03	20 •		35
• 2N1111B	.03	27 •		35
• 2N1114	.15	25 •	110 •	10
• 2N1115	.15	15	35	5
2N1116	.6	60	40	6 •
2N1117	.6	60	40	30 •
• 2N1118	.15	25	15	18 ▲
• 2N1118A	.15	25	15	18 ▲
• 2N1119	.15	10	15	20 •
• 2N1120	45	70	20	3 *
2N1121	.065	15	34 •	8
• 2N1122	.025	12 •	25	
• 2N1122A	.025	14	25	
• 2N1123	.75	40	40	3
• 2N1124	.3	35	40	1.3
• 2N1125	.3	40	50	1.6
• 2N1128	.15	18	70	1.25
• 2N1129	.15	25	100	.75
• 2N1130	.15	30 •	130 •	.95
• 2N1131	.6	35	20	70 •
• 2N1131A	.6	40	20	70 •
• 2N1132	.6	35	30	90 •
• 2N1132A	.6	40	30	90 •
• 2N1132B	.6	45	30	90 •
• 2N1136	60	30	50	.5
• 2N1136A	60	55	50	.5
• 2N1136B	60	65	50	.5
• 2N1137	60	30	75	.5
• 2N1137A	60	55	75	.5
• 2N1137B	60	65	75	.5
• 2N1138	60	30	100	.5
• 2N1138A	60	55	100	.5
• 2N1138B	60	65	100	.5
2N1139	.5	15	40 •	15
2N1140	.5	40	20	35 •
• 2N1141	.3	35 •	10	750
2N1141A	.3	35		500 •
• 2N1142	.3	30 •	10	600
2N1142A	.3	30		400 •
• 2N1143	.3	25 •	10	480
2N1143A	.3	30		400 •
• 2N1144	.14	16	34	
• 2N1145	.14	16	25	
• 2N1146	90	30	60	4 *
• 2N1146A	90	45	60	4 *
• 2N1146B	90	60	60	4 *
• 2N1146C	90	75	60	4 *
• 2N1147	90	30	60	4 *
• 2N1147A	90	45	60	4 *
• 2N1147B	90	60	60	4 *
• 2N1147C	90	75	60	4 *
2N1149	.15	45 •	13 •	12
2N1150	.15	45 •	25 •	13
2N1151	.15	45 •	25 •	14
2N1152	.15	45 •	55 •	15
2N1153	.15	45 •	100 •	16
2N1154	.75	50 •	19 •	1
2N1155	.75	80 •	19 •	1
2N1156	.75	120 •	15 •	1
• 2N1157	187	45	38	.2 •
• 2N1157A	187	50	38	.2 •
• 2N1158	.06	20	50 •	
• 2N1158A	.075	20	9	200 •
• 2N1159	90	80 •	30	10 *
• 2N1160	90	80 •	20	10 *
• 2N1162	90	35	15	4 *
• 2N1162A	90	35	15	4 *
• 2N1163	90	35	15	4 *
• 2N1163A	90	35	15	4 *
• 2N1164	90	60	15	4 *
• 2N1164A	90	60	15	4 *
• 2N1165	90	60	15	4 *
• 2N1165A	90	60	15	4 *
• 2N1166	90	75	15	4 *
• 2N1166A	90	75	15	4 *
• 2N1167	90	75	15	4 *
• 2N1167A	90	75	15	4 *
• 2N1168	90	50 •	70	10 *
2N1169	.12	18	20	7
2N1170	.12	20	20	7
• 2N1171	.17	12	30	10
• 2N1175	.2	25	70	4.2
• 2N1175A	.2	25	70	4.2
• 2N1176	.3	35	20	15 *
• 2N1177	.08	30 •	100 •	140
• 2N1178	.08	30 •	40 •	140
• 2N1179	.08	30 •	80 •	140
• 2N1180	.08	30 •	80 •	100
• 2N1183	1	20	20	.5
• 2N1183A	1	30	20	.5
• 2N1183B	1	40	20	.5
• 2N1184	1	20	40	.5
• 2N1184A	1	30	40	.5
• 2N1184B	1	40	40	.5
• 2N1185	.2	30	190	3
• 2N1186	.2	45	30	1.5
• 2N1187	.2	45	50	2

TYPE NO	DISS	V	GAIN	FREQ
• PNP	(W)	V_{CB} •	TYP •	f_{max} ▲ MHz
NPN		V_{CE}	MIN	f_T • MHz
				f_{ab} MHz
				f_{oe} * kHz
• 2N1188	.2	45	100	2.5
• 2N1189	.2	30	75	3.5
• 2N1190	.2	30	125	4.5
• 2N1191	.2	25	30	1.5
• 2N1192	.2	25	50	2
• 2N1193	.2	25	100	2.5
• 2N1194	.2	25	190	3
• 2N1195	.3	20	22 •	550 •
2N1198	.065	25	17 •	5
2N1199	.15	20 •	25 •	125
2N1199A	.15	20	36 •	125 •
2N1200	.1	20	100 •	4.3 •
2N1201	.1	20	100 •	12.5 •
• 2N1202	34	60	40	.2 •
• 2N1203	34	70	25	.2 •
• 2N1204	.25	15	15	400 •
• 2N1204A	.2	15	725 •	200 •
2N1205	.15	20	10	17 •
2N1206	.6	60	25	20
2N1207	.6	125	25	20
2N1208	45	60	15	12 •
2N1209	45	45	20	12 •
2N1210	60	60	15	8 •
2N1211	60	80	15	8 •
2N1212	85	60	12	8 •
2N1217	.075	20	40	9
2N1218	6	45	40	7 *
• 2N1219	.25	25	18	5
• 2N1220	.25	25	9	2
• 2N1221	.25	25	18	5
• 2N1222	.25	25	9	2
• 2N1223	.25	40	6	
• 2N1224	.12	40 •	20	30
• 2N1225	.12	40 •	20	100
• 2N1226	.12	60 •	20	30
• 2N1227	50	30	25	5 ▲
• 2N1228	.4	15	14	1.2
• 2N1229	.4	15	28	1.2
• 2N1230	.4	35	14	1.2
• 2N1231	.4	35	28	1.2
• 2N1232	.4	60	14	1
• 2N1233	.4	60	28	1
• 2N1234	.4	110	14	.8
• 2N1238	1	15	14	1.2
• 2N1239	1	15	28	1.2
• 2N1240	1	35	14	1.2
• 2N1241	1	35	28	1.2
• 2N1242	1	60	14	1
• 2N1243	1	60	28	1
• 2N1244	1	110	14	.8
2N1247	.03	6	15	5
2N1248	.03	6	15	5
2N1249	.03	6 •	10	
2N1250	45	60	15	12 •
2N1251	.15	15	70	7.5 *
2N1252	.6	20	15	80 •
2N1253	.6	20	30	110 •
• 2N1254	.275	30	25	25
• 2N1255	.275	30	40	40
• 2N1256	.275	40	25	25
• 2N1257	.275	40	40	40
• 2N1258	.275	30	75	25
• 2N1259	.275	50	25	40
2N1260	85	120	12	50 *
• 2N1261	34	45	20	.2 •
• 2N1262	34	45	30	.2 •
• 2N1263	34	45	45	.2 •
• 2N1266	.08	10	48 •	1
2N1267	.065	20 •	11 •	
2N1268	.08	20 •	20 •	
2N1269	.15	10 •	50 •	
2N1270	.11	20 •	11 •	
2N1271	.13	20 •	20 •	
2N1272	.17	20 •	50 •	
• 2N1273	.15	15	30	
• 2N1274	.15	25	30	
• 2N1275	.25	80	9	.2
2N1276	.15	30	9	30
2N1277	.15	30	18	30
2N1278	.15	30	37	30
2N1279	.15	30	76	34
• 2N1280	.2	16 •	60 •	5
• 2N1281	.2	20 •	90 •	7
• 2N1282	.2	16 •	100 •	10
• 2N1284	.2	20 •	90 •	5
• 2N1285	.12	40 •		100
• 2N1291	90	30	30	.15 •
2N1292	25	30	30	
• 2N1293	90	45	30	.15 •
2N1294	25	45	30	

(continued)

Bipolar Transistor

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	f_{ae} kHz * f_{ab} MHz f_T MHz • f_{max} MHz ▲
• 2N1295	90	80	40	.15
2N1296	25	60	30	
• 2N1297	90	80	30	.15 •
2N1298	25	75	30	
2N1299	.2	20	30	4
• 2N1300	.15	12	30	
• 2N1301	.15	12	30	
2N1302	.15	25 •	20	4.5
• 2N1303	.15	30 •	20	4.5
2N1304	.15	25 •	40	8
• 2N1305	.15	30 •	40	8
2N1306	.15	25 •	60	12
• 2N1307	.15	30 •	60	12
2N1308	.15	25 •	80	20
• 2N1309	.15	30 •	80	20
• 2N1309A	.15	35	80	15
2N1310	.12	90 •	35 •	1
2N1311	.12	75 •	30 •	1.5
2N1312	.12	50 •	40 •	2
• 2N1313	.18	15	83	8
• 2N1314	125	16	20	4.5 *
• 2N1316	.2	15	100 •	10
• 2N1317	.2	12	95 •	10
• 2N1318	.2	6	85 •	10
• 2N1319	.12	20 •	15	6
2N1321	25	30	30	
2N1323	25	45	30	
• 2N1324		80	40	
2N1325	25	60	30	
• 2N1326	20	80	30	
2N1327	23	75	30	
• 2N1328	20	35 •	30	8 *
2N1329	23	25	30	
2N1330	23	40	30	
• 2N1331	20	80 •	30	8 *
2N1332	23	55	30	
• 2N1333	20	100 •	30	8 *
2N1334	23	75	30	
2N1335	.85	90	13 •	170
2N1336	.85	90	13 •	170
2N1337	.85	90	13 •	170
2N1338	.8	50	10	70 •
2N1339	.85	100	10	220 ▲
2N1340	.85	100	10	250 ▲
2N1341	.85	100	10	280 ▲
2N1342	.8	125	10	70 •
• 2N1343	.15	16	40 •	4
• 2N1344	.15	10	90 •	7
• 2N1345	.15	8	60 •	10
• 2N1346	.15	10	125 •	10
• 2N1347	.15	12	80 •	5
• 2N1348	.2	40 •	95 •	5
• 2N1349	.2	40 •	110 •	10
• 2N1350	.2	50 •	95 •	8
• 2N1351	.2	40 •	65 •	8
• 2N1352	.15	20	70 •	2.5
• 2N1353	.2	10	70 •	1.5
• 2N1354	.2	15	70 •	3
• 2N1355	.2	20	80 •	5
• 2N1356	.2	20	80 •	5
• 2N1357	.2	15	85 •	10
• 2N1358	125	40	25	.1
• 2N1358A	125	60	25	5 *
• 2N1359	90	40	35	10 *
• 2N1360	90	40	60	8.5 *
• 2N1362	90	75	35	10 *
• 2N1363	90	75	60	8.5 *
• 2N1364	90	100	35	10 *
• 2N1365	90	100	60	8.5 *
2N1366	.1	12 •	10 •	2.5
2N1367	.1	12 •	20	2.5
• 2N1370	.15	25	50	2
• 2N1371	.15	45	50	2
• 2N1372	.25	25	30	1.5
• 2N1373	.25	45	30	1.5
• 2N1374	.25	25	50	2
• 2N1375	.25	45	50	2
• 2N1376	.25	25	75	2
• 2N1377	.25	45	75	2
• 2N1378	.25	12	95	3
• 2N1379	.25	25	95	3
• 2N1380	.25	12	30	2
• 2N1381	.25	25	30	2
• 2N1382	.2	25	50	2
• 2N1383	.2	25	30	1.5
• 2N1384	.24	30	20	
2N1385	.3	25		250 •
2N1386	.3	25	45 •	60
2N1387	.3	30	20	50
2N1388	.3	45		75
2N1389	.3	50	30 •	40
2N1390	.3	20		30
2N1391	.15	25 •	70 •	3
• 2N1395	.12	40 •	50	30
• 2N1396	.12	40 •	50	100
• 2N1397	.12	40 •	50	120
• 2N1404	.15	25 •	30	4
• 2N1408	.15	50 •	25 •	
2N1409	.6	25	15	200 •
2N1409A	.8	25	15	200 •
2N1410	.6	30	39	130 •
2N1410A	.8	30	30	130 •
• 2N1411	.025	5	30	70 •
• 2N1412	125	100 •	25	10 *
• 2N1413	.2	20	25	2
• 2N1414	.2	20	34	2.5
• 2N1415	.2	20	53	2.8
• 2N1416	.25			
2N1417	.15	15	30	34 •
2N1418	.15	30	30	34 •
2N1420	.6	40	100	100 •
2N1420A	.8	40	100	100 •
• 2N1425	.08	24 •	50 •	33
• 2N1426	.08	24 •	130 •	33
• 2N1427	.025	6	20	100 •
• 2N1429	.1	6	12	16 •
• 2N1430	50	40	30	1.5
• 2N1431	.18	15	75	10 *
• 2N1437	23	80	20	150 *
• 2N1438	23	90	20	4 *
• 2N1439	.4	40	5	1
• 2N1440	.4	40	9	1
• 2N1441	.4	35	18	1
• 2N1442	.4	30	30	1
• 2N1443	.4	15	50	1
2N1445	4	120	20	
• 2N1446	.2	25	35 •	2
• 2N1447	.2	25	52 •	3
• 2N1448	.2	25	70 •	4
• 2N1449	.2	25	95 •	5
• 2N1450	.12	30 •	20	
• 2N1451	.2	45 •	45 •	1.5
• 2N1452	.2	45 •	60 •	2.2
• 2N1465	20	100	20	
• 2N1466	20	100	20	
• 2N1469	.25	35	36	2
• 2N1471	.2	12 •	160 •	5
2N1472	.15	25 •	35 •	140 •
2N1473	.25	40	25	8
• 2N1474	.25	60	12	1
• 2N1474A	.25	60	18	2
• 2N1475	.25	60	36	1
• 2N1476	.25	100	12	1
• 2N1477	.25	100	30	1
• 2N1478	.25	20	40	8
2N1479	5	40	20	1.5
2N1480	5	55	20	1.5
2N1481	5	40	35	1.5
2N1482	5	55	35	1.5
2N1483	25	40	20	1.25
2N1484	25	55	20	1.25
2N1485	25	40	35	1.25
2N1486	25	55	35	1.25
2N1487	75	40	15	1
2N1488	75	55	15	1
2N1489	75	40	25	1
2N1490	75	55	25	1
2N1491	.5	30 •	15	250
2N1492	.5	60 •	15	275
2N1493	.5	100 •	15	300
• 2N1494	.4	15	15	400 •
• 2N1494A	.4	15	725 •	200 •
• 2N1495	.25	40	25	240 •
• 2N1496	.5	40	25	240 •
2N1499	.025	20 •	35 •	
• 2N1499A	.06	20	30	100 •
• 2N1499B	.075	20	40	150 •
• 2N1500	.06	12	20	120 •
• 2N1501	34	40	25	2 •
• 2N1502	34	40	25	2 •
2N1505	.85	40	7	250 ▲
2N1506	.85	40	10	250 ▲
2N1506A	.8	80	10	250 ▲
2N1507	.6	60 •	100	50
2N1510	.075	70	8	
2N1511	75	40	15	1
2N1512	75	55	15	1
2N1513	75	40	25	1
2N1514	75	55	25	1
• 2N1515	.083	20 •	100 •	70 •
• 2N1516	.083	20 •	100 •	70 •
• 2N1517	.083	20 •	67 •	70 •
• 2N1518	95	50 •	15	4 *
• 2N1519	95	80 •	15	4 *
• 2N1520	95	50 •	17	4 *
• 2N1521	95	80 •	17	4 *
• 2N1522	95	50 •	22	4 *
• 2N1523	95	80 •	22	4 *
• 2N1524	.08	24 •	60 •	33
• 2N1525	.08	24 •	60 •	33
• 2N1526	.08	24 •	130 •	33
• 2N1527	.08	24 •	130 •	33
• 2N1529	90	30	20	10 *
• 2N1529A	90	30	20	10 *
• 2N1530	90	45	20	10 *
• 2N1530A	90	45	20	10 *
• 2N1531	90	60	20	10 *
• 2N1531A	90	60	20	10 *
• 2N1532	90	75	20	10 *
• 2N1532A	90	75	20	10 *
• 2N1533	90	90	20	10 *
• 2N1534	90	30	35	8.5 *
• 2N1534A	90	30	35	8.5 *
• 2N1535	90	45	35	8.5 *
• 2N1535A	90	45	35	8.5 *
• 2N1536	90	60	35	8.5 *
• 2N1536A	90	60	35	8.5 *
• 2N1537	90	75	35	8.5 *
• 2N1537A	90	75	35	8.5 *
• 2N1538	90	90	35	8.5 *
• 2N1539	90	30	50	4 *
• 2N1539A	90	30	50	4 *
• 2N1540	90	45	50	4 *
• 2N1540A	90	45	50	4 *
• 2N1541	90	60	50	4 *
• 2N1541A	90	60	50	4 *
• 2N1542	90	75	50	4 *
• 2N1542A	90	75	50	4 *
• 2N1543	90	90	50	4 *
• 2N1544	90	30	75	4 *
• 2N1544A	90	45	30	6 *
• 2N1545	90	45	75	4 *
• 2N1545A	90	45	75	4 *
• 2N1546	90	60	75	4 *
• 2N1546A	90	60	75	4 *
• 2N1547	90	75	75	4 *
• 2N1547A	90	75	75	4 *
• 2N1548	90	90	75	4 *
• 2N1549	90	30	10	10 *
• 2N1549A	90	30	10	10 *
• 2N1550	90	45	10	10 *
• 2N1550A	90	45	10	10 *
• 2N1551	90	60	10	10 *
• 2N1551A	90	60	10	10 *
• 2N1552	90	75	10	10 *
• 2N1552A	90	75	10	10 *
• 2N1553	90	30	30	6 *
• 2N1553A	90	30	30	6 *
• 2N1554	90	45	30	6 *
• 2N1555	90	60	30	6 *
• 2N1555A	90	60	30	6 *
• 2N1556	90	75	30	6 *
• 2N1556A	90	75	30	6 *
• 2N1557	90	30	50	5 *
• 2N1557A	90	30	50	5 *
• 2N1558	90	45	50	5 *
• 2N1558A	90	45	50	5 *
• 2N1559	90	60	50	5 *
• 2N1559A	90	60	50	5 *
• 2N1560	90	75	50	5 *
• 2N1560A	90	75	50	5 *
• 2N1561	.25	25		500 •
• 2N1562	.25	25		450 •
2N1564	.6	60	20	120 •
2N1565	.6	60	40	135 •
2N1566	.6	60	80	150 •
2N1566A	.6	60	80	200 •
2N1572	.6	80	20	120 •
2N1573	.6	80	40	135 •
2N1574	.6	80	80	150 •
2N1586	.15	15 •	9	4
2N1587	.15	30 •	9	4
2N1588	.15	60 •	9	4
2N1589	.15	15 •	25	6
2N1590	.15	30 •	25	6
2N1591	.15	60 •	25	6
2N1592	.15	15 •	70	7
2N1593	.15	30 •	70	7
2N1594	.15	60 •	70	7
2N1605	.15	24	40	12
2N1605A	.2	40	40	12
2N1613	.8	50	40	80 •
2N1613A	5	50	80 •	60 •
• 2N1614	.24	40	18	1
2N1615	.6	100	25	
2N1616	60	60	15	8 •
2N1616A	85	60	10	1.5 *
2N1617	60	80	15	8 •
2N1617A	85	70	10	1.5 •
2N1618	60	100	15	8 •
2N1618A	85	80	10	1.5
2N1620	60	100	15	8 •
2N1622		90 •	40	5
• 2N1623	.25	20	9	.3
• 2N1624	.15	25 •	120 •	8
• 2N1631	.08	34 •	80 •	45
• 2N1632	.08	34 •	80 •	45
• 2N1637	.08	34 •	80 •	45
• 2N1638	.08	34 •	75 •	40
• 2N1639	.08	34 •	75 •	45
• 2N1640	.25	20	6	.4
• 2N1641	.25	10	10	.8
• 2N1642	.25	6	15	1.2
• 2N1643	.25	25	10	.7
2N1644	.6	60 •	75 •	150
• 2N1646	.15	12	20	
• 2N1647	40	80	15	10 •
2N1648	40	120	15	10 •
2N1649	40	80	30	10 •
• 2N1650	40	120	30	10 •
• 2N1651	100	60	35	.6 •
• 2N1652	100	100	35	.6 •
• 2N1653	100	120	35	.6 •
• 2N1654	.25	80	20	.25
• 2N1655	.25	125	10	.2
• 2N1656	.25	125	20	.25
• 2N1658	15		90 •	
• 2N1659	15		90 •	
• 2N1666	30	60	55 •	.25
• 2N1667	30	48	140 •	.2
• 2N1668	30	48	75 •	.2
• 2N1669	30	60	110 •	.2
2N1672	.12	40 •	20	2
2N1672A	.12	40 •	20	2
• 2N1673	.08	35	20	5
2N1674	.2	45	50	20
• 2N1676	.1	45	10.5 •	42 •
• 2N1677	.1	45	25	32 •
• 2N1681	.18	15	75 •	5
2N1682	.5	12	20	200 •
• 2N1683	.15	12	50	80 •
2N1690	40	80	20	
2N1691	40	120	20	
• 2N1692	.35	25		500 •
• 2N1693	.35	25		450 •
2N1694	.075	20	15	9
2N1700	5	40	20	1.2
2N1701	25	40	20	1
2N1702	75	40	15	1
2N1703	75	40	15	1
2N1704	.5	45	50	5
• 2N1705	.2	12	70	4
• 2N1706	.2	18	40	3
• 2N1707	.2	25	60	3
2N1708	.3	20	20	
2N1708A	1	15	30	100
2N1709	15	60	7.5	150 •
2N1710	15	45	7.5	120 •
2N1711	.8	50	100	100 •
2N1711A	1	50	100	70 •
2N1711B	1	55	100	70 •
2N1714	10	60	20	16 •
2N1715	10	100	20	16 •
2N1716	10	60	40	16 •
2N1717	10	100	40	16 •
2N1718	10	60	20	16 •
2N1719	10	100	20	16 •
• 2N1720	10	60	40	16 •
2N1721	10	100	40	16 •
2N1722	50	80	20	10 •
2N1722A	50	120	30	10 •
2N1723	50	80	50	10 •
2N1724	87.5	80	20	10 •
2N1724A	50	120	20	10 •
2N1725	87.5	80	50	10 •
• 2N1726	.06	20	50	100 ▲
• 2N1727	.06	20	20	100 ▲
• 2N1728	.06	20	40	100 ▲
• 2N1729	.15	25	30 •	
2N1730	.15	25 •	30	

(continued)

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MetCeram

CIRCLE NO. 39

Bipolar Transistor

TYPE NO NPN • PNP	DISS (W)	V V_{CE} V_{CB} •	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N1731	.15	30	40	5
2N1732	.15	30	40	5
• 2N1742	.06	20	10	13
• 2N1743	.06	20	10	2.1
• 2N1744	.06	20	10	
• 2N1745	.06	20	10	
• 2N1746	.06	20	10	175 ▲
• 2N1747	.06	20	10	200
2N1748	.06	25 •	30	50 ▲
• 2N1748A	.06	25	50	132 •
• 2N1749	.075	40	45 •	115 •
• 2N1751	90	80	30	
2N1752	.06	12 •	50	50 ▲
• 2N1754	.05	13 •	20	75 •
• 2N1755	28	35	30	15 *
• 2N1756	28	50	30	15 *
• 2N1757	28	65	30	15 *
• 2N1758	28	75	30	15 *
• 2N1759	28	35	60	15 *
• 2N1760	28	50	60	15 *
• 2N1761	28	65	60	15 *
• 2N1762	28	75	60	15 *
2N1768	40	40	35	1.25
2N1769	40	55	35	1.25
• 2N1785	.045	10	40	125 ▲
• 2N1786	.045	10	15	125 ▲
• 2N1787	.045	15	20	125 ▲
• 2N1788	.06	35	40	150 ▲
• 2N1789	.06	35	15	150 ▲
• 2N1790	.06	35	25	150 ▲
2N1808	.15	25	120 •	14
2N1809	250	50	10	14 *
2N1810	250	100	10	14 *
2N1811	250	150	10	14 *
2N1812	250	200	10	14 *
2N1813	250	250	10	14 *
2N1814	250	300	10	14 *
2N1816	250	50	10	14.5 *
2N1817	250	100	10	14.5 *
2N1818	250	150	10	14.5 *
2N1819	250	200	10	14.5 *
2N1820	250	250	10	14.5 *
2N1823	250	50	10	16 *
2N1824	250	100	10	16 *
2N1825	250	150	10	16 *
2N1826	250	200	10	16 *
2N1830	250	50	10	14 *
2N1831	250	100	10	14 *
2N1832	250	150	10	14 *
2N1833	250	200	10	14 *
2N1837	.6	50	40	180 •
2N1837A	.8	50	40	180 •
2N1838	.6	30	40	180 •
2N1839	.6	30	12	180 •
2N1840	.6	20	10	180 •
• 2N1853	.15	18 •	30	
• 2N1854	.15	18 •	40	40 •
• 2N1864	.06	20	10	50 ▲
• 2N1865	.06	20	40	
• 2N1866	.06	35	40	
• 2N1867	.06	35	10	
• 2N1868	.06	20	10	
2N1886	40	60	20	8 •
2N1889	.8	60	40	80 •
2N1890	.8	60	100	100 •
2N1891	.15	25 •	25 •	
2N1893	.8	80	40	70 •
2N1893A	.8	80	30	100
2N1899	125	100	10	50 •
2N1900	125	100	8	50 •
2N1901	125	10	20	50 •
2N1902	125	100	10	50 •
2N1903	125	100	8	50 •
2N1904	125	100	20	50 •
• 2N1905	50	100 •	90 •	7.5 •
• 2N1906	50	60 •	125 •	7.5 •
• 2N1907	60	40	10	20 •
• 2N1908	150	50	10	20 •
• 2N1917	.25	8	25	10
• 2N1918	.25	8	25	10
• 2N1919	.25	18		1
• 2N1920	.25	18		1
• 2N1921	.4	50		1
• 2N1922	.4	80		1
• 2N1924	.225	40	34	3
• 2N1925	.225	40	53	3.5
• 2N1926	.225	40	72	4
2N1936	100	60	10	7 •
2N1937	100	80	10	7 •
• 2N1940	3.5	15	14 •	70
2N1943	.8	60	30	

TYPE NO NPN • PNP	DISS (W)	V V_{CE} V_{CB} •	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N1944	.6	20	300 •	60 •
2N1945	.6	30	300 •	60 •
2N1946	.6	40	300 •	60 •
2N1947	.6	20	650 •	60 •
2N1948	.6	30	650 •	60 •
2N1949	.6	40	650 •	60 •
2N1950	.6	20	375 •	60
2N1951	.6	30	375 •	60 •
2N1952	.6	40	375 •	60 •
• 2N1954	.215	60 •	30	
• 2N1955	.215	60 •	50	
• 2N1956	.215	60 •	30	
• 2N1957	.215	60 •	30	
2N1958	.6	40	20	100 •
2N1958A	.6	40	20	100 •
2N1959	.6	40	40	100 •
2N1959A	.6	40	40	100 •
2N1962	.4	20	20	200 •
2N1963	.4	15	25	200 •
2N1964	.4	40	20	100 •
2N1965	.4	40	40	100 •
• 2N1969	.15	15	50	10
• 2N1970	125	100 •	17	10 *
• 2N1971	50	80 •	25	25 *
2N1972	.6	30	110	80 •
2N1973	.8	60	75	80 •
2N1974	.8	60	35	70 •
2N1975	.8	60	15	60 •
• 2N1980	170	30	50	3 *
• 2N1981	170	40	50	3 *
• 2N1982	170	50	50	3 *
2N1983	.6	25	80	60 •
2N1984	.6	25	40	60 •
2N1985	.6	25	20	60 •
2N1986	.6	25	60	60 •
2N1987	.6	25	20	60 •
2N1988	.6	45	35	60 •
2N1989	.6	60	20	40 •
2N1990	.6	100 •	20	
• 2N1991	.6	20	15	50 •
2N1993	.15	18	50	3
2N1994	.15	30 •	15	3
2N1995	.15	25 •	25	5
2N1996	.15	20 •	35	8
• 2N1997	.25	45 •	40	4
• 2N1998	.25	35 •	50	7
• 2N1999	.25	30 •	75	12
• 2N2000	.3	50 •	50	2
• 2N2001	.3	30 •	60	6 •
• 2N2002	.25	5		
• 2N2003	.25	5		
• 2N2004	.25	15		
• 2N2005	.25	15		
• 2N2006	.25	35		
• 2N2007	.25	35		
2N2008	.8	110	40	
2N2015	150	50	15	25 *
2N2016	150	65	15	25 *
2N2017	1	60	75	
2N2018	40	150	20	10 •
2N2019	40	200	20	10 •
2N2020	40	150	40	10 •
2N2021	40	200	40	10 •
2N2032	45	45	20	12 •
2N2033	5	60	20	1.5
2N2034	5	60	20	1.5
2N2035	14	60	15	1.5
2N2036	17	60	15	2
2N2038	.6	45	12	
2N2039	.6	75	12	
2N2040	.6	45	30	
2N2041	.6	75	30	
• 2N2042	.2	105	20	.5
• 2N2042A	.2	105	20	.5
• 2N2043	.2	105	40	.75
• 2N2043A	.2	105	40	.75
• 2N2048	.15	20	50	250 •
• 2N2048A	.15	20	40	150 •
2N2049	.8	50	100	85 •
2N2060	.6	60	50	100 •
2N2060A	.6	60	50	
2N2060B		60	30	.1
• 2N2061A	90	15	20	5 *
• 2N2062A	90	15	50	1 *
• 2N2063A	90	20	20	5 *
• 2N2064A	90	20	50	1 *
• 2N2065A	90	40	20	5 *
• 2N2066A	90	40	50	1 *
• 2N2067	10	35	20	7 *
• 2N2067B	10	35	25	7 *

TYPE NO NPN • PNP	DISS (W)	V V_{CE} V_{CB} •	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N2067G	10	35	25	7 *
• 2N2067O	10	35	20	7 *
• 2N2067W	10	35	33	7 *
• 2N2068	10	65	20	7 *
• 2N2068G	10	65	25	7 *
• 2N2068O	10	65	20	7 *
• 2N2075	170	65	25	10 *
• 2N2075A	170	65	25	10 *
• 2N2076	170	55	25	10 *
• 2N2076A	170	55	25	10 *
• 2N2077	170	45	25	10 *
• 2N2077A	170	45	25	10 *
• 2N2078	170	25	25	10 *
• 2N2078A	170	25	25	10 *
• 2N2079	170	65	40	10 *
• 2N2079A	170	65	40	10 *
• 2N2080	170	55	40	10 *
• 2N2080A	170	55	40	10 *
• 2N2081	170	45	40	10 *
• 2N2081A	170	45	40	10 *
• 2N2082	170	25	40	10 *
• 2N2082A	170	25	40	10 *
• 2N2084	.125	40	100 •	100 •
2N2085	.15	33	100 •	8
2N2086	.6	80	20	225 •
2N2087	.6	80	65 •	225
• 2N2089	.1	32	150 •	75 •
• 2N2092	.083	25	150 •	70 •
• 2N2095	.3	15		1000 •
• 2N2096	.75	20	15	400 •
• 2N2097	.75	35	30	400 •
• 2N2098	.25	30		1000 •
• 2N2099	.25	20	15	400 •
• 2N2100	.25	35	30	400 •
2N2101	75	60	15	1.5
2N2102	5	120 •	35	60 •
2N2102A	5	65	40	60 •
2N2106	1	60	12	15
2N2107	1	60	30	15
2N2108	1	60	75	15
2N2109	250	50	10	14 •
2N2110	250	100	10	14 *
2N2111	250	150	10	14 *
2N2112	250	200	10	14 *
2N2113	250	250	10	14 *
2N2114	250	300	10	14 *
2N2116	250	50	10	14.5 *
2N2117	250	100	10	14.5 *
2N2118	250	150	10	14.5 *
2N2119	250	200	10	14.5 *
2N2120	250	250	10	14.5 *
2N2123	250	50	10	16 *
2N2124	250	100	10	16 *
2N2125	250	150	10	16 *
2N2126	250	200	10	16 *
2N2130	250	50	10	14 *
2N2131	250	100	10	14 *
2N2132	250	150	10	14 *
2N2133	250	200	10	14 *
• 2N2137	62.5	30	30	20 *
• 2N2137A	62.5	30	30	20 *
• 2N2138	62.5	45	30	20 *
• 2N2138A	62.5	45	30	20 *
• 2N2139	62.5	60	30	20 *
• 2N2139A	62.5	60	30	20 *
• 2N2140	62.5	75	30	20 *
• 2N2140A	62.5	75	30	20 *
• 2N2141	62.5	90	30	20 *
• 2N2141A	62.5	90	30	20 *
• 2N2142	62.5	30	50	20 *
• 2N2142A	62.5	30	50	20 *
• 2N2143	62.5	45	50	20 *
• 2N2143A	62.5	45	50	20 *
• 2N2144	62.5	60	50	20 *
• 2N2144A	62.5	60	50	20 *
• 2N2145	62.5	75	50	20 *
• 2N2145A	62.5	75	50	20 *
• 2N2146	62.5	90	50	20 *
• 2N2146A	62.5	90	50	20 *
• 2N2147	12.5	75 •	100	4 •
• 2N2148	12.5	50 •	60	3
2N2150	30	80	20	10 •
2N2151	30	80	40	10 •
• 2N2152	170	45	50	2.7 *
• 2N2152A	170	45	50	2.7 *
• 2N2153	170	60	50	2.7 *
• 2N2153A	170	60	50	2.7 *
• 2N2154	170	75	50	2.7 *
• 2N2154A	170	75	50	2.7 *
• 2N2156	170	45	80	2.7 *
• 2N2156A	170	45	80	2.7 *

TYPE NO NPN • PNP	DISS (W)	V V_{CE} V_{CB} •	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N2157	170	60	80	2.7 *
• 2N2157A	170	60	80	2.7 *
• 2N2158	170	75	80	2.7 *
• 2N2158A	170	75	80	2.7 *
• 2N2162	.15	30		
• 2N2163	.15	15		
• 2N2164	.15	12		
• 2N2165	.15	30		
• 2N2166	.15	15		
• 2N2167	.15	12		
• 2N2168	.06	15	50	450 •
• 2N2169	.06	15	40	450 •
• 2N2170	.06	15	20	350 •
• 2N2171	.225	25	210 •	7.5
• 2N2172	.2	20 •	65 •	8
• 2N2173	.24	15	30	
• 2N2175	.1	6	30	10
• 2N2176	.1	6	30	10
• 2N2177	.1	6	15	8
• 2N2178	.1	6	15	8
• 2N2185	.15	30		10 •
• 2N2187	.15	30		10 •
• 2N2188	.125	4C •	40	120
• 2N2189	.125	40 •	60	150
• 2N2190	.125	60 •	40	120
• 2N2191	.125	60 •	60	150
2N2192	.8	40	100	50 •
2N2192A	.8	40	100	50 •
2N2192B	.8	40	100	50 •
2N2193	.8	50	40	50 •
2N2193A	.8	50	40	50 •
2N2193B	.8	50	40	50 •
2N2194	.8	40	20	50 •
2N2194A	.8	40	20	50 •
2N2194B	.8	40	20	50 •
2N2195	.6	25	20	50 •
2N2195A	.6	25	20	50 •
2N2195B	.6	25	20	50 •
2N2196	2	60	30	15
2N2197	2	60	75	15
2N2198	.6	80 •	45 •	
• 2N2199	.075	10	20	120 •
• 2N2200	.075	10		120 •
2N2201	10	100	30	
2N2202	10	100	30	
2N2203	10	100	30	
2N2204	10	100	30	
2N2205	.3	20	20	200 •
2N2206	.3	20	90 •	200 •
• 2N2207	.26	70 •	200 •	175
• 2N2210	70	65	25	10 *
• 2N2212	60	120	50	
2N2217	.8	30	20	400 •
2N2218	.8	30	40	400 •
2N2218A	.8	40	40	250 •
2N2219	.8	30	100	400 •
2N2219A	.8	40	100	250 •
2N2220	.5	30	20	400 •
2N2221	.5	30	40	400 •
2N2221A	.5	40	40	300 •
2N2222	.5	30	100	400 •
2N2222A	.5	40	100	300 •
2N2222B	.5	40	100	300 •
2N2223	.6	60	50	
2N2223A	.6	60	50	
2N2224	3	40	40	100
2N2226	150	50	100	10 *
2N2227	150	100	100	10 *
2N2228	150	150	100	10 *
2N2229	150	200	100	10 *
2N2230	150	50	400	7 *
2N2231	150	100	400	7 *
2N2232	150	150	400	7 *
2N2233	150	200	400	7 *
2N2236	.6	20	15	50 •
2N2237	.6	20	40	50 •
2N2239	10	50	30	
2N2240	.6	20	40	
2N2241	.6	20	100	
2N2242	.36	20	40	350 •
2N2243	.8	80	40	50
2N2243A	.8	80	40	50 •
2N2244	.5	20	40	60 •
2N2245	.5	20	80	60 •
2N2246	.5	20	150	60 •
2N2247	.5	45	40	60 •
2N2248	.5	45	80	60 •
2N2249	.5	45	150	60 •
2N2250	.5	20	40	60 •
2N2251	.5	20	80	60 •

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	f_{ae} kHz * f_{ab} MHz f_T MHz • f_{max} MHz ▲
2N2252	.5	20	150	60 •
2N2253	.5	45	40	60 •
2N2254	.5	45	80	60 •
2N2255	.5	45	150	60 •
2N2256	.3	7	20	320 •
2N2257	.3	7	40	320 •
• 2N2258	.15	7	20	320 •
• 2N2259	.15	7	40	320 •
• 2N2266	50	55	25	.2 •
• 2N2267	50	55	25	.2
• 2N2268	50	55	25	.2 •
• 2N2269	50	55	25	.2 •
2N2270	5	60 •	30	60 •
• 2N2271	.25	20 •	75 •	
• 2N2273	.1	15	20	200 •
• 2N2274	.4	25	10	6
• 2N2275	.4			
• 2N2276	.4	10	10	6
• 2N2277	.4			
• 2N2278	.4	15		7.6
• 2N2279	.4			
• 2N2280	.4	6		16
• 2N2281	.4			
• 2N2282	5	60	30	
• 2N2283	5	100	30	
• 2N2284	5	200	30	
• 2N2285	100	60	20	
• 2N2286	100	100	20	
• 2N2287	100	120	20	
• 2N2288	60	40	20	1.5
• 2N2289	60	80	20	1.5
• 2N2290	60	120	20	1.5
• 2N2291	60	40	50	
• 2N2292	60	80	50	
• 2N2293	60	120	50	
• 2N2294	60	40	50	
• 2N2295	60	80	50	
• 2N2296	60	120	50	
2N2297	.8	35	40	90 •
• 2N2303	.6	35	75	80 •
2N2304	25	60 •	20	
2N2305	75	60 •	15	
2N2308	25	80	20	1 •
2N2309	.6	30	25	150
2N2310	.4	60	12	150
2N2311	.4	100	12	150
2N2312	.4	60	30	150
2N2313	.4	100	30	150
2N2314	.4	60 •	20	150
2N2315	.4	60 •	40	150
2N2316	.4	120 •	40	180
2N2317	.35	75 •	100	160
2N2318	.36	30 •	30	300 •
2N2319	.36	30 •	30	300 •
2N2320	.36	30 •	30	300 •
2N2330	.8	20	50	150 •
2N2331	.5	20	50	150 •
• 2N2332	.15	5		
• 2N2333	.15	5		
• 2N2334	.15	15		
• 2N2335	.15	15		
• 2N2336	.15	35		
• 2N2337	.15	35		
2N2338	150	40	15	1
2N2339	40	40	20	1
2N2349	.15	24	120	
2N2350	.4	40	100	130 •
2N2350A	.4	40	100	130 •
2N2351	.4	50	40	130 •
2N2351A	.4	50	40	130 •
2N2352	.4	40	20	130 •
2N2352A	.4	40	20	130 •
2N2353	.4	25	20	130 •
2N2353A	.4	25	20	130 •
2N2354	.18	15	50	
2N2356	.6	7		
2N2356A	.6	7		
• 2N2357	170	60	30	
• 2N2358	170	80	30	
• 2N2359	170	120	30	
• 2N2360	.06	20 •	10	1600 ▲
• 2N2361	.06	20 •	10	1600 ▲
• 2N2362	.06	20 •	10	1600 ▲
2N2364	.4	80	40	50 •
2N2364A	.4	80	40	50 •
2N2368	.36	15	20	550 •
2N2369	.36	15	40	650 •
2N2369A	.36	15	40	675 •
• 2N2370	.2	15	15	
• 2N2371	.2	15	20	
• 2N2372	.15	15	15	

(continued)

Bipolar Transistor

TYPE NO	DISS	V	GAIN	FREQ
NPN / • PNP	(W)	V_{CE} / V_{CB} •	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
• 2N2373	.15	15	20	
• 2N2374	.25	35	140 •	15
• 2N2375	.25	35	75 •	9
• 2N2376	.25	35		
• 2N2377	.15	25	10	20 •
• 2N2378	.15	10	15	20 •
2N2380	2	60	20	270 •
2N2380A	2	40	20	100 •
• 2N2381	.3	15	40	300
• 2N2382	.3	20	40	300
2N2383	85	60	20	3 •
2N2384	85	60	20	3 •
2N2387	.3	45	40	30 •
2N2388	.3	45	100	30 •
2N2389	.5	35	40	60 •
2N2390	.5	35	100	60 •
• 2N2393	.3	35	20	50 •
• 2N2394	.5	35	30	60 •
2N2395	.5	40	20	40 •
2N2396	.5	40	40	50 •
• 2N2398	.06	20 •	10	1600 ▲
• 2N2399	.06	20 •	10	1600 ▲
• 2N2400	.15	7	30	150 •
• 2N2401	.15	10	50	200 •
• 2N2402	.15	12	60	250 •
2N2405	5	120 •	50	120 •
2N2410	.8	40	30	300 •
2N2411	.3	20	20	140 •
• 2N2412	.3	20	40	140 •
2N2413	.3	18	30	400 •
2N2414	.5	28 •	50	60 •
• 2N2415	.075	10	10	560 •
• 2N2416	.075	10	8	500 •
• 2N2423	90	80	20	
• 2N2424	.375	40 •	30	15
• 2N2425	.375	50 •	25	10
2N2427	.5	40 •	20 •	50
• 2N2428	.5	32	130 •	1.7
• 2N2429	.5	32	220 •	2.3 •
2N2430	.36	32	63 •	2.5 •
• 2N2431	1	32	90 •	1.5 •
2N2432	.3	15	30	20 •
2N2433	.8	45	90 •	60 •
2N2434	.8	100	45	80 •
2N2435	.8	45	185 •	90 •
2N2436	.8	80	185 •	90 •
2N2437	.8	75	35 •	70 •
2N2438	.8	75	70 •	80 •
2N2439	.8	75	140 •	90 •
2N2440	.8	80	185 •	90 •
2N2443	.8	100	50	80 •
• 2N2444	85	80	90	
• 2N2445	90	100	30	
• 2N2447	.075	24	65 •	1
• 2N2448	.075	24	65 •	
• 2N2449	.075	20	125 •	1.2
• 2N2450	.075	20	125 •	1.2
• 2N2451	.025	6	25	
2N2453	.6	30	150	
2N2453A	.6	50	150	
• 2N2455	.15	15	52 •	820 •
• 2N2456	.15	15	52 •	1000 •
2N2459	.4	60	40	150 •
2N2460	.4	60	70	150 •
2N2461	.4	60	120	150 •
2N2462	.4	60	170	150 •
2N2464	.5	60	70	150 •
2N2465	.5	60	120	150 •
2N2466	.5	60	170	150 •
• 2N2467	5	60	30	
• 2N2468	5	100	30	
• 2N2469	5	200	30	
• 2N2474	.25	15	8 •	
2N2475	.3	6	50 •	
2N2476	.6	20	20	
2N2477	.6	20	40	250 •
2N2478	2	40	30 •	10
2N2479	2	40	30	5
2N2480	.6	40	30	
2N2480A	.6	40	50	
2N2481	.36	15	40	300 •
2N2482	.15	12	25	600 •
2N2483	.36	60	40	70 •
2N2484	.36	60	100	80 •
2N2484A		60 •	100	60 •
2N2485	8.7	120	10	
2N2486	8.7	140	10	
• 2N2487	.06	10	20	360 •
• 2N2488	.06	10	20	360 •
• 2N2489	.06	15	20	300 •
2N2489A		60	100	60 •

TYPE NO	DISS	V	GAIN	FREQ
NPN / • PNP	(W)	V_{CE} / V_{CB} •	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
• 2N2490	170	50	20	10 *
2N2491	170	40	35	10 *
• 2N2492	170	65	25	10 *
• 2N2493	170	75	25	10 *
• 2N2494	.1	35 •	70 •	180
• 2N2495	.1	35 •	70 •	180
• 2N2496	.1	35 •	70 •	180
2N2501	.5	20	50	350
2N2509	.36	80	40	45 •
2N2510	.36			
2N2511	.36	50	240	45 •
• 2N2512	.26	70	200 •	175 •
2N2515	.4	60	40	100 •
2N2516	.4	60	80	100 •
2N2518	.4	80	40	100 •
2N2519	.4	80	80	100 •
2N2520	.4	60	18	50 •
2N2521	.4	60	36	50
2N2522	.4	60	76	50
2N2523	.4	45	60	100 •
2N2524	.4	45	150	100 •
2N2525	25	100	10	
• 2N2526	85	80	20	.45
• 2N2527	85	120	20	.45
• 2N2528	85	160	20	.45
2N2537	.8	30	50	250 •
2N2538	.8	30	100	250 •
2N2539	.5	30	50	250 •
2N2540	.5	30	100	250 •
• 2N2541	.215	14	60	10 •
• 2N2551	.4	150	15	
• 2N2552	20	30	20	.225 •
• 2N2553	20	40	20	.225 •
• 2N2554	20	50	20	.225 •
• 2N2555	20	60	20	.225 •
• 2N2556	20	30	20	.225
• 2N2557	20	40	20	.225 •
• 2N2558	20	50	20	.225 •
• 2N2559	20	60	20	.225 •
• 2N2560	20	30	20	.25 •
• 2N2561	20	40	20	.25 •
• 2N2562	20	50	20	.25 •
• 2N2563	20	60	20	.25 •
• 2N2564	20	30	20	.25 •
• 2N2565	20	40	20	.25 •
• 2N2566	20	50	20	.25 •
• 2N2567	20	60	20	.25 •
2N2569	.3	15	100 •	100 •
2N2570	.3	15	100 •	100 •
2N2580	150	400 •	10	50 *
2N2581	150	400 •	25	50 *
2N2582	150	500	10	50 *
2N2583	150	500 •	25	50 *
2N2586	.3	45	120	60
• 2N2590	.4	60	40	75
• 2N2591	.4	60	70	100
• 2N2592	.4	60	115	125
• 2N2593	.4	60	160	150
2N2594	5	80	50	40
• 2N2595	.4	60	20	80
• 2N2596	.4	60	40	90
• 2N2597	.4	60	80	120
• 2N2599	.4	80	40	90
• 2N2599A	.4	100	40	90
• 2N2600	.4	80	80	120
• 2N2600A	.4	100	80	120
• 2N2601	.4	60	18	50
• 2N2602	.4	60	36	50
• 2N2603	.4	60	76	50
• 2N2604	.4	45	40	30
• 2N2605	.4	45	100	30
• 2N2605A	4	45	200 •	100
2N2610	.15	40	9	
2N2611	10	100	12	
• 2N2612	90	65	85	
• 2N2613	.12	25	120	10 •
• 2N2614	.12	35	100	10
2N2615	.3	15	20	800 •
2N2616	.3	15	20	600 •
2N2617	.25	25 •	25	1 •
2N2618	.6	40	30	200
• 2N2630	.3	10	25	300
2N2631	3	75 •	35	60
2N2632	40	60	40	20
2N2633	40	80	40	20
2N2634	40	100	40	20
• 2N2635	.15	15	45	280
• 2N2636	50	40	35	
• 2N2637	50	60	35	
• 2N2638	50	80	35	
2N2639	.6	45	50	

TYPE NO	DISS	V	GAIN	FREQ
NPN / • PNP	(W)	V_{CE} / V_{CB} •	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
2N2640	.6	45	50	
2N2641	.6	45	50	
2N2642	.6	45	100	
2N2643	.6	45	100	
2N2644	.6	45	100	
2N2645	.5	50	100	85 •
• 2N2648	.3	25	200 •	20
2N2649	8.7	65	10	800
2N2650	8.7	140	10	800
2N2651	.36	30	25	600 •
2N2652	.6	60	50	
2N2652A	.6	60	50	
• 2N2654	.1	32	50 •	250 •
• 2N2656	.36	15	40	250 •
• 2N2657	7	60	40	20 •
• 2N2658	7	80	40	20 •
• 2N2659	15	50	30	.3 •
• 2N2660	15	70	30	.3 •
• 2N2661	15	90	30	.3 •
• 2N2662	15	50	30	.3 •
• 2N2663	15	70	30	.3 •
• 2N2664	15	90	30	.3 •
• 2N2665	15	50	50	.3 •
• 2N2666	15	70	50	.3 •
• 2N2667	15	90	50	.3 •
• 2N2668	15	50	50	.3 •
• 2N2669	15	70	50	.3 •
• 2N2670	15	90	50	.3 •
• 2N2671	.1	32	150 •	100 •
• 2N2672	.1	32	150 •	75 •
2N2673	.25	60	8	
2N2674	.25	60 •	12	
2N2675	.25	60 •	22	
2N2676	.25	60 •	45	
2N2677	.25	45 •	20	
2N2678	.25	45 •	45	
2N2691	100	100 •	30	10 *
2N2691A	170	120 •	50	10 *
2N2692	.6	30	90	65 •
2N2693	.6	30	60	60 •
2N2694	.6	20	30	55 •
2N2695	.36	25	30	200 •
2N2696	.36	25	30	200 •
2N2697	17.5	60	40	20 •
2N2698	17.5	80	40	20 •
• 2N2706	.5	32 •	135 •	17 *
2N2708	.2	20	30	700 •
2N2710	1.2	20	40 •	500 •
2N2711	.2	18	30	
2N2712	.2	18	75	
2N2713	.2	18	30	
2N2714	.2	18	75	
2N2715	.2	18	30	
2N2716	.2	18	75	
2N2719	.3	20	25	200 •
2N2720		60	30	
2N2721		60	30	
2N2722	.6	45	50	
2N2723	.5	60	2000 •	100 •
2N2724	.5	60	7000 •	100 •
2N2725	.5	45	2000 •	100 •
2N2726	1	200	30	5 •
2N2727	1	200	75	10 •
• 2N2728	170	5	40	4.5 *
• 2N2729	.3	15	20	600 •
• 2N2730	170	60	30	.35 •
• 2N2731	170	45	30	.35 •
• 2N2732	170	30	30	.35 •
• 2N2733	140	60	30	.35 •
• 2N2734	140	45	30	.35 •
• 2N2735	140	30	30	.35 •
• 2N2736	140	60	30	.35 •
• 2N2737	140	45	30	.35 •
• 2N2738	140	30	30	.35 •
2N2739	200	50	10	14 *
2N2740	200	100	10	14 *
2N2741	200	150	10	14 *
2N2742	200	200	10	14 *
2N2745	200	50	10	14.5 *
2N2746	200	100	10	14.5 *
2N2747	200	150	10	14.5 *
2N2748	200	200	10	14.5 *
2N2751	200	50	10	16 *
2N2752	200	100	10	16 *
2N2753	200	150	10	16 *
2N2754	200	200	10	16 *
2N2757	200	50	10	14 *
2N2758	200	100	10	14 *
2N2759	200	150	10	14 *
2N2760	200	200	10	14 *
2N2761	200	250	10	14 *

TYPE NO	DISS	V	GAIN	FREQ
NPN / • PNP	(W)	V_{CE} / V_{CB} •	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
2N2763	200	50	10	14.5 *
2N2764	200	100	10	14.5 *
2N2765	200	150	10	14.5 *
2N2766	200	200	10	14.5 *
2N2769	200	50	10	16 *
2N2770	200	100	10	16 *
2N2771	200	150	10	16 *
2N2772	200	200	10	16 *
2N2775	200	50	10	.2 •
2N2776	200	100	10	.2 •
2N2777	200	150	10	.2 •
2N2778	200	200	10	.2 •
2N2781	15	75	7.5	140 •
2N2782	15	100	7.5	140 •
2N2783	15	100	7.5	140 •
2N2784	.3	6	120 •	1000 •
2N2785	.5	60	2000	
• 2N2786	1	34 •	80 •	350 •
• 2N2786A	1	34 •	80 •	350 •
2N2787	.8	50	20	350 •
2N2788	.8	50	40	350 •
2N2789	.8	50	100	350 •
2N2790	.5	50	20	350 •
2N2791	.5	50	40	350 •
2N2792	.5	50	100	350 •
• 2N2795	.075	15	50	450 •
• 2N2796	.075	12	30	300 •
• 2N2797	.075	20	50	235 •
• 2N2798	.075	25	30	235 •
• 2N2799	.075	15	30	120 •
• 2N2800	.6	35	30	120 •
• 2N2801	.6	35	75	120 •
2N2802	.5	20	20	120 •
• 2N2803	.5	20	20	120 •
• 2N2804	.5	20	20	120 •
• 2N2805	.5	20	40	140 •
• 2N2806	.5	20	40	140 •
• 2N2807	.5	20	40	140 •
2N2808A	.2	10	20	1500 •
2N2809	.2	15	20	1300 ▲
2N2809A	.2	15	20	1300 ▲
2N2810	.2	10	20	1000 ▲
2N2810A	.2	10	20	1300 ▲
2N2811	70	60	20	20 •
2N2812	70	60	40	30 •
2N2813	70	80	20	20 •
2N2814	70	80	40	30 •
2N2815	200	80	10	
2N2816	200	100	10	
2N2817	200	150	10	
2N2818	200	200	10	
2N2819	200	80	10	
2N2820	200	100	10	
2N2821	200	150	10	
2N2822	200	200	10	
2N2823	200	80	10	
2N2824	200	100	10	
2N2825	200	150	10	
2N2828	40	60	20	
2N2829	40	60	20	
2N2831	.36	12	40	
• 2N2832	85	50	25	17.5 *
• 2N2833	85	75	25	17.5 *
• 2N2834	85	100	25	17.5 *
• 2N2835	16	32 •	30	10 *
• 2N2836	35	55 •	30	10 *
• 2N2837	.4	35	30	120 •
• 2N2838	.4	35	75	120 •
2N2845	.36	30	30	350 •
2N2846	.8	30	30	350 •
2N2847	.36	20	40	350 •
2N2848	.8	20	40	350 •
2N2849	.85	80	100	80 •
2N2850		80	40	60 •
2N2851		80	40	60
2N2852		80	20	40 •
2N2853		40	40	60 •
2N2854		40	100	80 •
2N2855		40	40	60 •
2N2856		40	20	40 •
2N2857	.3	30	30	1000 •
2N2858	.6	80	20	1 •
2N2859	.6	100	20	1 •
• 2N2860	.15	7	40	
• 2N2861	.3	20	30	90 •
• 2N2862	.3	20	12	75 •
2N2863	.8	25	30	250 •
2N2864	.8	25	20	250 •
2N2865	.2	13	20	600 •
2N2866	20	80	20	10 •
2N2867	20	80	40	10 •

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	$f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N2868	.8	40	40	50 •
• 2N2869	30	80 •	50	.45 •
• 2N2870	30	60 •	50	.45 •
• 2N2871		60		
• 2N2872		110		
• 2N2873	.115	35 •	40	375 •
2N2874	15	75	7.5	140 •
• 2N2875	20	50	20	25 •
2N2876	17.5	80		200 •
2N2877	53	60	20	30 •
2N2878	53	60	40	50 •
2N2879	53	80	20	30 •
2N2880	53	80	40	50 •
2N2881	8.75	60	20	
2N2882	8.75	100	20	
2N2883	.8	20	20	500 •
2N2884	.8	20	20	500 •
2N2885	.15	15	30	300 •
2N2886	.8	40	22	
2N2887	25	80	15	
2N2890	.8	80	30	50 •
2N2891	.8	80	50	50 •
2N2892	30	80	30	50 •
2N2893	30	80	50	50 •
• 2N2894	.36	12	40	550 •
• 2N2894A		12		800 •
2N2895	1.8	120 •	40	120 •
2N2896	1.8	140 •	60	120 •
2N2897	1.8	60 •	50	100 •
2N2898	1.8	120	40	120 •
2N2899	1.8	140 •	60	120 •
2N2900	1.8	60 •	50	100 •
2N2901				300 •
2N2903	.3	30	125	
2N2903A	.3	30	125	
• 2N2904	.6	40	40	200 •
• 2N2904A	.6	60	40	200 •
• 2N2905	.6	40	100	200 •
• 2N2905A	.6	60	100	200 •
• 2N2906	.4	40	40	200 •
• 2N2906A	.4	60	40	200 •
• 2N2907	.4	40	100	200 •
• 2N2907A	.4	60	100	200 •
2N2909	.4	40	20	
2N2910	.3	25	70	
2N2911	5	125	20	1000 *
• 2N2912	75	6	75	20 •
2N2913	.6	45	150	
2N2914	.6	45	300	
2N2915	.6	45	150	
2N2915A	1.5	45	60	
2N2916	.6	45	300	
2N2916A	1.5	45	150	
2N2918	.6	45	300	
2N2919	.6	60	150	
2N2919A	1.5	60	60	
2N2920	.6	60	300	
2N2920A	1.5	60	150	
2N2921	.2	25	35	120 •
2N2922	.2	25	55	120 •
2N2923	.2	25	90	200 •
2N2924	.2	25	150	200 •
2N2925	.2	25	235	200 •
2N2926	.2	18	35	200 •
• 2N2927	.8	25 •	30	150 •
• 2N2928	.15	13	8	400
• 2N2929	.3	10	10	800 •
2N2931	.05	5	30	
2N2932	.05	5	70	
2N2933	.05	5	45	
2N2934	.05	30	30	
2N2935	.05	30	70	
2N2936		55	150	
2N2937		55	150	
2N2938	1	13	30	690 •
2N2939	.8	60	60	150 •
2N2940	.8	80	60	150 •
2N2941	.8	100	60	150 •
• 2N2942	.15	25	50	235 •
• 2N2943	.15	15	30	120 •
• 2N2944	.4	10	200 •	15 •
• 2N2944A	.4	10	100	
• 2N2945	.4	20	100 •	10 •
• 2N2945A	.4	20	70	
• 2N2946	.4	35	70 •	5 •
• 2N2946A	.4	35	50	
2N2947	25	60	2.5	100 •
2N2948	25	40	2.5	100 •
2N2949	.5	60	5	100 •
2N2950	.7	60	5	100 •

(continued)

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T • MHz f_{max} ▲ MHz
2N2951	.8	60	20	200 •
2N2952	.5	60	20	200 •
• 2N2953	.12	25	200	10 •
• 2N2955	.15	25	20	350 •
• 2N2956	.15	20	40	375 •
• 2N2957	.15	18	100	400 •
2N2958	.6	20	40	250 •
2N2959	.6	20	100	250 •
2N2960	3	30	100	
2N2961	.6	30	30	250 •
• 2N2962	.35	18		700
• 2N2963	.35	18		700
• 2N2964	.35	15		
2N2965	.35	15		
• 2N2968	.15	10	15	10
• 2N2969	.15	10	15	10
• 2N2970	.15	20	10	8
• 2N2971	.15	20	10	8
2N2972	.3	45	150	
2N2973	.3	45	300	
2N2974	.3	45	150	
2N2975	.3	45	300	
2N2976	.3	45	150	
2N2977	.3	45	300	
2N2978	.3	60	150	
2N2979	.3	60	300	
2N2980	.3	60	50	
2N2981	.3	60	50	
2N2982	.3	60	50	
2N2983	1	80	20	40 •
2N2984	1	120	20	40 •
2N2985	1	80	40	40 •
2N2986	1	120	40	40 •
2N2987	1	80	25	30 •
2N2988	1	100	25	30 •
2N2989	1	80	60	30 •
2N2990	1	100	60	30 •
2N2991	2	80	25	30 •
2N2992	2	100	25	30 •
2N2993	2	80	60	30 •
2N2994	2	100	60	30 •
2N2995	10	100	30	15 •
• 2N2996	.075	10	25	400 •
• 2N2997	.075	15	40	400 •
• 2N2998	.075	12	15	600 •
• 2N2999	.075	10	10	1400 •
2N3009	.36	15	30	550 •
2N3010	.3	6	25	800 •
2N3011	.36	12	30	650 •
• 2N3012	.36	12	30	550 •
2N3013	.36	15	30	350 •
2N3014	.36	20	30	550 •
2N3015	.8	30	30	330 •
2N3016	5	50	60	200 •
2N3017	10	50	60	200 •
2N3018	25	50	60	200 •
2N3019	.8	80	80	100 •
2N3020	.8	80	30	100 •
• 2N3021	25	30	20	100 *
• 2N3022	25	45	20	100 *
• 2N3023	25	60	20	100 *
• 2N3024	25	30	50	100 *
• 2N3025	25	45	50	100 *
• 2N3026	25	60	50	100 *
2N3033	.3	100 •		
2N3034	.3	70 •		
2N3035	.3	50		
2N3036	.8	80	50	50 •
2N3037	.36	70	40	50 •
2N3038	.36	60	80	50 •
• 2N3039	.36	35	20	50 •
• 2N3040	.36	30	40	50 •
2N3043	.35	45	100	30 •
2N3044	.35	45	100	30 •
2N3045	.35	45	100	30 •
2N3046	.35	45	50	30 •
2N3047	.35	45	50	30 •
2N3048	.35	45	50	30 •
• 2N3049	.35	20	30	60 •
• 2N3050	.35	20	30	60 •
• 2N3051	.35	20	30	60 •
2N3053	5	40	50	100 •
2N3054	25	55	25	
2N3055	115	60	20	
2N3056	5	60	115	100 •
2N3056A	5	80	100	
2N3057	5	60	240	100 •
2N3057A	5	80	100	
• 2N3058	.4	6	40	10
• 2N3059	.4	6	100	10
• 2N3060	.4	60	30	5

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T • MHz f_{max} ▲ MHz
• 2N3061	.4	60	60	8
• 2N3062	.4	80	20	3
• 2N3063	.4	80	50	5
• 2N3064	.4	100	15	2
• 2N3065	.4	100	30	4
• 2N3072	.8	60 •	30	200 •
• 2N3073	.36	60 •	30	200 •
• 2N3074	.14	25 •		
• 2N3075	.14	30		
2N3076	125	100	30	50 •
2N3077	1.2	80 •	80	15 •
2N3078	1.2	80 •	25	15 •
2N3079	178	200	10	50 *
2N3080	178	300	10	50 *
• 2N3081	.6	50	30	150 •
2N3082	.5	7	100	100 •
2N3083	.5	7	100	100 •
2N3107	.8	60	100	
2N3108	.8	60	40	86 •
2N3109	.8	40	100	
2N3110	.8	40	40	86 •
2N3114	.8	150	15	54 •
2N3115	.4	20	40	250 •
2N3116	.4	20	100	250 •
2N3117	.36	60	250	120 •
2N3118	4	60	50	380 •
2N3119	4	100 •	50	250 •
2N3120	.8	45 •	30	200 •
2N3121	.36	45 •	30	200 •
2N3122	3	30	63 •	60 •
2N3123	3	30	200 •	400 •
2N3124	90	30	120	2.5 *
2N3125	90	80	50	5 *
2N3126	90	75	65	6 *
• 2N3127	.1	25 •	20	400 •
2N3128	.15	20	50	60 •
2N3129	.15	45	100	60 •
2N3130	.15	60	60	60 •
2N3131	.15	15	30	250 •
• 2N3132	90	70	40	3 *
• 2N3133	.6	35	40	200 •
• 2N3134	.6	35	100	200 •
• 2N3135	.4	35	40	200 •
2N3136	.4	35	100	200
2N3137	.6	20	20	750
2N3138	20	65	10	400 ▲
2N3139	20	140	10	400 ▲
2N3140	20	65	10	400 ▲
2N3141	20	140	10	400 ▲
2N3142	25	65	10	400 ▲
2N3143	25	140	10	400 ▲
2N3144	25	65	10	400 ▲
2N3145	25	140	10	400 ▲
• 2N3146	150	140	30	.5 •
• 2N3147	150	160	30	.5 •
2N3149	300	80	10	.1 •
2N3150	300	100	10	.1 •
2N3151	300	150	10	.1 •
2N3152	2.5	120	40	200 •
2N3153	.3	15		
• 2N3154	28	35	60	15 *
• 2N3155	28	50	60	15 *
• 2N3156	28	65	60	15 *
2N3157	28	75	60	15 *
• 2N3158	28	35	25	10 *
• 2N3159	28	50	25	10 *
• 2N3160	28	65	25	10 *
• 2N3161	28	75	25	10 *
• 2N3163	85	40	12	
• 2N3164	85	60	12	
• 2N3165	85	80	12	
2N3166	85	100	12	
• 2N3167	85	40	12	
• 2N3168	85	60	12	
• 2N3169	85	80	12	
• 2N3170	85	100	12	
• 2N3171	75	40	12	
• 2N3172	75	60	12	
• 2N3173	75	80	12	
• 2N3174	75	100	12	
• 2N3175	85	40	10	
• 2N3176	85	60	10	
• 2N3177	85	80	10	
• 2N3178	85	100	10	
• 2N3179	85	40	10	
• 2N3180	85	60	10	
• 2N3181	85	80	10	
• 2N3182	85	100	10	
• 2N3183	75	40	10	
• 2N3184	75	60	10	
• 2N3185	75	80	10	

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T • MHz f_{max} ▲ MHz
• 2N3186	75	100	10	
• 2N3187	85	40	10	
• 2N3188	85	60	10	
• 2N3189	85	80	10	
• 2N3190	85	100	10	
• 2N3191	85	40	10	
• 2N3192	85	60	10	
• 2N3193	85	80	10	
• 2N3194	85	100	10	
• 2N3195	75	40	10	
• 2N3196	75	60	10	
• 2N3197	75	80	10	
• 2N3198	75	100	10	
• 2N3199	40	40	20	
• 2N3200	40	60	20	
• 2N3201	40	80	20	
• 2N3202	8.75	40	20	
• 2N3203	8.75	60	20	
• 2N3204	8.75	80	20	
• 2N3205	40	40	20	
• 2N3206	40	60	20	
• 2N3207	40	100	20	
• 2N3208	8.75	40	20	
• 2N3209	.36	20 •	30	550 •
2N3210	1.2	15	30	300 •
2N3211	1.2	15	50	350 •
• 2N3212	12	80	30	.6 •
• 2N3213	12	60	30	.6 •
• 2N3214	12	40	30	.6 •
• 2N3215	12	30	25	.6 •
• 2N3216	.15	10	60	
• 2N3217	.4	10		10 •
• 2N3218	.4	20		5 •
• 2N3219	.4	35		3 •
2N3220	30	80	20	10 •
2N3221	30	80	40	10 •
2N3222	30	60	20	10 •
2N3223	30	60	40	10 •
• 2N3224	.7	100	20	60 •
• 2N3225	.7	100	40	80 •
2N3226	75	35	20	
2N3227	.36	20	100	500 •
2N3229	17.5	105 •	20	200 •
2N3230	25	60	1000	40 •
2N3231	25	80	1000	40 •
2N3232	117	60	18	
2N3233	117	100	18	
2N3234	117	160	18	
2N3235	117	55	20	
2N3236	150	90	17	
2N3237	200	75	12	
2N3238	150	80	8.5	
2N3239	150	80	8.5	
2N3240	150	160	8.5	
2N3241	.5	25	50	60 •
2N3241A	.5	25	100	175
2N3242	.5	25	75	60 •
2N3242A	.5	40	125	175
• 2N3244	1	40	50	175 •
• 2N3245	1	50	30	150 •
• 2N3246	.35	45	200	90 •
2N3247	.15	45	200	90 •
• 2N3248	.36	12	50	250 •
• 2N3249	.36	12	100	300 •
• 2N3250	.36	40	50	250 •
• 2N3250A	1.2	60	100 •	250 •
• 2N3251	.36	40	100	300 •
• 2N3251A	1.2	60	200 •	300 •
2N3252	1	30	30	200 •
2N3253	1	40	25	175 •
2N3260	200	200	10	.6 •
2N3261	.3	40 •	40	600 •
2N3262	8.75	100 •	40	
2N3263	84	150 •	150	20 •
2N3264	84	120 •	20	20 •
2N3265	125	150 •	25	20 •
2N3266	125	120 •	20	20 •
• 2N3267	.075	15		900 •
2N3268	.15	45	46	2.5
• 2N3279	.1	20	10	500 •
• 2N3280	.1	20	10	500 •
• 2N3281	.1	15	10	400 •
• 2N3282	.1	15	10	400 •
• 2N3283	.1	25	10	2000 ▲
• 2N3284	.1	25	10	2000 ▲
• 2N3285	.1	20	5	2000 ▲
• 2N3286	.1	20	5	2000 ▲
2N3287	.2	20	15	600 •
2N3288	.2	20	15	600 •
2N3289	.2	15	10	500 •
2N3290	.2	15	10	500 •

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T • MHz f_{max} ▲ MHz
2N3291	.2	25	10	2000 *
2N3292	.2	25	10	2000 *
2N3293	.2	20	10	2000 *
2N3294	.2	20	10	2000 *
2N3295	.8	60	20	200 •
2N3296	6	60	5	100 •
2N3297	25		2.5	100 •
2N3298	.3	25	60	200 •
2N3299	.8	10	40	400 •
2N3300	.8	30	100	400 •
2N3301	.36	30	100	400 •
2N3302	.36	30	100	400 •
2N3303	3	12	30	500 •
• 2N3304	.3	6	20	600 •
• 2N3305	.6	40	40	20 •
• 2N3306	.6	40	100	20 •
• 2N3307	.2	35	20	300 •
• 2N3308	.2	25	10	300 •
• 2N3309	1	50	5	500 •
2N3309A	5	60	8	
2N3310	1	15	10	300 •
• 2N3311	170	30	60	1 *
• 2N3312	170	45	60	1 *
• 2N3313	170	60	60	1 *
• 2N3314	170	30	80	1 *
• 2N3315	170	45	80	1 *
• 2N3316	170	60	80	1 *
• 2N3317	.15	10	1.6 •	6.4 •
• 2N3318	.15	10	1.9 •	7.6 •
• 2N3319	.15		3 •	12 •
• 2N3320	.075	10	50	900 •
• 2N3321	.075	7	100	900 •
• 2N3322	.075	7	30	900 •
• 2N3323	.15	35	30	400 •
• 2N3324	.15	35	30	400 •
• 2N3325	.15	35	30	400 •
2N3326	3	45	40	250 •
2N3327	20	65	10	100 •
2N3337	.3	40	30	500 •
2N3338	.3	40	30	500 •
2N3339	.3	40	30	500 •
2N3340	.4	20	60	70 •
• 2N3341	.4	20	60	50 •
• 2N3342	.25	8	30	
2N3343	.25	8	20	2 •
2N3344	.25	30	25	2 •
2N3345	.25	50	15	2 •
2N3346	.25	50	25	2 •
• 2N3347	1.2	45	40	30 •
• 2N3348	1.2	45	40	30 •
• 2N3349	1.2	45	40	30 •
• 2N3350	1.2	45	100	30 •
• 2N3351	1.2	45	100	30 •
• 2N3352	1.2	45	100	30 •
• 2N3371	.15	10	160	400 •
2N3374	5	80	10	230 •
2N3375	11.6	40	10	500 •
2N3388	.6	100	60	36 •
• 2N3389	.6	160	60	36 •
2N3390	.2	25	400	
2N3391	.2	25	170 •	160 •
2N3391A	.2	25	170 •	160 •
2N3392	.2	25	150	140 •
2N3393	.2	25	90	140 •
2N3394	.2	25	55	140 •
2N3395	.2	25	150	
2N3396	.2	25	90	
2N3397	.2	25	55	
2N3398	.2	25	55	
2N3399	.025	20 •	20	600 •
• 2N3400	.15	20	35	150 •
• 2N3401	.25	25	4 •	100 *
2N3402	.56	25	75	
2N3403	.56	25	180	
2N3404	.56	50	75	
2N3405	.56	50	180	100
2N3407	.2	18	10 •	300
2N3408	4	25	10	200 •
2N3409	.6	30	125	250 •
2N3410	.6	30	125	250 •
2N3411	.6	30	125	250 •
• 2N3412	.06	20	25	100 •
• 2N3413	.6	150	27.5 •	•
2N3414	.36	25	75	
2N3415	.36	25	180	
2N3416	.36	50	75	
2N3417	.36	50	180	
2N3418	10	60	20	40 •
2N3419	10	80	20	40 •
2N3420	10	60	40	40 •
2N3421	10	80	40	40 •

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	f_{ae} kHz * f_{ab} MHz f_T MHz • f_{max} MHz ▲
2N3423	.3	15	20	
2N3424	.3	15	20	
2N3425		15	12	300 •
2N3426	.6	12	30	200 •
• 2N3427	.2	30	225	4
• 2N3428	.2	30	275	5
2N3429	176	50	10	20 *
2N3430	176	100	10	20 *
2N3431	176	150	10	20 *
2N3432	176	200	10	20 *
2N3433	176	250	10	20 *
2N3434	176	300	10	20 *
2N3435	1	60	50	140 •
2N3439	5	350	40	10 •
2N3440	5	250	40	10 •
2N3441	25	140	20	
2N3442		140	20	80 •
• 2N3443	.3	15	20 •	
2N3444	5	50	40	175 •
2N3445	115	60	40	10 •
2N3446	115	80	40	10 •
2N3447	115	60	80	10 •
2N3448	115	80	80	10 •
• 2N3449	.15	6	20	300 •
2N3450	.6	60	40	100 •
2N3461	5	60 •	20	10 *
2N3462	.3	35	150 •	
2N3463	.3	45	150 •	
• 2N3467	5	40	80	175 •
• 2N3468	5	50	50	150 •
2N3469	5	25	100	100
2N3470	150	50	100	7 *
2N3471	150	100	100	7 *
2N3472	150	150	100	7 *
2N3473	150	200	100	7 *
2N3474	150	50	350	4 *
2N3475	150	100	350	4 *
2N3476	150	150	350	4 *
2N3477	150	200	350	4 *
2N3478	.2	15	9	900 •
• 2N3485	2	40	80	200 •
• 2N3485A	2	60	80	200 •
• 2N3486	2	40	200	200 •
• 2N3486A	2	60	200	200 •
2N3487	117	60	20	10 •
2N3488	117	80	20	10 •
2N3489	117	100	15	10 •
2N3490	117	60	40	10 •
2N3491	117	80	40	10 •
2N3492	117	100	30	10 •
2N3493	.25	8	80	400 •
• 2N3494	3	80	40	200 •
• 2N3495	3	120	40	150 •
• 2N3496	1.8	80	40	200 •
• 2N3497	1.8	120	40	150 •
2N3498	5	100	80	150 •
2N3499	5	100	200	150 •
2N3500	5	150	80	150 •
2N3501	5	150	200	150 •
• 2N3502	3	45	135	
• 2N3503	3	60	135	
• 2N3504	1.3	45	135	
• 2N3505	1.3	60	135	
2N3506	5	40	120	60 •
2N3507	5	50	90	60 •
2N3508	2	20	80	50 •
2N3509	2	20	200	50 •
2N3510	.36	10	25	
2N3511	.36	15	30	
2N3512	4	35	10	250 •
2N3513	.3	40	50	40 •
2N3514	.35	40	50	40 •
2N3515	.35	40	50	40 •
2N3516	.3	60	50	60 •
2N3517	.35	60	50	60 •
2N3518	.35	60	50	60 •
2N3521	.6	45	155	
2N3522	.3	45	155	
2N3523	.35	45	155	
2N3524	.35	45	155	
2N3526	.8	120	30	40 •
2N3527	.4	30	25	10
2N3543	60	65	10	50
2N3544	.4	25	50	
• 2N3545	.36	20	40	250 •
• 2N3546	1.2	12	75	700 •
• 2N3547	.4	60	120	
• 2N3548	.4	45	150	
• 2N3549	.4	60	150	
• 2N3550	.4	45	200	60 •
2N3551	40	60	20	40 •

(continued)

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN • TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T • MHz f_{max} ▲ MHz
2N3552	40	80	20	40 •
2N3553	7	40	10	400 •
2N3554	5	30	25	150 •
2N3563	.2	12	20	600 •
2N3564	.2	15	20	400 •
2N3565	.2	25	120	40 •
2N3566	.3	30	150	40 •
2N3567	.3	40	40	60 •
2N3568	.3	60	40	60 •
2N3569	.3	1	100	60 •
2N3570	.2	15	20	1000 •
2N3571	.2	15	20	1000 •
2N3572	.2	13	20	1000 •
• 2N3576	1.2	15	40	400 •
• 2N3577	85	80	12	10 •
• 2N3579	.4	60	30	90 •
• 2N3580	.4	60	60	100 •
• 2N3581	.4	40	50	110 •
• 2N3582	.4	40	100	120 •
2N3583	35	175	10	
2N3584	35	250	25	
2N3585	35	300	25	
2N3587		45	80	
• 2N3588	.1	25 •	50 •	250
2N3589	10	200	30	10 •
2N3590	10	200	75	10 •
2N3591	10	200	30	10 •
2N3592	10	200	75	10 •
2N3593	4	200	30	10 •
2N3594	4	200	75	10 •
2N3595	10	200	30	10 •
2N3596	10	200	75	10 •
2N3597	100	60 •	40	30
2N3598	100	80 •	40	30
2N3599	100	100 •	40	30
2N3600	.2	15	20	900 •
• 2N3601	.5	40	60	20 •
• 2N3602	.75	40	60	
• 2N3603	.5	55	60	
• 2N3604	.75	55	60	
2N3605	.2	14	30	300 •
2N3606	.2	14	30	300 •
2N3607	.2	14	30	300 •
• 2N3611	85	25	35 •	
• 2N3612	85	35	35 •	
• 2N3613	85	25	60 •	
• 2N3614	85	35	60 •	
• 2N3615	85		40 •	
• 2N3616	85		40 •	
• 2N3617	85		60 •	
• 2N3618	85		60 •	
2N3619	7.5	40	40	200 •
2N3620	7.5	40	30	200 •
2N3621	15	40	40	200 •
2N3622	15	40	40	200 •
2N3623	7.5	40	40	200 •
2N3624	7.5	40	30	200 •
2N3625	15	40	40	200 •
2N3626	15	40	40	200 •
2N3627	7.5	50	40	200 •
2N3628	7.5	50	30	200 •
2N3629	20	50	40	200 •
2N3630	20	50	40	200 •
2N3632	23	40	10	
2N3633		15 •	50	1300 •
• 2N3634	5	140	50	270 •
• 2N3635	5	140	100	270 •
2N3636	5	175	50	270 •
• 2N3637	5	175	100	270 •
• 2N3638	.3	25	30	150 •
• 2N3638A	.3	25	100	200 •
• 2N3639	.2	6	30	500 •
• 2N3640	.2	12	30	500 •
2N3641	.7	30	40	400 •
2N3642	.7	45	40	400 •
2N3643	.7	30	100	400 •
• 2N3644	.3	45	100	200 •
• 2N3645	.3	60	100	200 •
2N3646	.2	15	30	350 •
2N3647	.4	10	25	
2N3648	.4	15	30	
2N3659		170	20	
2N3660	5	40 •	25	25 •
2N3661	5	60 •	25	25 •
2N3662	.2	12	20	1000 •
2N3663	.2	12	20	1000 •
2N3664	5	40	8	
2N3665	.8	80	40 •	100
2N3666	.8	80	100 •	100
2N3667	117	50	15	.5 •

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN • TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T • MHz f_{max} ▲ MHz
• 2N3671	3	50	75	
• 2N3672	1.8	40	75	
• 2N3673	3	50	75	
2N3675	9	90	12	1 •
2N3676	9	1	12	1 •
• 2N3677	.4	20	10 •	
2N3678		55	40	
2N3680	1.2	50	150	50 •
2N3683	.2	15	20	
2N3688	.2	40	70	600 •
2N3689	.2	40	70	600 •
2N3690	.2	40	70	600 •
2N3691	.2	25	40	120 •
2N3692	.2	25	100	120 •
2N3693	.2	45	40	120 •
2N3694	.2	45	100	120 •
2N3700	.5	80	100	100
2N3701	.5	80	40	100
• 2N3702	.3	30		
• 2N3703	.3	30		
2N3704	.3	30		
2N3705	.3	30		
2N3706	.3	20		
2N3707	.25	30		
2N3708	.25	30		
2N3709	.25	30		
2N3710	.25	30		
2N3711	.25	30		
2N3712	.1	150	30	40 •
2N3713	150	60	25	
2N3714	150	80	25	
2N3715	150	60	50	
2N3716	150	80	50	
2N3717	7.5	40	8	
2N3718	10	40	8	
• 2N3719	6	40	25	90 •
• 2N3720	6	60	25	90 •
2N3721	.2	18	60	• 120 •
2N3722	4	60	40	300 •
2N3723	4	80	40	300 •
2N3724	3.5	30	40	250 •
2N3725	3.5	50	40	250 •
2N3726	1.4	45	135	
• 2N3727	1.4	45	135	
2N3728	1.6	30	80	
• 2N3730	10	200 •		
• 2N3731	5	320 •		
• 2N3732	3	100 •		
2N3733	23	65 •		400 •
2N3734	4	30	30	
2N3735	4	50	20	
2N3736	2	30	30	
2N3737	2	50	20	
2N3738	20	225	40	15 •
2N3739	20	300	40	15 •
2N3740	25	60	30	4 •
2N3741	25	80	30	4 •
2N3742	5	300	20	30 •
2N3743	5	300	25	30 •
2N3744	30	40	20	40 •
2N3745	30	60	20	40 •
2N3746	30	80	10	40 •
2N3747	30	40	40	60 •
2N3748	30	60	40	60 •
2N3749	30	80	40	60 •
2N3750	30	40	100	70 •
2N3751	30	60	100	70 •
2N3752	30	80	100	70 •
• 2N3762	4	40	30	70 •
• 2N3763	4	60	20	
• 2N3764	2	40	30	
• 2N3765	2	60	20	
2N3766	20	60	40	15 •
2N3767	20	80	40	15 •
2N3771	150	40	15	
2N3772	150	60	15	
• 2N3773	150	140	15	
• 2N3774		40	20	
• 2N3775		60	20	
• 2N3776		80	20	
• 2N3777		100	20	
• 2N3778		40	10	
• 2N3779		60	10	
• 2N3780		80	10	
• 2N3781		100	10	
• 2N3782		40	10	
• 2N3783	.15	20	20	800 •
• 2N3784	.15	20	20	700 •
• 2N3786	.15	12	15	700 •
2N3788	100	325	4	
• 2N3789	150	60	25	4

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN • TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T • MHz f_{max} ▲ MHz
• 2N3790	150	80	25	4
• 2N3791	150	60	50	4
• 2N3792	150	80	50	4
• 2N3793	.25	20	20	
• 2N3794	.25	20	100	
• 2N3798	.36	90	150	100 •
• 2N3799	.36	90	300	100 •
• 2N3800	.36	90	150	100 •
• 2N3801	.36	90	300	100 •
• 2N3802	.36	90	150	100 •
• 2N3803	.36	90	300	100 •
• 2N3804	.36	90	150	100 •
• 2N3805	.36	90	300	100 •
• 2N3806	.6	90	150	100 •
• 2N3807	.6	90	300	100 •
• 2N3808	.6	90	150	100 •
• 2N3809	.6	90	300	100 •
• 2N3810	.6	90	150	100 •
• 2N3811	.6	90	300	100 •
• 2N3812	.35	60	125	100 •
• 2N3813	.35	60	250	100 •
• 2N3814	.35	60	125	100 •
• 2N3815	.35	60	250	100 •
• 2N3816	.35	60	125	100 •
• 2N3817	.35	60	250	100 •
2N3818	25	60 •	5	
2N3825	.25	15	5	
2N3826	.2	45		
2N3827	.2	45		
2N3828	.3	40		
2N3830		50		250 •
2N3831		50		250 •
2N3832				800 •
2N3833	1	15	20	• 1000 •
2N3835	1	15	20	1000 •
2N3836	25	60	2000	
2N3837	25	60	2000	
2N3839		30 •		1000 •
• 2N3840		50		6
• 2N3841		100		1.5
• 2N3842		120		1
2N3843	.2	30	20	135 •
2N3843A	.2	30	20	135 •
2N3844	.2	30	35	135 •
2N3844A	.2	30	35	135 •
2N3845	.2	30	60	135 •
2N3845A	.2	30	60	135 •
2N3846	4	200	10	
2N3847	4	300	10	
2N3848	4	200	10	
2N3849	4	300	10	
2N3850	30	80	50	40 •
2N3851	30	80	30	30 •
2N3852	30	40	50	40 •
2N3853	30	40	30	30 •
2N3854	.2	18	35	250 •
2N3854A	.2	30	35	250 •
2N3855	.2	18	60	300 •
2N3855A	.2	30	60	300 •
2N3856	.2	18	100	350 •
2N3856A	.2	30	100	350 •
2N3857	.6	45	50	4
2N3858	.2	30	60	135 •
2N3858A	.2	60	60	135 •
2N3859	.2	30	100	135 •
2N3859A	.2	60	100	135 •
2N3860	.2	30	150	135 •
2N3861	2	530 •	30	50 •
2N3862	1.2	20	50	600 •
2N3863	117	90	30	.5 •
2N3864	117	90	30	.5 •
2N3865	.3	13	110	600 •
2N3866	3.5	30		800 •
• 2N3867	1	40	40	60 •
2N3877	.2	70	20	135 •
2N3877A	.2	85	20	135 •
2N3878	35	65	50	40 •
2N3879	35	90	40	40 •
2N3880	.2	15	30	
2N3881	.3	13	110	600
• 2N3883	.3	15	30	300 •
2N3898	30	100		
2N3899	30	100		
2N3900	.2	18	250	
2N3900A	.2	18	250	
2N3901	.2	18	250	120 •
2N3902	100	400	10	
2N3903	.31	40	50	250 •
2N3904	.31	40	100	300 •
• 2N3905	.31	40	50	200 •
• 2N3906	.31	40	100	250 •

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} • V_{CB} •	MIN • TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T • MHz f_{max} ▲ MHz
2N3907		60	60	
2N3908		60	100	
2N3910		50	40	6 •
2N3911		40	60	8 •
2N3912		30	90	10 •
2N3913		50	40	6 •
2N3914		40	60	8 •
2N3915		30	90	10 •
2N3916	5	150	40	
2N3917	20	40	30	
2N3918	20	40	100	80 •
2N3919	15	60	40	
2N3920	15	60	100	
2N3923	.8	150	30	40 •
2N3924	7	18	5 •	
2N3925	10	18	5	
2N3926	11.6	18	5 •	
2N3927	23.2	18	5 •	
2N3928				
2N3929				
• 2N3930		180	60	
• 2N3931		180	60	
2N3932	.2	20	40	750 •
2N3932		30 •	7.5 •	750
2N3933		40 •	7.5 •	750
2N3941	1.5	60	400	
2N3942	1.5		400	
2N3943	.75		400	
2N3944	.75		400	
2N3945	5	50	40	
2N3946	.36	40	50	250 •
2N3947	.36	40	100	300 •
2N3948	5	36 •		700 •
2N3950	70	65 •		150 •
2N3953	.2	12	30	
2N3959	.4	12	40	1000 •
2N3960	.4	12	40	1300 •
2N3961	10	40		500 •
• 2N3962	.36	60	100	
• 2N3963	.36	80	100	
• 2N3964	.36	45	250	
• 2N3965	.36	60	250	
2N3973	.36	30	35	350 •
2N3974	.36	30	55	350 •
2N3975	.36	30	35	350 •
2N3976	.36	30	55	350 •
• 2N3977	.4	15 •	40	1
• 2N3978	.4	25 •	30	1
2N3979	.4	40 •	20	1
2N3981		30	30	
2N3982		20	40	
2N3983	.2	12	30	500 •
2N3984	.2	12	20	400 •
2N3985	.2	12	20	300 •
2N3995	.75			
2N3996	30	100		
2N3997	2	80	80	
2N3998	2	80	40	
2N3999	2	80	80	
2N4000		120	45	
2N4001		120	45	
2N4002	100	100	25	
2N4003	100	100	25	
2N4004	40	100	25	
2N4005	40	100	25	
• 2N4006		6		20
• 2N4007		15		15
• 2N4008		30		15
2N4012	11.6	40		500 •
2N4013	.36	30	30	300 •
• 2N4014	.36	50	50	300 •
• 2N4015	.5	60	80	
• 2N4016	.5	60	80	
• 2N4017	.6	80	100	
• 2N4018	.6	60	100	
• 2N4019	.6	45	250	
• 2N4020	.6	45	250	
• 2N4021	.6	60	100	
• 2N4022	.6	60	250	
• 2N4023	.6	45	250	
• 2N4024	.6	60	100	
• 2N4025	.6	60	250	
• 2N4026		80	100	150 •
• 2N4027		80		150 •
• 2N4028		80		150 •
• 2N4029		80		150 •
• 2N4030	.8	60	40	150 •
• 2N4031	.8	80	40	150 •
• 2N4032	.8	60	100	150 •
• 2N4033	.8	80	100	150 •

TYPE NO	DISS	V	GAIN	FREQ
NPN • PNP	(W)	V_{CE} V_{CB} •	MIN TYP •	f_{ae} kHz * f_{ab} MHz f_T MHz • f_{max} MHz ▲
• 2N4034	.36	40	70	
• 2N4035	.36	40	150	
• 2N4036	7	65	40	60 •
• 2N4037	7	40	50	60 •
2N4040	17.5	40	10	500 •
2N4041	10	40	10	600 •
2N4042		60	100	200 •
2N4043		45	80	150 •
2N4044		60	200	200 •
2N4045		45	80	150 •
2N4046	.8	30	40	250 •
2N4047	.8	50	40	250 •
2N4048	170	30	15	2 *
2N4049	170	45	15	2 *
2N4050	170	60	15	2 *
2N4051	170	30	15	2 *
2N4052	170	45	15	2 *
2N4053	170	60	15	2 *
2N4054		300	30	28 •
2N4055		250	30	28 •
2N4056		200	30	28 •
2N4057		150	30	28 •
• 2N4058			200	
• 2N4059			200	
• 2N4060			200	
• 2N4061			200	
• 2N4062			200	
2N4063	10	350	40	15 •
2N4064	10	250	40	15 •
2N4068		150		50 •
2N4069		150		50 •
2N4070	65	100	40	60 •
2N4071	65	150	40	60 •
2N4072	.35	20	10	550 •
2N4073	.35	20	10	550 •
2N4074	.5	40 •	75	
2N4075	30	80	30	30 •
2N4076	30	80	50	30 •
2N4077	7.5	20	50	1 •
• 2N4078	8	32	50	1 •
2N4079	4.5	20	50	1 •
2N4080	.2	15	20	1000
2N4099		55	150	150
2N4100		55	150	150
2N4104		60		60 •
2N4105	1.6	25 •	70	
• 2N4106	1.6	25 •	70	
2N4106	1.6	25 •	70	
2N4111	30	80		
2N4112	30	80		
2N4113	30	80		
2N4114				
2N4115	37	80		
2N4116				
• 2N4121		40	150	450 •
• 2N4122		40	150	450 •
2N4123	.31	30	50	250 •
2N4124	.31	25	120	300 •
2N4125	.31	30	50	200 •
2N4126	.31	25	120	250 •
2N4127	13.5	28		175
2N4128	24	28		175
2N4130	60	65		200
2N4131	120	80		250
2N4134		30		
2N4135		30		
2N4137	.36	20	40	500 •
2N4138	.6	15	50	
2N4140	.3	30	40	250 •
2N4141	.3	30	100	250 •
• 2N4142	.3	40	40	200 •
• 2N4143	.3	40	100	200 •
2N4150	5	80	40	
• 2N4207		6		700 •
• 2N4208		12		700 •
• 2N4209		15		700 •
2N4210	100	60	20	
2N4211	100	80	20	
2N4225	5	40	25	150
2N4226	5	60	20	150
2N4227	.3	30	75	250 •
• 2N4228	.3	40	75	200 •
2N4231	35	40	25	1 •
2N4232	35	60	25	1 •
2N4233	35	80	25	1 •
• 2N4234	6	40	30	4 •
• 2N4235	6	60	30	4 •
• 2N4236	6	80	30	4 •
2N4237	5	40	30	30 •
2N4238	5	60	30	30 •
2N4239	5	80	30	30 •

(continued)

Bipolar Transistor

TYPE NO NPN • PNP	DISS (W)	V V_{CE} V_{CB} •	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N4240	35	300	30	15 •
• 2N4241	37.5	32 •	30	5 *
• 2N4242		60	40	.5 •
• 2N4243		45	40	.5 •
• 2N4244		30	40	.5 •
• 2N4245		60	60	.5 •
2N4246		45	60	.5 •
• 2N4247		30	60	.5 •
• 2N4248	.2	40	50	
• 2N4249	.2	60	100	
2N4250	.2	40	250	
2N4250A	.2	60	250	
2N4251	1.3	10	100	
2N4252	.2			600 •
2N4253	.2			600 •
2N4254	.25	10	50	
2N4255	.25	10	30	
2N4256	.2	30	100	200 •
• 2N4257	.2	6	30	500 •
• 2N4258	.2	12	30	700 •
2N4259		40 •		750 •
2N4260	.2	15	30	1200 •
2N4261	.2	15	30	1500 •
2N4264	.31	15	40	300 •
2N4265	.31	12	100	300 •
2N4269	.36	140		
2N4270	.36	30	400	60 •
2N4271	.5	10	140 •	
2N4274	.2	12	18	400 •
2N4275	.2	15	18	400 •
• 2N4276	170	20	15	2 *
• 2N4277	170	20	15	2 *
• 2N4278	170	30	15	2 *
• 2N4279	170	30	15	2 *
• 2N4280	170	45	15	2 *
• 2N4281	170	45	15	2 *
• 2N4282	170	60	15	2 *
• 2N4283	170	60	15	2 *
• 2N4284	.25	25	35	
• 2N4285	.25	35	35	
2N4286	.25	25	150	
2N4287	.25	45	150	
• 2N4288	.25	25	150	
• 2N4289	.25	45	150	
• 2N4290	.25	20	50	
• 2N4291	.25	30	100	
2N4292	.25	15	20	
2N4293	.25	15	20	
2N4294	.2	12	30	
2N4295	.2	15	40	
2N4296	20	250	50	20 •
2N4297	20	250	75	20 •
2N4298	20	350	25	20 •
2N4299	20	350	50	20 •
• 2N4300	15		70	
2N4301	50		30	40 •
2N4305		80		
2N4306		80		
2N4307		60		
2N4308		60		
2N4309		80		
2N4310		80		
2N4311		60		
2N4312		60		
2N4313	.5	12	7	200 •
• 2N4314	7	65	50	•
2N4315	.6	25	175	•
• 2N4346	5	320 •		
2N4347	100	120	20	
2N4348	120	120	15	
• 2N4354	.35	60	25	500 •
• 2N4355	.35	60	60	500 •
• 2N4356	.35	80	25	500 •
• 2N4357	.4	240	100	40
• 2N4358	.7	240	100	40 •
• 2N4359	.36	45		200 •
2N4383	.8	30	100	
2N4384	.5	30	100	
2N4385	.8	30	40	
2N4386	.5	30	40	
• 2N4389	.2	12	180	400 •
2N4390	.5	120	20	50
2N4395	62.5	60	60	7 •
2N4396	75	40	15	1 •
2N4397		40 •		600 •
• 2N4398	200	40	15	4 •
• 2N4399	200	60	15	4 •
2N4400	.31	40	50	200 •
2N4401	.31	40	100	250 •
2N4402	.31	40	50	150 •
2N4403	.31	40	100	200 •

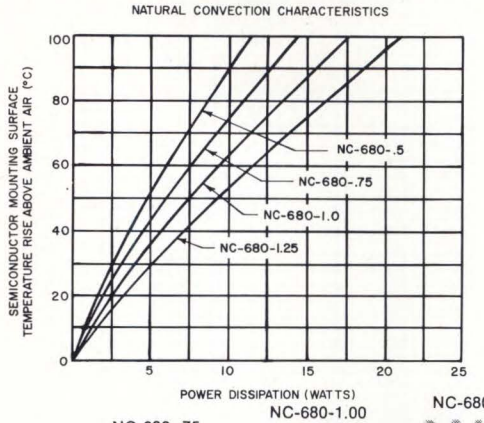
TYPE NO NPN • PNP	DISS (W)	V V_{CE} V_{CB} •	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N4404		80		
• 2N4405		80		
• 2N4406		80		
• 2N4407		80		
2N4409	.31	50	60	60 •
2N4410	.31	80	60	60 •
2N4411	.15	12	40	400 •
• 2N4412	.6	30	100	
• 2N4412A	.6	60	100	
• 2N4413	.4	30	100	
• 2N4413A	.4	60	100	
• 2N4414	.6	30	40	
• 2N4414A	.6	60	40	
• 2N4415	.4	30	40	
• 2N4415A	.4	60	40	
2N4418	.25	15		500 •
2N4419	.25	12		500 •
2N4420	.25	20		350 •
2N4421	.25	12		350 •
2N4422	.25	15		350 •
2N4423	.25	12		400 •
2N4424	.36	40	180	120 •
2N4425	.9	40	180	120 •
2N4426	.2	30	100	135 •
2N4427	3.5	20	100	175
2N4428	.75	28		500
2N4429	1	28		1000
2N4430	2.5	28		1000
2N4431	5	28		1000
2N4432	.6	15	160	250
2N4432A				
2N4433	165	50		200 •
2N4438	5.8	300	40	30 •
2N4439	5.8	300	100	30
2N4440	11.6	65		500
2N4449	.3	15	20	500 •
2N4450	.36	30	100	250 •
• 2N4451	.3	12	40	400 •
• 2N4452	.35	45	115	200 •
• 2N4453	.3	18	40	400 •
2N4862	4	120	50	
2N4863	4	120	50	
2N4864	16.6	120	50	
2N4865		80	10	
2N4866		120	10	
2N4872	.7	3	120 •	
2N4873	1.2	15	110	600 •
2N4874	6			900 •
2N4875	6			800 •
2N4876	6			650 •
2N4877	10		20	
2N4878		60	200	200
2N4879		55	150	150
2N4880		45	80	150
• 2N4888	.8	150	80	
2N4889	.8	150	80	
• 2N4890	1	40	50	100 •
2N4895	4	60	40	50 •
2N4896	4	60	100	50 •
2N4897	4	80	40	50 •
• 2N4898	25	40	20	3 •
• 2N4899	25	60	20	3 •
• 2N4900	25	80	20	3 •
• 2N4901	87.5	40	20	4 •
• 2N4902	87.5	60	20	4 •
• 2N4903	87.5	80	20	4 •
• 2N4904	87.5	40	25	4 •
• 2N4905	87.5	60	25	4 •
• 2N4906	87.5	80	25	4 •
• 2N4907	150	40	20	
• 2N4908	150	60	20	
• 2N4909	150	80	20	
2N4910	25	40	20	3 •
2N4911	25	60	20	3 •
2N4912	25	80	20	3 •
2N4913	87.5	40	25	4 •
2N4914	87.5	60	25	4 •
2N4915	87.5	80	25	4 •
• 2N4916	.5	30	150	450 •
• 2N4917	.5	30	150	450 •
• 2N4918	30	40	20	3 •
• 2N4919	30	60	20	3 •
• 2N4920	30	80	20	3 •
2N4921	30	40	20	3 •
2N4922	30	60	20	3 •
2N4923	30	80	20	3 •
2N4924	5	100 •		100 •
2N4925	5	150 •		100 •
2N4926	5	200 •		30 •
2N4927	5	250 •		30 •
• 2N4928	.6	100	25	100 •

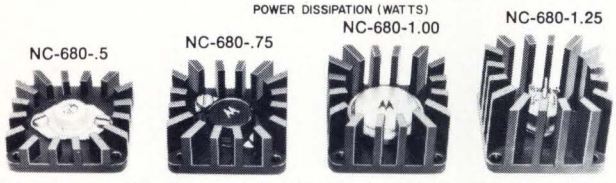
TYPE NO NPN • PNP	DISS (W)	V V_{CE} V_{CB} •	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N4929	1	150		100 •
• 2N4930	5	200	20	20 •
• 2N4931	5	250	20	20 •
2N4932	70	50		
2N4933	70	70		
2N4934		40 •		700 •
2N4935		50 •		700 •
2N4936		50 •		700 •
• 2N4937	.6	40	50	400 •
• 2N4938	.6	40	50	400 •
• 2N4939	.6	40	50	400 •
• 2N4940	.35	40	50	400 •
• 2N4941	.35	40	50	400 •
• 2N4942	.35	40	50	400 •
2N4943				
2N4944	.22	40	40	
2N4945	.22	60	40	
2N4946	.22	40	100	
2N4951	.36	30	60	
2N4952	.36	30	100	
2N4953	.36	30	200	
2N4954	.36	30	60	
2N4955	1.3	25	150	
2N4956	1.3	25	150	
• 2N4957	.2	30 •		1200 •
• 2N4958	.2	30 •		1000 •
• 2N4959	.2	30 •		1000 •
2N4960	.8	60	100	250 •
2N4961	.8	80	100	250 •
2N4962	.5	60	100	250 •
2N4963	.5	80	100	250 •
• 2N4964	.2	40		60 •
• 2N4965	.2	40	100	60 •
2N4966	.2	40	40	40 •
2N4967	.2	40	100	40 •
2N4968	.2	25	40	40 •
2N4969	.2	30	40	200 •
2N4970	.2	30	100	200 •
• 2N4971	.2	40	40	200 •
• 2N4972	.2	40	100	200 •
• 2N4974	2.5	30	30	
• 2N4975	2.5	30	15	
2N4976	5	30	20	1000 •
2N4994	.2	45		
2N4995	.2	45		
2N4996	.2	18		
2N4997	.2	18		
2N4998	35	80	30	60 •
2N4999	30	5	30	
2N5000	35	80	70	70 •
2N5001	30	5	70	
2N5002	58	80	30	60 •
2N5003	50	5	30	
2N5004	58	80	70	70 •
2N5005	50	5	70	
2N5006	116	80	30	
• 2N5007	100	80	30	30 •
2N5008	116	80	70	40 •
• 2N5009	100	80	70	40 •
2N5010	5	500	30	35 •
2N5011	5	600	30	35 •
2N5012	5	700	30	35 •
2N5013	5	800	30	35 •
2N5014	5	900	30	35 •
2N5015	5	1000	30	35 •
2N5016	30	65		700 •
2N5017	30	65		
2N5022	4	50	25	170 •
2N5023	4	30	40	200 •
2N5024				
2N5025	45	40	20	150 •
2N5026	45	50	20	150 •
2N5027	.32	30	50	250 •
2N5028	.32	30	100	250 •
2N5029	.32	15	40	
2N5030	.32	12	30	
2N5031	.2	10	25	1000
2N5032	.2	10	25	1000
2N5034	83	40	20	.8 •
2N5035	83	40	20	.8 •
2N5036	83	50	20	.8 •
2N5037	83	50	20	.8 •
2N5038	140	90	20	
2N5039	140	75	20	
2N5040	.8	25	30	80 •
2N5041	.8	40	40	100
2N5042	5	40	40	100 •
2N5043	30	15		1500 •
• 2N5044	30	15		1000 •
2N5048	100	50	15	
2N5049	100	100	15	

TYPE NO NPN • PNP	DISS (W)	V V_{CE} V_{CB} •	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N5050	40	120	25	
2N5051	40	150	25	
2N5052	40	200	25	
2N5053	.2	15	25	
2N5054	.2	15	25	
• 2N5055	.2	12	9 •	550 •
• 2N5056	1.2	15	30	800 •
• 2N5057	1.2	15	40	800 •
2N5058	1	300 •	35	
2N5059	1	250 •	35	
2N5065				
2N5066	.4	20	5	
2N5067	87.5	40	20	4 •
2N5068	87.5	60	20	4 •
2N5069	87.5	80	20	4 •
2N5070	70	65		
2N5071	70	65		
2N5074	70	200	30	40 •
2N5075	70	200	90	40 •
2N5076	70	250	30	40 •
2N5077	70	250	90	40 •
2N5079	1.8	30	100	
2N5080	1.8	30	100	
2N5083	35	60	40	50 •
2N5084	35	60	100	50 •
2N5085	35	80	40	50 •
• 2N5086	.3	50 •	150	40 •
• 2N5087	.3	50 •	250	40 •
2N5088	.3	35 •	300	50 •
2N5089	.3	30	400	50 •
2N5090	5	30		500 •
• 2N5091	5	300	20	
2N5092	5	350	15	
• 2N5093	5	350	20	
• 2N5094	5	400	20	
2N5095	5	400	15	
• 2N5096	5	450	20	
2N5097	5	450	15	
2N5098	5	500	15	
2N5099	5	550	15	
• 2N5101	10	400	15	50 •
2N5102	70	100		
2N5106	.8	10	100	900 ▲
2N5107	.36	10	100	900 ▲
2N5108	3.5	30		200 •
2N5108A	3.5	55		
2N5109		40 •		1200 •
2N5117		45	100	100 •
2N5118		45	100	100 •
2N5119		45	50	100 •
2N5120		45	100	100 •
2N5121		45	100	100 •
2N5122		45	50	100 •
2N5123		45	100	100 •
2N5124		45	100	100 •
2N5125		45	50	100 •
2N5126	.2	10	15	
2N5127	.2	10	12	
2N5128	.3	12	35	200 •
2N5129	.2	12	35	200 •
2N5130	.2	10	12	
2N5131	.2	1	25	
2N5132	.2	20	30	
2N5133	.2	18	60	40 •
2N5134				
2N5135	.3	25	50	40 •
2N5136	.3	20	20	40 •
2N5137	.22	20	20	40 •
• 2N5138	.2	30	50	30 •
2N5139	.2	10	45	
• 2N5140	.2	5	20	
• 2N5141	.2	6	12 •	300 •
• 2N5142	.3	20	30	
• 2N5143	.2	20	30	
2N5145	.8	30	30	300 •
2N5146				
2N5147	1	5	30	
2N5148	6	80	30	50 •
2N5149	1	5	70	
2N5150	6	80	70	60 •
2N5151	1	5	30	
2N5152	10	80	30	60 •
2N5153	1	1	2.5	
2N5154	10	80	70	70 •
• 2N5155		120	25	.1 •
• 2N5156		60	25	.15 •
2N5157	100	500	30	2.8 •
• 2N5160	5	60 •		900 •
2N5161	20	60 •		500 •
• 2N5162	20	60 •		500 •
2N5172	.2	25	100 •	120 •

(continued)

Proven: Your most efficient circuit board heat sink . . . .





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- Light resistance (at 10 Lx. 2850°K) ..... 5 ~ 10KΩ
- Dark resistance (after 5 sec.) ..... (Min.) 100MΩ
- Power dissipation (at 25°C): (Continuous) 50mW
  (Demand) 75mW
- Maximum voltage 150VDC
- Spectral peak response 7200Å
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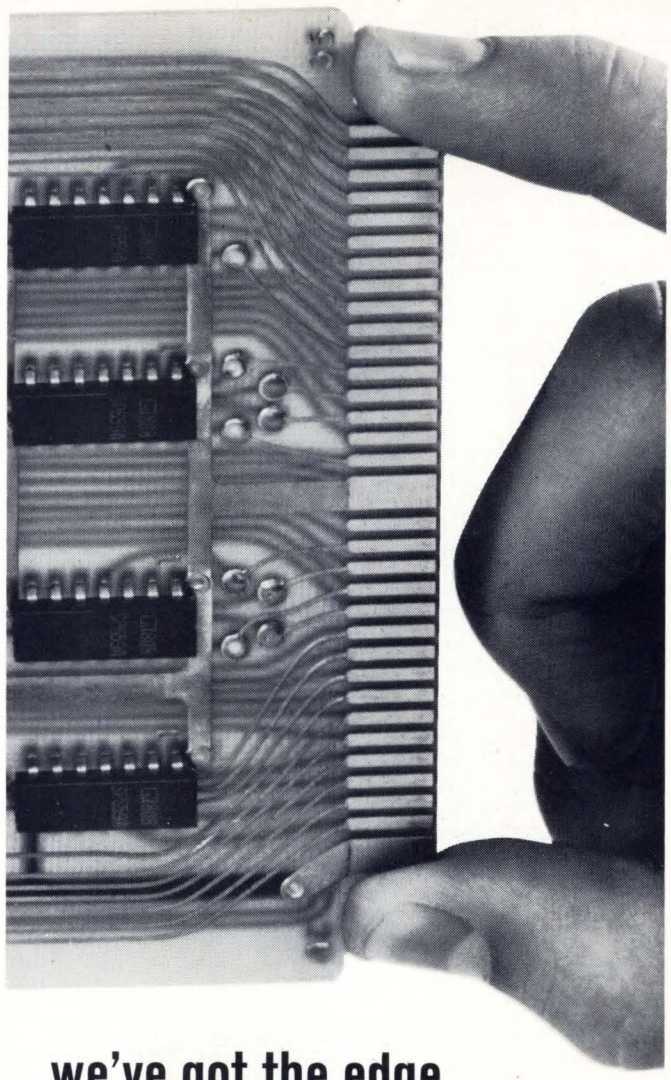

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CIRCLE NO. 46

TYPE NO	DISS	V	GAIN	FREQ
NPN / • PNP	(W)	V_{CE} / V_{CB} •	MIN / TYP •	f_{ae} * kHz / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N5174	.2	75	40	
2N5175	.2	100	55	
2N5176	.2	100	140	
2N5177	40	35	10	500
2N5178	70	35	10	500
2N5179		20 •		1000 •
2N5180		30 •		650 •
2N5181		45 •		700 •
2N5182		45 •		700 •
2N5183	2	18 •	40	125 •
2N5184		20 •	10	50 •
2N5185		120 •	10	50 •
2N5186		10 •	25	400 •
2N5187		25 •	30	400 •
2N5188		60 •		250 •
2N5189		60 •		250 •
2N5190	40	40	25	4 •
2N5191	40	60	25	4 •
2N5192	40	80	25	4 •
2N5193	40	40	25	4 •
• 2N5194	40	60	25	4 •
2N5195	40	80	25	4 •
2N5200	.3	20	45	900 •
2N5201	.3	20	65	1100 •
2N5202	35	120 •	10	60 •
• 2N5208	.31	30 •	20	300 •
2N5209	.3	50	100	30 •
2N5210	.3	50	200	30 •
2N5219	.31	20 •	35	150 •
2N5220	.31	15	30	100 •
• 2N5221	.31	15	30	100 •
2N5222	.31	20 •	20	450 •
2N5223	.31	20 •	50	150 •
2N5224	.31	12	40	
2N5225	.31	25 •	30	50 •
• 2N5226	.31	25	30	50 •
• 2N5227	.31	30 •	50	100 •
• 2N5228	.31	5	30	300 •
2N5232	.36	50	250	
2N5232A	.36	50	250	
2N5233	.33	60	100	
• 2N5236	.6	20	50	• 750 •
2N5239	100	225	20	5 •
2N5240	100	300	20	5 •
2N5241	125	400	15	2.5 •
2N5242	.5	20	50	250 •
2N5249	.33	50	400	
2N5250	200	100	15	10 •
2N5251	200	150	15	10 •
2N5252	1	300	40	
2N5253	1	300	80	
• 2N5254		60	50	
• 2N5255		40	150	
2N5262	1	75 •	20	250 •
2N5264	87	180	30	50 •
2N5276			30 •	
2N5279	5	300	50	50 •
2N5280	15	300	50	50 •
• 2N5281	5	150	30	20 •
• 2N5282	5	300	30	20 •
2N5284	50	100	20	60 •
2N5285	50	100	40	70 •
• 2N5286	50	100	20	60 •
• 2N5287	50	100	40	70 •
2N5288	100	100	20	30 •
2N5289	100	100	45	40 •
• 2N5290	100	100	20	30 •
• 2N5291	100	100	45	40 •
• 2N5292	.36	12	40	800 •
2N5293	36	70	30	.8 •
2N5294	36	70	30	.8 •
2N5295	36	40	30	.8 •
2N5296	36	40	30	.8 •
2N5297	36	60	20	.8 •
2N5298	36	60	20	.8 •
• 2N5301	200	40	15	2 •
• 2N5302	200	60	15	2 •
• 2N5303	200	80	15	4 •
2N5305	.4	25	2000	60 •
2N5306	.4	25	7000	60 •
2N5307	.4	40	2000	60 •
2N5308	.4	40	7000	60 •
• 2N5312	50	80	30	
2N5313	50	80	30	
• 2N5314	50	100	30	
2N5315	50	100	30	
• 2N5316	50	80	30	
2N5317	50	80	30	
2N5318	50	100	30	
2N5319	50	100	30	
2N5320	10	75	30	50 •

TYPE NO	DISS	V	GAIN	FREQ
NPN / • PNP	(W)	V_{CE} / V_{CB} •	MIN / TYP •	f_{ae} * kHz / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N5321	10	50	40	50 •
• 2N5322	10	75	30	50 •
• 2N5323	10	50	40	50 •
2N5324	56	150	20	3 •
• 2N5324	56	150	20	6 •
2N5325	56	200	20	3 •
• 2N5325	56	200	20	6 •
2N5327	5	80	50	100 •
2N5329	65	90	40	80 •
2N5331	100	90	40	80 •
2N5332			20	
• 2N5333	15	80	30	
2N5334	6	60	30	60 •
2N5335	6	80	30	60 •
2N5336	6	80	30	30 •
2N5337	6	80	60	30 •
2N5338	6	100	30	30 •
2N5339	6	100	60	30 •
• 2N5344	40	250	25	60 •
• 2N5345	40	300	25	60 •
2N5346	60	80	30	30 •
2N5347	60	80	60	30 •
2N5348	60	100	30	30 •
2N5349	60	100	60	30 •
• 2N5357	30	300	25	50 •
2N5368	.36	30	60	250 •
2N5369	.36	30	100	250 •
2N5370	.36	30	200	250 •
2N5371	.36	30	60	250 •
• 2N5372	.36	30	40	150 •
• 2N5373	.36	30	100	150 •
• 2N5374	.36	30	200	150 •
• 2N5375	.36	30	40	150 •
2N5376	.36	30	100	30
2N5377	.36	30	40	30 •
2N5378	.36	30	100	20 •
2N5379	.36	30	40	20 •
2N5380	.36	40	50	250 •
2N5381	.36	40	100	300 •
• 2N5382	.36	40	50	200 •
• 2N5383	.36	40	100	250 •
• 2N5384	30	80	20	
• 2N5385	30		20	
• 2N5386	50			
2N5387	100	200	25	
2N5388	100	250	25	
2N5389	100	300	25	
• 2N5390	15	80	2000	
2N5399			30	
• 2N5400	.3	120	40	100 •
• 2N5401	.3	130	60	100 •
• 2N5404		80		
• 2N5405		100		
• 2N5406		80		
• 2N5407		100		
• 2N5408		80		
• 2N5409		100		
• 2N5410		80		
• 2N5411		100		
2N5412	100	60	40	60 •
2N5413	1	40		250 •
2N5414	1	50		250 •
• 2N5415	10	300	30	15 •
• 2N5416	10	200	30	15 •
2N5425	33	60	500	50 •
2N5426		60	1000	50 •
2N5427	40	80	30	30 •
2N5428	40	80	60	30 •
2N5429	40	100	30	30 •
2N5430	40	100	60	30 •
• 2N5435	120	60	10	1 •
• 2N5436	120	90	10	1 •
• 2N5437	120	120	10	1 •
• 2N5438	120	60	15	1 •
• 2N5439	120	90	15	1 •
• 2N5440	120	120	15	1 •
• 2N5447	.4	25		
• 2N5448	.4	30		
2N5449	.4	30		
2N5450	.4	30		
2N5451	.4	20		
• 2N5455	.34	15	30	450 •
• 2N5456	.34	25	30	450 •
2N5466	70	400	15	
2N5467	70	400	15	
2N5470	4	55		2000 ▲
2N5477	60	80	30	30 •
2N5478	60	80	60	30 •
2N5479	60	100	30	30 •
2N5480	60	100	60	30 •
2N5481	5	30		

TYPE NO	DISS	V	GAIN	FREQ
NPN / • PNP	(W)	V_{CE} / V_{CB} •	MIN / TYP •	f_{ae} * kHz / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N5482	10	30		
2N5483	20	30		
2N5487	10	80	100	40 •
2N5488	10	100	40	40 •
2N5489	300	100	15	500 *
2N5490	50	50	20	.8 •
2N5491	50	50	20	.8 •
2N5492	50	65	20	.8 •
2N5493	50	65	20	.8 •
2N5494	50	50	20	.8 •
2N5495	50	50	20	.8 •
2N5496	50	80	20	.8 •
2N5497	50	80	20	.8 •
2N5550	.3	140	30	50 •
2N5551	.3	160	60	100 •
2N5552	10	80	50	30 •
2N5575	300	50	10	400 *
2N5576	300	50	10	400 *
2N5577	300	50	10	400 *
2N5578	300	70	10	400 *
2N5579	300	70	10	400 *
2N5580	300	70	10	400 *
2N5581	.5	40	40	250 •
2N5582	.5	40	100	300 •
• 2N5583	.6		25	1300 •
2N5589	15	36 •		
2N5590	30	36 •		
2N5591	70	36 •		
• 2N5597	20	60	70	
2N5598	20	60	70	
• 2N5599	20	80	30	
2N5600	20	80	30	
• 2N5601	20	80	70	
2N5602	20	80	70	
• 2N5603	20	100	30	
2N5604	20	100	30	
• 2N5605	25	60	70	
2N5606	25	60	70	
• 2N5607	25	80	30	
2N5608	25	80	30	
• 2N5609	25	80	70	
2N5610	25	80	70	
• 2N5611	25	100	30	
2N5612	25	100	30	
• 2N5613	50	60	70	
2N5614	50	60	70	
• 2N5615	50	80	30	
2N5616	50	80	30	
• 2N5617	50	80	70	
2N5618	50	80	70	
• 2N5619	50	100	30	
2N5620	50	100	30	
• 2N5621	100	60	70	
2N5622	100	60	70	
• 2N5623	100	80	30	
2N5624	100	80	30	
• 2N5625	100	80	70	
2N5626	100	80	70	
• 2N5627	100	100	30	
2N5628	100	100	30	
2N5629	200	90	25	1 •
2N5630	200	120	20	1 •
2N5631	200	120	15	1 •
2N5632	150	90	25	1 •
2N5633	150	120	20	1 •
2N5634	150	120	15	1 •
2N5635	7.5	60 •		
2N5636	15	60 •		
2N5637	30	60 •		
2N5641	15	65 •		
2N5642	30	65 •		
2N5643	60	65 •		
2N5644	3.5	36 •		400 •
2N5645	12	36 •		
2N5646	30	36 •		
2N5651	.15	15	30	
2N5652	.15	15	30	
2N5655	20	250	30	10 •
2N5656	20	300	30	10 •
2N5657	20	350	30	10 •
2N5658	30	800	40	
2N5659	30	800	40	
2N5660	20	200	40	
2N5661	20	325	40	
2N5662	15	200	40	
2N5663	15	325	40	
2N5664	30	200	40	
2N5665	30	300	40	
2N5666	15	200	40	
2N5667	15	300	40	
2N5671	140	90	20	

TYPE NO	DISS	V	GAIN	FREQ
NPN / • PNP	(W)	V_{CE} / V_{CB} •	MIN / TYP •	f_{ae} * kHz / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N5672	140	120	20	
• 2N5679	1	100	40	
• 2N5679A	10	100	40	10 •
• 2N5680	1	100	40	
• 2N5680A	10	120	40	10 •
2N5681	1	100	40	
2N5681A	10	100	40	30 •
2N5682A	10	120	40	30 •
2N5682	1	120	40	
• 2N5683	300	60	15	2 •
• 2N5684	300	80	15	2 •
2N5685	300	80	15	2 •
2N5686	300	60	15	2 •
• 2N5692	120	30	20	.2 •
• 2N5693	120	60	20	.2 •
• 2N5694	120	80	20	.2 •
• 2N5695	120	100	20	.2 •
• 2N5696	120	120	20	.2 •
2N5707	70	50		
2N5708	100	50		
2N5709	140	50		
2N5710	3.5	20		
2N5711	10	36		
2N5712	25	40		
2N5713	45	40		
2N5714	70	40		
2N5715	6	30	20	
2N5729	10	80	30	
2N5730	45	80	30	
2N5731	75	80	30	
2N5732	75	80	30	
2N5733	150	80	30	
2N5734	150	80	30	
• 2N5737	50	60	20	
• 2N5738	50	100	20	
• 2N5739	20	60	20	
2N5740	20	100	20	
• 2N5741	65	60	20	
• 2N5742	65	100	20	
• 2N5743	25	60	20	
• 2N5744	25	60	20	
2N5764	10	35		
2N5765	18	35		
2N5766	5	30		
2N5767	10	30		
2N5768	20	30		
2N5769				
• 2N5781	10	80	20	
• 2N5782	10	65	20	
• 2N5783	10	45	20	
2N5784	10	80	20	
2N5785	10	65	20	
2N5786	10	45	20	
2N5804	62	300	10	
2N5805	62	375	10	
2N5810	.5	25	60	100 •
• 2N5811	.5	25	60	100 •
2N5812	.5	25	150	135 •
• 2N5813	.5	25	150	135 •
2N5814	.5	40	60	100 •
• 2N5815	.5	40	60	100 •
2N5816	.5	40	100	120 •
2N5818	.5	40	150	135 •
• 2N5819	.5	40	150	135 •
2N5820	.5	60	60	100 •
• 2N5821	.5	60	60	100 •
2N5822	.5	60	100	120 •
• 2N5823	.5	60	100	120 •
2N5824	.36	40	60	90 •
2N5825	.36	40	100	90 •
2N5826	.36	40	150	90 •
2N5827	.36	40	250	90 •
2N5828	.36	40	400	90 •
2N5838	57	275	8	
2N5839	57	300	10	
2N5840	57	375	10	
2N5926	350	120	10	1 •

BIPOLAR TRANSISTOR CROSS REFERENCE

This computerized cross reference is designed to provide four important characteristics of transistors. With VOLTAGE listed as the prime characteristic, three more follow in ascending order. These are power, gain and frequency.

If, for example, a V_{CEO} of 30V is needed, go to the 30V section and in that grouping also find ascending POWER, followed by ascending GAIN and in a similar manner find FREQUENCY.

VOLTAGE

TYPE NO NPN ● PNP	V_{CE} ● V_{CB} ●	DISS (W)	GAIN MIN TYP ●	FREQ $f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T ● MHz f_{max} ▲ MHz
1				
2N164		.065		
2N5131		.2	25	
2N3569		.3	100	60 ●
2N5153		1	2.5	
2N3676		9	12	1 ●
3				
2N981		.5	36	
2N4872		.7	120 ●	
4				
● 2N231	●	.009	19	20 ●
5				
● 2N346		.02	10	75 ▲
● 2N345		.02	66 ●	50 ▲
● 2N1411		.025	30	70 ●
2N2931		.05	30	
2N2933		.05	45	
2N2932		.05	70	
● 2N2332		.15		
● 2N2333		.15		
● 2N272	●	.15	120 ●	.5
● 2N5140		.2	20	
● 2N2002		.25		
● 2N2003		.25		
● 2N5228		.31	30	300 ●
2N5147		1	30	
2N5151		1	30	
2N5149		1	70	
● 2N1046A		30	20	20 ●
2N4999		30	30	
2N5001		30	70	
2N5003		50	30	
2N5005		50	70	
● 2N2728		170	40	4.5 *
6				
● 2N4006				20
● 2N4207				700 ●
2N709A			30	
● 2N240		.025	16	25 ●
2N170	●	.025	20 ●	2.5
● 2N1427		.025	20	100 ●
● 2N2451		.025	25	
2N166	●	.025	32 ●	2
● 2N393		.025	40	
2N1249	●	.03	10	
2N1247		.03	15	5
2N1248		.03	15	5
● 2N1429		.1	12	16 ●
● 2N2177		.1	15	8
● 2N2178		.1	15	8
● 2N317		.1	20	20
● 2N2175		.1	30	10
● 2N2176		.1	30	10
● 2N864		.15	20	22 ●
● 2N3449		.15	20	300 ●
● 2N865		.15	45	52 ●
● 2N5141		.2	12 ●	300 ●
● 2N3639		.2	30	500 ●
● 2N4257		.2	30	500 ●
● 2N1318		.2	85 ●	10
● 2N523		.2	200 ●	25
● 2N1642		.25	15	1.2
● 2N3304		.3	20	600 ●
2N709		.3	20	800
2N3010		.3	25	800 ●
2N2475		.3	50 ●	
2N2784		.3	120 ●	1000 ●

TYPE NO NPN ● PNP	V_{CE} ● V_{CB} ●	DISS (W)	GAIN MIN TYP ●	FREQ $f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T ● MHz f_{max} ▲ MHz
● 2N2280		.4		16
● 2N3058		.4	40	10
● 2N3059		.4	100	10
● 2N2912		75	75	20 ●
7				
● 2N769		.035	25	900 ●
● 2N3322		.075	30	900 ●
● 2N3321		.075	100	900 ●
● 2N2258		.15	20	320 ●
● 2N971		.15	20	320 ●
● 2N711A		.15	25	150 ●
● 2N2400		.15	30	150 ●
● 2N711B		.15	30	150 ●
● 2N2860		.15	40	
● 2N2259		.15	40	320 ●
● 2N975		.15	40	320 ●
2N797		.15	40	1000 ●
2N2256		.3	20	320 ●
2N2257		.3	40	320 ●
● 2N985		.3	60	300 ●
2N3082		.5	100	100 ●
2N3083		.5	100	100 ●
2N2356		.6		
2N2356A		.6		
8				
● 2N1345		.15	60 ●	10
● 2N522		.2	120 ●	18
2N3343		.25	20	2 ●
● 2N1917		.25	25	10
● 2N1918		.25	25	10
● 2N941		.25	25	10
● 2N942		.25	25	10
● 2N3342		.25	30	
2N3493		.25	80	400 ●
9				
2N1086		.065	17	8
2N1086A		.065	17	8
2N1087		.065	17	8
● 2N219		.08	75	10
● 2N661		.21	80	20
10				
2N5186	●		25	400 ●
2N1010		.02	35 ●	2
● 2N175	●	.02	65 ●	.85
● 2N220	●	.02	65 ●	.85
● 2N128	●	.025	19	45 ▲
● 2N129		.03	10	30
● 2N768		.035	25	175 ●
● 2N1786		.045	15	125 ▲
● 2N1785		.045	40	125 ▲
2N211		.05	5	3
2N124	●	.05	18 ●	.3
2N126	●	.05	20 ●	5
2N125	●	.05	36 ●	5
● 2N2487		.06	20	360 ●
● 2N2488		.06	20	360 ●
● 2N984		.06	70 ●	350 ●
● 2N2200		.075		120 ●
● 2N2416		.075	8	500 ●
● 2N2415		.075	10	560 ●
● 2N2999		.075	10	1400 ●
● 2N2199		.075	20	120 ●
● 2N2996		.075	25	400 ●
● 2N3320		.075	50	900 ●
● 2N1266		.08	48 ●	1
● 2N316		.1	20	12
● 2N137	●	.1	60 ●	10
● 2N976		.1	80 ●	900 ●

TYPE NO NPN ● PNP	V_{CE} ● V_{CB} ●	DISS (W)	GAIN MIN TYP ●	FREQ $f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T ● MHz f_{max} ▲ MHz
● 2N3317		.15	1.6 ●	6.4 ●
● 2N3318		.15	1.9 ●	7.6 ●
2N233		.15	10	2
2N496		.15	15	
● 2N2968		.15	15	10
● 2N2969		.15	15	10
● 2N1119		.15	15	20 ●
● 2N2378		.15	15	20 ●
● 2N317A		.15	20	20
● 2N963		.15	20	300 ●
● 2N967		.15	40	300 ●
● 2N302	●	.15	45 ●	7
2N1269	●	.15	50 ●	
2N596		.15	50	5
● 2N2401		.15	50	200 ●
● 2N3216		.15	60	
● 2N1344		.15	90 ●	7
● 2N1346		.15	125 ●	10
● 2N3371		.15	160	400 ●
● 2N426		.17	30	6
● 2N417		.17	140 ●	20
2N229		.18	25	.6
2N5127		.2	12	
2N5130		.2	12	
2N5126		.2	15	
2N2810		.2	20	1000 ▲
2N2810A		.2	20	1300 ▲
2N2808A		.2	20	1500 ●
2N5031		.2	25	1000
2N5032		.2	25	1000
2N5139		.2	45	
● 2N1353		.2	70 ●	1.5
● 2N1028		.25	9	6
● 2N1641		.25	10	.8
2N4255		.25	30	
2N4254		.25	50	
● 2N2929		.3	10	800 ●
2N988		.3	20	300 ●
2N989		.3	20	300 ●
● 2N2630		.3	25	300
2N3510		.36	25	
2N5107		.36	100	900 ▲
● 2N3217		.4		10 ●
● 2N2276		.4	10	6
2N3647		.4	25	
● 2N2944A		.4	100	
● 2N2944		.4	200 ●	15 ●
2N4271		.5	140 ●	
2N3299		.8	40	400 ●
2N5106		.8	100	900 ▲
2N4251		1.3	100	
2N1901		125	20	50 ●
12				
● 2N4208				700 ●
● 2N2894A				800 ●
● 2N1122	●	.025	25	
● 2N139		.035		13
● 2N107	●	.05	19 ●	1
● 2N501		.06	20	90 ●
● 2N1500		.06	20	120 ●
● 2N501A		.06	30	120 ●
2N1752	●	.06	50	50 ▲
● 2N499A		.06	50 ●	170 ●
● 2N2998		.075	15	600 ●
● 2N2796		.075	30	300 ●
● 2N207		.085	100	2
● 2N207A		.085	100	2
● 2N207B		.085	100	2
2N1366	●	.1	10 ●	2.5

TYPE NO NPN ● PNP	V_{CE} ● V_{CB} ●	DISS (W)	GAIN MIN TYP ●	FREQ $f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T ● MHz f_{max} ▲ MHz
2N1367	●	.1	20	2.5
2N358A		.1	20	9
● 2N794		.12	30	25 ●
● 2N795		.12	30	35 ●
● 2N796		.12	50	50 ●
● 2N616		.125	25 ●	9
● 2N2164		.15		
● 2N2167		.15		
● 2N3786		.15	15	700 ●
● 2N1646		.15	20	
● 2N782		.15	20	
● 2N969		.15	20	320 ●
● 2N970		.15	20	320 ●
● 2N961		.15	20	460 ●
● 2N962		.15	20	460 ●
2N2482		.15	25	600 ●
● 2N1300		.15	30	
● 2N1301		.15	30	
● 2N450		.15	30	10
● 2N973		.15	40	320 ●
● 2N974		.15	40	320 ●
2N4411		.15	40	400 ●
● 2N965		.15	40	460 ●
● 2N966		.15	40	460 ●
● 2N481	●	.15	50 ●	3
● 2N482	●	.15	50 ●	3.5
● 2N485	●	.15	50 ●	7.5
● 2N1683		.15	50	80 ●
2N955	●	.15	50 ●	1000 ●
2N955A	●	.15	50 ●	1000 ●
● 2N483	●	.15	60 ●	5.5
● 2N2402		.15	60	250 ●
● 2N1347		.15	80 ●	5
2N447A		.15	80	9
● 2N415	●	.15	80 ●	10
● 2N484	●	.15	90 ●	10
● 2N486	●	.15	100 ●	12
● 2N1171		.17	30	10
● 2N428		.17	60	17
● 2N416		.17	80 ●	10
● 2N5055		.2	9 ●	550 ●
2N4274		.2	18	400 ●
2N3985		.2	20	300 ●
2N3984		.2	20	400 ●
2N3563		.2	20	600 ●
2N3662		.2	20	1000 ●
2N3663		.2	20	1000 ●
2N3953		.2	30	
2N4294		.2	30	
● 2N3640		.2	30	500 ●
2N3983		.2	30	500 ●
● 2N4258		.2	30	700 ●
2N5129		.2	35	200 ●
● 2N1705		.2	70	4
● 2N1317		.2	95 ●	10
● 2N1471	●	.2	160 ●	5
● 2N4389		.2	180	400 ●
2N4421		.25		350 ●
2N4423		.25		400 ●
2N4419		.25		500 ●
● 2N1380		.25	30	2
● 2N1378		.25	95	3
● 2N711		.3	20	300
2N851		.3	20	300 ●
2N743		.3	20	400 ●
2N5128		.3	35	200 ●
2N852		.3	40	300 ●
● 2N4451		.3	40	400 ●
2N744		.3	40	400 ●

(continued)

VOLTAGE

TYPE NO NPN / • PNP	V_{CE} / V_{CB} •	DISS (W)	GAIN MIN / TYP •	FREQ f_{ae} kHz * / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N5224		.31	40	
2N4265		.31	100	300 •
2N5030		.32	30	
• 2N3012		.36	30	550 •
2N3011		.36	30	650 •
• 2N996		.36	35	230 •
2N2831		.36	40	
• 2N2894		.36	40	550 •
• 2N5292		.36	40	800 •
• 2N3248		.36	50	250 •
• 2N3249		.36	100	300 •
2N3959		.4	40	1000 •
2N3960		.4	40	1300 •
2N4313		.5	7	200 •
2N1682		.5	20	200 •
2N3426		.6	30	200 •
2N253	•	.65	30	
• 2N3546		1.2	75	700 •
2N3303		3	30	500 •
13				
• 2N1754	•	.05	20	75 •
• 2N409	•	.08	48 •	6.8
• 2N410	•	.08	48 •	6.8
• 2N411	•	.08	75 •	10
• 2N412	•	.08	75 •	10
• 2N2928		.15	8	400
• 2N934	•	.15	40 •	35
2N2865		.2	20	600 •
2N3572		.2	20	1000 •
2N3865		.3	110	600 •
2N3881		.3	110	600
2N2938		1	30	690 •
14				
• 2N1122A		.025	25	
• 2N578		.12	10	5
• 2N579		.12	20	8
• 2N580		.12	30	15
• 2N582		.12	40	14
• 2N584		.12	40	14
2N3605		.2	30	300 •
2N3606		.2	30	300 •
2N3607		.2	30	300 •
• 2N662		.21	30	8
• 2N660		.21	60	15
• 2N2541		.215	60	10 •
• 2N255		25	30 •	
15				
• 2N4007				15
• 2N4209				700 •
2N3425			12	300 •
2N744A			40	
2N743A			50	
2N3633	•		50	1300 •
• 2N588	•	.03		250 ▲
• 2N1787		.045	20	125 ▲
• 2N469A		.05	75 •	1.8
• 2N2489		.06	20	300 •
• 2N2170		.06	20	350 •
• 2N846A		.06	20	450 •
• 2N979		.06	30	100 •
• 2N2169		.06	40	450 •
• 2N983		.06	40	450 •
• 2N2168		.06	50	450 •
• 2N779A		.06	50	450 •
• 2N982		.06	50	450 •
2N292		.065	8	5
2N448		.065	8	5
2N293		.065	8	8
2N168A		.065	23	8
2N1121		.065	34 •	8
2N169		.065	34	8
2N449		.065	34	8
2N164A		.065	40 •	8
2N78		.065	45	9
2N165		.065	72 •	5
• 2N3267		.075		900 •
• 2N695		.075	25	250 •
• 2N2799		.075	30	120 •
• 2N2997		.075	40	400 •
• 2N2795		.075	50	450 •
• 2N581		.08	20	8
• 2N583		.08	20	8
• 2N3281		.1	10	400 •
• 2N3282		.1	10	400 •
• 2N315		.1	15	5
2N357		.1	20	6
• 2N2273		.1	20	200 •
• 2N106	•	.1	45 •	.8

TYPE NO NPN / • PNP	V_{CE} / V_{CB} •	DISS (W)	GAIN MIN / TYP •	FREQ f_{ae} kHz * / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
• 2N64		.1	45 •	.8
2N558		.1	75 •	
2N1091		.12	40	10
• 2N614		.125	4.5 •	3
• 2N615		.125	7.5 •	5
• 2N617	•	.125	15 •	7.5
• 2N2163		.15		
• 2N2166		.15		
• 2N2334		.15		
• 2N2335		.15		
• 2N521	•	.15	7 •	
2N1586	•	.15	9	4
• 2N862		.15	12	14 •
• 2N2372		.15	15	
2N444	•	.15	15 •	.5
2N634		.15	15	8
• 2N529	•	.15	18 •	2.5
• 2N2373		.15	20	
• 2N316A		.15	20	12
• 2N968		.15	20	320 •
• 2N741		.15	20	360 •
• 2N960		.15	20	460 •
• 2N530	•	.15	23 •	3
2N559		.15	25	
• 2N781		.15	25	
2N1589	•	.15	25	6
2N358A		.15	25	9
2N635		.15	25	12
• 2N863		.15	25	22 •
• 2N705A		.15	25	300
• 2N828		.15	25	400 •
• 2N828A	•	.15	25	400 •
• 2N531	•	.15	28 •	3.5
• 2N1273		.15	30	
2N5651		.15	30	
2N5652		.15	30	
• 2N414A		.15	30	5.5
• 2N123		.15	30	8
2N1417		.15	30	34 •
• 2N2943		.15	30	120 •
2N3131		.15	30	250 •
2N2885		.15	30	300 •
2N445	•	.15	35 •	2
2N595		.15	35	3
• 2N1115		.15	35	5
2N636		.15	35	17
• 2N533	•	.15	38 •	4.5
2N440		.15	40	10
• 2N972		.15	40	320 •
• 2N964		.15	40	460 •
• 2N964A		.15	40	460 •
• 2N2635		.15	45	280
• 2N311		.15	50 •	
• 2N312	•	.15	50 •	
• 2N1969		.15	50	10
• 2N2455		.15	52 •	820 •
• 2N2456		.15	52 •	1000 •
2N446	•	.15	60 •	5
2N446A		.15	60	5
2N1592	•	.15	70	7
2N1251		.15	70	7.5 *
• 2N829	•	.15	80	400 •
2N447	•	.15	125 •	9
2N636A		.15	190 •	17
• 2N427		.17	40	11
• 2N414		.17	80 •	8
• 2N467		.17	112	2.7
2N1101		.18	30	.01
2N2354		.18	50	
2N1059		.18	50	10 *
2N306		.18	75 •	.6
• 2N1681		.18	75 •	5
• 2N1431		.18	75	10 *
• 2N1313		.18	83	8
2N3478		.2	9	900 •
2N470		.2	10	30
2N3289		.2	10	500 •
2N3290		.2	10	500 •
• 2N2370		.2	15	
2N4275		.2	18	400 •
• 2N2371		.2	20	
2N3683		.2	20	
2N473		.2	20	30
2N3564		.2	20	400 •
2N917		.2	20	800 •
2N3600		.2	20	900 •
2N918		.2	20	900 •
2N3570		.2	20	1000 •
2N3571		.2	20	1000 •

TYPE NO NPN / • PNP	V_{CE} / V_{CB} •	DISS (W)	GAIN MIN / TYP •	FREQ f_{ae} kHz * / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N4080		.2	20	1000
2N2809		.2	20	1300 ▲
2N2809A		.2	20	1300 ▲
2N5053		.2	25	
2N5054		.2	25	
2N3880		.2	30	
2N3646		.2	30	350 •
2N4260		.2	30	1200 •
2N4261		.2	30	1500 •
2N4295		.2	40	
2N440A		.2	40	10
2N478		.2	40	39
2N476	•	.2	45 •	
• 2N994	•	.2	45	
• 2N1354		.2	70 •	3
2N541		.2	80	39 •
• 2N1357		.2	85 •	10
• 2N1316		.2	100 •	10
• 2N1204A		.2	725 •	200 •
• 2N2173		.24	30	
• 2N2004		.25		
• 2N2005		.25		
2N4422		.25		350 •
2N4418		.25		500 •
2N3825		.25	5	
• 2N2474		.25	8 •	
• 2N1024		.25	9	1
• 2N1204		.25	15	400 •
• 2N1027		.25	18	4
2N4292		.25	20	
2N4293		.25	20	
2N3153		.3		
• 2N2095		.3		1000 •
2N3423		.3	20	
2N3424		.3	20	
• 2N3443		.3	20 •	
2N728		.3	20	150
2N849		.3	20	200 •
2N4449		.3	20	500 •
2N2616		.3	20	600 •
• 2N2729		.3	20	600 •
2N2615		.3	20	800 •
• 2N705		.3	25	300
• 2N710		.3	25	300
2N2432		.3	30	20 •
• 2N3883		.3	30	300 •
2N850		.3	40	200 •
• 2N2381		.3	40	300
2N2569		.3	100 •	100 •
2N2570		.3	100 •	100 •
2N5220		.31	30	100 •
• 2N5221		.31	30	100 •
2N4264		.31	40	300 •
2N5029		.32	40	
• 2N5455		.34	30	450 •
• 2N2964		.35		
2N2965		.35		
2N919		.36	20	400 •
2N2368		.36	20	550 •
2N3511		.36	30	
2N947		.36	30	300 •
2N3013		.36	30	350 •
2N914		.36	30	370 •
2N708		.36	30	400
2N3009		.36	30	550 •
• 2N995		.36	35	200 •
• 2N2656		.36	40	250 •
2N2481		.36	40	300 •
2N920		.36	40	400 •
2N2369		.36	40	650 •
2N2369A		.36	40	675 •
• 2N2278		.4		7.6
• 2N1228		.4	14	1.2
• 2N1494		.4	15	400 •
2N1963		.4	25	200 •
• 2N1229		.4	28	1.2
2N3648		.4	30	
• 2N3977	•	.4	40	1
• 2N1443		.4	50	1
• 2N1494A		.4	725 •	200 •
2N1139		.5	40 •	15
2N4138		.6	50	
2N4432		.6	160	250
2N3310		1	10	300 •
• 2N1238		1	14	1.2
2N3833		1	20 •	1000 •
2N3835		1	20	1000 •
• 2N1239		1	28	1.2
2N1708A		1	30	100

TYPE NO NPN / • PNP	V_{CE} / V_{CB} •	DISS (W)	GAIN MIN / TYP •	FREQ f_{ae} kHz * / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N3210		1.2	30	300 •
• 2N5056		1.2	30	800 •
• 2N3576		1.2	40	400 •
• 2N5057		1.2	40	800 •
2N3211		1.2	50	350 •
2N4873		1.2	110	600 •
• 2N1940		3.5	14 •	70
• 2N255A		20	30 •	.125
• 2N5044		30		1000 •
2N5043		30		1500 •
• 2N155		50	24	.18
• 2N2061A		90	20	5 *
• 2N2062A		90	50	1 *
16				
• 2N252		.03		
• 2N1109	•	.03		30
• 2N1108	•	.03		35
• 2N1110	•	.03		35
• 2N1107	•	.03		40
• 2N218	•	.035		4.7
2N172	•	.065		
• 2N140	•	.08	75	10
• 2N1145		.14	25	
• 2N1144		.14	34	
• 2N1343		.15	40 •	4
• 2N532	•	.15	40 •	4
• 2N281		.165	70 •	.35
• 2N1280	•	.2	60 •	5
• 2N1282	•	.2	100 •	10
• 2N659		.21	40	10
• 2N554	•	10	50 •	6 *
• 2N1314		125	20	4.5 *
18				
2N499		.03	6	200 •
2N515		.05	7.5 •	.3
2N216		.05	7.5 •	3
2N516		.05	7.5 •	3
2N517		.05	7.5 •	3
2N194		.05	8 •	3
2N356		.1	20	3
2N649		.1	65 •	
2N1169		.12	20	7
2N1090		.12	30	
2N193		.15	4	3
2N194A		.15	5	3
2N233A		.15	10	2
• 2N1058		.15	10	4
2N212		.15	10	4
• 2N413A		.15	20	3.5
• 2N1853	•	.15	30	
• 2N405		.15	30	.65
• 2N406		.15	35 •	.65
2N445A		.15	40	2
• 2N1854	•	.15	40	40 •
2N1993		.15	50	3
• 2N407		.15	65 •	
• 2N408		.15	65 •	
• 2N1128		.15	70	1.25
• 2N2957		.15	100	400 •
• 2N413	•	.17	30 •	2.5
• 2N362		.17	90 •	2
• 2N359		.17	100	3.5
• 2N631		.17	200 •	3.5
2N4996		.2		
2N4997		.2		
2N3407		.2	10 •	300
• 2N1098		.2	25	3
2N2711		.2	30	
2N2713		.2	30	
2N2715		.2	30	
• 2N322		.2	34	1
• 2N1097		.2	34	3
2N2926		.2	35	200 •
2N3854		.2	35	250 •
• 2N1706		.2	40	3
• 2N323		.2	53	1.5
2N5133		.2	60	40 •
2N3721		.2	60 •	120 •
2N3855		.2	60	300 •
• 2N324		.2	72	2
2N2712		.2	75	
2N2714		.2	75	
2N2716		.2	75	
• 2N508		.2	99	4.5
2N3856		.2	100	350 •
2N3900		.2	250	
2N3900A		.2	250	
2N3901		.2	250	120 •
• 2N658		.21	25	5

(continued)

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} • PNP V_{CB} •	(W)	MIN TYP •	f_{ae} * kHz f_{ab} MHz f_T • MHz f_{max} ▲ MHz
• 2N1919	.25		1
• 2N1920	.25		1
• 2N943	.25		1
• 2N944	.25		1
• 2N223	.25	110 •	.6
2N2413	.3	30	400 •
• 2N4453	.3	40	400 •
• 2N2962	.35		700
• 2N2963	.35		700
• 2N869	.36	20	150 •
• 2N869A	.36	40	550 •
2N5183 •	2	40	125 •
2N3924	7	5 •	
2N3925	10	5	
2N3926	11.6	5 •	
2N3927	23.2	5 •	
20			
2N5179 •			1000 •
2N5184 •		10	50 •
• 2N592 •		15	.4
• 2N602		20	
• 2N1065		20	10 •
• 2N603		30	
3N3982		40	
• 2N604		40	
2N3399 •	.025	20	600 •
2N1499 •	.025	35 •	
• 2N503	.025	45 •	350 •
• 2N308 •	.03		
• 2N309 •	.03		
• 2N1111 •	.03		35
• 2N1111A •	.03		35
• 2N108 •	.05		
• 2N38 •	.05	15 •	.5

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} • PNP V_{CB} •	(W)	MIN TYP •	f_{ae} * kHz f_{ab} MHz f_T • MHz f_{max} ▲ MHz
• 2N37 •	.05	30 •	.8
• 2N36 •	.05	45 •	.5
• 2N502	.06	9	260 •
• 2N1744	.06	10	
• 2N1745	.06	10	
• 2N1868	.06	10	
• 2N1743	.06	10	2.1
• 2N1742	.06	10	13
• 2N1864	.06	10	50 ▲
• 2N1746	.06	10	175 ▲
• 2N1747	.06	10	200
• 2N2360 •	.06	10	1600 ▲
• 2N2361 •	.06	10	1600 ▲
• 2N2362 •	.06	10	1600 ▲
• 2N2398 •	.06	10	1600 ▲
• 2N2399 •	.06	10	1600 ▲
• 2N1727	.06	20	100 ▲
• 2N3412	.06	25	100 •
• 2N1499A	.06	30	100 •
• 2N980	.06	30	100 •
• 2N1865	.06	40	
• 2N1728	.06	40	100 ▲
• 2N1158	.06	50 •	
• 2N1726	.06	50	100 ▲
2N145 •	.065		
2N146 •	.065		
2N147 •	.065		
2N1267 •	.065	11 •	
2N78A	.065	45	9
• 2N700	.075	4	
• 2N1158A	.075	9	200 •
2N1694	.075	15	9
2N1217	.075	40	9
• 2N1499B	.075	40	150 •

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} • PNP V_{CB} •	(W)	MIN TYP •	f_{ae} * kHz f_{ab} MHz f_T • MHz f_{max} ▲ MHz
• 2N2797	.075	50	235 •
• 2N2449	.075	125 •	1.2
• 2N2450	.075	125 •	1.2
2N1268 •	.08	20 •	
• 2N372 •	.08	80 •	30
• 2N1517 •	.083	67 •	70 •
• 2N1515 •	.083	100 •	70 •
• 2N1516 •	.083	100 •	70 •
• 2N535	.085	100 •	2
• 2N536	.085	150 •	2
• 2N3285	.1	5	2000 ▲
• 2N3286	.1	5	2000 ▲
• 2N3279	.1	10	500 •
• 2N3280	.1	10	500 •
• 2N135 •	.1	20 •	4.5
2N557 •	.1	30 •	
• 2N136 •	.1	40 •	6.5
2N1200	.1	100 •	4.3 •
2N1201	.1	100 •	12.5 •
2N1270 •	.11	11 •	
• 2N1319 •	.12	15	6
2N1170	.12	20	7
• 2N65 •	.125	75 •	1
2N1271 •	.13	20 •	
• 2N2970	.15	10	8
• 2N2971	.15	10	8
2N1205	.15	10	17 •
2N594	.15	20	1.5
• 2N679	.15	20	2
2N94 •	.15	20	2
2N356A	.15	20	3
• 2N520	.15	20 •	3
• 2N315A	.15	20	5
2N94A •	.15	20	5
2N377	.15	20	6

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} • PNP V_{CB} •	(W)	MIN TYP •	f_{ae} * kHz f_{ab} MHz f_T • MHz f_{max} ▲ MHz
• 2N741A	.15	20	360 •
• 2N3784	.15	20	700 •
• 2N3783	.15	20	800 •
2N357A	.15	25	6
2N1199 •	.15	25 •	125
2N439	.15	30	5
• 2N680 •	.15	35 •	
2N1996 •	.15	35	8
• 2N3400	.15	35	150 •
2N1199A	.15	36 •	125 •
• 2N2048A	.15	40	150 •
• 2N2956	.15	40	375 •
• 2N138 •	.15	44 •	
• 2N238 •	.15	45 •	1.3
• 2N422	.15	50 •	.8
2N3128	.15	50	60 •
• 2N2048	.15	50	250 •
2N634A	.15	55 •	8
2N388	.15	60	12
• 2N1352	.15	70 •	2.5
• 2N185 •	.15	80 •	
• 2N827	.15	100	
2N635A	.15	100 •	12.5
• 2N425	.17	20	4
2N1272 •	.17	50 •	
• 2N466	.17	56	1.5
2N3293	.2	10	2000 *
2N3294	.2	10	2000 *
2N3287	.2	15	600 •
2N3288	.2	15	600 •
2N576	.2	20	8
• 2N1413	.2	25	2
2N5132	.2	30	
• 2N5143	.2	30	

(continued)

VOLTAGE

TYPE NO NPN / PNP	V_{CE} / V_{CB}	DISS (W)	GAIN MIN / TYP	FREQ f_{ae} kHz, f_{ab} MHz, f_T MHz, f_{max} MHz
2N1299		.2	30	4
2N439A		.2	30	5
2N2708		.2	30	700 ●
● 2N1414		.2	34	2.5
2N3932		.2	40	750 ●
● 2N1415		.2	53	2.8
● 2N2172	●	.2	65 ●	8
● 2N1355		.2	80 ●	5
● 2N1356		.2	80 ●	5
● 2N1284	●	.2	90 ●	5
● 2N1281	●	.2	90 ●	7
2N5137		.22	20	40 ●
● 2N319		.225	25	1
● 2N320		.225	34	1.5
● 2N321		.225	53	2
2N4420		.25		350 ●
● 2N1640		.25	6	.4
● 2N1623		.25	9	.3
● 2N2099		.25	15	400 ●
● 2N3793		.25	20	
● 2N1478		.25	40	8
2N957		.25	45	300 ●
● 2N4290		.25	50	
● 2N2271	●	.25	75 ●	
● 2N3794		.25	100	
2N3706		.3		
2N1390		.3		30
● 2N2862		.3	12	75 ●
● 2N726		.3	15	140 ●
2N1708		.3	20	
2N5136		.3	20	40 ●
2N2411		.3	20	140 ●
2N2205		.3	20	200 ●
2N783		.3	20	200 ●
2N706		.3	20	400 ●
2N706A		.3	20	400 ●
2N706B		.3	20	400 ●
2N835		.3	20	450 ●
● 2N1195		.3	22 ●	550 ●
2N2719		.3	25	200 ●
● 2N5142		.3	30	
● 2N2861		.3	30	90 ●
● 2N2412		.3	40	140 ●
● 2N727		.3	40	140 ●
2N753		.3	40	200 ●
● 2N2382		.3	40	300
2N5200		.3	45	900 ●
2N5201		.3	65	1100 ●
2N2206		.3	90 ●	200 ●
2N5222	●	.31	20	450 ●
2N5219	●	.31	35	150 ●
2N5223	●	.31	50	150 ●
● 2N978		.33	15	50
2N4072		.35	10	550 ●
2N4073		.35	10	550 ●
● 2N3049		.35	30	60 ●
● 2N3050		.35	30	60 ●
● 2N3051		.35	30	60 ●
2N706C		.36	20	400 ●
2N784A		.36	25	300 ●
2N3014		.36	30	550 ●
● 2N3209	●	.36	30	550 ●
● 2N3545		.36	40	250 ●
2N2242		.36	40	350 ●
2N2847		.36	40	350 ●
2N708A		.36	40	400
2N4137		.36	40	500 ●
2N3227		.36	100	500 ●
2N5451		.4		
● 2N3218		.4		5 ●
2N5066		.4	5	
● 2N3677		.4	10 ●	
2N1962		.4	20	200 ●
● 2N1008		.4	40	25 *
2N3115		.4	40	250 ●
● 2N3341		.4	60	50 ●
2N3340		.4	60	70 ●
● 2N2945A		.4	70	
● 2N2945		.4	100 ●	10 ●
2N3116		.4	100	250 ●
2N2802		.5	20	120 ●
● 2N2803		.5	20	120 ●
● 2N2804		.5	20	120 ●
2N2244		.5	40	60 ●
2N2250		.5	40	60 ●
● 2N2805		.5	40	140 ●
● 2N2806		.5	40	140 ●
● 2N2807		.5	40	140 ●
2N2331		.5	50	150 ●
2N5242		.5	50	250 ●
2N2501		.5	50	350
2N2245		.5	80	60 ●
2N2251		.5	80	60 ●
2N2246		.5	150	60 ●
2N2252		.5	150	60 ●
2N1840		.6	10	180 ●
● 2N1991		.6	15	50 ●
2N2236		.6	15	50 ●
2N1252		.6	15	80 ●
2N2476		.6	20	
2N3137		.6	20	750
2N2694		.6	30	55 ●
2N1253		.6	30	110 ●
2N2240		.6	40	
2N2237		.6	40	50 ●
2N2477		.6	40	250 ●
2N2958		.6	40	250 ●
● 2N5236		.6	50 ●	750 ●
2N2241		.6	100	
2N2959		.6	100	250 ●
2N1944		.6	300 ●	60 ●
2N1950		.6	375 ●	60
2N1947		.6	650 ●	60 ●
2N254	●	.65	30	
● 2N2096		.75	15	400 ●
2N2883		.8	20	500 ●
2N2884		.8	20	500 ●
2N2848		.8	40	350 ●
2N2330		.8	50	150 ●
● 2N1183		1	20	.5
● 2N1184		1	40	.5
● 2N995A	●	1.2	35	200 ●
2N2710		1.2	40 ●	500 ●
2N3862		1.2	50	600 ●
2N3508		2	80	50 ●
2N3509		2	200	50 ●
2N5710		3.5		
2N4427		3.5	100	175
2N4079		4.5	50	1 ●
2N4077		7.5	50	1 ●
● 2N378	●	50	15	5 *
● 2N1029		90	20	
● 2N1031		90	20	
● 2N677		90	20	
● 2N2063A		90	20	5 *
● 2N1030		90	50	
● 2N1032		90	50	
● 2N678		90	50	
● 2N2064A		90	50	1 *
● 2N456A		150	30	200 *
● 2N4276		170	15	2 *
● 2N4277		170	15	2 *
22				
● 2N63		.1	22 ●	.6
2N1012		.15	40	3
24				
● 2N2448		.075	65 ●	
● 2N2447		.075	65 ●	1
● 2N1425	●	.08	50 ●	33
● 2N1524	●	.08	60 ●	33
● 2N1525	●	.08	60 ●	33
● 2N371	●	.08	80 ●	30
● 2N370	●	.08	100 ●	30
● 2N1426	●	.08	130 ●	33
● 2N1526	●	.08	130 ●	33
● 2N1527	●	.08	130 ●	33
● 2N132A		.1	90 ●	1
● 2N269		.12	24	13
2N1605		.15	40	12
● 2N404		.15	40 ●	12
2N2349		.15	120	
● 2N632		.17	120 ●	2.5
25				
2N5187	●		30	400 ●
● 2N504		.03	16	50 ▲
● 2N77	●	.035	55 ●	.7
● 2N105	●	.035	55 ●	.75
● 2N34A	●	.05	40 ●	.6
2N1748	●	.06	30	50 ▲
● 2N1748A		.06	50	132 ●
2N1198		.065	17 ●	5
● 2N700A		.075	4	
● 2N2798		.075	30	235 ●
2N169A	●	.075	34	9
● 2N265		.075	140 ●	1.5
● 2N2092		.083	150 ●	70 ●
● 2N3283		.1	10	2000 ▲
● 2N3284		.1	10	2000 ▲
● 2N3127	●	.1	20	400 ●
● 2N186	●	.1	24 ●	.8
2N182	●	.1	25 ●	3.8
● 2N519		.1	27	1.5
● 2N187	●	.1	36 ●	1
2N183	●	.1	40 ●	7.5
2N556	●	.1	50 ●	
● 2N3588	●	.1	50 ●	250
● 2N188	●	.1	54 ●	1.2
2N184	●	.1	60 ●	15
2N647		.1	70 ●	
● 2N241	●	.1	73 ●	1.3
● 2N585		.12	20	5
● 2N2613		.12	120	10 ●
● 2N2953		.12	200	10 ●
● 2N3074	●	.14		
● 2N2377		.15	10	20 ●
● 2N923		.15	12	.8
● 2N495		.15	15	
● 2N1118		.15	15	18 ▲
● 2N1118A		.15	15	18 ▲
2N444A		.15	20	.5
2N438		.15	20	2.5
2N1302	●	.15	20	4.5
● 2N860		.15	20 ●	14 ●
● 2N2955		.15	20	350 ●
● 2N924		.15	24	8
2N1891	●	.15	25 ●	
2N1995	●	.15	25	5
● 2N861		.15	25	22 ●
● 2N1274		.15	30	
● 2N1729		.15	30 ●	
2N1730	●	.15	30	
● 2N1404	●	.15	30	4
2N385		.15	30	6
● 2N519A	●	.15	35 ●	.5
2N1472	●	.15	35 ●	140 ●
2N1000		.15	40	7
2N1304	●	.15	40	8
● 2N1370		.15	50	2
● 2N2942		.15	50	235 ●
2N1306	●	.15	60	12
2N1391	●	.15	70 ●	3
2N1308	●	.15	80	20
● 2N1129		.15	100	.75
● 2N520A	●	.15	100 ●	3
● 2N1114	●	.15	110 ●	10
2N1624	●	.15	120 ●	8
2N1808		.15	120 ●	14
● 2N521A	●	.15	150 ●	
● 2N522A	●	.15	200 ●	
2N447B	●	.15	200 ●	9
● 2N523A	●	.15	250 ●	
● 2N402	●	.18	25 ●	.6
● 2N612	●	.18	25 ●	.6
2N1102		.18	30	.01
● 2N403	●	.18	35 ●	.85
● 2N613	●	.18	35 ●	.85
● 2N291	●	.18	45 ●	
● 2N611	●	.18	45 ●	1
● 2N61	●	.18	45 ●	1.5
2N214		.18	50	.8
● 2N610	●	.18	65 ●	1.5
● 2N60	●	.18	70 ●	1.5
2N213		.18	70	3
● 2N59	●	.18	90 ●	1.8
● 2N609	●	.18	90 ●	1.8
2N213A		.18	100	.15
2N1082		.2	10	
● 2N3308		.2	10	300 ●
2N3291		.2	10	2000 *
2N3292		.2	10	2000 *
2N438A		.2	20	2.5
● 2N186A		.2	24 ●	.8
● 2N1191		.2	30	1.5
● 2N1383		.2	30	1.5
● 2N653		.2	30	1.5
● 2N189		.2	35 ●	.8
● 2N1446		.2	35 ●	2
2N2921		.2	35	120 ●
● 2N187A		.2	36 ●	1
2N4968		.2	40	40 ●
2N3691		.2	40	120 ●
● 2N190		.2	50 ●	1
● 2N241A		.2	50	1.3
● 2N1192		.2	50	2
● 2N1382		.2	50	2
● 2N654		.2	50	2
● 2N1447		.2	52 ●	3
● 2N188A		.2	54 ●	1.2
2N3397		.2	55	
2N3398		.2	55	
2N2922		.2	55	120 ●
2N3394		.2	55	140 ●
● 2N1707		.2	60	3
● 2N1448		.2	70 ●	4
● 2N1175		.2	70	4.2
● 2N1175A		.2	70	4.2
● 2N191		.2	85 ●	1.2
2N3396		.2	90	
2N3393		.2	90	140 ●
2N2923		.2	90	200 ●
● 2N1449		.2	95 ●	5
● 2N1193		.2	100	2.5
● 2N655		.2	100	2.5
2N3692		.2	100	120 ●
2N5172		.2	100 ●	120 ●
2N3565		.2	120	40 ●
● 2N192		.2	125 ●	1.5
2N3395		.2	150	
2N3392		.2	150	140 ●
2N2924		.2	150	200 ●
2N3391		.2	170 ●	160 ●
2N3391A		.2	170 ●	160 ●
● 2N1194		.2	190	3
2N2925		.2	235	200 ●
2N3390		.2	400	
● 2N2171		.225	210 ●	7.5
● 2N1562		.25		450 ●
● 2N1561		.25		500 ●
● 2N3401		.25	4 ●	100 *
● 2N1220		.25	9	2
● 2N1222		.25	9	2
● 2N1643		.25	10	.7
● 2N1219		.25	18	5
● 2N1221		.25	18	5
2N2617	●	.25	25	1 ●
● 2N1372		.25	30	1.5
● 2N1381		.25	30	2
● 2N4284		.25	35	
● 2N1374		.25	50	2
● 2N270	●	.25	70 ●	
● 2N1376		.25	75	2
● 2N224	●	.25	90 ●	.51
● 2N1379		.25	95	3
● 2N599		.25	100	16 ●
2N4286		.25	150	
● 2N4288		.25	150	
2N1385		.3		250 ●
● 2N1143	●	.3	10	480
2N702A		.3	20	
2N702		.3	20	150 ●
● 2N3638		.3	30	150 ●
2N703A		.3	40	
2N703		.3	40	150 ●
2N1386		.3	45 ●	60
2N5135		.3	50	40 ●
2N3298		.3	60	200 ●
2N2910		.3	70	
● 2N672		.3	100 ●	.2
● 2N3638A		.3	100	200 ●
● 2N2648		.3	200 ●	20
2N5225	●	.31	30	50 ●
● 2N5226		.31	30	50 ●
2N4126		.31	120	250 ●
2N4124		.31	120	300 ●
● 2N5456		.34	30	450 ●
● 2N1693		.35		450 ●
● 2N1692		.35		500 ●
● 2N249	●	.35	50 ●	
2N921		.36	20	400 ●
2N2695		.36	30	200 ●
2N2696		.36	30	200 ●
2N922		.36	40	400 ●
2N916		.36	50	400 ●
2N3414		.36	75	
2N913	●	.36	75 ●	350
2N3415		.36	180	
● 2N5447		.4		
● 2N2274		.4	10	6
2N2353		.4	20	130 ●
2N2353A		.4	20	130 ●
● 2N3978	●	.4	30	1
2N3544		.4	50	
2N5305		.4	2000	60 ●
2N5306		.4	7000	60 ●
2N3241		.5	50	60 ●
2N5810		.5	60	100 ●
● 2N5811		.5	60	100 ●
2N3242		.5	75	60 ●
2N3241A		.5	100	175

(continued)

TYPE NO		DISS	GAIN	FREQ
NPN	V_{CE}		MIN	$f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz ●
● PNP	V_{CB} ●	(W)	TYP ●	f_{max} MHz ▲
2N5812		.5	150	135 ●
● 2N5813		.5	150	135 ●
2N3402		.56	75	
2N3403		.56	180	
2N1409		.6	15	200 ●
2N2195		.6	20	50 ●
2N2195A		.6	20	50 ●
2N2195B		.6	20	50 ●
2N1985		.6	20	60 ●
2N1987		.6	20	60 ●
2N1984		.6	40	60 ●
2N1986		.6	60	60 ●
2N1983		.6	80	60 ●
2N4315		.6	175	●
2N1409A		.8	15	200 ●
2N2864		.8	20	250 ●
2N5040		.8	30	80 ●
● 2N2927	●	.8	30	150 ●
2N2863		.8	30	250 ●
● 2N673	●	1		
2N4955		1.3	150	
2N4956		1.3	150	
2N4105	●	1.6	70	
2N4106	●	1.6	70	
● 2N4106	●	1.6	70	
2N3408		4	10	200 ●
2N3469		5	100	100
● 2N256A		20	30 ●	.125
2N1329		23	30	
● 2N234A		25	25 ●	8 *
● 2N663		37	25	15 *
● 2N441		50	20	10 *
● 2N3611		85	35 ●	
● 2N3613		85	60 ●	
● 2N250A		90	35	
● 2N2078		170	25	10 *

TYPE NO		DISS	GAIN	FREQ
NPN	V_{CE}		MIN	$f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz ●
● PNP	V_{CB} ●	(W)	TYP ●	f_{max} MHz ▲
● 2N2078A		170	25	10 *
● 2N2082		170	40	10 *
● 2N2082A		170	40	10 *
27				
● 2N1111B	●	.03		35
28				
2N707		.3	9	400 ▲
2N2414	●	.5	50	60 ●
2N4428		.75		500
2N4429		1		1000
2N4430		2.5		1000
2N4431		5		1000
2N4127		13.5		175
2N4128		24		175
● 2N256		25		
30				
2N4134				
2N4135				
● 2N4008				15
2N5180	●			650 ●
2N3839	●			1000 ●
2N3932	●		7.5 ●	750
2N3981			30	
● 2N4244			40	.5 ●
● 2N4247			60	.5 ●
2N3912			90	10 ●
2N3915			90	10 ●
● 2N310	●	.03		
● 2N97	●	.05	13 ●	1
2N2934		.05	30	
2N2935		.05	70	
2N167		.065	17	9
● 2N502A		.075	15	260 ●
2N167A		.075	17	9
● 2N502B		.075	20	620 ▲

(continued)

VOLTAGE

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / PNP V_{CB}	(W)	MIN / TYP	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz / f_{max} MHz ▲
• 2N206 •	.075	47 •	.78
• 2N1178 •	.08	40 •	140
• 2N1180 •	.08	80 •	100
• 2N1179 •	.08	80 •	140
• 2N1177 •	.08	100 •	140
• 2N131A	.1	45 •	.8
• 2N133A	.1	50 •	.8
• 2N1450 •	.12	20	
2N337	.125	20	20
• 2N279	.125	30 •	.3
2N338	.125	45	30
• 2N280	.125	47 •	.3
• 2N111 •	.13	25 •	3
• 2N111A •	.13	25 •	3
• 2N112 •	.13	30 •	5
• 2N112A •	.13	30 •	5
• 2N113 •	.13	45 •	10
• 2N271 •	.13	45 •	10
• 2N271A •	.13	45 •	10
• 2N114 •	.13	75 •	20
• 2N3075	.14		
• 2N2162	.15		
• 2N2165	.15		
• 2N2185	.15		10 •
• 2N2187	.15		10 •
2N1587 •	.15	9	4
2N1276	.15	9	30
• 2N367 •	.15	15 •	.7
2N364 •	.15	15 •	2.5
2N1994	.15	15	3
2N1277	.15	18	30
• 2N394 •	.15	20	4
• 2N1303 •	.15	20	4.5
• 2N394A •	.15	20	7
• 2N563 •	.15	25 •	.8
• 2N564 •	.15	25 •	.8
2N1590 •	.15	25	6
• 2N838	.15	30	
2N1418	.15	30	34 •
• 2N368 •	.15	34 •	1
2N365 •	.15	34 •	3
2N1278	.15	37	30
• 2N1731	.15	40	5
2N1732	.15	40	5
• 2N1305 •	.15	40	8
• 2N104 •	.15	44 •	.7
• 2N565 •	.15	55 •	1
• 2N566 •	.15	55 •	1
• 2N180 •	.15	60 •	.7
• 2N181 •	.15	60 •	.7
• 2N1307 •	.15	60	12
2N1593 •	.15	70	7
2N1279	.15	76	34
• 2N415A •	.15	80 •	10
• 2N1309 •	.15	80	20
• 2N369 •	.15	95 •	1.3
2N366 •	.15	95 •	3.5
• 2N568 •	.15	100 •	1.5
• 2N428A •	.15	100 •	12
• 2N1093 •	.15	125 •	8
• 2N1130 •	.15	130 •	.95
• 2N569 •	.15	150 •	2
• 2N570 •	.15	150 •	2
• 2N571 •	.15	200 •	3
• 2N572 •	.15	200 •	3
• 2N573 •	.15	200 •	3
• 2N215 •	.150	44 •	.7
• 2N45	.155	11	1
• 2N361	.17	25	2.5
• 2N465	.17	27	1.1
• 2N363	.17	50 •	1.5
• 2N360	.17	50	2.5
• 2N633	.17	60 •	1.5
• 2N4958 •	.2		1000 •
• 2N4959 •	.2		1000 •
• 2N4957 •	.2		1200 •
2N471A	.2	10	8
2N471	.2	10	30
2N587	.2	20	
• 2N395 •	.2	20	4.5
2N474A	.2	20	8
2N474	.2	20	30
2N3843	.2	20	135 •
2N3843A	.2	20	135 •
• 2N331 •	.2	30	.4
• 2N396A •	.2	30	5
• 2N396 •	.2	30	8
• 2N650A	.2	33	.75
• 2N650	.2	33	1.5

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / PNP V_{CB} •	(W)	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
2N3844	.2	35	135 •
2N3844A	.2	35	135 •
2N3854A	.2	35	250 •
2N479A	.2	40	8
• 2N397 •	.2	40	12
2N479	.2	40	39
2N4969	.2	40	200 •
2N477 •	.2	45 •	
• 2N651A	.2	45	1
• 2N651	.2	45	2
• 2N5138	.2	50	30 •
• 2N414B •	.2	60 •	7
• 2N414C •	.2	60 •	7
2N3845	.2	60	135 •
2N3845A	.2	60	135 •
2N3858	.2	60	135 •
2N3855A	.2	60	300 •
• 2N1189	.2	75	3.5
• 2N652A	.2	80	1.25
• 2N652	.2	80	2.5
2N542A	.2	80	8
2N542	.2	80	39 •
• 2N508A	.2	99	4.5
2N3859	.2	100	135 •
2N4426	.2	100	135 •
2N4256	.2	100	200 •
2N4970	.2	100	200 •
2N3856A	.2	100	350 •
• 2N1190	.2	125	4.5
2N3860	.2	150	135 •
• 2N1185	.2	190	3
• 2N3427	.2	225	4
• 2N3428	.2	275	5
• 2N1017 •	.215	70	20
• 2N1018 •	.215	70	25
• 2N524	.225	25	2.5
• 2N524A	.225	25	2.5
• 2N525	.225	34	3
• 2N525A	.225	34	3
• 2N526	.225	53	3.5
• 2N526A	.225	53	3.5
• 2N527	.225	72	4
• 2N527A	.225	72	4
• 2N44	.24	18	1
• 2N44A	.24	18	1
• 2N1384	.24	20	
• 2N43	.24	34	1.3
• 2N43A	.24	34	1.3
• 2N1057	.24	34	1.5
2N3707	.25		
2N3708	.25		
2N3709	.25		
2N3710	.25		
2N3711	.25		
• 2N2098	.25		1000 •
2N3344	.25	25	2 •
• 2N1036	.25	34	.5
• 2N226 •	.25	60 •	.4
• 2N1999 •	.25	75	12
• 2N4291	.25	100	
• 2N1254	.275	25	25
• 2N1255	.275	40	40
• 2N1258	.275	75	25
• 2N3702	.3		
• 2N3703	.3		
2N3704	.3		
2N3705	.3		
2N1142A	.3		400 •
2N1143A	.3		400 •
• 2N1142 •	.3	10	600
2N1387	.3	20	50
2N729	.3	20	150
2N834	.3	25	500 •
2N2857	.3	30	1000 •
2N4140	.3	40	250 •
• 2N2001 •	.3	60	6 •
2N4227	.3	75	250 •
2N4141	.3	100	250 •
2N2903	.3	125	
2N2903A	.3	125	
2N3566	.3	150	40 •
2N5089	.3	400	50 •
• 2N5208 •	.31	20	300 •
• 2N5227 •	.31	50	100 •
2N4125	.31	50	200 •
2N4123	.31	50	250 •
2N5027	.32	50	250 •
2N5028	.32	100	250 •
2N2651	.36	25	600 •

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / PNP V_{CB} •	(W)	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
2N2318 •	.36	30	300 •
2N2319 •	.36	30	300 •
2N2320 •	.36	30	300 •
2N4013	.36	30	300 •
2N2845	.36	30	350 •
2N3973	.36	35	350 •
2N3975	.36	35	350 •
2N5379	.36	40	20 •
2N5377	.36	40	30 •
• 2N3040	.36	40	50 •
• 2N5372	.36	40	150 •
• 2N5375	.36	40	150 •
2N3974	.36	55	350 •
2N3976	.36	55	350 •
2N4951	.36	60	
2N4954	.36	60	
2N5368	.36	60	250 •
2N5371	.36	60	250 •
2N4952	.36	100	
2N5378	.36	100	20 •
2N5376	.36	100	30
• 2N5373	.36	100	150 •
2N4450	.36	100	250 •
2N5369	.36	100	250 •
2N3301	.36	100	400 •
2N3302	.36	100	400 •
2N4953	.36	200	
• 2N5374	.36	200	150 •
2N5370	.36	200	250 •
2N4270	.36	400	60 •
• 2N330A	.385	25 •	.5
• 2N937	.385	36	.5
• 2N329A	.39	36	.5
• 2N5448	.4		
2N5449	.4		
2N5450	.4		
2N3527	.4	25	10
• 2N1442	.4	30	1
• 2N329B	.4	36	5
• 2N4415	.4	40	
• 2N4413	.4	100	
2N909	.4	110	80
2N1491 •	.5	15	250
2N2220	.5	20	400 •
2N4386	.5	40	
2N2221	.5	40	400 •
2N2539	.5	50	250 •
2N4384	.5	100	
2N2540	.5	100	250 •
2N2222	.5	100	400 •
• 2N4916	.5	150	450 •
• 2N4917	.5	150	450 •
2N1839	.6	12	180 •
2N546	.6	15	4
2N548	.6	20	4
2N550	.6	20	4
2N552	.6	20	4
2N2309	.6	25	150
2N2961	.6	30	250 •
2N1410	.6	39	130 •
• 2N4414	.6	40	
2N1838	.6	40	180 •
2N2693	.6	60	60 •
2N2692	.6	90	65 •
• 2N4412	.6	100	
2N1972	.6	110	80 •
2N3409	.6	125	250 •
2N3410	.6	125	250 •
2N3411	.6	125	250 •
2N2453	.6	150	
2N1945	.6	300 •	60 •
2N1951	.6	375 •	60 •
2N1948	.6	650 •	60 •
2N3641	.7	40	400 •
2N3643	.7	100	400 •
• 2N601 •	.75	100	
2N2217	.8	20	400 •
2N1410A	.8	30	130 •
2N5145	.8	30	300 •
2N3015	.8	30	330 •
2N2846	.8	30	350 •
2N4385	.8	40	
2N4046	.8	40	250 •
2N2218	.8	40	400 •
2N2537	.8	50	250 •
2N4383	.8	100	
2N2538	.8	100	250 •
2N2219	.8	100	400 •
2N3300	.8	100	400 •

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / PNP V_{CB} •	(W)	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
• 2N1183A	1	20	.5
2N784 •	1	25	200 •
2N3252	1	30	200 •
• 2N1184A	1	40	.5
2N834A	1.2	25 •	500 •
2N3728	1.6	80	
2N5079	1.8	100	
2N5080	1.8	100	
2N1092	2	15	1.5
2N3736	2	30	
• 2N4975	2.5	15	
• 2N4974	2.5	30	
2N3122	3	63 •	60 •
2N2960	3	100	
2N3123	3	200 •	400 •
2N5108	3.5		200 •
2N3866	3.5		800 •
2N3724	3.5	40	250 •
2N3734	4	30	
2N5023	4	40	200 •
2N5481	5		
2N5766	5		
2N5090	5		500 •
2N1067	5	15	1.5
2N4976	5	20	1000 •
2N3554	5	25	150 •
2N5715	6	20	
2N5482	10		
2N5767	10		
2N1068	10	15	1.5
• 2N555	10	50 •	6 *
• 2N3215	12	25	.6 •
2N5483	20		
2N5768	20		
• 2N2552	20	20	.225 •
• 2N2556	20	20	.225
• 2N2560	20	20	.25 •
• 2N2564	20	20	.25 •
• 2N1042	20	20	10 *
• 2N156	20	25	4 *
• 2N1038	20	30	10 *
• 2N3021	25	20	100 *
2N1292	25	30	
2N1321	25	30	
• 2N250 •	25	30	12 *
• 2N3024	25	50	100 *
• 2N1007	35	30 •	5 *
• 2N178	40	15	6 *
• 2N442	50	20	10 *
• 2N1227	50	25	5 ▲
• 2N380 •	50	30	8 *
• 2N638	60	20	
• 2N637	60	30	
• 2N1136	60	50	.5
• 2N1137	60	75	.5
• 2N1138	60	100	.5
• 2N2137	62.5	30	20 *
• 2N2137A	62.5	30	20 *
• 2N2142	62.5	50	20 *
• 2N2142A	62.5	50	20 *
• 2N350	65	20	6 *
• 2N351	65	25	6 *
• 2N627	90	10	8 *
• 2N1549	90	10	10 *
• 2N1549A	90	10	10 *
• 2N1029A	90	20	
• 2N1031A	90	20	
• 2N677A	90	20	
• 2N1529	90	20	10 *
• 2N1529A	90	20	10 *
• 2N1291	90	30	.15 •
• 2N1553	90	30	6 *
• 2N1553A	90	30	6 *
• 2N1534	90	35	8.5 *
• 2N1534A	90	35	8.5 *
• 2N1030A	90	50	
• 2N1032A	90	50	
• 2N678A	90	50	
• 2N1539	90	50	4 *
• 2N1539A	90	50	4 *
• 2N1557	90	50	5 *
• 2N1557A	90	50	5 *
• 2N1146	90	60	4 *
• 2N1147	90	60	4 *
• 2N1544	90	75	4 *
• 2N1544A	90	75	4 *
• 2N669	90	75	5 *
2N3124	90	120	2.5 *
• 2N5692	120	20	.2 •

(continued)

TYPE NO		DISS	GAIN		FREQ	
NPN / • PNP	V_{CE} / V_{CB} •	(W)	MIN / TYP •		$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲	
• 2N2735		140	30		.35	•
• 2N2738		140	30		.35	•
2N1015		150	10		25	*
2N1016		150	10		30	*
• 2N511		150	20		.26	
• 2N512		150	20		.28	
• 2N513		150	20		.3	
• 2N514		150	20		.43	
• 2N456B		150	30		200	*
2N4048		170	15		2	*
2N4051		170	15		2	*
• 2N4278		170	15		2	*
• 2N4279		170	15		2	*
• 2N2732		170	30		.35	•
• 2N1980		170	50		3	*
• 2N3311		170	60		1	*
• 2N3314		170	80		1	*
32						
• 2N591	•	.05	70	•	.7	
• 2N990		.067	150	•	70	
• 2N993		.067	150	•	70	•
• 2N2654		.1	50	•	250	•
• 2N2089		.1	150	•	75	•
• 2N2672		.1	150	•	75	•
• 2N2671		.1	150	•	100	•
• 2N283	•	.125	40	•	.5	
• 2N284	•	.165	45	•	.35	
2N2430		.36	63	•	2.5	•
• 2N2428		.5	130	•	1.7	
• 2N2706	•	.5	135	•	17	*
• 2N2429		.5	220	•	2.3	•
• 2N2431		1	90	•	1.5	•
• 2N4078		8	50		1	•
• 2N2835	•	16	30		10	*
• 2N301		25				
• 2N301A		25				
• 2N4241	•	37.5	30		5	*
33						
2N2085		.15	100	•	8	
34						
• 2N1638	•	.08	75	•	40	
• 2N1639	•	.08	75	•	45	
• 2N1631	•	.08	80	•	45	
• 2N1632	•	.08	80	•	45	
• 2N1637	•	.08	80	•	45	
• 2N2786	•	1	80	•	350	•
• 2N2786A	•	1	80	•	350	•
35						
2N103	•	.05	4	•	.75	
• 2N1867		.06	10			
• 2N1789		.06	15		150	▲
• 2N1790		.06	25		150	▲
• 2N1866		.06	40			
• 2N1788		.06	40		150	▲
• 2N1673		.08	20		5	
• 2N2494	•	.1	70	•	180	
• 2N2495	•	.1	70	•	180	
• 2N2496	•	.1	70	•	180	
• 2N2873	•	.115	40		375	•
• 2N2614		.12	100		10	
• 2N2336		.15				
• 2N2337		.15				
• 2N3323		.15	30		400	•
• 2N3324		.15	30		400	•
• 2N3325		.15	30		400	•
• 2N404A		.15	40	•	12	
• 2N1309A		.15	80		15	
• 2N109	•	.165	75	•		
• 2N217	•	.165	75	•		
• 2N3307		.2	20		300	•
• 2N460		.2	24	•	1.2	
• 2N461		.2	32		4	
• 2N2006		.25				
• 2N2007		.25				
• 2N2376		.25				
• 2N1037		.25	9		.3	
• 2N1025		.25	9		1	
• 2N938		.25	9		1	
• 2N1035		.25	18		.3	
• 2N328A		.25	18		.3	
• 2N1026		.25	18		2	
• 2N939		.25	18		2	
• 2N2100		.25	30		400	•
• 2N4285		.25	35			
• 2N1469		.25	36		2	
• 2N940		.25	36		2	
• 2N1998	•	.25	50		7	
• 2N598		.25	70		8	•

(continued)

VOLTAGE

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
• 2N2375	.25	75 •	9
• 2N2374	.25	140 •	15
2N1141A	.3		500 •
• 2N1141 •	.3	10	750
• 2N1176	.3	20	15 *
• 2N2393	.3	20	50 •
• 2N1124	.3	40	1.3
2N3462	.3	150 •	
2N5088 •	.3	300	50 •
• 2N3039	.36	20	50 •
• 2N936	.385	9	.3
• 2N3219	.4		3 •
• 2N1230	.4	14	1.2
• 2N1441	.4	18	1
• 2N328B	.4	18	3
• 2N721	.4	20	80 •
• 2N1231	.4	28	1.2
• 2N722	.4	30	90 •
• 2N2837	.4	30	120 •
• 2N1026A	.4	36 •	2
• 2N3135	.4	40	200 •
• 2N2946A	.4	50	
• 2N2946	.4	70 •	5 •
• 2N2838	.4	75	120 •
2N3136	.4	100	200
• 2N722A	.5	30	
• 2N2394	.5	30	60 •
2N715	.5	30 •	150 •
2N2389	.5	40	60 •
2N337A	.5	55 •	30
2N338A	.5	99 •	45
2N2390	.5	100	60 •
• 2N1131	.6	20	70 •
• 2N1132	.6	30	90 •
• 2N2800	.6	30	120 •
• 2N3133	.6	40	200 •
• 2N2303	.6	75	80 •
• 2N2801	.6	75	120 •
• 2N3134	.6	100	200 •
• 2N2097	.75	30	400 •
• 2N600 •	.75	70	12
2N2297	.8	40	90 •
• 2N1240	1	14	1.2
• 2N1241	1	28	1.2
2N4428	3.5	20	700 •
2N4428	3.5	20	700 •
2N3512	4	10	250 •
2N4429	5	20	700 •
2N4429	5	20	700 •
2N326	7	30	.15
2N5764	10		
• 2N2067	10	20	7 *
• 2N2067O	10	20	7 *
• 2N2067B	10	25	7 *
• 2N2067G	10	25	7 *
• 2N2067W	10	33	7 *
2N5765	18		
• 2N1328 •	20	30	8 *
• 2N307	25	20	3 *
• 2N307A	25	20	3.5 *
• 2N257	25	40 •	5 *
• 2N257G	25	40 •	5 *
• 2N399	25	40 •	400 *
• 2N257B	25	50 •	5 *
• 2N257W	25	60 •	5 *
• 2N285A	25	150 •	.5
• 2N285B	25	150 •	.5
• 2N3158	28	25	10 *
• 2N1755	28	30	15 *
• 2N1759	28	60	15 *
• 2N3154	28	60	15 *
• 2N400	35	50 •	.5
2N5177	40	10	500
2N5178	70	10	500
2N3226	75	20	
• 2N3612	85	35 •	
• 2N3614	85	60 •	
• 2N1162	90	15	4 *
• 2N1162A	90	15	4 *
• 2N1163	90	15	4 *
• 2N1163A	90	15	4 *
• 2N251A	90	35	
36			
2N5644 •	3.5		400 •
2N3948 •	5		700 •
2N5711	10		
2N5645 •	12		
2N5589 •	15		
2N5590 •	30		
2N5646 •	30		

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
2N5591 •	70		
40			
2N4397 •			600 •
2N4934 •			700 •
2N4259 •			750 •
2N5109 •			1200 •
2N3933 •		7.5 •	750
• 2N3778		10	
• 2N3782		10	
• 2N3774		20	
2N2856		20	40 •
2N2853		40	60 •
2N2855		40	60 •
2N3911		60	8 •
2N3914		60	8 •
2N2854		100	80 •
• 2N5255		150	
• 2N4121		150	450 •
• 2N4122		150	450 •
2N507 •	.05	25	.6
• 2N506 •	.05	40 •	.6
2N567 •	.05	40 •	.6
2N98 •	.05	40 •	2.5
2N99 •	.05	40 •	3.5
• 2N1749	.075	45 •	115 •
• 2N987	.086	100 •	100 •
• 2N1285 •	.12		100
2N1672 •	.12	20	2
2N1672A •	.12	20	2
• 2N1224 •	.12	20	30
• 2N1225 •	.12	20	100
• 2N384	.12	20	100
• 2N1395 •	.12	50	30
• 2N1396 •	.12	50	100
• 2N1397 •	.12	50	120
• 2N274 •	.12	60 •	30
• 2N1023 •	.12	60 •	120
• 2N1066 •	.12	60 •	120
• 2N505 •	.125	40 •	8
• 2N2188 •	.125	40	120
• 2N2189 •	.125	60	150
• 2N2084	.125	100 •	100 •
2N2610	.15	9	
• 2N925	.15	10	.8
• 2N858	.15	10	14 •
• 2N926	.15	20	.8
2N35 •	.15	25	.8
• 2N859	.15	35 •	14 •
• 2N34 •	.15	40 •	.4
• 2N464	.17	14	1
• 2N61A •	.18	45 •	1
2N228 •	.18	55	.6
• 2N60A •	.18	70 •	1.5
• 2N59A •	.18	90 •	1.8
• 2N4964	.2		60 •
2N377A	.2	20	6
2N576A	.2	20	10
2N385A	.2	30	8
2N1605A	.2	40	12
2N4966	.2	40	40 •
• 2N4971	.2	40	200 •
• 2N4248	.2	50	
2N388A	.2	60	12
• 2N1351 •	.2	65 •	8
2N3688	.2	70	600 •
2N3689	.2	70	600 •
2N3690	.2	70	600 •
• 2N1348 •	.2	95 •	5
2N4967	.2	100	40 •
• 2N4965	.2	100	60 •
• 2N4972	.2	100	200 •
• 2N1349 •	.2	110 •	10
2N4250	.2	250	
2N4944	.22	40	
2N4946	.22	100	
• 2N1924	.225	34	3
• 2N1925	.225	53	3.5
• 2N1926	.225	72	4
• 2N1614	.24	18	1
• 2N1223	.25	6	
• 2N1034	.25	9	.2
• 2N327A	.25	9	.2
2N1473	.25	25	8
• 2N1495	.25	25	240 •
• 2N597	.25	40	8 •
• 2N1256	.275	25	25
• 2N1257	.275	40	40
2N3828	.3		
2N3337	.3	30	500 •
2N3338	.3	30	500 •

(continued)

TYPE NO		DISS	GAIN	FREQ
NPN V_{CE} • PNP V_{CB} •		(W)	MIN TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N3339		.3	30	500 •
• 2N670		.3	40	.5
2N3567		.3	40	60 •
• 2N4142		.3	40	200 •
2N3261	•	.3	40	600 •
• 2N1125		.3	50	1.6
2N3513		.3	50	40 •
• 2N4228		.3	75	200 •
• 2N4143		.3	100	200 •
2N4402		.31	50	150 •
• 2N3905		.31	50	200 •
2N4400		.31	50	200 •
2N3903		.31	50	250 •
2N4403		.31	100	200 •
• 2N3906		.31	100	250 •
2N4401		.31	100	250 •
2N3904		.31	100	300 •
2N3514		.35	50	40 •
2N3515		.35	50	40 •
• 2N4940		.35	50	400 •
• 2N4941		.35	50	400 •
• 2N4942		.35	50	400 •
• 2N5382		.36	50	200 •
• 2N3250		.36	50	250 •
2N3946		.36	50	250 •
2N5380		.36	50	250 •
2N5824		.36	60	90 •
• 2N4034		.36	70	
2N5825		.36	100	90 •
• 2N5383		.36	100	250 •
• 2N3251		.36	100	300 •
2N3947		.36	100	300 •
2N5381		.36	100	300 •
• 2N4035		.36	150	
2N5826		.36	150	90 •
2N4424		.36	180	120 •
2N5827		.36	250	90 •
2N5828		.36	400	90 •
• 2N2424	•	.375	30	15
• 2N935		.385	6	.2
• 2N1439		.4	5	1
• 2N1440		.4	9	1
• 2N327B		.4	9	2
2N2909		.4	20	
2N3979	•	.4	20	1
2N717		.4	20	60 •
2N1964		.4	20	100 •
2N2352		.4	20	130 •
2N2352A		.4	20	130 •
• 2N1008A		.4	40	25 *
2N718		.4	40	80 •
2N1965		.4	40	100 •
• 2N2906		.4	40	200 •
• 2N3581		.4	50	110 •
• 2N3582		.4	100	120 •
2N2350		.4	100	130 •
2N2350A		.4	100	130 •
• 2N2907		.4	100	200 •
2N5307		.4	2000	60 •
2N5308		.4	7000	60 •
2N1140		.5	20	35 •
2N2395		.5	20	40 •
2N730		.5	20	40 •
2N2427	•	.5	20 •	50
• 2N1496		.5	25	240 •
2N716		.5	30 •	150 •
2N2396		.5	40	50 •
2N731		.5	40	50 •
2N5581		.5	40	250 •
2N2221A		.5	40	300 •
• 2N3601		.5	60	20 •
2N5814		.5	60	100 •
• 2N5815		.5	60	100 •
2N4074	•	.5	75	
2N5816		.5	100	120 •
2N2222A		.5	100	300 •
2N2222B		.5	100	300 •
2N5582		.5	100	300 •
2N3242A		.5	125	175
2N5818		.5	150	135 •
• 2N5819		.5	150	135 •
2N696		.6	20	60 •
• 2N1131A		.6	20	70 •
2N1958		.6	20	100 •
2N1958A		.6	20	100 •
2N2480		.6	30	
• 2N1132A		.6	30	90 •
2N2618		.6	30	200
• 2N3305		.6	40	20 •
2N697		.6	40	80 •

TYPE NO		DISS	GAIN	FREQ
NPN V_{CE} • PNP V_{CB} •		(W)	MIN TYP •	$f_{\alpha e}$ * kHz $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N1959		.6	40	100 •
2N1959A		.6	40	100 •
• 2N2904		.6	40	200 •
2N2480A		.6	50	
• 2N4937		.6	50	400 •
• 2N4938		.6	50	400 •
• 2N4939		.6	50	400 •
• 2N3306		.6	100	20 •
2N1420		.6	100	100 •
• 2N2905		.6	100	200 •
2N1946		.6	300 •	60 •
2N1952		.6	375 •	60 •
2N1949		.6	650 •	60 •
• 2N997		.6	1000	
• 2N1123		.75	40	3
• 2N3602		.75	60	
2N2194		.8	20	50 •
2N2194A		.8	20	50 •
2N2194B		.8	20	50 •
2N2886		.8	22	
2N2410		.8	30	300 •
2N2868		.8	40	50 •
2N3110		.8	40	86 •
2N5041		.8	40	100
2N2218A		.8	40	250 •
2N3109		.8	100	
2N2192		.8	100	50 •
2N2192A		.8	100	50 •
2N2192B		.8	100	50 •
2N1420A		.8	100	100 •
2N2219A		.8	100	250 •
2N1505		.85	7	250 ▲
2N1506		.85	10	250 ▲
2N4425		.9	180	120 •
2N5413		1		250 •
• 2N1183B		1	20	.5
2N3253		1	25	175 •
• 2N1184B		1	40	.5
• 2N671		1	40	.5
• 2N3867		1	40	60 •
• 2N4890		1	50	100 •
• 2N3244		1	50	175 •
2N1060		1.8	16.7 •	
• 2N3672		1.8	75	
2N2380A		2	20	100 •
• 2N3764		2	30	
2N2479		2	30	5
2N2478		2	30 •	10
• 2N3485		2	80	200 •
• 2N3486		2	200	200 •
2N1051		3	25 •	
2N2224		3	40	100
• 2N3762		4	30	70 •
2N3664		5	8	
2N1700		5	20	1.2
2N1479		5	20	1.5
2N3660	•	5	25	25 •
2N4225		5	25	150
2N4237		5	30	30 •
2N1481		5	35	1.5
2N5042		5	40	100 •
2N3053		5	50	100 •
• 2N3467		5	80	175 •
2N3506		5	120	60 •
2N1081		6	20	
• 2N3719		6	25	90 •
• 2N4234		6	30	4 •
2N3553		7	10	400 •
• 2N4037		7	50	60 •
2N3717		7.5	8	
2N3620		7.5	30	200 •
2N3624		7.5	30	200 •
2N3619		7.5	40	200 •
2N3623		7.5	40	200 •
• 2N3202		8.75	20	
• 2N3208		8.75	20	
2N3961		10		500 •
2N3718		10	8	
2N4041		10	10	600 •
2N4430		10	20	600 •
2N4430		10	20	600 •
• 2N376		10	35	6 *
2N4012		11.6		500 •
2N3375		11.6	10	500 •
• 2N3214		12	30	.6 •
2N3621		15	40	200 •
2N3622		15	40	200 •
2N3625		15	40	200 •
2N3626		15	40	200 •
2N4040		17.5	10	500 •

(continued)

VOLTAGE

TYPE NO NPN / PNP	V_{CE} / V_{CB}	DISS (W)	GAIN MIN	GAIN TYP	FREQ f_{ae} kHz / f_{ab} MHz / f_T MHz	f_{max} MHz
2N4431		18	20		600	
2N2553		20	20		.225	
2N2557		20	20		.225	
2N2561		20	20		.25	
2N2565		20	20		.25	
2N1043		20	20		10	*
2N3917		20	30			
2N1039		20	30		10	*
2N3918		20	100		80	
2N3632		23			400	
2N3632		23	10			
2N1330		23	30			
2N5712		25				
2N2948		25	2.5		100	
2N1701		25	20		1	
2N1483		25	20		1.25	
2N4898		25	20		3	
2N4910		25	20		3	
2N1485		25	35		1.25	
2N401		25	40		.4	
2N235A		25	40		.5	
2N236A		25	40		.5	
2N235B		25	60		.5	
2N236B		25	60		.5	
2N4918		30	20		3	
2N4921		30	20		3	
2N3744		30	20		40	
2N3853		30	30		30	
2N3747		30	40		60	
2N3852		30	50		40	
2N3750		30	100		70	
2N1501		34	25		2	
2N1502		34	25		2	
2N4231		35	25		1	
2N297A		35	40		12	*
2N5295		36	30		.8	
2N5296		36	30		.8	
2N639		37	15			
2N665		37	40		20	*
2N3199		40	20			
2N3205		40	20			
2N2339		40	20		1	
2N5190		40	25		4	
2N5193		40	25		4	
2N1768		40	35		1.25	
2N5713		45				
2N5025		45	20		150	
2N456		50	10			
2N458		50	10			
2N379		50	20		5	*
2N1430		50	30		1.5	
2N2636		50	35			
2N277		50	35		10	*
2N1907		60	10		20	
2N1073		60	20		1.5	
2N2288		60	20		1.5	
2N2291		60	50			
2N2294		60	50			
2N5714		70				
2N3183		75	10			
2N3195		75	10			
2N3171		75	12			
2N1487		75	15		1	
2N1511		75	15		1	
2N1702		75	15		1	
2N1703		75	15		1	
2N4396		75	15		1	
2N1489		75	25		1	
2N1513		75	25		1	
2N5034		83	20		.8	
2N5035		83	20		.8	
2N3175		85	10			
2N3179		85	10			
2N3187		85	10			
2N3191		85	10			
2N3163		85	12			
2N3167		85	12			
2N4901		87.5	20		4	
2N5067		87.5	20		4	
2N4904		87.5	25		4	
2N4913		87.5	25		4	
2N2065A		90	20		5	*
2N350A		90	20		6	*
2N351A		90	25		6	*
2N176		90	25		7	*
2N376A		90	35		6	*
2N1359		90	35		10	*
2N2066A		90	50		1	*
2N1360		90	60		8.5	*

TYPE NO NPN / PNP	V_{CE} / V_{CB}	DISS (W)	GAIN MIN	GAIN TYP	FREQ f_{ae} kHz / f_{ab} MHz / f_T MHz	f_{max} MHz
2N1358		125	25		.1	
2N3771		150	15			
2N2338		150	15		1	
2N4907		150	20			
2N511A		150	20		.26	
2N512A		150	20		.28	
2N513A		150	20		.3	
2N514A		150	20		.43	
2N457A		150	30		200	*
2N457B		150	30		200	*
2N458A		150	30		200	*
2N174A		150	40		15	*
2N2491		170	35		10	*
2N1981		170	50		3	*
2N5301		200	15		2	
2N4398		200	15		4	
44						
2N130A		.1	26		.7	
45						
2N5181					700	
2N5182					700	
2N4243			40		.5	
2N5119			50		100	
2N5122			50		100	
2N5125			50		100	
2N916A			50		300	
2N4246			60		.5	
2N3587			80			
2N4043			80		150	
2N4045			80		150	
2N4880			80		150	
2N5117			100		100	
2N5118			100		100	
2N5120			100		100	
2N5121			100		100	
2N5123			100		100	
2N5124			100		100	
2N1676		.1	10.5		42	
2N1677		.1	25		32	
2N264		.125	20		10	
2N263		.125	45		20	
2N332		.15	9		6	
2N1149		.15	13		12	
2N117		.15	15		4	
2N333		.15	18		8	
2N334		.15	18		10	
2N273		.15	20		1	
2N1150		.15	25		13	
2N1151		.15	25		14	
2N118		.15	29		5	
2N335		.15	36		11	
2N3268		.15	46		2.5	
2N237		.15	50		.5	
2N1371		.15	50		2	
2N118A		.15	54		8	
2N1152		.15	55		15	
2N518		.15	60		11	
2N119		.15	63		6	
2N336		.15	76		13	
2N1153		.15	100		16	
2N3129		.15	100		60	
2N120		.15	200		7	
2N3247		.15	200		90	
2N3826		.2				
2N3827		.2				
2N4994		.2				
2N4995		.2				
2N472A		.2	10		8	
2N472		.2	10		30	
2N475A		.2	20		8	
2N475		.2	20		30	
2N1186		.2	30		1.5	
2N480A		.2	40		8	
2N480		.2	40		39	
2N3693		.2	40		120	
2N1451		.2	45		1.5	
2N1187		.2	50		2	
2N1674		.2	50		20	
2N1452		.2	60		2.2	
2N543A		.2	80		8	
2N543		.2	80		39	
2N1188		.2	100		2.5	
2N3694		.2	100		120	
2N2677		.25	20			
2N1373		.25	30		1.5	
2N586		.25	35			
2N1997		.25	40		4	
2N2678		.25	45			
2N1375		.25	50		2	
2N1377		.25	75		2	

TYPE NO NPN / PNP	V_{CE} / V_{CB}	DISS (W)	GAIN MIN	GAIN TYP	FREQ f_{ae} kHz / f_{ab} MHz / f_T MHz	f_{max} MHz
2N4287		.25	150			
2N4289		.25	150			
2N1388		.3		75		
2N839		.3	20	45		
2N842		.3	20	45		
2N780		.3	35	60		
2N2387		.3	40	30		
2N929		.3	40	30		
2N840		.3	40	45		
2N843		.3	45	65		
2N841		.3	80	65		
2N2388		.3	100	30		
2N930		.3	100	30		
2N3644		.3	100	200		
2N2586		.3	120	60		
2N2972		.3	150			
2N2974		.3	150			
2N2976		.3	150			
2N3463		.3	150			
2N3522		.3	155			
2N2973		.3	300			
2N2975		.3	300			
2N2977		.3	300			
2N3046		.35	50	30		
2N3047		.35	50	30		
2N3048		.35	50	30		
2N3043		.35	100	30		
2N3044		.35	100	30		
2N3045		.35	100	30		
2N4452		.35	115	200		
2N3523		.35	155			
2N3524		.35	155			
2N3246		.35	200	90		
2N4359		.36		200		
2N3121		.36	30	200		
2N3964		.36	250			
2N2604		.4	40	30		
2N2523		.4	60	100		
2N930A		.4	60	100		
2N2605		.4	100	30		
2N3548		.4	150			
2N2524		.4	150	100		
2N3550		.4	200	60		
2N332A		.5	9	10		
2N756		.5	12	50		
2N333A		.5	18	11		
2N334A		.5	18	12		
2N757		.5	18	50		
2N758		.5	18	50		
2N929A		.5	25	100		
2N759		.5	36	50		
2N335A		.5	37	13		
2N2247		.5	40	60		
2N2253		.5	40	60		
2N752		.5	40	200		
2N1704		.5	50	5		
2N336A		.5	76	15		
2N760		.5	76	50		
2N2248		.5	80	60		
2N2254		.5	80	60		
2N2249		.5	150	60		
2N2255		.5	150	60		
2N2725		.5	2000	100		
2N2038		.6	12			
2N2040		.6	30			
2N1132B		.6	30	90		
2N1988		.6	35	60		
2N2639		.6	50			
2N2640		.6	50			
2N2641		.6	50			
2N2722		.6	50			
2N3857		.6	50	4		
2N2642		.6	100			
2N2643		.6	100			
2N2644		.6	100			
2N2913		.6	150			
2N2915		.6	150			
2N3521		.6	155			
2N4019		.6	250			
2N4020		.6	250			
2N4023		.6	250			
2N2914		.6	300			
2N2916		.6	300			
2N2918		.6	300			
2N3642		.7	40	400		
2N3120		.8	30	200		
2N2433		.8	90	60		
2N2435		.8	185	90		
2N3347		1.2	40	30		
2N3348		1.2	40	30		

TYPE NO NPN / PNP	V_{CE} / V_{CB}	DISS (W)	GAIN MIN	GAIN TYP	FREQ f_{ae} kHz / f_{ab} MHz / f_T MHz	f_{max} MHz
2N3349		1.2	40		30	
2N3350		1.2	100		30	
2N3351		1.2	100		30	
2N3352		1.2	100		30	
2N3504		1.3	135			
2N3726		1.4	135			
2N3727		1.4	135			
2N2915A		1.5	60			
2N2916A		1.5	150			
2N3326		3	40		250	
2N3502		3	135			
2N2605A		4	200		100	
2N1218		6	40		7	*
2N5783		10	20			
2N5786		10	20			
2N1710		15	7.5		120	
2N1078		20	30			
2N419		25	9		.3	
2N3022		25	20		100	*
2N1294		25	30			
2N1323		25	30			
2N420		25	40		.4	
2N242		25	40		5	*
2N3025		25	50		100	*
2N1261		34	20		.2	
2N1262		34	30		.2	
2N1263		34	45		.2	
2N1209		45	20		12	
2N2032		45	20		12	
2N1069		50	10		1.2	
2N1070		50	10		1.2	
2N443		50	20		10	*
2N2138		62.5	30		20	*
2N2138A		62.5	30		20	*
2N2143		62.5	50		20	*
2N2143A		62.5	50		20	*
2N628		90	10		8	*
2N1550		90	10		10	*
2N1550A		90	10		10	*
2N1530		90	20		10	*
2N1530A		90	20		10	*
2N1293		90	30		.15	
2N1544A		90	30		6	*
2N1554		90	30		6	*
2N1535		90	35		8.5	*
2N1535A		90	35		8.5	*
2N1540		90	50		4	*
2N1540A		90	50		4	*
2N1558		90	50		5	*
2N1558A		90	50		5	*
2N1146A		90	60		4	*
2N1147A		90	60		4	*
2N1545		90	75		4	
2N1545A		90	75		4	*
2N2734		140	30		.35	
2N2737		140	30		.35	
2N511B		150	20		.26	
2N512B		150	20		.28	
2N513B		150	20		.3	
2N514B		150	20		.43	
2N458B		150	30		200	*
2N173		150	35		10	*
2N4049		170	15		2	*
2N4052		170	15		2	*
2N4280		170	15		2	*
2N4281		170	15		2	*
2N2077		170	25		10	*
2N2077A		170	25		10	*
2N2731		170	30		.35	
2N2081		170	40		10	*
2N2081A		170	40		10	*
2N2152		170	50		2.7	*
2N2152A		170	50		2.7	*
2N3312		170	60		1	*
2N3315		170	80		1	*
2N2156		170	80		2.7	*
2N2156A		170	80		2.7	*
2N1157		187	38		.2	
48						
2N1668		30	75		.2	
2N1667		30	140		.2	
50						
2N3840					6	
2N3830					250	
2N3831					250	
2N4935					700	
2N4936					700	
2N1085			40		.01	
2N3910			40		6	
2N3913			40		6	

(continued)

TYPE NO		DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •		(W)	MIN / TYP •	f_{ae} * kHz / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N2193B			40	50 •
2N1312	•	.12	40 •	2
• 2N1408	•	.15	25 •	
• 2N61B	•	.18	45 •	1
• 2N60B	•	.18	70 •	1.5
• 2N59B	•	.18	90 •	1.8
• 2N110	•	.2	3 •	5
• 2N1350	•	.2	95 •	8
• 2N381	•	.225	35	3
• 2N382	•	.225	60	4
• 2N383	•	.225	75	5
• 2N945		.25		1
2N3345		.25	15	2 •
2N3346		.25	25	2 •
• 2N1259		.275	25	40
2N3035		.3		
2N1389		.3	30 •	40
• 2N2000	•	.3	50	2
2N5209		.3	100	30 •
• 2N5086	•	.3	150	40 •
2N5210		.3	200	30 •
• 2N5087	•	.3	250	40 •
2N4409		.31	60	60 •
2N5249		.33	400	
• 2N4014		.36	50	300 •
2N915		.36	50	360 •
2N3416		.36	75	
2N3417		.36	180	
2N2511		.36	240	45 •
2N5232		.36	250	
2N5232A		.36	250	
• 2N2425	•	.375	25	10
• 2N1921		.4		1
2N2351		.4	40	130 •
2N2351A		.4	40	130 •
2N761	•	.5	20	50
2N2790		.5	20	350 •
2N718A		.5	40	80 •
2N2791		.5	40	350 •
2N762	•	.5	45	50
2N2645		.5	100	85 •
2N956		.5	100	100 •
2N2792		.5	100	350 •
2N3404		.56	75	
2N3405		.56	180	100
• 2N1084		.6	20	25 •
• 2N3081		.6	30	150 •
2N1837		.6	40	180 •
2N2453A		.6	150	
2N1154	•	.75	19 •	1
2N1338		.8	10	70 •
2N2787		.8	20	350 •
2N2193		.8	40	50 •
2N2193A		.8	40	50 •
2N2193B		.8	40	50 •
2N1613		.8	40	80 •
2N1837A		.8	40	180 •
2N4047		.8	40	250 •
2N2788		.8	40	350 •
2N2049		.8	100	85 •
2N1711		.8	100	100 •
2N2789		.8	100	350 •
2N5414		1		250 •
• 2N3309		1	5	500 •
• 2N3245		1	30	150 •
2N1711A		1	100	70 •
2N3680		1.2	150	50 •
• 2N721A		1.8	32 •	80 •
2N3737		2	20	
• 2N3671		3	75	
• 2N3673		3	75	
2N3725		3.5	40	250 •
2N3735		4	20	
2N5022		4	25	170 •
2N3945		5	40	
2N3444		5	40	175 •
• 2N3468		5	50	150 •
2N3016		5	60	200 •
2N1613A		5	80 •	60 •
2N3507		5	90	60 •
2N3628		7.5	30	200 •
2N3627		7.5	40	200 •
2N2239		10	30	
2N5321		10	40	50 •
• 2N5323		10	40	50 •
2N3017		10	60	200 •
• 2N2148	•	12.5	60	3
• 2N2659		15	30	.3 •
• 2N2662		15	30	.3 •
• 2N2665		15	50	.3 •
• 2N2668		15	50	.3 •

(continued)

VOLTAGE

TYPE NO NPN V_{CE} • PNP V_{CB} •	DISS (W)	GAIN MIN TYP •	FREQ f_{oe} * kHz f_{ab} MHz f_T • MHz f_{max} ▲ MHz
• 2N2554	20	20	.225 •
• 2N2558	20	20	.225 •
• 2N2562	20	20	.25 •
• 2N2566	20	20	.25 •
• 2N1044	20	20	10 *
• 2N2875	20	20	25 •
• 2N1040	20	30	10 *
2N3629	20	40	200 •
2N3630	20	40	200 •
2N3018	25	60	200 •
• 2N3159	28	25	10 *
• 2N1756	28	30	15 *
• 2N1760	28	60	15 *
• 2N3155	28	60	15 *
• 2N1046B	30	10	20 •
• 2N297	45	12	.005
2N5026	45	20	150 •
2N5490	50	20	.8 •
2N5491	50	20	.8 •
2N5494	50	20	.8 •
2N5495	50	20	.8 •
• 2N278 •	50	35	10 *
• 2N1046	60	60	20 •
2N4932	70		
2N5707	70		
2N5036	83	20	.8 •
2N5037	83	20	.8 •
• 2N2832	85	25	17.5 *
• 2N1168 •	90	70	10 *
• 2N1518 •	95	15	4 *
• 2N1520 •	95	17	4 *
• 2N1522 •	95	22	4 *
2N5708	100		
2N5048	100	15	
2N3667	117	15	.5 •
2N5709	140		
• 2N1908	150	10	20 •
2N2015	150	15	25 *
• 2N1021A	150	30	.2 •
• 2N1021	150	30	.43 •
2N3470	150	100	7 *
2N2226	150	100	10 *
2N3474	150	350	4 *
2N2230	150	400	7 *
2N4433	165		200 •
• 2N2490	170	20	10 *
• 2N1982	170	50	3 *
2N3429	176	10	20 *
• 2N575	187	19	.15 •
• 2N1157A	187	38	.2 •
2N2775	200	10	.2 •
2N2739	200	10	14 *
2N2757	200	10	14 *
2N2745	200	10	14.5 *
2N2763	200	10	14.5 *
2N2751	200	10	16 *
2N2769	200	10	16 *
2N1809	250	10	14 *
2N1830	250	10	14 *
2N2109	250	10	14 •
2N2130	250	10	14 *
2N1816	250	10	14.5 *
2N2116	250	10	14.5 *
2N1823	250	10	16 *
2N2123	250	10	16 *
2N5575	300	10	400 *
2N5576	300	10	400 *
2N5577	300	10	400 *
55			
2N3678		40	
2N2936		150	
2N2937		150	
2N4099		150	150
2N4100		150	150
2N4879		150	150
• 2N3603	.5	60	
• 2N3604	.75	60	
2N339	1	9	
2N1711B	1	100	70 •
2N5108A	3.5		
2N4428 •	3.5		1000 •
2N5470	4		2000 ▲
2N1480	5	20	1.5
2N1482	5	35	1.5
2N1332	23	30	
2N1484	25	20	1.25
2N3054	25	25	
2N1486	25	35	1.25
• 2N539	34	30	.2 •
• 2N539A	34	30	.2 •

TYPE NO NPN V_{CE} • PNP V_{CB} •	DISS (W)	GAIN MIN TYP •	FREQ f_{oe} * kHz f_{ab} MHz f_T • MHz f_{max} ▲ MHz
• 2N540	34	45	.2 •
• 2N540A	34	45	.2 •
• 2N2836 •	35	30	10 *
2N1769	40	35	1.25
• 2N2266	50	25	.2 •
• 2N2267	50	25	.2
• 2N2268	50	25	.2 •
• 2N2269	50	25	.2 •
• 2N638A	60	20	
• 2N637A	60	30	
• 2N1136A	60	50	.5
• 2N1137A	60	75	.5
• 2N1138A	60	100	.5
2N1488	75	15	1
2N1512	75	15	1
2N1490	75	25	1
2N1514	75	25	1
2N3235	117	20	
• 2N174	150	25	10 *
• 2N1022A	150	30	.2 •
• 2N1022	150	30	.43 •
• 2N2076	170	25	10 *
• 2N2076A	170	25	10 *
• 2N2080	170	40	10 *
• 2N2080A	170	40	10 *
• 2N574	187	9	.1 •
• 2N575A	187	19	.15 •
60			
• 2N2871			
2N4307			
2N4308			
2N4311			
2N4312			
2N4104			60 •
2N5188 •			250 •
2N5189 •			250 •
• 2N3779		10	
• 2N3775		20	
• 2N5156		25	.15 •
2N2720		30	
2N2721		30	
2N2060B		30	.1
• 2N4242		40	.5 •
• 2N5254		50	
2N916B •		50	500 •
2N3907		60	
• 2N4245		60	.5 •
2N392		60	6 *
2N3908		100	
2N930B •		100	45 •
2N2484A •		100	60 •
2N2489A		100	60 •
• 2N2907A		100	200 •
2N4042		100	200 •
2N4044		200	200 •
2N4878		200	200
2N5426		1000	50 •
• 2N1226 •	.12	20	30
• 2N2190 •	.125	40	120
• 2N2191 •	.125	60	150
• 2N927	.15	8	.8
2N1588 •	.15	9	4
• 2N928	.15	18	.8
2N1591 •	.15	25	6
2N3130	.15	60	60 •
2N1594 •	.15	70	7
• 2N284A	.165	45 •	.35
• 2N61C •	.18	45 •	1
• 2N60C •	.18	70 •	1.5
• 2N59C •	.18	90 •	1.8
2N3858A	.2	60	135 •
• 2N4249	.2	100	
2N3859A	.2	100	135 •
2N4250A	.2	250	
• 2N1954 •	.215	30	
• 2N1956 •	.215	30	
• 2N1957 •	.215	30	
• 2N1955 •	.215	50	
2N4945	.22	40	
2N2673	.25	8	
2N2674 •	.25	12	
• 2N1474	.25	12	1
• 2N1474A	.25	18	2
2N2675 •	.25	22	
• 2N1475	.25	36	1
2N2676 •	.25	45	
2N754	.3	20	45 •
2N3568	.3	40	60 •
2N844	.3	40	85 •
2N2980	.3	50	

(continued)

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	f_{ae} kHz * / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N2981	.3	50	
2N2982	.3	50	
2N3516	.3	50	60 •
• 2N3645	.3	100	200 •
2N2978	.3	150	
2N2979	.3	300	
2N5233	.33	100	
• 2N4354	.35	25	500 •
2N3517	.35	50	60 •
2N3518	.35	50	60 •
• 2N4355	.35	60	500 •
• 2N3812	.35	125	100 •
• 2N3814	.35	125	100 •
• 2N3816	.35	125	100 •
• 2N3813	.35	250	100 •
• 2N3815	.35	250	100 •
• 2N3817	.35	250	100 •
• 2N3073 •	.36	30	200 •
2N2483	.36	40	70 •
2N3038	.36	80	50 •
• 2N3962	.36	100	
2N2484	.36	100	80 •
• 2N3965	.36	250	
2N3117	.36	250	120 •
2N2310	.4	12	150
• 2N1232	.4	14	1
2N2520	.4	18	50 •
• 2N2601	.4	18	50
• 2N2595	.4	20	80
2N2314 •	.4	20	150
• 2N1233	.4	28	1
• 2N3060	.4	30	5
• 2N3579	.4	30	90 •
2N2312	.4	30	150
2N2521	.4	36	50
• 2N2602	.4	36	50
• 2N4415A	.4	40	
• 2N1008B	.4	40	25 *
• 2N2590	.4	40	75
• 2N2596	.4	40	90
2N2515	.4	40	100 •
2N2315 •	.4	40	150
2N2459	.4	40	150 •
• 2N2906A	.4	40	200 •
• 2N3061	.4	60	8
• 2N3580	.4	60	100 •
• 2N2591	.4	70	100
2N2460	.4	70	150 •
2N2522	.4	76	50
• 2N2603	.4	76	50
2N2516	.4	80	100 •
• 2N2597	.4	80	120
• 2N4413A	.4	100	
• 2N2907A	.4	100	200 •
• 2N2592	.4	115	125
• 2N3547	.4	120	
2N2461	.4	120	150 •
• 2N3549	.4	150	
• 2N2593	.4	160	150
2N2462	.4	170	150 •
2N986	.5		
2N2949	.5	5	100 •
2N756A	.5	12	100
2N912	.5	15	60 •
2N1492 •	.5	15	275
2N758B	.5	18	50
2N757A	.5	18	100
2N758A	.5	18	100
2N742	.5	20	
2N742A	.5	20	
2N560	.5	20	50
2N734	.5	20	• 125 •
2N2952	.5	20	200 •
2N560A	.5	25	• 60
2N911	.5	35	70 •
2N759B	.5	36	
2N759A	.5	36	100
2N335B	.5	37	13
2N870	.5	40	80 •
2N735	.5	40	135 •
2N5820	.5	60	100 •
• 2N5821	.5	60	100 •
2N736A	.5	60	150 •
2N2464	.5	70	150 •
2N910	.5	75	80 •
2N760B	.5	76	50
2N760A	.5	76	100
• 2N4014	.5	80	
• 2N4015	.5	80	
• 2N4016	.5	80	

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	f_{ae} kHz * / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N736B	.5	80	100 •
2N736	.5	80	150 •
2N871	.5	100	100 •
2N5822	.5	100	120 •
• 2N5823	.5	100	120 •
2N4962	.5	100	250 •
2N2465	.5	120	150 •
2N2466	.5	170	150 •
2N998	.5	1600	
2N2785	.5	2000	
2N2723	.5	2000 •	100 •
2N999	.5	7000	
2N2724	.5	7000 •	100 •
2N545	.6	15	4
2N547	.6	20	4
2N549	.6	20	4
2N551	.6	20	4
2N1989	.6	20	40 •
2N1564	.6	20	120 •
2N1206	.6	25	20
• 2N4414A	.6	40	
2N1116	.6	40	6 •
2N1117	.6	40	30 •
2N3450	.6	40	100 •
2N1565	.6	40	135 •
• 2N2904A	.6	40	200 •
2N2060A	.6	50	
2N2223	.6	50	
2N2223A	.6	50	
2N2652	.6	50	
2N2652A	.6	50	
2N2060	.6	50	100 •
2N1644 •	.6	75 •	150
2N1566	.6	80	150 •
2N1566A	.6	80	200 •
• 2N4018	.6	100	
• 2N4021	.6	100	
• 2N4024	.6	100	
• 2N4412A	.6	100	
2N1507 •	.6	100	50
• 2N2905A	.6	100	200 •
2N2919	.6	150	
• 2N4022	.6	250	
• 2N4025	.6	250	
2N2920	.6	300	
2N2950	.7	5	100 •
2N243	.750	20 •	
2N244	.750	59 •	
2N1975	.8	15	60 •
2N698	.8	20	40 •
2N696A •	.8	20	150 •
2N2951	.8	20	200 •
2N3295	.8	20	200 •
2N1943	.8	30	
• 2N3072 •	.8	30	200 •
2N1974	.8	35	70 •
2N1889	.8	40	80 •
2N3108	.8	40	86 •
• 2N4030	.8	40	150 •
2N697A •	.8	40	150 •
2N2939	.8	60	150 •
2N1973	.8	75	80 •
2N3107	.8	100	
2N1890	.8	100	100 •
• 2N4032	.8	100	150 •
2N4960	.8	100	250 •
2N342	1	9	
2N2106	1	12	15
• 2N1242	1	14	1
• 2N1243	1	28	1
2N343A	1	28	6
2N343	1	29	
2N2107	1	30	15
2N3435	1	50	140 •
2N2017	1	75	
2N2108	1	75	15
• 2N3250A	1.2	100 •	250 •
• 2N3251A	1.2	200 •	300 •
• 2N3505	1.3	135	
2N2919A	1.5	60	
2N2920A	1.5	150	
2N3941	1.5	400	
2N2897 •	1.8	50	100 •
2N2900 •	1.8	50	100 •
• 2N3765	2	20	
2N2380	2	20	270 •
2N2196	2	30	15
2N2197	2	75	15
• 2N3485A	2	80	200 •
• 2N3486A	2	200	200 •

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	f_{ae} kHz * / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N339A	3	25	
• 2N3503	3	135	
2N497	4	12	
• 2N3763	4	20	
2N656	4	30	
2N4895	4	40	50 •
2N3722	4	40	300 •
2N3118	4	50	380 •
2N4896	4	100	50 •
• 2N5160 •	5		900 •
2N3309A	5	8	
2N497A	5	12	
2N2033	5	20	1.5
2N2034	5	20	1.5
2N3461 •	5	20	10 *
2N4226	5	20	150
2N3661 •	5	25	25 •
• 2N2282	5	30	
• 2N2467	5	30	
2N656A	5	30	
2N4238	5	30	30 •
2N2270 •	5	30	60 •
2N3056	5	115	100 •
2N3057	5	240	100 •
2N3296	6	5	100 •
• 2N3720	6	25	90 •
• 2N4235	6	30	4 •
2N5334	6	30	60 •
• 2N2657	7	40	20 •
2N5635 •	7.5		
2N2881	8.75	20	
• 2N3203	8.75	20	
2N1714	10	20	16 •
2N1718	10	20	16 •
2N3418	10	20	40 •
2N1716	10	40	16 •
• 2N1720	10	40	16 •
2N3420	10	40	40 •
• 2N3213	12	30	.6 •
• 2N386	12.5	20	
2N2035	14	15	1.5
2N5636 •	15		
2N1709	15	7.5	150 •
2N3919	15	40	
2N3920	15	100	
2N2036	17	15	2
2N2697	17.5	40	20 •
2N5161 •	20		500 •
• 2N5162 •	20		500 •
• 2N296	20	19	4 *
• 2N5739	20	20	
• 2N2555	20	20	.225 •
• 2N2559	20	20	.225 •
• 2N2563	20	20	.25 •
• 2N2567	20	20	.25 •
• 2N1045	20	20	10 *
• 2N158	20	21	4 *
• 2N158A	20	21	4 *
• 2N1041	20	30	10 *
2N3766	20	40	15 •
• 2N5597	20	70	
2N5598	20	70	
2N2947	25	2.5	100 •
2N3818 •	25	5	
2N2304 •	25	20	
• 2N5743	25	20	
• 2N5744	25	20	
• 2N4899	25	20	3 •
2N4911	25	20	3 •
• 2N3023	25	20	100 *
2N1296	25	30	
2N1325	25	30	
2N3740	25	30	4 •
• 2N251 •	25	30	12 *
• 2N268	25	40 •	6 *
• 2N3026	25	50	100 *
• 2N5605	25	70	
2N5606	25	70	
2N3230	25	1000	40 •
2N3836	25	2000	
2N3837	25	2000	
2N5637 •	30		
• 2N4919	30	20	3 •
2N4922	30	20	3 •
2N3222	30	20	10 •
2N3745	30	20	40 •
2N3223	30	40	10 •
2N3748	30	40	60 •
• 2N2870 •	30	50	.45 •
• 2N1666	30	55 •	.25

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	f_{ae} kHz * / f_{ab} MHz / f_T MHz • / f_{max} MHz ▲
2N3751	30	100	70 •
• 2N1669	30	110 •	.2
2N5425	33	500	50 •
• 2N538	34	20	.2 •
• 2N538A	34	20	.2 •
• 2N1202	34	40	.2 •
• 2N268A	35	20	
2N4232	35	25	1 •
2N5083	35	40	50 •
2N5084	35	100	50 •
2N5297	36	20	.8 •
2N5298	36	20	.8 •
2N2828	40	20	
2N2829	40	20	
• 2N3200	40	20	
• 2N3206	40	20	
2N1886	40	20	8 •
2N3551	40	20	40 •
2N5191	40	25	4 •
• 2N5194	40	25	4 •
2N2632	40	40	20
2N1208	45	15	12 •
2N1250	45	15	12 •
• 2N457	50	10	
• 2N5737	50	20	
• 2N2637	50	35	
• 2N5613	50	70	
2N5614	50	70	
• 2N1906 •	50	125 •	7.5 •
2N2877	53	20	30 •
2N2878	53	40	50 •
2N1210	60	15	8 •
2N1616	60	15	8 •
2N1079	60	20	
2N1080	60	20	
• 2N2139	62.5	30	20 *
• 2N2139A	62.5	30	20 *
• 2N2144	62.5	50	20 *
• 2N2144A	62.5	50	20 *
2N4395	62.5	60	7 •
• 2N5741	65	20	
2N2811	70	20	20 •
2N2812	70	40	30 •
• 2N3184	75	10	
• 2N3196	75	10	
• 2N3172	75	12	
2N2305 •	75	15	
2N2101	75	15	1.5
• 2N3176	85	10	
• 2N3180	85	10	
• 2N3188	85	10	
• 2N3192	85	10	
2N1616A	85	10	1.5 *
• 2N3164	85	12	
• 2N3168	85	12	
2N389	85	12	
2N389A	85	12	2
2N1212	85	12	8 •
2N2383	85	20	3 •
2N2384	85	20	3 •
• 2N4902	87.5	20	4 •
2N5068	87.5	20	4 •
• 2N4905	87.5	25	4 •
2N4914	87.5	25	4 •
• 2N629	90	10	8 *
• 2N1551	90	10	10 *
• 2N1551A	90	10	10 *
• 2N1164	90	15	4 *
• 2N1164A	90	15	4 *
• 2N1165	90	15	4 *
• 2N1165A	90	15	4 *
• 2N1029B	90	20	
• 2N1031B	90	20	
• 2N677B	90	20	
• 2N1531	90	20	10 *
• 2N1531A	90	20	10 *
• 2N1555	90	30	6 *
• 2N1555A	90	30	6 *
• 2N1536	90	35	8.5 *
• 2N1536A	90	35	8.5 *
• 2N375	90	35	10 *
• 2N1030B	90	50	
• 2N1032B	90	50	
• 2N678B	90	50	
• 2N1541	90	50	4 *
• 2N1541A	90	50	4 *
• 2N1559	90	50	5 *
• 2N1559A	90	50	5 *
• 2N1146B	90	60	4 *
• 2N1147B	90	60	4 *

(continued)

VOLTAGE

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	f_{oe} * kHz, f_{ab} MHz, f_T • MHz, f_{max} ▲ MHz
• 2N618	90	60	8.5 *
• 2N1546	90	75	4 *
• 2N1546A	90	75	4 *
2N1936	100	10	7 •
• 2N2285	100	20	
2N4210	100	20	
• 2N1651	100	35	.6 •
2N3597 •	100	40	30
2N5412	100	40	60 •
• 2N5621	100	70	
2N5622	100	70	
2N3055	115	20	
2N3445	115	40	10 •
2N3447	115	80	10 •
2N3232	117	18	
2N3487	117	20	10 •
2N3490	117	40	10 •
• 2N5435	120	10	1 •
• 2N5438	120	15	1 •
• 2N5693	120	20	.2 •
• 2N1358A	125	25	5 *
• 2N2733	140	30	.35 •
• 2N2736	140	30	.35 •
2N1015A	150	10	25 *
2N1016A	150	10	30 *
2N3772	150	15	
• 2N4908	150	20	
2N3713	150	25	
• 2N3789	150	25	4
2N3715	150	50	
• 2N3791	150	50	4
2N4050	170	15	2 *
2N4053	170	15	2 *
• 2N4282	170	15	2 *
• 2N4283	170	15	2 *
• 2N2357	170	30	
• 2N2730	170	30	.35 •
• 2N2153	170	50	2.7 *
• 2N2153A	170	50	2.7 *
• 2N3313	170	60	1 *
• 2N3316	170	80	1 *
• 2N2157	170	80	2.7 *
• 2N2157A	170	80	2.7 *
• 2N574A	187	9	.1 •
• 2N5302	200	15	2 •
• 2N4399	200	15	4 •
• 2N5683	300	15	2 •
2N5686	300	15	2 •
65			
2N343B	1	29	6
2N2102A	5	40	60 •
• 2N4036	7	40	60 •
• 2N4314	7	50	•
2N2649	8.7	10	800
• 2N5782	10	20	
2N5785	10	20	
• 2N2068	10	20	7 *
• 2N2068O	10	20	7 *
• 2N2068G	10	25	7 *
2N4440	11.6		500
2N5641 •	15		
2N3327	20	10	100 •
2N3138	20	10	400 ▲
2N3140	20	10	400 ▲
2N3733 •	23		400 •
2N3142	25	10	400 ▲
2N3144	25	10	400 ▲
• 2N3160	28	25	10 *
• 2N1757	28	30	15 *
• 2N1761	28	60	15 *
• 2N3156	28	60	15 *
2N5017	30		
2N5642 •	30		
2N5016	30		700 •
2N3878	35	50	40 •
• 2N561	50	20	.65
2N5492	50	20	.8 •
2N5493	50	20	.8 •
2N5643 •	60		
2N4130	60		200
2N3543	60	10	50
• 2N638B	60	20	
• 2N637B	60	30	
• 2N1136B	60	50	.5
• 2N1137B	60	75	.5
• 2N1138B	60	100	.5
2N5070	70		
2N5071	70		
2N3950 •	70		150 •
• 2N2210	70	25	10 *

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	f_{oe} * kHz, f_{ab} MHz, f_T • MHz, f_{max} ▲ MHz
• 2N2612	90	85	
2N2016	150	15	25 *
• 2N2075	170	25	10 *
• 2N2075A	170	25	10 *
• 2N2492	170	25	10 *
• 2N2079	170	40	10 *
• 2N2079A	170	40	10 *
70			
2N915A •		50	500 •
2N1510	.075	8	
2N3877	.2	20	135 •
• 2N2207 •	.26	200 •	175
• 2N2512	.26	200 •	175 •
2N3034 •	.3		
2N3037	.36	40	50 •
• 2N2660	15	30	.3 •
• 2N2663	15	30	.3 •
• 2N2666	15	50	.3 •
• 2N2669	15	50	.3 •
• 2N420A	25	40	.4
• 2N1203	34	25	.2 •
• 2N1011	35	30	5 *
2N5293	36	30	.8 •
2N5294	36	30	.8 •
• 2N639A	37	15	
• 2N1120	45	20	3 *
2N4933	70		
2N1617A	85	10	1.5 •
• 2N1029C	90	20	
• 2N1031C	90	20	
• 2N677C	90	20	
• 2N3132	90	40	3 *
• 2N1030C	90	50	
• 2N1032C	90	50	
• 2N678C	90	50	
2N5578	300	10	400 *
2N5579	300	10	400 *
2N5580	300	10	400 *
71			
2N707A •	.3	30 •	500 •
75			
2N1311 •	.12	30 •	1.5
2N5174	.2	40	
• 2N1056 •	.24	32 •	1
2N2317 •	.35	100	160
2N2039	.6	12	
2N2041	.6	30	
2N2437	.8	35 •	70 •
2N2438	.8	70 •	80 •
2N2439	.8	140 •	90 •
2N5262 •	1	20	250 •
• 2N1072	2	20	70 •
2N2631 •	3	35	60
2N5320	10	30	50 •
• 2N5322	10	30	50 •
• 2N2147 •	12.5	100	4 •
2N2781	15	7.5	140 •
2N2874	15	7.5	140 •
2N1327	23	30	
2N1334	23	30	
2N1298	25	30	
• 2N3161	28	25	10 *
• 2N1758	28	30	15 *
• 2N1762	28	60	15 *
2N3157	28	60	15 *
• 2N2140	62.5	30	20 *
• 2N2140A	62.5	30	20 *
• 2N2145	62.5	50	20 *
• 2N2145A	62.5	50	20 *
• 2N2833	85	25	17.5 *
• 2N630	90	10	8 *
• 2N1552	90	10	10 *
• 2N1552A	90	10	10 *
• 2N1166	90	15	4 *
• 2N1166A	90	15	4 *
• 2N1167	90	15	4 *
• 2N1167A	90	15	4 *
• 2N1532	90	20	10 *
• 2N1532A	90	20	10 *
• 2N1556	90	30	6 *
• 2N1556A	90	30	6 *
• 2N1537	90	35	8.5 *
• 2N1537A	90	35	8.5 *
• 2N1362	90	35	10 *
• 2N1542	90	50	4 *
• 2N1542A	90	50	4 *
• 2N1560	90	50	5 *
• 2N1560A	90	50	5 *
• 2N1146C	90	60	4 *

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	f_{oe} * kHz, f_{ab} MHz, f_T • MHz, f_{max} ▲ MHz
• 2N1147C	90	60	4 *
• 2N1363	90	60	8.5 *
2N3126	90	65	6 *
• 2N1547	90	75	4 *
• 2N1547A	90	75	4 *
2N5039	140	20	
• 2N2493	170	25	10 *
• 2N2154	170	50	2.7 *
• 2N2154A	170	50	2.7 *
• 2N2158	170	80	2.7 *
• 2N2158A	170	80	2.7 *
2N3237	200	12	
80			
2N4305			
2N4306			
2N4309			
2N4310			
• 2N4404			
• 2N4405			
• 2N4406			
• 2N4407			
• 2N5404			
• 2N5406			
• 2N5408			
• 2N5410			
• 2N4027			150 •
• 2N4028			150 •
• 2N4029			150 •
• 2N3780		10	
2N4865		10	
• 2N3776		20	
2N2852		20	40 •
• 2N1324		40	
2N2850		40	60 •
2N2851		40	60
• 2N4026		100	150 •
• 2N946	.25		1
• 2N1275	.25	9	.2
• 2N1654	.25	20	.25
2N755	.3	20	45 •
2N845	.3	40	85 •
2N4410	.31	60	60 •
• 2N4356	.35	25	500 •
2N2509	.36	40	45 •
• 2N3963	.36	100	
• 2N1922	.4		1
• 2N3062	.4	20	3
2N719	.4	20	70 •
2N2364	.4	40	50 •
2N2364A	.4	40	50 •
2N720	.4	40	80 •
• 2N2599	.4	40	90
2N2518	.4	40	100 •
• 2N3063	.4	50	5
2N2519	.4	80	100 •
• 2N2600	.4	80	120
2N719A	.5	20	70 •
2N738	.5	20	120 •
2N720A	.5	40	80 •
2N3701	.5	40	100
2N739	.5	40	135 •
2N740A	.5	80	100 •
2N740	.5	80	150 •
2N3700	.5	100	100
2N4963	.5	100	250 •
2N2858	.6	20	1 •
2N1572	.6	20	120 •
2N2086	.6	20	225 •
2N699	.6	40	80 •
2N1573	.6	40	135 •
2N2198 •	.6	45 •	
2N2087	.6	65 •	225
2N1574	.6	80	150 •
• 2N4017	.6	100	
2N1155 •	.75	19 •	1
2N1506A	.8	10	250 ▲
2N2890	.8	30	50 •
2N1893A	.8	30	100
2N3020	.8	30	100 •
2N2243	.8	40	50
2N2243A	.8	40	50 •
2N1893	.8	40	70 •
2N3665	.8	40 •	100
• 2N4031	.8	40	150 •
2N2891	.8	50	50 •
2N3036	.8	50	50 •
2N2940	.8	60	150 •
2N3019	.8	80	100 •
2N3666	.8	100 •	100

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	f_{oe} * kHz, f_{ab} MHz, f_T • MHz, f_{max} ▲ MHz
• 2N4033	.8	100	150 •
2N4961	.8	100	250 •
2N2436	.8	185 •	90 •
2N2440	.8	185 •	90 •
2N2849	.85	100	80 •
2N699B	.87	40	70 •
2N2983	1	20	40 •
2N2987	1	25	30 •
2N2985	1	40	40 •
2N2989	1	60	30 •
2N3078 •	1.2	25	15 •
2N3077 •	1.2	80	15 •
• 2N3496	1.8	40	200 •
2N2991	2	25	30 •
2N3998	2	40	
2N2993	2	60	30 •
2N3997	2	80	
2N3999	2	80	
• 2N3494	3	40	200 •
2N4897	4	40	50 •
2N3723	4	40	300 •
2N3374	5	10	230 •
2N4239	5	30	30 •
2N4150	5	40	
2N2594	5	50	40
2N5327	5	50	100 •
2N3056A	5	100	
2N3057A	5	100	
• 2N4236	6	30	4 •
2N5336	6	30	30 •
2N5148	6	30	50 •
2N5335	6	30	60 •
2N5337	6	60	30 •
2N5150	6	70	60 •
• 2N2658	7	40	20 •
• 2N3204	8.75	20	
• 2N5781	10	20	
2N5784	10	20	
2N3419	10	20	40 •
2N5729	10	30	
2N5152	10	30	60 •
2N3421	10	40	40 •
2N5552	10	50	30 •
2N5154	10	70	70 •
2N5487	10	100	40 •
• 2N3212	12	30	.6 •
• 2N387	12.5	20	
• 2N5333	15	30	
• 2N5390	15	2000	
2N2876	17.5		200 •
2N2698	17.5	40	20 •
2N2866	20	20	10 •
• 2N1326	20	30	
• 2N5599	20	30	
2N5600	20	30	
• 2N1331 •	20	30	8 *
2N2867	20	40	10 •
2N3767	20	40	15 •
• 2N5601	20	70	
2N5602	20	70	
• 2N1437	23	20	150 *
2N2887	25	15	
2N2308	25	20	1 •
• 2N4900	25	20	3 •
2N4912	25	20	3 •
• 2N5607	25	30	
2N5608	25	30	
2N3741	25	30	4 •
• 2N418	25	40	.4
• 2N5609	25	70	
2N5610	25	70	
2N3231	25	1000	40 •
2N4111	30		
2N4112	30		
2N4113	30		
2N3746	30	10	40 •
• 2N5384	30	20	
• 2N4920	30	20	3 •
2N4923	30	20	3 •
2N2150	30	20	10 •
2N3220	30	20	10 •
2N3851	30	30	30 •
2N4075	30	30	30 •
2N2892	30	30	50 •
2N2151	30	40	10 •
2N3221	30	40	10 •
2N3749	30	40	60 •
• 2N2869 •	30	50	.45 •
2N4076	30	50	30 •
2N3850	30	50	40 •

(continued)

TYPE NO NPN V_{CE} • PNP V_{CB} •	DISS (W)	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N2893	30	50	50 •
2N3752	30	100	70 •
2N4233	35	25	1 •
2N4998	35	30	60 •
• 2N553 •	35	40	25 *
2N5085	35	40	50 •
2N5000	35	70	70 •
2N4115	37		
• 2N639B	37	15	
2N1047	40	12	
2N1047A	40	12	2 •
2N1047B	40	12	90 *
• 2N1647	40	15	10 •
2N1690	40	20	
• 2N3201	40	20	
2N3552	40	20	40 •
2N5192	40	25	4 •
2N5195	40	25	4 •
2N1049	40	30	
2N1049A	40	30	2 •
2N1649	40	30	10 •
2N5427	40	30	30 •
2N1049B	40	30	90 *
2N2633	40	40	20
2N5428	40	60	30 •
2N5730	45	30	
2N5496	50	20	.8 •
2N5497	50	20	.8 •
2N1722	50	20	10 •
• 2N1971 •	50	25	25 *
• 2N5312	50	30	
2N5313	50	30	
• 2N5316	50	30	
2N5317	50	30	
• 2N5615	50	30	
2N5616	50	30	
• 2N2638	50	35	
2N1723	50	50	10 •
• 2N5617	50	70	
2N5618	50	70	
2N2879	53	20	30 •
2N2880	53	40	50 •
2N5002	58	30	60 •
2N5004	58	70	70 •
2N1211	60	15	8 •
2N1617	60	15	8 •
• 2N1073A	60	20	1.5
• 2N2289	60	20	1.5
2N5346	60	30	30 •
2N5477	60	30	30 •
• 2N2292	60	50	
• 2N2295	60	50	
2N5347	60	60	30 •
2N5478	60	60	30 •
2N2813	70	20	20 •
2N2814	70	40	30 •
• 2N3185	75	10	
• 2N3197	75	10	
• 2N3173	75	12	
2N5731	75	30	
2N5732	75	30	
• 2N3177	85	10	
• 2N3181	85	10	
• 2N3189	85	10	
• 2N3193	85	10	
2N1618A	85	10	1.5
• 2N3165	85	12	
• 2N3169	85	12	
2N424	85	12	
2N424A	85	12	2
• 2N3577	85	12	10 •
• 2N2526	85	20	.45
• 2N2444	85	90	
• 2N4903	87.5	20	4 •
2N5069	87.5	20	4 •
2N1724	87.5	20	10 •
• 2N4906	87.5	25	4 •
2N4915	87.5	25	4 •
2N1725	87.5	50	10 •
• 2N2423	90	20	
• 2N1160 •	90	20	10 *
• 2N1751	90	30	
• 2N1297	90	30	.15 •
• 2N1159 •	90	30	10 *
• 2N1295	90	40	.15
2N3125	90	50	5 *
• 2N1519 •	95	15	4 *
• 2N1521 •	95	17	4 *

TYPE NO NPN V_{CE} • PNP V_{CB} •	DISS (W)	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
• 2N1523 •	95	22	4 *
2N1937	100	10	7 •
2N4211	100	20	
• 2N5623	100	30	
2N5624	100	30	
• 2N5007	100	30	30 •
2N3598 •	100	40	30
• 2N5625	100	70	
2N5626	100	70	
• 2N5009	100	70	40 •
2N3446	115	40	10 •
2N3448	115	80	10 •
2N5006	116	30	
2N5008	116	70	40 •
2N3488	117	20	10 •
2N3491	117	40	10 •
2N4131	120		250
• 2N5694	120	20	.2 •
2N3238	150	8.5	
2N3239	150	8.5	
• 2N4909	150	20	
2N3714	150	25	
• 2N3790	150	25	4
2N5733	150	30	
2N5734	150	30	
• 2N1099 •	150	35	10 *
2N3716	150	50	
• 2N3792	150	50	4
• 2N2358	170	30	
2N2815	200	10	
2N2819	200	10	
2N2823	200	10	
• 2N5303	200	15	4 •
2N3149	300	10	.1 •
• 2N5684	300	15	2 •
2N5685	300	15	2 •
85			
2N3877A	.2	20	135 •
2N340	1	9	
2N341	1	9	
2N342A	1	9	
2N342B	1	9	6
2N340A	3	25	
90			
2N1622 •		40	5
2N1310 •	.12	35 •	1
• 2N3798	.36	150	100 •
• 2N3800	.36	150	100 •
• 2N3802	.36	150	100 •
• 2N3804	.36	150	100 •
• 2N3799	.36	300	100 •
• 2N3801	.36	300	100 •
• 2N3803	.36	300	100 •
• 2N3805	.36	300	100 •
• 2N3806	.6	150	100 •
• 2N3808	.6	150	100 •
• 2N3810	.6	150	100 •
• 2N3807	.6	300	100 •
• 2N3809	.6	300	100 •
• 2N3811	.6	300	100 •
2N1335	.85	13 •	170
2N1336	.85	13 •	170
2N1337	.85	13 •	170
2N3675	9	12	1 •
• 2N2661	15	30	.3 •
• 2N2664	15	30	.3 •
• 2N2667	15	50	.3 •
• 2N2670	15	50	.3 •
• 2N1438	23	20	4 *
2N3879	35	40	40 •
• 2N2141	62.5	30	20 *
• 2N2141A	62.5	30	20 *
• 2N2146	62.5	50	20 *
• 2N2146A	62.5	50	20 *
2N5329	65	40	80 •
• 2N1533	90	20	10 *
• 2N1538	90	35	8.5 *
• 2N1543	90	50	4 *
• 2N1548	90	75	4 *
2N5331	100	40	80 •
2N3863	117	30	.5 •
2N3864	117	30	.5 •
• 2N5436	120	10	1 •
• 2N5439	120	15	1 •
2N5038	140	20	
2N5671	140	20	
2N3236	150	17	
2N5632	150	25	1 •
2N5629	200	25	1 •

TYPE NO NPN V_{CE} • PNP V_{CB} •	DISS (W)	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
100			
• 2N5405			
• 2N5407			
• 2N5409			
• 2N5411			
• 2N3841			1.5
• 2N3781		10	
• 2N3777		20	
2N5175	.2	55	
2N5176	.2	140	
• 2N1476	.25	12	1
• 2N1477	.25	30	1
2N3033 •	.3		
2N2311	.4	12	150
• 2N3064	.4	15	2
• 2N3065	.4	30	4
2N2313	.4	30	150
• 2N2599A	.4	40	90
• 2N2600A	.4	80	120
2N1493 •	.5	15	300
2N1055	.6	3 •	4
2N1990 •	.6	20	
2N2859	.6	20	1 •
2N1615	.6	25	
• 2N4928	.6	25	100 •
2N3388	.6	60	36 •
• 2N3224	.7	20	60 •
• 2N3225	.7	40	80 •
2N2434	.8	45	80 •
2N2443	.8	50	80 •
2N2941	.8	60	150 •
2N1339	.85	10	220 ▲
2N1340	.85	10	250 ▲
2N1341	.85	10	280 ▲
2N2988	1	25	30 •
• 2N5679	1	40	
• 2N5680	1	40	
2N5681	1	40	
2N2990	1	60	30 •
2N2992	2	25	30 •
2N2994	2	60	30 •
• 2N3732 •	3		
2N498	4	12	
2N657	4	30	
2N3119 •	4	50	250 •
2N4924 •	5		100 •
2N498A	5	12	
• 2N2283	5	30	
• 2N2468	5	30	
2N657A	5	30	
2N3498	5	80	150 •
2N3499	5	200	150 •
2N5338	6	30	30 •
2N5339	6	60	30 •
2N2882	8.75	20	
2N3262 •	8.75	40	
2N2611	10	12	
2N1715	10	20	16 •
2N1719	10	20	16 •
2N2201	10	30	
2N2202	10	30	
2N2203	10	30	
2N2204	10	30	
2N2995	10	30	15 •
• 2N5679	10	40	10 •
2N1717	10	40	16 •
2N1721	10	40	16 •
2N5681	10	40	30 •
2N5488	10	40	40 •
2N2782	15	7.5	140 •
2N2783	15	7.5	140 •
• 2N1465	20	20	
• 2N1466	20	20	
2N5740	20	20	
• 2N5603	20	30	
2N5604	20	30	
• 2N1333 •	20	30	8 *
2N2525	25	10	
• 2N5611	25	30	
2N5612	25	30	
2N3898	30		
2N3899	30		
2N3996	30		
• 2N3207	40	20	
2N4004	40	25	
2N4005	40	25	
2N5429	40	30	30 •
2N2634	40	40	20
2N5430	40	60	30 •
• 2N5738	50	20	

TYPE NO NPN V_{CE} • PNP V_{CB} •	DISS (W)	GAIN MIN TYP •	FREQ $f_{\alpha e}$ kHz * $f_{\alpha b}$ MHz f_T MHz • f_{max} MHz ▲
2N5284	50	20	60 •
• 2N5286	50	20	60 •
• 2N5314	50	30	
2N5315	50	30	
2N5318	50	30	
2N5319	50	30	
• 2N5619	50	30	
2N5620	50	30	
2N5285	50	40	70 •
• 2N5287	50	40	70 •
• 2N1905 •	50	90 •	7.5 •
2N1618	60	15	8 •
2N1620	60	15	8 •
2N5348	60	30	30 •
2N5479	60	30	30 •
2N5479	60	30	30 •
2N5349	60	60	30 •
2N5480	60	60	30 •
• 2N5742	65	20	
2N4070	65	40	60 •
2N5102	70		
• 2N3186	75	10	
• 2N3198	75	10	
• 2N3174	75	12	
• 2N3178	85	10	
• 2N3182	85	10	
• 2N3190	85	10	
• 2N3194	85	10	
2N3166	85	12	
• 2N3170	85	12	
• 2N2834	85	25	17.5 *
• 2N589 •	90	20	
• 2N2445	90	30	
• 2N1364	90	35	10 *
• 2N1365	90	60	8.5 *
2N5049	100	15	
• 2N2286	100	20	
2N5288	100	20	30 •
• 2N5290	100	20	30 •
2N4002	100	25	
2N4003	100	25	
• 2N5627	100	30	
2N5628	100	30	
2N2691 •	100	30	10 *
• 2N1652	100	35	.6 •
2N3599 •	100	40	30
2N5289	100	45	40 •
• 2N5291	100	45	40 •
2N3489	117	15	10 •
2N3233	117	18	
2N3492	117	30	10 •
• 2N5695	120	20	.2 •
2N1900	125	8	50 •
2N1903	125	8	50 •
2N1899	125	10	50 •
2N1902	125	10	50 •
• 2N1970 •	125	17	10 *
2N1904	125	20	50 •
• 2N1412 •	125	25	10 *
2N3076	125	30	50 •
2N1015B	150	10	25 *
2N1016B	150	10	30 *
• 2N1100 •	150	25	10 *
2N3471	150	100	7 *
2N2227	150	100	10 *
2N3475	150	350	4 *
2N2231	150	400	7 *
2N3430	176	10	20 *
2N2816	200	10	
2N2820	200	10	
2N2824	200	10	
2N2776	200	10	.2 •
2N2740	200	10	14 *
2N2758	200	10	14 *
2N2746	200	10	14.5 *
2N2764	200	10	14.5 *
2N2752	200	10	16 *
2N2770	200	10	16 *
2N5250	200	15	10 •
2N1810	250	10	14 *
2N1831	250	10	14 *
2N2110	250	10	14 *
2N2131	250	10	14 *
2N1817	250	10	14.5 *
2N2117	250	10	14.5 *
2N1824	250	10	16 *
2N2124	250	10	16 *
2N3150	300	10	.1 •
2N5489	300	15	500 *

(continued)

VOLTAGE

TYPE NO	DISS	GAIN	FREQ
NPN V_{CE} / • PNP V_{CB} •	(W)	MIN / TYP •	$f_{\alpha e}$ kHz * / $f_{\alpha b}$ MHz / f_T MHz • / f_{max} MHz ▲
105			
• 2N398	.05	20	
• 2N398A	.15	20	1
• 2N2042	.2	20	.5
• 2N2042A	.2	20	.5
• 2N2043	.2	40	.75
• 2N2043A	.2	40	.75
• 2N398B	.25	20	1
2N3229 •	17.5	20	200 •
• 2N459 •	50	20	5 *
• 2N459A •	106	40	5 *
110			
• 2N2872			
• 2N1234	.4	14	.8
2N2008	.8	40	
• 2N1244	1	14	.8
120			
• 2N3842			1
2N4866		10	
2N5185 •		10	50 •
• 2N5155		25	.1 •
2N4000		45	
2N4001		45	
• 2N5400	.3	40	100 •
2N2316 •	.4	40	180
2N4390	.5	20	50
2N1156 •	.75	15 •	1
2N3526	.8	30	40 •
2N699A •	.8	40	180 •
2N2984	1	20	40 •
2N5682	1	40	
2N2986	1	40	40 •
2N2895 •	1.8	40	120 •
2N2898	1.8	40	120 •
• 2N3497	1.8	40	150 •
2N3152	2.5	40	200 •
• 2N3495	3	40	150 •
2N1445	4	20	
2N4862	4	50	
2N4863	4	50	
2N2102 •	5	35	60 •
2N2405 •	5	50	120 •
2N2485	8.7	10	
2N122 •	9	3	7
• 2N5680	10	40	10 •
2N5682	10	40	30 •
2N4864	16.6	50	
2N5202 •	35	10	60 •
2N1048	40	12	
2N1048A	40	12	2 •
2N1048B	40	12	90 *
2N1648	40	15	10 •
2N1691	40	20	
2N5050	40	25	
2N1050	40	30	
2N1050A	40	30	2 •
2N1650	40	30	10 •
2N1050B	40	30	90 *
2N1724A	50	20	10 •
2N1722A	50	30	10 •
• 2N1073B	60	20	1.5
• 2N2290	60	20	1.5
• 2N2212	60	50	
• 2N2293	60	50	
• 2N2296	60	50	
2N3264 •	84	20	20 •
2N1260	85	12	50 *
• 2N2527	85	20	.45
• 2N2287	100	20	
2N4347	100	20	
• 2N1653	100	35	.6 •
• 2N5437	120	10	1 •
2N4348	120	15	
• 2N5440	120	15	1 •
• 2N5696	120	20	.2 •
2N3266 •	125	20	20 •
2N5672	140	20	
2N5634	150	15	1 •
2N5633	150	20	1 •
• 2N2359	170	30	
2N2691A •	170	50	10 *
2N5631	200	15	1 •
2N5630	200	20	1 •
2N5926	350	10	1 •
125			
• 2N1655	.25	10	.2
• 2N1656	.25	20	.25
2N1054	.6	20	12 •
2N1207	.6	25	20
2N1342	.8	10	70 •
2N341A	3	25	
2N2911	5	20	1000 *
130			
• 2N5401	.3	60	100 •
140			
2N3442		20	80 •
2N5550	.3	30	50 •
2N4269	.36		
2N2896 •	1.8	60	120 •
2N2899 •	1.8	60	120 •
• 2N3634	5	50	270 •
• 2N3635	5	100	270 •
2N2486	8.7	10	
2N2650	8.7	10	800
2N3139	20	10	400 ▲
2N3141	20	10	400 ▲
2N3143	25	10	400 ▲
2N3145	25	10	400 ▲
2N3441	25	20	
• 2N3773	150	15	
• 2N3146	150	30	.5 •
150			
2N4068			50 •
2N4069			50 •
2N4057		30	28 •
2N3712	.1	30	40 •
• 2N2551	.4	15	
• 2N3413	.6	27.5 •	•
2N3114	.8	15	54 •
2N3923	.8	30	40 •
• 2N4888	.8	80	
2N4889	.8	80	
• 2N4929	1		100 •
2N4925 •	5		100 •
• 2N5281	5	30	20 •
2N3916	5	40	
2N3500	5	80	150 •
2N3501	5	200	150 •
2N2018	40	20	10 •
2N5051	40	25	
2N2020	40	40	10 •
2N5324	56	20	3 •
• 2N5324	56	20	6 •
2N4071	65	40	60 •
2N3263 •	84	150	20 •
2N3265 •	125	25	20 •
2N1015C	150	10	25 *
2N1016C	150	10	30 *
2N3472	150	100	7 *
2N2228	150	100	10 *
2N3476	150	350	4 *
2N2232	150	400	7 *
2N3431	176	10	20 *
2N2817	200	10	
2N2821	200	10	
2N2825	200	10	
2N2777	200	10	.2 •
2N2741	200	10	14 *
2N2759	200	10	14 *
2N2747	200	10	14.5 *
2N2765	200	10	14.5 *
2N2753	200	10	16 *
2N2771	200	10	16 *
2N5251	200	15	10 •
2N1811	250	10	14 *
2N1832	250	10	14 *
2N2111	250	10	14 *
2N2132	250	10	14 *
2N1818	250	10	14.5 *
2N2118	250	10	14.5 *
2N1825	250	10	16 *
2N2125	250	10	16 *
2N3151	300	10	.1 •
160			
2N5551	.3	60	100 •
2N3389	.6	60	36 •
• 2N2528	85	20	.45
2N3234	117	18	
2N3240	150	8.5	
• 2N3147	150	30	.5 •
170			
2N3659		20	
175			
2N3636	5	50	270 •
• 2N3637	5	100	270 •
2N3583	35	10	
180			
• 2N3930		60	
• 2N3931		60	
2N1053	.6	20	12 •
2N5264	87	30	50 •
200			
2N4056		30	28 •
2N1052	.6	20	12 •
2N2726	1	30	5 •
2N2727	1	75	10 •
2N3846	4	10	
2N3848	4	10	
2N3593	4	30	10 •
2N3594	4	75	10 •
2N4926 •	5		30 •
• 2N4930	5	20	20 •
• 2N2284	5	30	
• 2N2469	5	30	
• 2N3730 •	10		
2N3589	10	30	10 •
2N3591	10	30	10 •
2N3595	10	30	10 •
• 2N5416	10	30	15 •
2N3590	10	75	10 •
2N3592	10	75	10 •
2N3596	10	75	10 •
2N5662	15	40	
2N5666	15	40	
2N5660	20	40	
2N5664	30	40	
2N2019	40	20	10 •
2N5052	40	25	
2N2021	40	40	10 •
2N5325	56	20	3 •
• 2N5325	56	20	6 •
2N5074	70	30	40 •
2N5075	70	90	40 •
2N5387	100	25	
2N1015D	150	10	25 *
2N1016D	150	10	30 *
2N3473	150	100	7 *
2N2229	150	100	10 *
2N3477	150	350	4 *
2N2233	150	400	7 *
2N3432	176	10	20 *
2N3079	178	10	50 *
2N2818	200	10	
2N2822	200	10	
2N2778	200	10	.2 •
2N3260	200	10	.6
2N2742	200	10	14 *
2N2760	200	10	14 *
2N2748	200	10	14.5 *
2N2766	200	10	14.5 *
2N2754	200	10	16 *
2N2772	200	10	16 *
2N1812	250	10	14 *
2N1833	250	10	14 *
2N2112	250	10	14 *
2N2133	250	10	14 *
2N1819	250	10	14.5 *
2N2119	250	10	14.5 *
2N1826	250	10	16 *
2N2126	250	10	16 *
225			
2N3738	20	40	15 •
2N5239	100	20	5 •
240			
• 2N4357	.4	100	40
• 2N4358	.7	100	40 •
250			
2N4055		30	28 •
2N5059 •	1	35	
2N4927 •	5		30 •
• 2N4931	5	20	20 •
2N3440	5	40	10 •
2N4064	10	40	15 •
2N5655	20	30	10 •
2N4296	20	50	20 •
2N4297	20	75	20 •
2N3584	35	25	
• 2N5344	40	25	60 •
2N5076	70	30	40 •
2N5077	70	90	40 •
2N5388	100	25	
2N1015E	150	10	25 *
2N1016E	150	10	30 *
2N3433	176	10	20 *
2N2761	200	10	14 *
2N1813	250	10	14 *
2N2113	250	10	14 *
2N1820	250	10	14.5 *
2N2120	250	10	14.5 *
275			
2N5838	57	8	
300			
2N4054		30	28 •
2N5058 •	1	35	
2N5252	1	40	
2N5253	1	80	
2N3847	4	10	
2N3849	4	10	
• 2N5091	5	20	
2N3742	5	20	30 •
2N3743	5	25	30 •
• 2N5282	5	30	20 •
2N5279	5	50	50 •
2N4438	5.8	40	30 •
2N4439	5.8	100	30
• 2N5415	10	30	15 •
2N5667	15	40	
2N5280	15	50	50 •
2N5656	20	30	10 •
2N3739	20	40	15 •
• 2N5357	30	25	50 •
2N5665	30	40	
2N3585	35	25	
2N4240	35	30	15 •
• 2N5345	40	25	60 •
2N5839	57	10	
2N5804	62	10	
2N5240	100	20	5 •
2N5389	100	25	
2N3434	176	10	20 *
2N3080	178	10	50 *
2N1814	250	10	14 *
2N2114	250	10	14 *
320			
• 2N3731 •	5		
• 2N4346 •	5		
325			
2N5663	15	40	
2N5661	20	40	
2N3788	100	4	
350			
2N5092	5	15	
• 2N5093	5	20	
2N3439	5	40	10 •
2N4063	10	40	15 •
2N4298	20	25	20 •
2N5657	20	30	10 •
2N4299	20	50	20 •
375			
2N5840	57	10	
2N5805	62	10	
400			
2N5095	5	15	
• 2N5094	5	20	
• 2N5101	10	15	50 •
2N5466	70	15	
2N5467	70	15	
2N3902	100	10	
2N5241	125	15	2.5 •
2N2580 •	150	10	50 *
2N2581 •	150	25	50 *
450			
2N5097	5	15	
• 2N5096	5	20	
500			
2N5098	5	15	
2N5010	5	30	35 •
2N5157	100	30	2.8 •
2N2582	150	10	50 *
2N2583 •	150	25	50 *
530			
2N3861 •	2	30	50 •
550			
2N5099	5	15	
600			
2N5011	5	30	35 •
700			
2N5012	5	30	35 •
800			
2N5013	5	30	35 •
2N5658	30	40	
2N5659	30	40	
900			
2N5014	5	30	35 •
1000			
2N5015	5	30	35 •

TRANSISTOR MANUFACTURERS

EIA-type transistors are listed in numerical order. Each number is followed by those manufacturers currently supplying the device. Manufacturers' abbreviations can be found starting on p. 70.

2N34
CS ETC MS SD SMI

2N34A
CS ETC MS SD SMI

2N35
CS ETC GI MS SD SMI

2N36
CS ETC MS SD SMI

2N37
CS ETC MS SD SMI

2N38
CS ETC MS SD SMI

2N43
CS ETC GE MS SD SMI SSD

2N43A
CS ETC GE MS SD SMI SSD

2N44
CS ETC GE MS SD SMI SSD

2N44A
CS ETC MS SD SMI SSD

2N45
CS ETC MS SD SMI

2N45A
ETC

2N59
CS ETC MS SD SMI

2N59A
CS ETC MS SD SMI

2N59B
CS ETC MS SD SMI

2N59C
CS ETC MS SD

2N60
CS ETC MS SD SMI

2N60A
CS ETC SD SMI

2N60B
ETC SD SMI

2N60C
ETC SD SMI

2N61
ETC MS SD SMI

2N61A
CS ETC SD SMI

2N61B
CS ETC SD SMI

2N61C
CS ETC SD SMI

2N63
CS ETC SD SMI

2N64
CS ETC GI SD SMI

2N65
CS ETC GI MS SD SMI

2N77
CS ETC SD SMI

2N78
CS ETC GE SD SMI

2N78A
CS ETC GE SD SMI

2N94
CS ETC MS SD SMI

2N94A
CS ETC MS SD SMI

2N97
CS ETC SD SMI

2N98
CS ETC SD SMI

2N99
CS ETC SD SMI

2N103
CS ETC SD SMI

2N104
CS ETC MS SD SMI

2N105
CS ETC SD SMI

2N106
CS ETC SD SMI

2N107
CS ETC SD SMI

2N108
CS ETC SD SMI

2N109
CS ETC SD SMI

2N111
ETC SD SMI

2N111A
CS ETC SD SMI

2N112
ETC SD SMI

2N112A
CS ETC SD SMI

2N113
CS ETC SD SMI

2N114
CS ETC SD SMI

2N117
CS ETC SD SMI SSD TI

2N118
CS ETC SD SMI SSD TI

2N118A
CS ETC SD SMI

2N119
CS ETC SD SMI SSD TI

2N120
CS ETC SD SMI SSD TI

2N122
CS SMI TI

2N123
CS ETC GE MS SD SMI

2N124
CS ETC SD SMI

2N125
CS ETC SD SMI

2N126
CS ETC SD SMI

2N128
Lns SMI Spg SSD

2N129
SMI

2N130A
CS ETC SD SMI

2N131A
CS ETC SD SMI

2N132A
CS ETC SD SMI

2N133A
CS ETC SD SMI

2N135
CS ETC MS SD SMI

2N136
CS ETC MS SD SMI

2N137
CS ETC MS SD SMI

2N138
CS ETC SD SMI

2N139
CS ETC SD SMI

2N140
CS ETC SD SMI

2N145
CS ETC SD SMI

2N146
ETC SD SMI

2N147
ETC SD SMI

2N155
ETC KSC SD SMI Sol

2N156
CS KSC SSD

2N158
KSC SMI SSD

2N158A
KSC SMI SSD

2N160
ETC

2N160A
ETC

2N161
ETC

2N161A
ETC

2N162
ETC

2N162A
ETC

2N163
ETC

2N163A
ETC

2N164
CS ETC SD

2N164A
ETC SD SMI

2N165
ETC SD SMI

2N166
ETC SD SMI

2N167
ETC GE SD SMI SSD

2N167A
CS ETC GE SMI SSD

2N168
CS ETC SD SMI SSD

2N168A
ETC

2N169
CS ETC GE SD SMI SSD

2N169A
CS ETC GE SD SMI SSD

2N170
CS ETC SD SMI

2N172
CS ETC SD SMI

2N173
CS Dlc ETC Mot SD SMI Sol

2N174
CS Dlc ETC Mot SD SMI Sol

2N174A
CS Dlc ETC Mot SD SMI

2N175
CS ETC SD SMI

2N176
CS Dlc ETC KSC Mot SD SMI

2N178
CS ETC KSC Mot SD SMI

2N180
CS ETC SD SMI

2N181
CS ETC SD SMI

2N182
CS ETC SD SMI

2N183
CS ETC SD SMI

2N184
CS ETC SD SMI

2N185
CS ETC MS SD SMI

2N186
CS ETC MS SD SMI

2N186A
CS ETC GE MS SD SMI

2N187
CS ETC GE MS SD SMI

2N187A
CS ETC GE MS SD SMI

2N188
CS ETC GE MS SD SMI

2N188A
CS ETC GE MS SD SMI

2N189
CS ETC GE MS SD SMI

2N190
CS ETC GE MS SD SMI

2N191
CS ETC GE MS SD SMI

2N192
CS ETC GE MS SD SMI

2N193
CS ETC SD SMI

2N194
CS ETC SD SMI

2N194A
CS ETC SD SMI

2N206
ETC SD SMI

2N207
Lns

2N207A
ETC Lns

2N207B
ETC Lns

2N211
CS ETC MS SD SMI

2N212
CS ETC MS SD SMI

2N213
CS ETC MS SD SMI

2N213A
ETC SD SMI

2N214
CS ETC MS SD SMI

2N214A
ETC

2N215
CS ETC RCA SD SMI

2N216
CS ETC SD SMI

2N217
CS ETC RCA SD SMI

2N218
CS ETC SD SMI

2N219
CS ETC SD SMI

2N220
CS ETC SD SMI

2N221A
Aml CS Fch HS Lns Mot NS Ray SMI Spg TI Tns

2N223
CS ETC Lns SD SMI

2N224
CS ETC Lns SD SMI

2N225
CS ETC Lns SD SMI

2N226
CS ETC Lns SD SMI

2N227
CS ETC Lns SD SMI

2N228
CS ETC SD SMI

2N229
CS ETC SD SMI

2N231
Lns SMI Spg

2N233
CS ETC SD SMI

2N233A
CS ETC SD SMI

2N234A
CS ETC KSC SMI Sol

2N235A
CS ETC KSC SD SMI Sol

2N235B
CS ETC SD SMI Sol

2N236A
CS ETC KSC SD SMI Sol

2N236B
CS ETC KSC SD SMI Sol

2N237
CS ETC SD SMI

2N238
CS ETC SD SMI

2N240
CS Lns SMI Spg

2N241
CS ETC SD SMI

2N241A
CS ETC GE MS SD SMI

2N242
CS ETC Mot SD SMI Sol

2N243
CS ETC SD SMI TI

2N244
CS ETC SD SMI TI

2N249
CS ETC SD SMI

2N250
CS ETC KSC SD SMI Sol TI

2N250A
CS ETC KSC SD SMI Sol

2N251
CS ETC KSC SD SMI Sol TI

2N251A
CS ETC KSC SD SMI Sol

2N252
CS ETC SD SMI

2N253
CS ETC SD SMI

2N254
CS ETC SD SMI

2N255
CS ETC KSC SD SMI Sol

2N255A
CS Dlc ETC KSC SD SMI Sol

2N256
CS ETC KSC SD SMI Sol

2N256A
CS ETC KSC SD SMI Sol

2N256B
Sol

2N257
CS ETC KSC SD SMI Sol

2N257B
CS ETC KSC SD SMI

2N257G
CS ETC KSC SD SMI

2N257W
CS ETC KSC SD SMI

2N263
SMI

2N264
SMI TI

2N265
CS ETC GE MS SD SMI

2N268
CS ETC KSC SD SMI Sol

2N268A
CS ETC KSC SD SMI Sol

2N269
CS ETC MS SD SMI

2N270
CS ETC MS RCA SD SMI

2N271
CS ETC SD SMI

2N271A
CS ETC SD SMI

2N272
CS ETC SD SMI

2N273
CS ETC SD SMI

2N274
RCA SMI

2N277
CS Dlc ETC Mot SD SMI Sol

2N278
CS Dlc ETC Mot SD SMI Sol

2N279
CS ETC SD SMI

2N280
CS ETC SD SMI

2N281
CS ETC SD SMI

2N282
CS ETC SD SMI

2N283
CS ETC SD SMI

2N284
CS ETC SD SMI

2N284A
CS ETC SD SMI

2N285A
CS ETC SD SMI Sol

2N285B
CS ETC SD SMI Sol

2N291
CS ETC MS SD SMI

2N292
CS ETC SD SMI

2N292A
ETC

2N293
CS ETC SD SMI

2N296
CS ETC KSC SD SMI Sol

2N297
CS ETC SD SMI

2N297A
CS Dlc ETC KSC Mot SD SMI Sol

2N301
CS Dlc ETC KSC Mot SD SMI Sol

2N301A
CS Dlc ETC KSC Mot SD SMI Sol

2N302
CS ETC SD SMI

2N303
CS ETC SD

2N306
CS ETC SD SMI

2N307
CS ETC KSC Mot SD SMI

2N307A
CS ETC KSC Mot SD SMI Sol

2N308
CS ETC SD SMI

2N309
CS ETC SD SMI

2N310
CS ETC SD SMI

2N311
CS ETC GI MS SD SMI

2N312
CS ETC GI MS SD SMI

2N315
CS ETC MS SD SMI TI

2N315A
CS ETC GI MS SD SMI

2N316
CS ETC GI MS SD SMI

2N316A
CS ETC GI MS SD SMI

2N317
CS ETC MS SD SMI TI

2N317A
CS ETC Lns MS SD SMI

2N319
CS ETC GE Mot MS SD SMI

2N320
CS ETC GE GI Mot MS SD SMI

2N321
CS ETC GE Mot MS SD SMI

2N322
CS ETC GE Mot MS SD SMI

2N323
CS ETC GE Mot MS SD SMI

2N324
CS ETC GE Mot MS SD SMI

2N325
SD

2N326
KSC SMI

2N327A
Crs CS ETC MS NS Ray SD SMI Sol SSD

2N327B
Crs Ray SMI Sol SSD

2N328A
Crs CS ETC MS NS Ray SD SMI Sol SSD

2N328B
Crs Ray SMI Sol SSD

2N329A
Crs CS ETC MS NS Ray SD SMI Sol SSD

2N329B
Crs Ray SMI Sol SSD

2N330A
Crs SMI Sol SSD

2N331
CS ETC GI Mot MS SD SMI

2N332
CS ETC GE SD SMI SSD TI Tns

2N332A
ETC GE SD SMI SSD TI Tns

2N333
ETC GE SD SMI SSD TI Tns

2N333A
ETC GE SD SMI SSD TI Tns

2N334
ETC GE SD SMI SSD TI Tns

2N334A
ETC GE SD SMI SSD TI Tns

2N335
CS ETC SD SMI SSD TI Tns

2N335A
ETC GE SD SMI SSD TI Tns

2N335B
ETC SD SMI SSD TI

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ETC GE SD SMI SSD TI Tns

2N336A
ETC GE SD SMI SSD TI Tns

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ETC GE SD SMI SSD TI Tns

2N337A
ETC GE SD SMI SSD TI Tns

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ETC GE SD SMI SSD TI Tns

2N338A
ETC GE SD SMI SSD TI Tns

2N339
ETC SD SMI SSD TI

2N339A
CS ETC SD SMI SSD TI

2N340
CS ETC SD SMI SSD TI

2N340A
CS ETC SD SMI SSD TI

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CS ETC SD SMI SSD TI

2N341A
CS ETC SD SMI SSD TI

2N342
CS ETC SD SMI SSD TI

2N342A
CS ETC SD SMI SSD TI

2N342B
CS ETC SD SMI SSD TI

2N343
CS ETC SD SMI SSD TI

2N343A
ETC SSD TI

2N343B
CS ETC SD SMI SSD TI

2N344
Lns SMI Spg SSD

2N345
Lns SMI Spg SSD

2N346
Lns SMI Spg SSD

2N350
CS ETC KSC Mot SD SMI Sol

2N350A
CS ETC KSC Mot SD SMI Sol

2N351
CS ETC KSC Mot SD SMI Sol

2N351A
CS ETC KSC Mot SD SMI Sol

2N356
CS ETC GI MS SD SMI SSD

2N356A
CS ETC GI MS SD SMI

2N357
CS ETC GI MS SD SMI

2N357A
CS ETC GI MS SD SMI

2N358
CS ETC GI MS SD SMI TI

2N358A
CS ETC GI MS SD SMI

2N359
CS ETC MS SD SMI

2N360
CS ETC MS SD SMI

2N361
CS ETC MS SD SMI

2N362
CS ETC GI MS SD SMI

2N363
CS ETC MS SD SMI

2N364
CS ETC SD SMI

2N365
CS ETC SD SMI SSD

TRANSISTOR MANUFACTURERS

2N366
CS ETC SD SMI

2N367
CS ETC SD SMI

2N368
CS ETC MS SD SMI

2N369
CS ETC MS SD SMI

2N370
SMI

2N372
SMI

2N375
CS ETC KSC Mot SD SMI Sol

2N376
CS ETC KSC Mot SD SMI Sol

2N376A
CS ETC KSC Mot SD SMI Sol

2N377
CS ETC GI MS SD SMI TI

2N377A
CS ETC GI KSC MS SD SMI

2N378
CS Dlc ETC KSC Mot SD SMI Sol TI

2N379
CS Dlc ETC KSC Mot SD SMI

2N380
CS ETC Mot SD SMI

2N381
CS ETC Mot MS SD SMI

2N382
CS ETC GI Mot MS SD SMI

2N383
CS ETC Mot MS SD SMI

2N384
CS RCA SMI

2N385
CS ETC GI MS SD SMI

2N385A
CS ETC GI SD SMI

2N386
Lns

2N387
Lns

2N388
CS ETC GI IDC MS RCA SD SMI TI

2N388A
CS ETC GI MS RCA SD SMI

2N389
CS ETC SD SMI SSC SSD STC TI Tns

2N389A
ETC SSC STC

2N392
CS Dlc ETC KSC SD SMI Sol

2N393
Lns Mot SMI SSD

2N394
CS ETC MS SD SMI

2N394A
CS ETC MS SD SMI

2N395
CS ETC GI Lns MS SD SMI TI

2N396
CS ETC GI Lns MS SD SMI TI

2N396A
CS ETC GE GI Lns MS SD SMI

2N397
CS ETC GI MS SD SMI TI

2N398
ETC Mot RCA SMI SSD TI

2N398A
ETC Mot RCA SMI

2N398B
RCA SMI

2N399
CS ETC KSC SD SMI Sol

2N400
CS ETC KSC SD SMI Sol

2N401
CS ETC KSC SD SMI Sol

2N402
CS ETC SD SMI

2N403
CS ETC SD SMI

2N404
CS ETC GE GI IDC Mot MS NPC RCA SD SMI TI

2N404A
CS ETC GE GI IDC Mot MS NPC RCA SD SMI

2N405
CS ETC SD SMI

2N406
CS ETC RCA SD SMI

2N407
CS ETC SD SMI

2N408
CS ETC Lns NPC RCA SD SMI

2N409
CS ETC SD SMI

2N410
CS ETC SD SMI

2N411
CS ETC SD SMI

2N412
CS ETC SD SMI

2N413
CS ETC GE GI MS SD SMI

2N413A
CS ETC SD SMI

2N414
CS ETC GE GI MS RCA SD SMI SSD

2N414A
CS ETC SD SMI

2N414B
CS ETC SD SMI

2N414C
CS ETC SD SMI

2N415
CS ETC SD SMI

2N415A
CS ETC SD SMI

2N416
CS ETC GI MS SD SMI SSD TI

2N417
CS ETC GI MS SD SMI TI

2N418
CS ETC

2N418
CS ETC KSC SD SMI Sol

2N419
CS ETC KSC SD SMI Sol

2N420
CS ETC KSC SD SMI Sol

2N420A
CS ETC KSC SD SMI Sol

2N422
CS ETC MS SD SMI

2N424
CS ETC SD SMI SSC SSD STC TI Tns

2N424A
CS ETC SD SSC SSD STC Tns

2N425
CS ETC GI MS SD SMI SSD

2N426
CS ETC GI MS SD SMI SSD TI

2N427
CS ETC GI MS SD SMI SSD TI

2N428
CS ETC GI Lns MS SD SMI SSD TI

2N428A
CS ETC GI SD SMI TI

2N438
CS ETC GI MS SD SMI TI

2N438A
CS ETC GI MS SD SMI TI

2N439
CS ETC GI MS SD SMI TI

2N439A
CS ETC GI MS SD SMI TI

2N440
CS ETC GI MS SD SMI TI

2N440A
CS ETC GI MS SMI

2N441
Dlc ETC Mot SD SMI Sol

2N442
Dlc ETC Mot SD SMI Sol

2N443
Dlc ETC Mot SD SMI Sol

2N444
CS ETC GI MS SD SMI

2N444A
CS ETC MS SD SMI

2N445
CS ETC GI MS SD SMI

2N445A
CS ETC GI MS SD SMI

2N446
CS ETC GI MS SD SMI

2N446A
CS ETC GI MS SD SMI

2N447
CS ETC GI MS SD SMI

2N447A
CS ETC GI SD SMI

2N447B
CS ETC GI SD SMI

2N448
CS ETC SD SMI

2N449
CS ETC GE SD SMI

2N450
CS ETC MS SD SMI

2N456
CS ETC KSC SD SMI Sol TI

2N456A
CS Dlc ETC KSC Mot SD SMI TI

2N456B
CS Dlc ETC KSC SD SMI TI

2N457
CS ETC IDC KSC SD SMI TI

2N457A
CS Dlc ETC IDC KSC Mot SD SMI TI

2N457B
CS Dlc ETC IDC KSC SD SMI TI

2N458
CS ETC KSC SD SMI TI

2N458A
CS Dlc ETC KSC Mot SD SMI

2N458B
CS Dlc ETC KSC SD SMI Sol

2N459
CS ETC KSC Mot SD SMI

2N459A
CS ETC Mot SD SMI

2N460
CS ETC Mot MS SD SMI

2N461
CS ETC GE GI Mot MS SD SMI

2N464
CS ETC GI Mot MS SD SMI

2N465
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CS ETC SD SMI SSD TI Tns

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CS ETC MS SD SMI

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CS ETC MS SD SMI

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CS ETC MS SD SMI

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CS ETC MS SD SMI

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Lns SMI SSD

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Lns SMI Spg SSD

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CS ETC Fch GE MS NS Ray SD SMI Spg SSD TI Tns

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CS ETC GE MS SD SMI SSD TI Tns

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CS ETC GE MS SD SMI SSD TI Tns

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ETC Lns Mot SMI Spg SSD

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ETC Lns Mot SMI Spg SSD

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ETC Lns Mot SMI Spg SSD

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ETC Lns Mot SMI Spg SSD

2N502
ETC Lns Mot SMI Spg SSD TI

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ETC Lns Mot SMI Spg SSD

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ETC Lns Mot SMI Spg SSD

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ETC Lns SMI Spg

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ETC Lns SMI Spg

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ETC MS SD SMI

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ETC MS SD SMI

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ETC MS SD SMI

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CS ETC GE Mot MS SD SMI

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ETC IDC SD SMI Sol TI

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ETC SD SMI Sol TI

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ETC SD SMI Sol TI

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ETC SD SMI Sol TI

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ETC SD SMI Sol TI

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ETC SD SMI Sol TI

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ETC SD SMI Sol TI

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ETC SD SMI Sol

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ETC SD SMI Sol

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CS ETC GI MS SD SMI

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CS ETC GI MS SD SMI

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CS ETC GE Mot MS SD SMI TI

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CS ETC Mot MS SMI TI

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CS ETC GE Mot MS SD SMI SSD TI

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ETC Mot MS SMI TI

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ETC Mot MS SMI TI

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KSC SMI Sol

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KSC SMI Sol

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KSC SMI Sol

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KSC SMI Sol

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ETC MS SMI SSD Tns

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ETC MS SMI SSD Tns

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CS Dlc ETC KSC Mot SD SMI Sol

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CS ETC KSC Mot SD SMI Sol

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CS ETC MS SD SMI

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Mot

2N560
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Sol

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Sol

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Sol

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Sol

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ETC MS SD SMI

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CS ETC SD SMI

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CS ETC GI MS SD SMI

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MS SMI TI

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MS SMI TI

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SMI TI

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GI Lns SSD

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GI Lns SSD

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SMI SSD

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CS ETC KSC SD SMI Sol

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CS ETC KSC SD SMI Sol

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CS ETC KSC SD SMI Sol

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CS ETC KSC SD SMI

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SMI

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SMI

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ETC MS RCA SD SMI

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ETC RCA SD SMI

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ETC Mot MS SD SMI TI

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ETC Mot MS SD SMI TI

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CS ETC GI Mot MS SD SMI

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Fch HS

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CS ETC GI MS SD SMI TI

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2N665
CS ETC KSC Mot SD SMI Sol

2N669
CS Dlc ETC KSC Mot SD SMI Sol

2N670
Lns

2N671
Lns

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CS ETC Lns SD SMI

2N673
Lns

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CS ETC KSC SD SMI Sol

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CS SD SMI Sol

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CS ETC MS SD SMI

2N680
CS ETC SD SMI

2N696
Con ETC Fch GI HS Lns Mot MS NPC NS Ray SD SMI TI Tns

2N696A
TI

2N697
Con CS ETC Fch GI HS IDC ITT Lns Mot MS NPC NS Ray RCA SD SMI TI Tns

2N697A
ETC Ray TI

2N698
Con Fch GI Lns MS Ray SMI TI Tns

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Con CS ETC Fch GI HS Lns Mot NS Ray RCA SD SMI TI Tns

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CS ETC Fch Lns MS NS Ray SD SMI TI

2N699B
Con CS ETC Fch Ray SD SMI TI

2N700
Mot

2N700A
Mot

2N702
CS ETC Mot MS NS SD SMI TI

2N702A
TI

2N703
CS ETC Fch Mot MS NS SD SMI TI

2N703A
TI

2N705
Mot SMI TI

2N705A
SMI TI

2N706
Con ETC Fch GI ITT Lns Mot MS NPC NS Ray SD SMI TI

2N706A
Con CS ETC Fch GI ITT Lns Mot MS NPC NS Ray SD SMI TI Tns

2N706B
CS ETC Fch GI ITT Lns Mot NS Ray SD SMI TI Tns

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CS ETC Ray SD SMI

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CS ETC Fch Mot SD SMI

2N707A
CS ETC Mot SD

2N708
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2N708A
SMI TI

2N709
ETC Fch Lns Ray RCA SMI TI Tns

2N709A
Fch SMI TI Tns

2N710
Mot SMI TI

2N711
Mot SMI TI

2N711A
Mot SMI TI

2N711B
Mot SMI TI

2N715
ETC MS SMI TI

2N716
ETC SMI TI

2N717
CS ETC Fch GI MS Ray SD SMI TI Tns

2N718
Aml Con CS ETC Fch GI HS ITT Mot MS NS Ray SD SMI TI Tns

2N718A
Aml Con CS ETC Fch GI HS Mot Ray RCA SD SMI TI Tns

2N719
CS ETC Fch GI Ray SD SMI TI

2N719A
CS ETC Fch SD SMI TI

2N720
Aml Con CS ETC Fch GI Ray SD SMI TI Tns

2N720A
Con CS ETC Fch GI Mot Ray RCA SD SMI TI Tns

2N721
ETC Fch GI Mot Ray SMI TI Tns

2N721A
SMI TI

2N722
ETC Fch GI ITT Mot NS Ray SD SMI TI Tns

2N722A
SMI TI Tns

2N726
ETC Mot SMI TI Tns

2N727
ETC Mot SMI TI Tns

2N728
SMI

2N729
SMI

2N730
Con CS ETC NS Ray SD SMI TI

2N731
Con CS ETC Mot NS Ray SD SMI TI

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CS ETC SD SMI Sol TI

2N735
CS ETC Mot NS SD SMI Sol TI

2N735A
ETC

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CS ETC Mot NS SD SMI Sol TI

2N736A
CS ETC NS SD SMI Sol TI

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ETC

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Mot SMI

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Mot SMI

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CS ETC NS SD SMI

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CS ETC NS SD SMI

2N743
CS ETC Fch GI ITT Mot Ray SD SMI TI

2N743A
Ray TI

2N744
Con CS ETC Fch GI ITT Mot MS NS Ray SD SMI TI

2N744A
Ray TI

2N752
CS ETC SD SMI

2N753
Con CS ETC Fch GI ITT Mot NS SD SMI TI

2N753/46
SMI

2N753/51
SMI

2N754
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2N755
CS ETC SD SMI

2N756
CS ETC MS SD SMI Sol

2N756A
CS ETC SD SMI Sol

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CS ETC SD SMI Sol

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CS ETC SD SMI Sol

2N758B
SMI Sol

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CS ETC MS NS SD SMI Sol TI

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CS ETC NS SD SMI Sol TI

2N759B
CS ETC SD SMI Sol TI

2N760
Aml CS ETC Fch ITT MS NS Ray SD SMI Sol TI

2N760A
Aml CS ETC Fch ITT NS Ray SD SMI Sol TI

2N760B
CS ETC SD SMI Sol TI

2N761
CS ETC MS SD SMI

2N762
CS ETC Mot MS NS SD SMI

2N768
Lns SMI Spg

2N769
Lns SMI Spg

2N779A
Lns Mot SMI Spg

2N780
CS ETC SD SMI TI

2N783
CS ETC Fch ITT Ray SD SMI

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CS ETC Fch ITT Ray SD SMI

2N784A
CS ETC Lns Ray SD SMI

2N794
Lns SMI Spg

2N795
Lns SMI Spg

2N796
Lns SMI Spg

2N797
SMI TI

2N827
Mot SMI

2N828
Lns Mot SMI

2N828A
Mot SMI

2N829
Mot SMI

2N834
Con CS ETC Fch GI HS ITT Lns Mot NS Ray SD SMI

2N834A
Con Fch ITT Ray

2N835
CS ETC Fch GI HS ITT Lns Mot Ray SD SMI

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Mot SMI

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CS ETC SD SMI

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Con CS ETC Mot SD SMI

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Con CS ETC Mot SD SMI

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SMI

2N845
SMI

2N846A
Lns SMI Spg

2N849
SMI TI

2N850
SMI TI

2N851
SMI TI

2N852
SMI TI

2N858
Crs Lns SMI Spg SSD

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Crs Lns SMI Spg SSD

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Crs Lns SMI Spg SSD

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Crs Lns SMI Spg SSD

2N869
Aml ETC Fch ITT Mot SMI SSD TI Tns

2N869A
Fch ITT Mot Ray SSD TI Tns

2N870
Con CS ETC Fch Ray SD SMI TI

2N871
Con CS ETC Fch Ray SD SMI TI

2N909
CS ETC Fch SD SMI

2N910
Aml Con CS ETC Fch Mot Ray SD SMI TI

2N911
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2N912
CS ETC Fch Ray SD SMI TI

2N913
CS

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Aml CS ETC Fch IEC ITT Mot NS Ray SD SMI TI

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Aml

2N916
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Aml

2N916B
Aml

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Aml ETC Fch IEC NS Ray RCA SMI TI

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Aml Con ETC Fch GE IEC Mot NPC NS Ray RCA SMI TI

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CS ETC SMI

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CS ETC SD SMI

2N921
CS ETC SD SMI

2N922
CS ETC SD

2N923
Crs Sol SSD

2N924
Crs Lns Sol SSD

2N925
Crs Sol SSD

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Crs Lns SMI Sol SSD

2N927
Crs Lns SMI Sol SSD

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Crs Lns SMI Sol SSD

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Aml Con ETC Fch GE GI IEC ITT Lns Mot NS Ray SMI Sol TI Tns

2N929A
Aml Con IEC Mot NS Ray SMI Sol TI Tns

2N930
Aml Con CS ETC Fch GE GI IEC ITT Lns Mot NPC NS Ray SD SMI Sol TI Tns

2N930A
Aml Con IEC Mot NS Ray SMI Sol TI Tns

2N930B
Aml

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Crs Lns SMI Sol SSD

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Crs Lns SMI Sol SSD

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Crs Lns SMI Sol SSD

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Crs Lns SMI Sol SSD

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Crs Lns SMI Sol SSD

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Fch Lns SMI SSD Tns

2N956
Con CS ETC Fch GI HS Mot NS Ray SD SMI SSD TI

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ETC Fch Ray SMI SSD

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Lns Mot SMI TI

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Lns Mot SMI TI

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Mot TI

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Lns Mot SMI TI

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Mot SMI TI

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Mot SMI SSD TI

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Lns Spg SSD

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Fch Mot SMI

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Lns Spg

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Lns Spg SSD

2N981
NS SMI SSD

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Lns Spg SSD

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Lns Spg SSD

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Lns SMI Spg SSD

2N985
Mot SMI SSD TI

2N986
Fch

2N987
Amp

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Amp

2N993
Amp

2N995
Aml Fch Mot SMI SSD TI

2N995A
Fch TI

2N996
Fch Mot MS SMI SSD

2N997
Fch GE Ray SMI SSD TI

2N998
Aml Fch GE Mot Ray SMI SSD

TRANSISTOR MANUFACTURERS

2N999
Fch GE Mot Ray SMI SSD

2N1000
CS ETC MS SD SMI

2N1007
CS ETC SD SMI

2N1008
CS ETC Mot MS SD SMI

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CS ETC Mot MS SD SMI

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CS ETC Mot SD SMI

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CS ETC MS SD SMI

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CS Dlc ETC KSC Mot SD SMI

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CS ETC GI MS SD SMI

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CS ETC SD SMI SSC STC Wst

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Dlc KSC SMI Sol TI

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RCA

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Crs ETC Lns NS SMI Sol SSD

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Crs ETC Lns SMI Sol SSD

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Crs ETC Lns SMI Sol SSD

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CS ETC SD SMI Sol

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CS SD SMI Sol

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CS ETC SD SMI Sol

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CS ETC SD SMI Sol

2N1032B
CS SD SMI Sol

2N1032C
CS SD SMI Sol

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Crs CS ETC Lns MS NS SD SMI Sol SSD

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Crs CS ETC Lns MS NS SD SMI Sol SSD

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Crs CS ETC Lns MS SD SMI Sol SSD

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KSC Mot SMI Sol SSD TI

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KSC

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KSC Mot SMI TI

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KSC

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KSC Mot SMI TI

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KSC

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KSC Mot SMI Sol TI

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KSC Mot SMI TI

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KSC Mot SMI TI

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KSC Mot SMI TI

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KSC

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CS ETC SD SMI TI

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2N1050A
CS ETC SD SMI SSC SSD STC TI

2N1050B
CS ETC SD SMI SSC SSD STC TI

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SSD

2N1052
SMI Sol SSD Tns

2N1053
SMI SSD Tns

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MS SMI SSD Tns

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CS SD SMI

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CS ETC GE MS SD SMI

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CS ETC MS SD SMI

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CS ETC MS SD SMI

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RCA SMI

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CS SD SMI SSC S SSC SSD STC

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CS SD SMI SSC SSD STC

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CS ETC PD SD SMI Sol SSC SSD STC

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CS ETC PD SD SMI SSC SSD STC

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SD STC

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Dlc Mot SD SMI Sol

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KSC

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CS ETC SD SMI SSD

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Tns

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CS ETC GE SD SMI

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CS ETC GI MS SD SMI

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CS ETC MS SD SSD

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Dlc ETC Mot SD SMI Sol

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CS ETC SD SMI

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CS ETC SD SMI

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CS ETC SD SMI

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CS ETC SD SMI

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ETC SD SMI

2N1111B
ETC SD SMI

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CS ETC MS SD SMI

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CS ETC MS SD SMI

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ETC MS SMI SSC SSD STC Tns

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CS ETC MS SD SMI Sol SSC SSD STC Tns

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Crs Lns SMI Sol Spg SSD

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Crs Lns Sol Spg SSD

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Crs Lns Sol Spg SSD

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CS ETC GE SD SMI

2N1122
Lns SMI SSD

2N1122A
Lns SMI Spg SSD

2N1123
Lns

2N1124
CS ETC Lns SD SMI

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CS ETC Lns SD SMI

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CS ETC Lns SD SMI

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CS ETC Lns SD SMI

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CS ETC Lns MS SD SMI

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Fch Mot SMI SSD TI Tns

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Fch ITT Mot SMI SSD TI Tns

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SMI SSD TI Tns

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CS KSC SD SMI Sol

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ETC

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ETC MS

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Mot SMI TI

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Mot SMI TI

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Mot SMI TI

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Mot SMI TI

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Mot SMI TI

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CS ETC SD SMI

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CS ETC KSC Mot SD SMI Sol

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CS ETC KSC Mot SD SMI Sol

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CS ETC SD SMI SSD TI

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CS ETC SD SMI SSD TI

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Sol

2N1157A
Sol

2N1158
ETC Lns

2N1158A
ETC Lns

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Dlc ETC KSC SD SMI Sol

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MS SMI

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MS SMI

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CS ETC GI SD SMI

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ETC

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ETC

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Lns

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Lns

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Lns

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KSC RCA SMI

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KSC RCA SMI

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KSC RCA SMI

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KSC RCA SMI

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KSC RCA SMI

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CS Mot SD SMI

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CS ETC Mot MS SD SMI

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Mot SMI TI

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CS ETC SD SMI

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Lns

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Lns

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Lns

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Lns

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KSC Sol

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KSC Sol

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Lns Mot

2N1204A
Lns Mot

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CS ETC PD SD SMI SSC SSD STC Trs

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CS ETC PD SD SMI SSC SSD STC Tns

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CS ETC SD SMI

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KSC

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Crs CS ETC Lns NS SD SMI Sol SSD

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Crs CS ETC Lns NS SD SMI Sol SSD

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Crs CS ETC Lns SD SMI Sol SSD

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Amp RCA SMI

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Amp RCA SMI

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Amp RCA SMI

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Crs CS ETC NS SD SMI Sol SSD

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Crs CS ETC SD SMI Sol SSD

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ETC

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Crs CS ETC NS SD SMI Sol SSD

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Crs CS ETC NS SD SMI Sol SSD

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Crs CS ETC NS SD SMI Sol SSD

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Crs SMI Sol SSD

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Sol

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CS ETC SD SMI Tns

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CS ETC SD SMI

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CS ETC Fch MS Ray SD SMI Sol SSD TI

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SMI SSD Tns

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SMI SSD Tns

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SSD Tns

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SMI SSD Tns

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SMI SSD Tns

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SSD Tns

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KSC Sol

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KSC Sol

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KSC Sol

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SMI

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CS ETC MS SD SMI

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CS ETC Lns SD

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CS ETC Lns SD

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CS ETC GI MS SD SMI TI

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Crs CS ETC NS SD SMI Sol

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CS ETC SD SMI TI

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KSC

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KSC

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CS ETC KSC SD SMI

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KSC

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CS ETC MS SD SMI

2N1300
Lns

2N1301
Lns

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Amp CS ETC GI MS RCA SD SMI SSD TI

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GI TI

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CS SMI

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CS SMI

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CS SMI

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CS ETC GI MS SD SMI

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ETC SMI

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CS ETC MS SD SMI

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SMI SSD

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CS ETC MS SD SMI

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CS KSC Mot SD SMI

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CS KSC Mot SD SMI

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CS ETC SD SMI

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CS ETC GI MS SD SMI

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TI

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CS ETC SD SMI

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CS ETC GI SD SMI

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Amp RCA SMI

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Amp RCA

2N1397
RCA

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CS ETC GI Mot MS SD SMI

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CS ETC SD SMI SSD

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CS ETC SD SMI SSD

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CS Lns SMI Spg SSD

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Dlc ETC Mot SD SMI Sol

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CS ETC SD SMI Tns

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CS ETC SD SMI Tns

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Con CS ETC Fch GI HS Mot MS NS Ray SD SMI SSD TI Tns

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Con Fch SSD TI

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Lns SMI Spg SSD

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Crs Lns SMI Sol SSD

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SMI Sol

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CS ETC SD SMI

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KSC

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KSC

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Crs SMI Sol SSD

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Crs CS ETC NS SD SMI Sol SSD

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Crs CS ETC NS SD SMI Sol SSD

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Crs CS ETC NS SD SMI Sol SSD

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Crs NS SMI Sol SSD

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SSD Tns

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CS ETC SD SMI

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CS ETC MS SD SMI

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KSC

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KSC

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Crs CS ETC SMI Sol

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CS ETC MS SD SMI

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CS ETC SD SMI

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Crs NS SMI Sol

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Crs SMI Sol

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ETC MS Pir RCA SMI SSC SSD STC Tns

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ETC IDC MS Pir RCA SMI SSC SSD STC Tns

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ETC MS Pir RCA SMI SSC SSD STC Tns

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Pir RCA SMI SSC SSD STC

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Pir RCA SMI SSC SSD STC

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Pir RCA SD SMI SSC SSD STC

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Pir RCA SD SMI SSC SSD STC

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CS ETC Fch IDC PD Pir RCA SD SMI SSC SSD STC

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RCA SSD

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RCA SSD

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RCA SSD

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Lns Mot SSD

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Lns Mot SSD

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Lns Mot SSD

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Lns Mot SSD

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ETC Lns

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CS ETC Lns Mot SMI Spg SSD

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CS ETC Lns Mot SMI Spg SSD

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KSC Sol

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KSC Sol

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NPC SMI SSD

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NPC SMI Sol SSD

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SMI Sol SSD

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SSD

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CS Dlc SD SMI Sol

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RCA

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RCA

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CS KSC Mot SD SMI Sol TI

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CS ETC KSC Mot SD SMI Sol

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CS ETC KSC Mot SD SM SMI Sol TI

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CS ETC KSC Mot SD SMI Sol TI

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ETC KSC Mot SMI Sol

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CS Dlc KSC Mot SD SMI Sol TI

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CS ETC KSC Mot SD SMI Sol

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CS ETC KSC Mot SD SMI Sol

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ETC KSC Mot SD SMI Sol

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CS ETC KSC Mot SD SMI Sol

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CS ETC KSC Mot SD SMI Sol

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CS ETC KSC Mot SD SMI Sol

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CS ETC KSC Mot SD SMI Sol

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CS IDC KSC Mot SD SMI Sol

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CS KSC Mot SD SMI Sol

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Mot

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Mot

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CS ETC MS NS SD SMI TI

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CS ETC MS NS SD SMI TI

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CS ETC MS NS SD SMI TI

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CS ETC MS SD SMI TI Tns

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CS ETC SD SMI SSD TI

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CS ETC GI MS RCA SD TI

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CS ETC GI MS RCA SD SMI TI

2N1613
Aml Con CS ETC Fch GI HS IDC Lns Mot NS Ray RCA SD SMI SSD TI

2N1613A
Ray TI

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CS ETC GE SD SMI

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CS ETC SD SMI Tns

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ETC GE PD SMI SSC SSD STC Tns

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Dlc ETC PD SMI SSC SSD STC Tns

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Crs CS ETC Lns NS SD SMI Sol SSD

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CS ETC GI MS SD SMI SSD

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RCA

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RCA SSD

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RCA SSD

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Crs

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Crs Lns SMI Sol

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Con SMI SSD

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SD SMI SSD STC Tns

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SD SMI SSD STC Tns

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SD SMI SSD STC Tns

2N1650
SD SMI SSD STC Tns

2N1651
ETC Mot SD SMI Sol SSD

2N1652
Mot SD SMI

2N1653
Mot

2N1654
Crs ETC Lns SD SMI Sol SSD

2N1655
Crs ETC Lns SD SMI Sol SSD

2N1656
Crs ETC Lns SD SMI Sol SSD

2N1658
KSC

2N1659
KSC

2N1666
Amp

2N1672
GI SD SMI

2N1672A
SD SMI

2N1676
Lns SMI Spg SSD

2N1677
Lns SMI Spg SSD

2N1681
CS ETC MS SD SMI

2N1683
Lns RCA

2N1690
ETC SD SMI SSC SSD STC

2N1691
ETC SD SMI SSC SSD STC

2N1692
Mot

2N1693
Mot

2N1694
CS ETC GE SD SMI

2N1700
CS ETC RCA SD SMI STC Tns

2N1701
CS RCA SD SMI SSC STC

2N1702
CS ETC PD RCA SD SMI Sol SSD STC

2N1703
CS SSD

2N1704
CS ETC SD SMI

2N1705
CS ETC GI Mot SD SMI

2N1706
CS ETC GI Mot MS SD SMI

2N1707
CS ETC GI Mot MS SD SMI

2N1708
Fch Mot SSD

2N1709
NPC SSD

2N1710
NPC SSD

2N1711
Aml Con ETC Fch HS Lns Mot NS Ray RCA SD SMI SSD TI Tns

2N1711A
Fch Ray SMI TI

2N1711B
Ray TI

2N1714
ETC SMI Sol SSD TI Tns

2N1715
ETC SMI SSD TI Tns

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ETC SMI Sol SSD TI Tns

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ETC SMI SSD TI Tns

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SMI Sol SSD TI Tns

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SMI SSD TI Tns

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SMI Sol SSD TI Tns

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SMI SSD TI Tns

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ETC SD SMI SSC SSD STC TI Tns

2N1722A
SD SMI SSC SSD STC TI Tns

2N1723
SD SMI SSD STC TI Tns

2N1724
ETC Fch GE Mot SD SMI Sol SSC SSD STC TI Tns

2N1724A
GE SD SSC SSD STC TI Tns

2N1725
Fch GE Mot SD SMI SSD STC TI Tns

2N1726
ETC Lns SMI Spg SSD

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ETC Lns SMI Spg SSD

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ETC Lns SMI Spg SSD

2N1729
ETC SSD TI

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ETC SSD TI

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ETC SSD TI

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ETC SSD TI

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ETC Lns Mot SMI Spg SSD

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ETC Lns SMI Spg SSD

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ETC Lns SMI Spg SSD

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ETC Lns SMI Spg SSD

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ETC Lns SMI Spg SSD

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ETC Lns SMI Spg SSD

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ETC Lns SMI Spg SSD

2N1748A
ETC Lns SMI Spg SSD

2N1749
ETC Lns SMI Spg SSD

2N1751
Mot SMI Sol SSD

2N1752
ETC Lns SMI Spg SSD

2N1754
ETC Lns Mot Spg SSD

2N1755
ETC KSC

2N1756
ETC KSC

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ETC KSC

2N1758
KSC

2N1759
ETC KSC

2N1760
ETC IDC KSC

2N1761
ETC KSC

2N1762
KSC

2N1768
ETC SMI SSC SSD STC

2N1769
ETC SMI SSC SSD STC

2N1785
CS ETC Lns SMI Spg SSD

2N1786
CS ETC Lns SMI Spg SSD STC

2N1787
CS ETC Lns SMI Spg SSD

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CS ETC Lns SMI Spg SSD

2N1789
CS ETC Lns SMI Spg SSD

2N1790
CS ETC Lns SMI Spg SSD

2N1808
CS ETC GI MS SMI TI

2N1809
SMI SS SMI SSC SSD Wst

2N1810
SMI SSC SSD Wst

2N1811
SMI SSC SSD Wst

2N1812
SMI SSC SSD Wst

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SMI SSC SSD Wst

2N1814
SMI SSC SSD Wst

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SMI SSC SSD Wst

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SMI SSC SSD Wst

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SMI SSC SSD Wst

2N1819
SMI SSC SSD Wst

2N1820
SSC SSD Wst

2N1823
SMI SSC SSD Wst

2N1824
SMI SSC SSD Wst

2N1825
SMI SSC SSD Wst

2N1826
SMI SSC SSD Wst

TRANSISTOR MANUFACTURERS

2N1830
SMI SSC SSD Wst

2N1831
SMI SSC SSD Wst

2N1832
SMI SSC SSD Wst

2N1833
SMI SSC SSD Wst

2N1837
Con CS ETC SD SMI SSD

2N1837A
Con CS ETC SD SMI SSD

2N1838
Con CS ETC SMI SSD

2N1839
CS ETC SD SMI SSD

2N1840
Con CS ETC SD SMI SSD

2N1853
SSD

2N1854
SSD

2N1864
CS ETC Lns SMI Spg SSD

2N1865
CS ETC Lns SMI Spg SSD

2N1866
CS ETC Lns SMI Spg SSD

2N1867
CS ETC Lns SMI Spg SSD

2N1868
CS ETC Lns SMI Spg SSD

2N1886
CS SD SMI SSD Tns

2N1889
Con CS ETC Fch Ray SD SMI Sol SSD TI

2N1890
Con CS ETC Fch GI Mot Ray SD SMI Sol SSD TI

2N1891
CS SD SMI TI

2N1892
ETC

2N1893
Con CS ETC Fch HS Lns Mot MS Ray RCA SD SMI SSD TI

2N1893A
Ray SMI SSD TI

2N1899
SMI SSD

2N1900
SMI SSD

2N1901
SMI SSD

2N1902
SMI SSD

2N1904
SMI SSD

2N1905
Lns RCA SMI

2N1906
RCA SMI

2N1907
SMI TI

2N1908
IDC SMI TI

2N1917
Crs Lns SMI Sol SSD

2N1918
Crs Lns SMI Sol SSD

2N1919
Crs NPC SMI Sol SSD

2N1920
Crs SMI Sol SSD

2N1921
Crs NS SMI Sol SSD

2N1922
Crs SMI Sol SSD

2N1924
GE Mot MS SD SMI TI

2N1925
CS GE Mot MS SD SMI TI

2N1926
CS GE Mot MS NPC SD SMI TI

2N1936
CS ETC SD SMI SSD TI Tns

2N1937
CS SD SMI SSD TI Tns

2N1940
MS SMI

2N1944
SSD

2N1945
MS SMI SSD

2N1946
MS SMI SSD

2N1947
MS SMI SSD

2N1948
MS SMI SSD

2N1949
MS SMI SSD

2N1950
MS SMI SSD

2N1951
MS SMI SSD

2N1952
MS SMI SSD

2N1953
SMI SSD

2N1954
CS ETC MS SD SMI

2N1955
CS ETC MS SD SMI

2N1956
CS ETC MS SD SMI

2N1957
CS ETC MS SD SMI

2N1958
CS ETC MS SD SMI SSD

2N1958A
CS ETC MS SD SMI SSD

2N1959
CS ETC HS Mot MS SMI SSD

2N1959A
CS ETC MS SD SMI SSD

2N1969
CS ETC

2N1970
CS Dlc ETC Mot SD SMI Sol

2N1971
Sol SSD

2N1972
Con CS ETC Fch MS SD SMI SSD

2N1973
Con CS ETC Fch MS NS SD SMI SSD TI

2N1974
Con CS ETC Fch NS SD SMI Sol SSD TI

2N1975
CS ETC Fch NS SD SMI Sol SSD TI

2N1980
CS ETC Mot SD SMI Sol SSD

2N1981
CS ETC Mot SD SMI Sol SSD

2N1982
CS ETC Mot SD SMI Sol SSD

2N1983
Con CS ETC Fch HS Lns Mot MS SD SMI SSD

2N1984
Con CS ETC Fch HS Lns Mot SD SMI SSD

2N1985
CS ETC Fch Lns MS SD SMI SSD

2N1986
Con CS ETC Fch Lns MS SD SMI SSD

2N1987
Con CS ETC Fch Lns MS SD SMI SSD

2N1988
Con CS ETC Fch Lns MS SD SMI SSD

2N1989
Con CS ETC Fch Lns MS SD SMI SSD

2N1990
Con CS ETC Fch GI HS Lns Mot Ray SD SMI SSD

2N1991
CS ETC Fch HS ITT Mot SMI SSD

2N1993
CS ETC GI SD SMI TI

2N1994
SMI TI

2N1995
MS SMI TI

2N1996
SMI TI

2N1997
CS ETC GI MS SD SMI TI

2N1998
CS ETC GI MS SD SMI TI

2N1999
CS ETC GI MS SD SMI TI

2N2000
CS SD SMI TI

2N2001
CS ETC SD SMI TI

2N2002
Crs SMI Sol

2N2003
Crs SMI Sol

2N2004
Crs SMI Sol

2N2005
Crs SMI Sol

2N2006
Crs SMI Sol

2N2007
Crs SMI Sol

2N2008
Fch SMI

2N2015
RCA SSD

2N2016
RCA SSD

2N2017
GE NS SMI SSD

2N2018
CS SD SMI SSD Tns

2N2019
CS SD SMI SSD Tns

2N2020
CS SD SMI SSD Tns

2N2021
CS SD SMI SSD Tns

2N2032
CS ETC SD SMI SSC SSD STC

2N2033
ETC Pir Sol SSC SSD STC

2N2034
Pir SMI Sol SSC SSD STC

2N2035
CS Pir SD SMI SSC SSD STC

2N2036
SMI SSD STC

2N2038
CS ETC MS SD SMI SSD

2N2039
CS ETC MS SD SMI SSD

2N2040
CS ETC MS SD SMI SSD

2N2041
CS ETC MS SD SMI SSD

2N2042
Mot SMI

2N2042A
Mot SMI

2N2043
Mot SMI

2N2043A
Mot SMI

2N2048
CS ETC IDC Lns Mot SMI Spg

2N2049
Con Fch Ray SMI SSD

2N2060
Aml Fch GE GI IEC Mot Ray SMI SSD TI

2N2060A
Aml Fch GI IEC Mot Ray SSD TI

2N2060B
Fch IEC SSD TI

2N2061A
CS ETC SD SMI

2N2062
ETC

2N2062A
CS ETC SD SMI

2N2063
ETC

2N2063A
CS ETC SD SMI

2N2064
ETC

2N2064A
CS ETC SD SMI

2N2065
ETC

2N2065A
CS ETC SD SMI

2N2066
ETC

2N2066A
CS ETC SD SMI

2N2067
ETC KSC

2N2067B
KSC

2N2067G
KSC

2N2067-O
KSC

2N2067W
KSC

2N2068
ETC KSC

2N2068G
KSC

2N2068-O
KSC

2N2075
CS Dlc ETC Mot SD SMI Sol

2N2075A
CS ETC Mot SD SMI

2N2076
CS Dlc ETC Mot SD SMI Sol

2N2076A
CS ETC Mot SD SMI

2N2077
CS Dlc ETC Mot SD SMI Sol

2N2077A
CS ETC Mot SD SMI

2N2078
CS Dlc ETC Mot SD SMI Sol

2N2078A
CS ETC Mot SD SMI

2N2079
CS Dlc ETC Mot SD SMI Sol

2N2079A
CS ETC Mot SD SMI

2N2080
CS Dlc ETC Mot SD SMI Sol

2N2080A
CS ETC Mot SD SMI

2N2081
CS Dlc ETC Mot SD SMI Sol

2N2081A
CS ETC Mot SD SMI

2N2082
CS Dlc ETC Mot SD SMI Sol

2N2082A
CS ETC Mot SD SMI

2N2084
Amp

2N2085
CS ET
CS ETC SMI

2N2086
CS ETC Lns SMI

2N2087
CS ETC Lns SMI

2N2089
Amp

2N2092
Amp

2N2096
Mot

2N2097
Mot

2N2099
Mot

2N2100
Mot

2N2101
CS ETC PD SMI Sol SSD

2N2102
Con CS NS Ray RCA SMI SSD TI Tns

2N2102A
Con Ray SMI SSD

2N2106
GE SMI SSD Tns

2N2107
ETC GE SMI SSD Tns

2N2108
GE SMI SSD Tns

2N2109
SMI SSC SSD Wst

2N2110
PT SMI SSC SSD Wst

2N2111
PT SMI SSC SSD Wst

2N2112
SMI SSC SSD Wst

2N2113
SMI SSC SSD Wst

2N2114
SMI SSC SSD Wst

2N2116
SMI SSC SSD Wst

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PT SMI SSC SSD Wst

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PT SMI SSC SSD Wst

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SMI SSC SSD Wst

2N2123
SMI SSC SSD Wst

2N2124
PT SMI SSC SSD Wst

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PT SMI SSC SSD Wst

2N2126
SMI SSC SSD Wst

2N2130
SMI SSC SSD Wst

2N2131
PT SMI SSC SSD Wst

2N2132
PT SMI SSC SSD Wst

2N2133
SMI SSC SSD Wst

2N2137
CS ETC Mot SD SMI Sol

2N2137A
CS ETC Mot SD SMI

2N2138
CS ETC KSC Mot SD SMI Sol

2N2138A
CS ETC Mot SD SMI Sol

2N2139
CS ETC KSC Mot SD SMI Sol

2N2139A
CS ETC Mot SD SMI

2N2140
CS ETC KSC Mot SD SMI Sol

2N2140A
CS ETC Mot SD SMI

2N2141
CS ETC KSC Mot SD SMI Sol

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CS ETC Mot SD SMI

2N2142
CS ETC KSC Mot SD SMI Sol

2N2142A
CS ETC Mot SD SMI

2N2143
CS ETC KSC Mot SD SMI Sol

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CS ETC Mot SD SMI

2N2144
CS ETC KSC Mot SD SMI Sol

2N2144A
CS Mot SD SMI

2N2145
CS ETC KSC Mot SD SMI Sol

2N2145A
CS ETC Mot SD SMI

2N2146
CS ETC KSC Mot SD SMI Sol

2N2146A
CS ETC Mot SD SMI

2N2147
CS ETC Lns RCA SD SMI

2N2148
CS ETC Lns RCA SD SMI

2N2150
SMI Sol SSD TI Tns

2N2151
SMI Sol SSD TI Tns

2N2152
CS ETC Mot SD SMI Sol

2N2152A
CS ETC Mot SD SMI

2N2153
CS ETC Mot SD SMI Sol

2N2153A
CS ETC Mot SD SMI

2N2154
CS ETC Mot SD SMI Sol

2N2154A
CS Mot SD SMI

2N2156
CS ETC Mot SD SMI Sol

2N2156A
CS ETC Mot SD SMI

2N2157
CS ETC Mot SD SMI Sol

2N2157A
CS ETC Mot SD SMI

2N2158
CS Mot Sol

2N2158A
CS Mot

2N2162
Crs Lns SMI Spg SSD

2N2163
Crs Lns SMI Spg SSD

2N2164
Crs Lns SMI Spg SSD

2N2165
Crs Lns SMI Spg SSD

2N2166
Crs Lns SMI Spg SSD

2N2167
Crs Lns SMI Spg SSD

2N2168
CS ETC Lns SMI Spg

2N2169
CS ETC Lns SMI Spg

2N2170
CS ETC Lns SMI Spg

2N2171
CS ETC Mot SD SMI

2N2172
CS ETC SD SMI

2N2173
TI

2N2175
Crs Lns SMI Sol SSD

2N2176
Crs Lns SMI Sol SSD

2N2177
Crs Lns SMI Sol SSD

2N2178
Crs Lns SMI Sol SSD

2N2185
Crs Lns SMI Spg SSD

2N2186
Crs Lns SMI Spg SSD

2N2187
Crs Lns SMI Spg SSD

2N2188
SMI TI

2N2189
SMI TI

2N2190
SMI TI

2N2191
SMI TI

2N2192
Aml Con CS Fch HS IEC ITT Mot MS NS Ray SMI SSD TI

2N2192A
Aml Con CS Fch HS ITT Mot MS NS Ray SMI SSD TI

2N2192B
Aml Con CS Fch HS ITT Mot Ray SMI SSD TI

2N2193
Aml Con CS Fch HS IEC ITT Mot MS NS Ray SMI SSD TI

2N2193A
Aml Con CS Fch HS ITT Mot MS NS Ray SMI SSD TI

2N2193B
Aml Fch HS ITT

2N2194
Aml Con CS Fch HS IEC ITT Mot MS NS Ray SD SMI SSD TI

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Aml Con CS Fch HS ITT Mot MS NS Ray SMI SSD TI

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Aml Con CS Fch HS ITT Mot Ray SMI SSD TI

2N2195
Aml Con CS ETC Fch HS IEC ITT Mot MS NS Ray SD SMI SSD

2N2195A
Aml Con CS ETC Fch HS ITT Mot MS NS Ray SD SMI SSD

2N2195B
Aml Con CS ETC Fch HS ITT Mot Ray SD SMI SSD

2N2196
GE MS SMI SSD

2N2197
GE MS SMI SSD

2N2198
ETC MS SMI

2N2199
ETC Lns

2N2200
ETC Lns

2N2201
GE SSD Tns

2N2202
GE SSD

2N2203
GE SSD

2N2204
SSD

2N2205
CS ETC Fch ITT Ray SD SMI

2N2206
Fch SMI

2N2207
Amp

2N2210
CS Dlc Mot SD SMI

2N2212
Mot Sol

2N2217
Aml CS Fch GI IEC ITT Lns Mot MS NS Ray SMI Spg TI Tns

2N2218
CS SMI SSC SSD

2N2218A
Aml Con CS ETC Fch HS ITT Lns Mot MS NS Ray SMI Spg SSD TI Tns

2N2219
Aml Con CS ETC Fch GE GI HS IEC ITT Lns Mot MS NPC NS Ray SD SMI Spg SSD TI Tns

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2N2220
Aml Con CS Fch GE GI IEC ITT Lns Mot NS Ray SMI Spg TI Tns

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Aml Con CS ETC Fch GE GI HS IEC ITT Lns Mot NPC NS Ray SD SMI Spg SSD TI Tns

2N2221A
Aml Con ETC ITT SSD

2N2222
Aml Con CS ETC Fch GE GI HS IEC ITT Lns Mot NPC NS Ray SD SMI Spg SSD TI Tns

2N2222A
Aml Con CS ETC Fch HS IEC ITT Lns Mot NS Ray SD SMI Spg SSD TI Tns

2N2222B
Aml TI

2N2223
Aml Fch GE GI Mot Ray SMI SSD TI

2N2223A
Aml Fch GE GI Mot Ray SMI SSD TI

2N2224
HS Mot

2N2226
CS SMI SSC SSD

2N2227
SD SMI SSC SSD Wst

2N2228
SD SMI SSC SSD Wst

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SD SMI SSC SSD Wst

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SD SMI SSC SSD Wst

2N2231
SD SMI SSC SSD Wst

2N2232
SD SMI SSC SSD Wst

2N2233
SD SMI SSC SSD Wst

2N2236
Ray SSD

2N2237
Ray SSD

2N2242
Fch ITT Mot

2N2243
Aml Con NS Ray SMI SSD TI Tns

2N2243A
Aml Con NS Ray SMI SSD TI Tns

2N2251
SMI

2N2252
SMI

2N2255
SMI

2N2256
Mot SMI

2N2257
Mot SMI

2N2258
Mot SMI

2N2259
Mot SMI

2N2266
KSC Sol

2N2267
KSC Sol

2N2268
KSC Sol

2N2269
KSC Sol

2N2270
Con CS ETC MS NS Ray RCA SD SMI SSD TI Tns

2N2271
CS ETC MS SD

2N2273
Mot SSD

2N2274
Crs Lns SMI Spg SSD

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Crs Lns SMI Spg SSD

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Crs Lns SMI Spg SSD

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Crs Lns SMI Spg SSD

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Crs Lns Spg SSD

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Crs Lns SMI Spg SSD

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Crs Lns SMI Spg SSD

2N2281
Crs Lns SMI Spg SSD

2N2282
Lns SMI Sol

2N2283
SMI

2N2284
SMI

2N2285
CS ETC Mot SD SMI Sol

2N2286
CS Mot SD SMI

2N2287
CS Mot SMI

2N2288
CS ETC Mot SD SMI Sol

2N2289
CS ETC Mot SD SMI

2N2290
Mot SMI

2N2291
CS ETC Mot SD SMI

2N2292
CS ETC Mot SD SMI

2N2293
Mot SMI

2N2294
ETC SD SMI

2N2295
CS ETC SD SMI

2N2296
SMI

2N2297
AMI Aml Fch ITT MS Ray SMI SSD Tns

2N2303
ETC Fch ITT

2N2304
CS SD SMI SSC SSD STC

2N2305
CS PD SD SMI Sol SSC SSD STC

2N2308
CS GI Mot MS Ray SD SMI SSC SSD STC

2N2309
Ray SMI SSD

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CS ETC Ray SD SMI SSD

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Ray SMI SSD

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CS ETC Ray SD SMI SSD

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Ray SMI SSD

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CS ETC Ray SD SMI SSD

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CS ETC Ray SD SMI SSD

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Ray SMI SSD

2N2317
CS ETC Ray SD SMI SSD

2N2318
CS ETC MS SD SSD

2N2322
ETC

2N2323
ETC

2N2324
ETC

2N2325
ETC

2N2326
ETC

2N2330
CS HS Mot SD SMI SSD

2N2331
CS Mot SD SMI SSD

2N2332
Crs SMI Sol SSD

2N2333
Crs SMI Sol SSD

2N2334
Crs SMI Sol SSD

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Crs SMI Sol SSD

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Crs SMI Sol SSD

2N2337
Crs SMI Sol SSD

2N2338
RCA SMI SSD

2N2339
CS ETC SMI

2N2349
SMI

2N2350
ITT Ray SMI SSD

2N2350A
ITT SSD

2N2351
Fch ITT Ray SMI SSD

2N2351A
Fch ITT Ray SMI SSD

2N2352
Fch ITT Ray SMI SSD

2N2352A
Fch ITT Ray SMI SSD

2N2353
Fch ITT Ray SMI SSD

2N2353A
Fch ITT Ray SMI SSD

2N2356
GE SMI

2N2356A
GE SMI

2N2357
Mot SMI Sol

2N2358
Mot SMI

2N2359
Mot SMI

2N2360
Lns SMI Spg

2N2361
SMI Spg

2N2362
SMI Spg

2N2364
Ray SMI SSD

2N2364A
Ray SMI SSD

2N2368
AMI Aml Con CS ETC Fch IEC ITT Lns Mot Ray SD SMI SSD TI Tns

2N2369
Aml Con CS ETC Fch HS IEC ITT Lns Mot NPC NS Ray SD SMI TI Tns

2N2369A
Aml Con Fch IEC ITT Lns Mot NS Ray RCA SMI Tns

2N2370
Crs SSD

2N2371
Crs SSD

2N2372
Crs SSD

2N2373
Crs SSD

2N2374
CS ETC GI Lns MS SD SMI

2N2375
CS ETC GI Lns MS SD SMI

2N2376
CS ETC GI Lns MS SD SMI

2N2377
Crs CS Lns Spg SSD

2N2378
Crs CS Lns Spg SSD

2N2380
Lns Ray SMI SSD

2N2380A
Lns Ray SSD

2N2381
Mot

2N2382
Mot

2N2383
ETC SD SMI SSD

2N2384
SSD

2N2387
SMI SSD TI

2N2388
SMI SSD TI

2N2389
SMI SSD TI

2N2390
CS SSD TI

2N2393
CS SSD TI

2N2394
SSD TI

2N2395
GE SMI SSD TI

2N2396
GE SMI SSD TI

2N2398
Lns SMI Spg

2N2399
Lns SMI Spg

2N2400
Lns SMI Spg

2N2401
Lns SMI Spg SSD

2N2402
IDC Lns SMI Spg

2N2405
HS Mot Ray RCA SMI SSD

2N2410
Fch HS Lns Mot Ray SMI TI

2N2411
Mot SMI TI Tns

2N2412
Mot SMI TI Tns

2N2413
SMI

2N2415
Mot SMI TI

2N2416
Mot SMI TI

2N2423
Mot Sol

2N2424
Crs SMI

2N2425
Crs SMI

2N2427
SMI

2N2428
Amp NPC

2N2429
Amp NPC

2N2430
Amp NPC

2N2431
Amp NPC

2N2432
Crs NS SMI TI Tns

2N2433
Con SMI SSD

2N2434
Con SMI SSD

2N2435
Con SMI SSD

2N2436
Con SMI SSD

2N2437
Con SMI SSD

2N2438
Con SMI SSD

2N2439
Con SMI SSD

2N2440
Con SSD

2N2443
Con Fch SSD

2N2444
Sol

2N2445
SMI Sol

2N2451
Lns Spg

2N2452
Fch SMI

2N2453
Aml Fch GE GI IInc Mot NS Ray SMI Sol SSD TI

2N2453A
Aml Fch GE GI IInc Mot NS Sol SSD TI

2N2459
Sol SSD

2N2460
Sol SSD

2N2461
Sol SSD

2N2462
Sol SSD

2N2463
Sol SSD

2N2464
Sol SSD

2N2465
Sol SSD

2N2466
Sol SSD

2N2467
Sol

2N2474
Crs

2N2475
ETC Fch RCA SMI Tns

2N2476
ETC Fch HS Mot Ray RCA SMI Spg

2N2477
ETC Fch HS Mot Ray RCA SMI Spg

2N2478
ETC Lns SD

2N2479
ETC Lns NS Ray SD SMI

2N2480
Aml Con Fch GE GI Mot Ray SMI SSD

2N2480A
Con Fch GE GI Mot Ray SMI SSD

2N2481
Aml ETC Fch HS ITT Mot NS Ray SMI TI

2N2483
Aml Con Fch IEC ITT NS Ray SMI Sol TI Tns

2N2484
Aml Con Fch GE IEC ITT NS SMI Sol SSD TI Tns

2N2484A
Aml

2N2487
Lns Spg SSD

2N2488
Lns Spg SSD

2N2489
Lns Spg SSD

2N2489A
ITT

2N2490
Dlc ETC Mot SD SMI Sol

2N2491
Dlc ETC Mot SD SMI Sol

2N2492
Dlc Mot SD SMI Sol

2N2493
Dlc Mot SD SMI

2N2495
Amp

2N2496
Amp

2N2501
HS Mot SMI Tns

2N2509
Aml Fch ITT MS NS Ray SMI

2N2510
Aml Fch ITT MS NS Ray SMI

2N2511
Aml Fch ITT NS Ray SMI

2N2514
Sol SSD

2N2515
Sol SSD

2N2516
Sol SSD

2N2518
Sol SSD

2N2519
Sol SSD

2N2520
Sol SSD

2N2521
Sol SSD

2N2522
Sol SSD

2N2523
SMI Sol SSD

2N2524
SMI Sol SSD

2N2526
Mot SMI

2N2527
Mot SMI

2N2528
Mot SMI

2N2537
ETC HS Lns Mot MS SMI Spg SSD TI

2N2538
ETC HS Lns Mot SMI Spg SSD TI

2N2539
CS ETC HS Lns Mot SD SMI Spg SSD TI

2N2540
CS ETC HS Lns Mot SD SMI Spg SSD TI

2N2541
CS MS SD SSD

2N2551
CS Sol

2N2552
KSC Mot SMI Sol TI

2N2553
KSC Mot SMI TI

2N2554
KSC Mot SMI TI

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KSC Mot SMI TI

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KSC Mot SMI TI

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KSC Mot SMI TI

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KSC Mot SMI TI

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KSC Mot SMI TI

2N2560
KSC Mot SMI Sol TI

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KSC Mot SMI TI

2N2562
KSC Mot SMI TI

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KSC Mot SMI TI

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KSC Mot SMI TI

2N2565
KSC Mot SMI TI

2N2566
KSC Mot SMI TI

2N2567
KSC Mot SMI TI

2N2569
Amp TI

2N2570
Amp TI

2N2580
Dlc

2N2581
Dlc

2N2582
Dlc

2N2583
Dlc

2N2586
Aml Fch ITT NS Ray SMI Sol SSD TI Tns

2N2590
Sol SSD

2N2591
Sol SSD

2N2592
Sol SSD

2N2593
Sol SSD

2N2594
SSD Tns

2N2595
Sol SSD

2N2596
Sol SSD Tns

2N2597
Sol SSD

2N2598
Sol SSD

2N2599
Sol SSD

2N2599A
Sol SSD

2N2600
Sol SSD

2N2600A
Sol SSD

2N2601
Aml Sol SSD

2N2602
Aml Sol SSD

2N2603
Aml Sol SSD

2N2604
Aml Mot NS Ray SMI Sol SSD TI

2N2605
Aml Fch Mot NS Ray SMI Sol SSD TI

2N2605A
Fch SMI Sol TI

2N2610
SSD

2N2611
GE

2N2612
Sol

2N2613
NPC RCA

2N2614
NPC RCA

2N2615
Fch

2N2616
Aml Fch

2N2630
Mot

2N2631
UNI RCA SMI

2N2632
Sol SSD

2N2633
Sol SSD

2N2634
Sol SSD

2N2635
Mot SMI SSD TI

2N2636
SMI Sol

2N2637
SMI

2N2638
SMI

2N2639
Aml Fch GE GI Mot NS Ray SMI Sol SSD TI

2N2640
Aml Fch GE GI Ind Mot NS Ray SMI Sol SSD TI

2N2641
Aml Fch GE GI Ind Mot NS Ray SMI Sol SSD TI

2N2642
Aml Fch GE GI Ind Mot NS Ray SMI Sol SSD TI

2N2643
Aml Fch GE GI Ind Mot NS Ray SMI Sol SSD TI

2N2644
Aml Fch GE GI Ind Mot NS Ray SMI Sol SSD TI

2N2645
Fch Ray

2N2646
GE Mot SMI

2N2648
SD SMI

2N2649
SMI

2N2650
SMI

2N2651
ETC Fch Lns SD SMI

2N2652
Fch GE Mot Ray SMI SSD

2N2652A
Fch GE Mot Ray SMI SSD

2N2654
Amp

2N2656
SMI

2N2657
Fch NS PD Pir SMI Sol SSD STC

2N2658
Fch NS PD Pir SMI Sol SSD STC

2N2659
KSC SMI TI

2N2660
KSC SMI TI

2N2661
KSC SMI TI

2N2662
KSC SMI TI

2N2663
KSC SMI TI

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KSC SMI TI

2N2665
KSC SMI TI

2N2666
KSC SMI TI

2N2667
KSC SMI TI

2N2668
KSC SMI TI

2N2669
KSC SMI TI

2N2670
KSC TI

2N2671
Amp

2N2672
Amp

2N2691
Sol

2N2691A
Sol

2N2692
SMI SSD TI

2N2693
SMI SSD TI

2N2694
SMI SSD TI

2N2695
Fch Mot Ray SMI TI

2N2696
Fch ITT Mot Ray SMI TI

2N2697
Sol

2N2698
Sol

2N2706
Amp

2N2707
Amp

2N2708
Aml ETC Mot Ray RCA SMI SSD

2N2710
Fch Lns Mot SMI

2N2711
GE Spg

2N2712
GE Spg

2N2713
GE Spg

2N2714
GE Spg

2N2720
Aml Fch Mot NS Sol SSD

2N2721
Aml Fch Mot NS Sol SSD

2N2722
Aml Fch Mot NS Sol SSD

2N2723
Fch Mot Ray Sol SSD

2N2724
Fch Mot Ray Sol SSD

2N2725
Fch Mot Ray Sol SSD

2N2726
GE MS SMI SSD Tns

2N2727
GE SMI SSD Tns

2N2728
Mot SSD

2N2729
Aml Fch SSD

2N2730
Sol

2N2731
Sol

2N2732
Sol

2N2733
Sol

2N2734
Sol

2N2735
Sol

2N2736
Sol

2N2737
Sol

2N2738
Sol

2N2739
CS SD SMI SSC SSD

2N2740
CS SD SMI SSC SSD

2N2741
CS SD SMI SSC SSD

2N2742
CS SD SMI SSC SSD

2N2745
SMI SSC SSD

2N2746
SMI SSC SSD

2N2747
SMI SSC SSD

2N2748
SMI SSC SSD

2N2751
SMI SSC SSD Wst

2N2752
SMI SSC SSD Wst

2N2753
SMI SSC SSD Wst

2N2754
SMI SSC SSD Wst

2N2757
SMI SSC SSD Wst

2N2758
PT SMI SSC SSD Wst

2N2759
PT SMI SSC SSD Wst

2N2760
PT SMI SSC SSD Wst

2N2761
SMI SSC SSD Wst

2N2763
SMI SSC SSD Wst

2N2764
PT SMI SSC SSD Wst

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PT SMI SSC SSD Wst

2N2766
PT SMI SSC SSD Wst

2N2769
PT SMI SSD Wst

2N2770
PT SMI SSD Wst

2N2771
PT SMI SSD Wst

2N2772
PT SMI SSD Wst

2N2775
PT SSD Wst

2N2776
PT SSD Wst

2N2777
PT SSD Wst

2N2778
PT SSD Wst

2N2781
SSD

2N2782
SSD

2N2783
SSD

2N2784
UNI SMI SSD Tns

2N2785
GE Mot

2N2787
CS ETC GI SD SMI

2N2788
CS ETC GI Mot SD SMI

2N2789
CS ETC GI Mot SD SMI

2N2790
GI SMI

2N2791
CS ETC GI Mot SD SMI

2N2792
CS ETC GI Mot SD SMI

2N2795
Lns Spg

2N2796
Lns Spg

2N2800
Fch Mot MS Ray SMI SSD

2N2801
Fch Mot MS Ray SMI SSD

2N2802
Fch GI Mot Ray SMI Sol SSD TI

2N2803
Fch GI Mot Ray SMI Sol SSD TI

2N2804
Fch GI Mot Ray SMI Sol SSD TI

2N2805
Fch GI Mot Ray SMI Sol SSD TI

2N2806
Fch GI Mot Ray SMI Sol SSD TI

2N2807
Fch GI Mot Ray SMI Sol SSD TI

2N2809
SMI

2N2809A
SMI

2N2810
SMI

2N2810A
SMI

2N2811
Fch PD Pir Sol SSD

2N2812
Fch PD Pir Sol SSD

2N2813
Fch PD Pir Sol SSD

2N2814
Fch PD Pir Sol SSD

2N2815
CS ETC SD SMI SSD STC

2N2816
CS ETC PT SD SMI SSD STC

2N2817
CS ETC PT SD SMI SSD STC

2N2818
CS ETC PT SD SMI SSD STC

2N2819
SMI SSD STC

2N2820
PT SMI SSD STC

2N2821
PT SMI SSD STC

2N2822
PT SMI SSD STC

2N2823
PT SMI SSD STC

2N2824
PT SMI SSD STC

2N2825
PT SMI SSD STC

2N2828
CS PD SD SSD STC

2N2829
CS PD SD SSD STC

2N2832
Mot

2N2833
Mot SMI

2N2834
Mot SMI

2N2836
CS

2N2837
ETC Fch GI Mot Ray SMI

2N2838
ETC Fch GI ITT Mot Ray SMI

2N2845
ETC Fch Mot SMI Spg SSD

2N2846
ETC Fch HS Mot SMI Spg SSD

2N2847
ETC Fch Mot SMI SSD

2N2848
ETC Fch HS Mot SMI SSD

2N2849
SSD

2N2850
PD SSD Unt

2N2851
PD SSD Unt

2N2852
PD SSD Unt

2N2853
SSD Unt

2N2854
SSD Unt

2N2855
PD SSD Unt

2N2856
PD SSD Unt

2N2856-1
SSD

2N2857
Amp Fch KMC Mot RCA SSD

2N2858
Pir SSD STC

2N2859
Pir SMI SSD STC

2N2861
Ray SMI SSD TI

2N2862
Ray SMI SSD TI

2N2863
SMI SSD TI

2N2864
SMI SSD TI

2N2865
Aml ETC Ray SMI SSD TI

2N2866
SSD Tns

2N2867
SSD Tns

2N2868
ETC Fch ITT Ray SMI SSD

2N2869
ETC RCA SD SMI Sol

2N2870
CS ETC KSC RCA SD SMI Sol

2N2874
SSD

2N2875
SSD Tns

2N2876
UNI RCA SMI Sol SSD

2N2877
NS Pir SMI Sol SSD STC Tns

2N2878
NS PD Pir SMI Sol SSD STC Tns

2N2879
NS PD Pir SMI Sol SSD STC Tns

2N2880
GSI NS PD Pir SMI Sol SSD STC TI Tns

2N2881
Crs STC

2N2882
Crs STC

2N2883
SMI SSD TI

2N2884
SMI SSD TI

2N2887
SSD

2N2890
Fch MS NS PD SMI Sol SSD Tns

2N2891
Fch MS NS PD SMI Sol SSD Tns

2N2892
Fch NS PD SMI SSD Tns

2N2893
Fch NS PD SMI SSD Tns

2N2894
Fch HS IEC ITT Mot Ray SMI TI Tns

2N2894A
Fch TI Tns

2N2895
Con Mot Ray RCA SMI SSD

2N2896
Con Mot Ray RCA SMI SSD

2N2897
Con Mot Ray RCA SMI SSD

2N2898
Con Ray SSD

2N2899
Con Ray SSD

2N2900
Con Ray SSD

2N2903
Aml Amp Fch GI Mot NS Ray SMI Sol SSD

TRANSISTOR MANUFACTURERS

2N2903A
Aml Fch GI Mot NS Ray SMI Sol SSD

2N2904
Aml ETC Fch GI HS IEC ITT Lns Mot MS NPC NS Ray SMI Spg SSD TI Tns

2N2904A
Aml Fch GI HS IEC ITT Lns Mot MS NS Ray SMI Spg TI Tns

2N2905
Aml Con ETC Fch GE GI HS IEC ITT Lns Mot MS NS Ray SMI Spg SSD TI Tns

2N2905A
Aml Con Fch GI HS IEC ITT Lns Mot MS NPC NS Ray SMI Spg TI Tns

2N2906
Aml ETC Fch GE GI HS IEC ITT Lns Mot MS NPC NS Ray SMI Spg SSD TI Tns

2N2906A
Aml Fch GI HS IEC ITT Lns Mot NS Ray SMI Spg TI Tns

2N2907
Aml Con ETC Fch GE GI HS IEC ITT Lns Mot MS NS Ray SMI Spg SSD TI Tns

2N2907A
Aml Con Fch GI HS IEC ITT Lns Mot NPC NS Ray SMI Spg TI Tns

2N2909
SMI SSD

2N2910
Fch SMI SSD Tns

2N2911
Pir SSD STC

2N2912
Mot

2N2913
Aml Amp Fch GE GI IEC Ilnc Ind Mot NS QC Ray SMI Sol SSD TI

2N2914
Aml Amp Fch GE GI IEC Ilnc Ind Mot NS QC Ray SMI Sol SSD TI

2N2915
Aml Amp Fch GE GI IEC Ilnc Ind Mot NS QC Ray SMI Sol SSD TI

2N2915A
Fch Ilnc Mot NS Ray SSD TI

2N2916
Aml Amp Fch GE GI IEC Ilnc Ind Mot NS QC Ray SMI Sol SSD TI

2N2916A
Fch Ilnc Mot NS Ray SSD TI

2N2917
Aml Amp Fch GE GI Ilnc Ind Mot NS QC Ray SMI Sol SSD TI

2N2918
Aml Amp Fch GE GI IEC Ilnc Ind Mot NS QC Ray SMI Sol SSD TI

2N2919
Aml Amp Fch GE GI IEC Ilnc Ind Mot NS QC Ray SMI Sol SSD TI

2N2919A
Fch Ilnc Mot NS Ray SSD TI

2N2920
Aml Amp Fch GE GI IEC Ind Mot NS QC Ray SMI Sol SSD TI

2N2920A
Fch SSD

2N2923
GE Spg

2N2924
GE Spg

2N2925
GE Spg

2N2926
NPC Spg

2N2927
ETC Fch Mot SMI

2N2929
Mot

2N2930
ETC

2N2936
Amp Fch Ray

2N2937
Amp Fch Ray

2N2938
ETC

2N2939
ETC SSD

2N2940
ETC SSD

2N2944
Crs Mot Ray SMI Sol Spg SSD TI

2N2944A
Crs Ray SSD TI

2N2945
Crs Mot NS Ray SMI Sol Spg SSD TI

2N2945A
Crs Mot Ray SSD TI

2N2946
Crs Mot NS Ray SMI Sol Spg TI

2N2946A
Crs Mot Ray TI

2N2947
Mot

2N2948
Mot

2N2949
Mot

2N2950
Mot

2N2951
ETC HS Mot Spg

2N2952
CS ETC Mot SD SMI Spg

2N2953
RCA

2N2955
Mot SMI

2N2956
Mot SMI

2N2957
Mot SMI

2N2958
Fch HS Mot MS Ray SMI Spg

2N2959
ETC Fch HS Mot MS Ray SMI Spg

2N2960
Ray

2N2961
Ray

2N2968
Spg

2N2969
Crs Spg

2N2970
Crs Spg

2N2971
Crs Spg

2N2972
Aml Fch GI IEC Ilnc Mot NS Ray SMI Sol TI

2N2973
Aml Fch GI IEC Ilnc Mot NS Ray SMI Sol TI

2N2974
Aml Fch GI IEC Ilnc Mot NS Ray SMI Sol TI

2N2975
Aml Fch GI IEC Ilnc Mot NS Ray SMI Sol TI

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Aml Fch GI Ilnc Mot NS Ray SMI Sol TI

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Aml Fch GI Ilnc Mot NS Ray SMI Sol TI

2N2978
Aml Fch GI Ilnc Mot NS Ray SMI Sol TI

2N2979
Aml Fch GI IEC Ilnc Mot NS Ray SMI Sol TI

2N2980
Aml Fch GI IEC Ray

2N2981
Fch GI IEC Ray

2N2982
Fch GI IEC Ray

2N2983
SSD

2N2984
SSD

2N2985
SSD

2N2986
SSD

2N2987
PD SMI Sol SSD TI Tns

2N2988
PD SMI SSD TI

2N2989
PD SMI Sol SSD TI Tns

2N2990
PD SMI SSD TI Tns

2N2991
SMI SSD TI Tns

2N2992
SMI SSD TI Tns

2N2993
SMI SSD TI Tns

2N2994
SMI SSD TI Tns

2N2995
SSD

2N2996
Mot SMI TI

2N2997
Mot SMI TI

2N2998
Mot SMI TI

2N2999
Mot SMI TI

2N3009
Fch ITT Mot SMI TI

2N3010
Fch Mot Ray SMI TI Tns

2N3011
CS ETC Fch IEC ITT Lns Mot NS Ray RCA SD SMI TI Tns

2N3012
Fch ITT Mot Ray SMI TI Tns

2N3013
Fch ITT Mot SMI TI Tns

2N3014
Fch ITT Mot NS SMI TI Tns

2N3015
ETC Fch HS Lns Mot SMI TI Tns

2N3016
SMI

2N3017
SMI

2N3018
SMI

2N3019
CS ETC Fch HS ITT Mot NS Ray SD SMI Tns

2N3020
Fch HS ITT Mot NS Ray SMI Tns

2N3021
Mot Sol

2N3022
Mot

2N3023
Mot

2N3024
Mot SSD

2N3025
Mot SSD

2N3026
Mot SSD

2N3033
NS SMI TI

2N3034
SMI TI

2N3035
SMI TI

2N3036
Ray SMI SSD TI

2N3037
TI

2N3038
TI

2N3039
SMI TI

2N3040
SMI TI

2N3043
Fch GE Mot Ray SMI TI

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Fch GE Mot Ray SMI TI

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Fch GE Mot Ray SMI TI

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Fch GE Mot Ray SMI TI

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Fch GE Mot Ray SMI TI

2N3048
Fch Mot SMI TI

2N3049
Mot SMI TI

2N3050
Mot SMI TI

2N3051
SMI TI

2N3052
Fch GE SMI TI

2N3053
Con ETC Fch HS Mot NS RCA SMI SSD TI Tns

2N3054
Fch IDC Mot PD Pir RCA SMI Sol Tns TRW Wst

2N3055
ETC Fch HS IDC Mot PD RCA SMI Sol SSD TI TRW Wst

2N3056
Fch ITT Ray SMI SSD Tns

2N3056A
Fch ITT Ray SSD Tns

2N3057
Fch ITT Ray SMI SSD Tns

2N3057A
Fch ITT Ray SSD Tns

2N3058
Crs SMI Spg SSD

2N3059
Crs SMI Spg SSD

2N3060
Crs NS Ray SMI Spg SSD

2N3061
Crs NS Ray SMI Spg SSD

2N3062
Crs NS SMI SSD

2N3063
Crs NS SMI SSD

2N3064
Crs SMI SSD

2N3065
Crs SMI SSD

2N3072
Fch ITT Mot NS Ray SMI

2N3073
ETC Fch ITT Mot NS Ray SMI

2N3077
SSD

2N3078
SSD

2N3079
Dlc SMI

2N3080
Dlc SMI

2N3081
Mot Ray

2N3082
GE SMI

2N3083
GE SMI

2N3089
Crs

2N3107
Fch ITT NS Ray SSD

2N3108
Fch ITT NS Ray SMI SSD

2N3109
Fch ITT NS Ray SSD

2N3110
Fch ITT NS Ray SMI SSD

2N3114
Fch Mot SMI SSD TI Tns

2N3115
ETC Fch HS Mot Ray SMI Spg SSD

2N3116
ETC Fch HS Mot Ray SMI Spg SSD

2N3117
Aml Fch ITT NS Ray SMI Sol SSD TI

2N3118
RCA SMI SSD

2N3119
RCA SMI SSD

2N3120
Fch ITT NS Ray SMI SSD

2N3121
ETC Fch ITT Mot NS Ray SMI SSD

2N3122
Ray SSD

2N3127
Mot

2N3128
NS SMI

2N3129
NS SMI

2N3130
NS SMI

2N3133
Fch GI HS ITT Lns Mot NS Ray SMI Spg SSD

2N3134
Fch GI HS ITT Lns Mot NS Ray SMI Spg SSD

2N3135
CS ETC Fch GI HS ITT Lns Mot NS Ray SD SMI Spg SSD

2N3136
CS ETC GI HS Lns Mot NS Ray SD SMI Spg SSD

2N3137
Fch Mot NPC SSD

2N3138
SMI SSD

2N3139
SMI SSD

2N3140
SMI SSD

2N3141
SMI SSD

2N3142
SMI SSD

2N3143
SMI SSD

2N3144
SSD

2N3145
SMI SSD

2N3146
SMI TI

2N3147
SMI TI

2N3149
Pir PT Sol SSD Tns

2N3150
Pir PT Sol SSD Tns

2N3151
PT Sol SSD Tns

2N3153
Crs NS SMI

2N3154
KSC

2N3155
KSC

2N3156
KSC

2N3157
KSC

2N3158
ETC KSC

2N3159
ETC KSC

2N3160
ETC KSC

2N3161
KSC

2N3163
SMI Sol SSD STC

2N3164
SMI SSD STC

2N3165
SSD STC

2N3166
SMI SSD STC

2N3167
SMI SSD STC

2N3168
SMI SSD STC

2N3169
SMI SSD STC

2N3170
SMI SSD STC

2N3171
Mot SMI Sol SSD STC

2N3172
Mot SMI SSD STC

2N3173
SSD

2N3174
SMI SSD STC

2N3175
SMI Sol SSD STC

2N3176
Mot SMI SSD STC

2N3177
SMI SSD STC

2N3178
SMI SSD STC

2N3179
SMI SSD STC

2N3180
SMI SSD STC

2N3181
SMI SSD STC

2N3182
SMI SSD STC

2N3183
Mot SMI Sol SSD STC

2N3184
Mot SMI SSD STC

2N3185
Mot SMI SSD STC

2N3186
SMI SSD STC

2N3187
SMI Sol SSD STC

2N3188
SMI SSD STC

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SMI SSD STC

2N3190
SMI SSD STC

2N3191
SMI SSD STC

2N3192
SMI SSD STC

2N3193
SMI SSD STC

2N3194
SMI SSD STC

2N3195
SMI Sol SSD STC

2N3196
SMI SSD STC

2N3197
SMI SSD STC

2N3198
SMI SSD STC

2N3199
Crs SMI STC

2N3200
Crs SMI STC

2N3201
Crs SMI STC

2N3202
Crs SMI Sol SSD STC

2N3203
Crs SMI SSD STC

2N3204
Crs SMI SSD STC

2N3205
Crs SMI SSD STC

2N3206
Crs SMI SSD STC

2N3207
Crs SMI SSD STC

2N3208
Crs SMI STC

2N3209
Fch ITT Mot Ray Tns

2N3210
Mot Ray SSD

2N3211
Mot SSD

2N3212
Dlc SMI

2N3213
Dlc SMI

2N3214
Dlc SMI

2N3215
Dlc SMI

2N3217
Crs NS Ray SMI Sol Spg SSD

2N3218
Crs NS Ray SMI Sol Spg SSD

2N3219
Crs NS Ray SMI Sol Spg SSD

2N3226
CS ETC PD SD Sol SSD

2N3227
HS Mot Ray

2N3229
RCA SMI SSD

2N3232
ETC Fch Mot PD Sol SSD Wst

2N3233
ETC Fch PD Sol SSD Wst

2N3234
Fch Sol SSD Wst

2N3235
ETC Mot PD Sol SSD Wst

2N3236
PD Sol SSD Wst

2N3237
Sol SSD Wst

2N3238
Sol SSD Wst

2N3239
Sol SSD Wst

2N3240
SSD Wst

2N3241A
RCA

2N3242A
RCA

2N3244
HS Mot Ray SMI SSD TI

2N3245
HS Mot Ray SMI SSD TI

2N3246
NS SMI SSD

2N3247
NS SMI SSD

2N3248
HS IEC Mot SMI SSD Tns

2N3249
HS IEC Mot SMI SSD Tns

2N3250
Fch HS IEC ITT Mot MS NS Ray SMI SSD TI Tns

2N3250A
Fch IEC Mot NS Ray SMI SSD TI Tns

2N3251
Fch HS IEC ITT Mot MS NS Ray SMI SSD TI Tns

2N3251A
Fch IEC Mot NS Ray SMI SSD TI Tns

2N3252
Fch ITT Mot NPC Ray SMI SSD TI Tns

2N3253
Fch HS ITT Mot Ray SMI SSD TI Tns

2N3261
RCA SSD

2N3262
RCA SSD

2N3263
RCA SSD

2N3264
RCA SSD

2N3265
PD RCA Sol SSD

2N3266
PD RCA SSD

2N3279
Mot

2N3280
Mot

2N3281
Mot

2N3282
Mot

2N3283
Mot

2N3284
Mot

2N3285
Mot

2N3286
Mot

2N3287
ETC Mot SSD

2N3288
ETC Mot SSD

2N3289
Aml ETC Mot SSD

2N3290
Aml ETC Mot SSD

2N3291
Aml ETC Mot SSD

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Aml ETC Mot SSD

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Aml ETC Mot SSD

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Aml ETC Mot SSD

2N3295
Mot SMI SSD

2N3296
Mot SSD

2N3297
Mot SSD

2N3298
Mot SMI SSD

2N3299
ETC Fch HS ITT Mot NS Ray SMI SSD

2N3300
ETC Fch HS ITT Mot NS Ray SMI SSD

2N3301
ETC Fch ITT Mot NS Ray SMI SSD

2N3302
ETC Fch ITT Mot NS Ray SMI SSD

2N3303
Fch ITT Mot SMI SSD TI

2N3304
Fch Mot SMI SSD TI

2N3307
Mot

2N3308
Mot

2N3309
NPC SSD

2N3311
CS ETC Mot SD SMI

2N3312
CS ETC Mot SD SMI

2N3313
CS ETC Mot SD SMI

2N3314
CS ETC Mot SD SMI

2N3315
CS ETC Mot SD SMI

2N3316
ETC Mot SD SMI

2N3317
Crs Lns Spg

2N3318
Crs Lns Spg

2N3319
Crs Lns Spg

2N3320
Lns Spg

2N3321
Lns Spg

2N3322
Lns Spg

2N3323
Mot

2N3324
Mot

2N3325
Mot SMI

2N3326
Fch Ray SSD

2N3337
ETC Fch SSD

2N3338
ETC Fch SSD

2N3339
ETC Fch SSD

2N3340
Sol SSD

2N3341
Sol SSD

2N3342
Crs Lns SMI Sol SSD

2N3343
Crs Lns SMI Sol SSD

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Crs Lns SMI Sol SSD

2N3345
Crs Lns SMI Sol SSD

2N3346
Crs Lns Ray SMI Sol SSD

2N3347
Aml Mot NS Ray SMI SSD TI

2N3348
Aml Mot NS Ray SMI SSD TI

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Aml Ilnc Mot NS Ray SMI SSD TI

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Aml Ilnc Mot NS Ray SMI SSD TI

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Aml Ilnc Mot NS Ray SMI SSD TI

2N3352
Aml Ilnc Mot NS Ray SMI SSD TI

2N3371
SMI TI

2N3374
SMI

2N3375
Amp UNI Fch Mot NS Ray RCA SMI Sol SSD SSS TI

2N3388
MS Ray SMI SSD

2N3389
MS SMI SSD

2N3390
GE

2N3391
GE Spg

2N3391A
GE Spg

2N3392
GE Spg

2N3393
GE NPC Spg

2N3394
GE Spg

2N3395
GE Spg

2N3396
GE Spg

2N3397
GE Spg

2N3398
GE Spg

2N3399
Amp

2N3401
Crs Sol

2N3402
GE Spg

2N3403
Spg

2N3404
Spg

2N3405
IDC Spg

2N3409
Fch GI Mot

2N3410
Fch GI Mot

2N3411
Fch GI Mot

2N3412
ETC

2N3414
GE Spg

2N3415
CS GE Spg

2N3416
CS GE Spg

2N3417
CS GE Spg

2N3418
CS SMI SSD TI Tns

2N3419
CS SMI SSD TI Tns

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CS SMI SSD TI Tns

2N3421
CS SMI SSD TI Tns

2N3423
Aml CS Fch IEC Mot QC Ray SMI

2N3424
Aml CS Fch IEC Mot QC Ray SMI

2N3425
CS Fch Mot

2N3426
CS Fch ITT

2N3427
Mot SMI

2N3428
Mot SMI

2N3429
SMI SSD Wst

2N3430
SMI SSD Wst

2N3431
SMI SSD Wst

2N3432
SMI SSD Wst

2N3433
SMI SSD Wst

2N3434
SSD

2N3438
MI

2N3439
CS Fch Ind Mot MS RCA SSD

2N3440
CS Fch Ind Mot MS RCA SSD

2N3441
Fch Mot PD Pir RCA SSD Tns Wst

2N3442
CS Fch Mot PD Pir RCA SMI Sol SSD Wst

2N34444
CS Fch HS Mot SMI SSD TI Tns

2N3444
ITT Ray

2N3445
Fch Mot Sol SSD

2N3446
Fch Mot Sol SSD

2N3447
Fch Mot Sol SSD

2N3448
Fch Mot Sol SSD

2N3449
Mot TI

2N3461
CS IEC

2N3462
IEC

2N3467
CS Fch HS ITT Mot Ray TI

2N3468
CS Fch HS ITT Mot Ray TI

2N3469
CS PD Pir Sol SSD

2N3470
SMI SSD Wst

2N3471
SMI SSD Wst

2N3472
SMI SSD Wst

2N3473
SMI SSD Wst

2N3474
SMI SSD Wst

2N3475
SMI SSD Wst

2N3476
SMI SSD Wst

2N3477
SMI SSD Wst

2N3478
RCA

2N3485
CS Fch Mot Ray SMI TI

2N3485A
CS Fch Mot Ray SMI TI

2N3486
CS Fch Mot Ray SMI SSD TI

2N3486A
CS Fch Mot Ray SMI TI

2N3487
Mot PD SSD

2N3488
Mot PD SSD

2N3489
Mot PD SSD

2N3490
Mot PD SSD

2N3491
Mot PD SSD

2N3492
Mot PD SSD

2N3493
ETC Mot SSD

2N3494
CS Fch HS Mot SMI SSD TI Tns

2N3495
CS Fch HS Mot SMI SSD TI Tns

2N3496
CS ETC Fch Mot SMI SSD TI Tns

2N3497
CS Fch Mot SMI SSD TI Tns

2N3498
CS Fch HS Mot SMI SSD Tns

2N3499
CS Fch HS Mot SMI SSD Tns

2N3500
CS Fch HS Mot SMI SSD Tns

2N3501
Fch HS Mot SMI SSD Tns

2N3502
Fch ITT Mot NS Ray SMI SSD TI Tns

2N3503
CS Fch ITT Mot NS Ray SMI SSD TI Tns

2N3504
CS Fch ITT Mot NS Ray SMI SSD TI Tns

2N3505
CS Fch ITT Mot NS Ray SMI SSD TI

2N3506
CS HS Mot SMI SSD

2N3507
CS HS Mot SMI SSD

2N3508
Mot SSD

2N3509
Mot SSD

2N3510
CS Fch HS ITT Mot SSD

2N3511
CS Fch HS ITT Mot SSD

2N3512
CS ETC Mot RCA SMI SSD

2N3513
GE

2N3514
GE

2N3515
CS Fch GE Mot

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GE

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GE

2N3518
CS Fch GE Mot

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GE

2N3520
Fch GE

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Fch GE

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GE

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GE

2N3524
Fch GE

2N3526
CS Fch

2N3527
Crs SMI

2N3544
Mot SSD

2N3545
Ray SSD

2N3546
Mot Ray SSD

2N3547
IEC NS SMI SSD

2N3548
CS IEC NS SMI SSD

2N3549
IEC NS SMI SSD

2N3550
CS NS

2N3551
SMI SSD TI

2N3552
SMI SSD TI

2N3553
Amp CS UNI Fch HS Mot NS Ray RCA SMI SSD SSS TI

2N3554
Ray SMI SSD TI

2N3563
Con CS ETC Fch GI IEC NS SSD

2N3564
Con CS ETC Fch GI IEC NS

2N3565
Con CS Fch GI IEC NPC NS

2N3566
Con CS Fch IEC NS

2N3567
Con CS Fch IEC NS

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Con CS Fch IEC NS

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Con CS Fch IEC NS

2N3570
KMC SMI SSD TI

2N3571
KMC SMI SSD TI

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KMC SMI SSD TI

2N3573
SMI TI

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SMI TI

2N3575
SMI TI

2N3576
Ray SMI SSD TI

2N3579
CS Sol SSD

2N3580
CS Sol SSD

2N3581
CS Sol SSD

2N3582
Sol SSD

2N3583
RCA SMI SSD

2N3584
RCA SMI SSD

2N3585
RCA SMI SSD

2N3587
Fch

2N3588
Amp

2N3589
CS GE SSD Tns

2N3590
GE SSD Tns

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CS GE SSD

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CS GE SSD

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GE SSD

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GE SSD

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GE

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GE

2N3597
CS Fch Pir Sol SSD Tns

2N3598
CS Fch Pir Sol SSD Tns

2N3599
CS Fch Pir Sol SSD Tns

2N3600
ETC RCA SSD

2N3605
GE

2N3606
GE

2N3607
GE

2N3611
CS ETC Mot SMI Sol

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CS ETC SMI Sol

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CS ETC Mot SMI Sol

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CS ETC Mot SMI Sol

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CS ETC Mot SMI Sol

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CS ETC Mot SMI Sol

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CS Mot SMI Sol

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CS Mot SMI Sol

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SSD

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CS Sol SSD

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CS Sol SSD

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CS Sol SSD

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CS SSD

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CS Sol SSD

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CS Sol SSD

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CS SSD

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CS SSD

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CS Sol SSD

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Sol SSD

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Amp CS UNI Mot NS Ray RCA SMI Sol SSD SSS TI

2N3633
CS SSD Tns

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CS Fch Mot SSD Tns

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Fch Mot Tns

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CS Fch Mot Tns

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CS Fch Mot Tns

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Con CS ETC Fch IEC NS

2N3638A
Con CS ETC Fch IEC NS

2N3639
CS Fch IEC

2N3640
CS Fch IEC

2N3641
Con CS Fch IEC NS

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Con CS Fch IEC NS SSD

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Con CS Fch IEC NS

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Con CS ETC Fch IEC NS

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Con CS ETC Fch IEC NS

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Con CS Fch NS

2N3647
CS Fch Mot SSD

2N3648
CS Fch Mot SSD

2N3659
CS SSD

2N3660
CS Sol SSD Tns

2N3661
CS Sol SSD Tns

2N3662
CS GE

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CS GE

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CS Fch ITT NS Sol SSD Tns

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CS Fch ITT NS Sol SSD Tns

2N3667
PD Sol SSD

2N3671
CS Fch ITT Mot Ray SMI SSD

2N3672
CS ETC Fch ITT Mot Ray SMI SSD

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CS Fch Mot Ray SMI SSD

2N3675
SSD

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SSD

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Crs CS Mot SMI SSD

2N3678
Fch ITT SSD

2N3680
AMI CS Fch NS SMI SSD TI

2N3681
ETC SSD

2N3683
KMC

2N3688
CS Fch IDC

2N3689
CS Fch

2N3690
CS Fch

2N3691
Con CS Fch GI IEC NS

2N3692
Con CS ETC Fch GI IEC NS

2N3693
Con CS ETC Fch IEC NS

2N3694
Con CS ETC Fch IEC NS

2N3700
CS Fch ITT Ray SMI SSD Tns

2N3701
CS Fch ITT Ray SMI SSD Tns

2N3702
Con CS SMI TI

2N3703
Con CS SMI TI

2N3704
CS SMI TI

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CS SMI TI

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CS SMI TI

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CS SMI TI

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CS SMI TI

2N3709
CS SMI TI

2N3710
SMI TI

2N3711
SMI TI

2N3712
HS Mot SMI TI

2N3713
CS ETC Fch Mot Sol SSD TI

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CS ETC Fch Mot Sol SSD TI

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CS ETC Fch Mot Sol SSD TI

2N3716
CS ETC Fch Mot Sol SSD TI

2N3719
CS HS Mot Sol SSD Tns

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CS HS Mot Sol SSD Tns

2N3721
CS Spg

2N3722
CS Fch Mot Ray SMI SSD

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CS Fch Mot SMI SSD

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CS Fch HS ITT Ray SSD TI Tns

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CS Fch HS ITT Ray SSD TI Tns

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CS Fch IInc Mot NS Ray SSD

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CS Fch IInc Mot NS Ray

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CS Fch GI Mot Ray SSD

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CS Fch GI Mot Ray SSD

2N3730
RCA

2N3731
RCA

2N3732
RCA

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CS UNI Mot Ray RCA Sol SSS TI

2N3734
CS Fch HS Mot Ray

2N3735
HS Mot Ray

2N3736
CS Fch ITT Mot Ray SMI SSD

2N3737
IDC Mot Ray SSD

2N3738
Fch Mot SSD

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Fch Mot SSD

2N3740
CS Fch Mot Sol SSD Tns

2N3741
CS Fch Mot Sol SSD Tns

2N3742
Fch Ind Mot MS SSD

2N3743
Fch Ind Mot SSD

2N3744
CS PD Pir Sol SSD Tns

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CS PD Pir Sol SSD Tns

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CS PD Pir Sol SSD Tns

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CS PD Pir Sol SSD Tns

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CS PD Pir Sol SSD Tns

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CS PD Pir Sol SSD Tns

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CS PD Pir Sol SSD Tns

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CS PD Pir Sol SSD Tns

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CS PD Pir Sol SSD Tns

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CS

2N3762
HS Mot Ray SSD

2N3763
HS Mot Ray SSD

2N3764
HS Mot Ray SMI SSD

2N3765
HS Mot Ray SMI SSD

2N3766
CS Fch Mot PD Sol SSD Tns

2N3767
CS Fch Mot PD Sol SSD Tns

2N3771
CS Fch Mot PD Pir RCA SMI Sol SSD TI TRW Wst

2N3772
CS Fch Mot PD Pir RCA SMI Sol SSD TI TRW Wst

2N3773
CS Fch Mot Pir RCA SMI Sol SSD TRW Wst

2N3774
Crs SSD STC

2N3775
Crs CS Sol SSD STC

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Crs CS Sol SSD STC

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Crs CS Sol SSD STC

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Crs CS Sol SSD STC

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Crs CS Sol SSD STC

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Crs CS Sol SSD STC

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Crs CS Sol SSD STC

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Crs CS Sol SSD STC

2N3783
Mot

2N3784
Mot

2N3785
Mot

2N3788
Mot Sol SSD

2N3789
Fch Mot Sol SSD TI

2N3790
Fch Mot Sol SSD

2N3791
Fch Mot Sol SSD

2N3792
Fch Mot Sol SSD TI

2N3793
CS NS

2N3794
CS NS

2N3798
IEC Mot SSD TI

2N3799
IEC Mot SSD TI

2N3800
Aml CS Fch IInc Mot Ray SSD

2N3801
Aml CS IInc Mot Ray SSD

2N3802
Aml CS Fch IInc Mot Ray SSD

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Aml CS IInc Mot Ray SSD

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Aml CS Fch IInc Mot Ray SSD

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Aml CS IInc Mot Ray SSD

2N3806
Aml CS Fch IInc Mot NS Ray SSD TI

2N3807
Aml CS IInc Mot NS Ray SSD TI

2N3808
Aml CS Fch IInc Mot NS Ray SSD TI

2N3809
Aml CS IInc Mot NS Ray SSD TI

2N3810
Aml CS Fch IInc Mot NS Ray SSD TI

2N3811
Aml CS Fch IInc Mot NS Ray SSD TI

2N3812
Mot Ray SSD

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Mot Ray SSD

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Mot Ray SSD

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Mot Ray SSD

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Mot Ray SSD

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Mot Ray SSD

2N3818
Mot SSD

2N3825
SMI

2N3826
SMI TI

2N3827
SMI TI

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SMI

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SMI SSD TI

2N3830
Ray SMI SSD TI

2N3831
Ray SMI SSD TI

2N3832
ETC SMI TI

2N3833
TI

2N3834
TI

2N3835
TI

2N3838
Fch Mot Ray SMI TI

2N3839
Fch KMC Mot RCA SSD

2N3840
Crs CS Mot NS SMI Spg

2N3841
Crs CS NS

2N3842
Crs NS

2N3843
CS GE Spg

2N3843A
CS GE Spg

2N3844
GE Spg

2N3844A
CS GE Spg

2N3845
CS GE Spg

2N3845A
CS GE Spg

2N3846
SMI SSD TI

2N3847
SMI SSD TI

2N3849
SMI

2N3850
Sol SSD Tns Unt

2N3851
Sol SSD Unt

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Sol SSD Unt

2N3853
Sol SSD Unt

2N3854
CS GE Spg

2N3854A
CS GE Spg

2N3855
CS GE Spg

2N3855A
CS GE Spg

2N3856
CS GE Spg

2N3856A
CS GE Spg

2N3857
NS

2N3858
CS GE Spg

2N3858A
CS GE Spg

2N3859
CS GE Spg

2N3859A
CS GE Spg

2N3860
CS GE Spg

2N3861
MS SSD

2N3862
SSD

2N3863
PD Sol SSD

2N3864
PD Sol SSD

2N3866
Amp CS UNI Fch IDC IEC Mot NS Ray RCA SMI Sol SSD SSS TI TRW

2N3867
Mot SSD Tns

2N3868
Mot SSD Tns

2N3877
CS GE Spg

2N3877A
CS GE Spg

2N3878
CS PD RCA Sol SSD Tns Unt

2N3879
CS PD RCA Sol SSD Unt

2N3880
KMC

2N3881
SSD

2N3883
Mot SSD

2N3900
CS GE Spg

2N3900A
CS GE Spg

2N3901
CS GE

2N3902
CS Dlc Mot Sol

2N3903
CS Mot NS

2N3904
CS Mot NS

2N3905
CS Mot NPC NS

2N3906
CS IDC Mot NS

2N3907
CS Fch NS

2N3908
CS Fch NS

2N3910
Crs CS Mot Ray SMI SSD

2N3911
Crs CS Mot Ray SMI SSD

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Crs CS Mot Ray SMI SSD

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Crs CS Ray SMI SSD

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Crs CS Ray SMI SSD

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Crs CS Ray SMI SSD

2N3916
SSD

2N3917
ETC SSD

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SSD

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SSD

2N3920
SSD

2N3923
CS Fch SSD

2N3924
Amp Mot Sol

2N3925
Mot

2N3926
Amp Mot Sol SSD

2N3927
Amp Mot Sol SSD

2N3928
Sol

2N3929
Sol

2N3930
Fch

2N3931
Fch

2N3932
RCA

2N3933
RCA

2N3945
Fch ITT NS SSD Tns

2N3946
Mot SMI SSD

2N3947
Mot SMI SSD

2N3948
Mot SSD

2N3950
Mot SSD

2N3953
KMC SSD

2N3959
Fch HS Mot SSD

2N3960
Fch HS Mot SSD

2N3961
Mot SSD

2N3962
CS Fch ITT NS TI

2N3963
CS Fch ITT NS TI

2N3964
CS Fch ITT NS TI

2N3965
CS Fch ITT NS TI

2N3973
CS GE Spg

2N3974
CS GE Spg

2N3975
CS GE Spg

2N3976
CS GE Spg

2N3977
CS Mot NS Spg SSD

2N3978
Crs CS Mot NS Spg SSD

2N3979
Crs CS Mot NS Spg SSD

TRANSISTOR MANUFACTURERS

2N3981
SMI

2N3982
SMI

2N3983
SMI

2N3984
SMI

2N3995
TI

2N3996
CS PD P r
SMI Sol SSD
TI Tns Unt

2N3997
CS PD Pir
SMI Sol SSD
TI Tns Unt

2N3998
CS Pir SMI
Sol SSD TI
Tns Unt

2N3999
CS Pir SMI
Sol SSD TI
Tns Unt

2N4000
CS PD SMI
Sol SSD TI
Tns

2N4001
CS PD SMI
Sol SSD TI
Tns

2N4002
CS Fch PD
SMI Sol SSD
TI Tns

2N4003
CS Fch PD
SMI Sol SSD
TI Tns

2N4004
SMI SSD TI

2N4005
SMI SSD TI

2N4006
Crs Mot NS

2N4007
Crs CS Mot
NS

2N4008
Crs CS Mot
NS

2N4009
Crs Mot NS

2N4010
Crs Mot

2N4011
Crs Mot

2N4012
UNI Mot RCA
SSD

2N4013
CS Fch ITT
Tns

2N4014
CS Fch ITT
Tns

2N4015
Aml CS Fch
Ilnc Mot NS
SSD

2N4016
Aml CS Fch
Ilnc Mot NS
SSD

2N4017
Aml CS Fch
Ilnc NS SSD

2N4018
Aml CS Fch
Ilnc NS SSD

2N4019
Aml CS Fch
Ilnc NS SSD

2N4020
CS Fch Ilnc
NS SSD

2N4021
CS Fch Ilnc
NS SSD

2N4022
CS Fch Ilnc
NS SSD

2N4023
CS Fch NS
SSD

2N4024
CS Fch Mot
NS SSD

2N4025
CS Fch NS
SSD

2N4026
CS Fch SSD
Tns

2N4027
CS Fch SSD
Tns

2N4028
CS Fch SSD
Tns

2N4029
CS Fch SSD
Tns

2N4030
CS Fch NS
Ray Tns

2N4031
CS Fch NS
Tns

2N4032
CS Fch NS
Ray SSD Tns

2N4033
CS Fch NS
Tns

2N4034
CS Fch ITT
SSD

2N4035
CS Fch SSD

2N4036
NS RCA SSD

2N4037
NS RCA SSD

2N4040
Sol TI TRW

2N4041
Sol TI TRW

2N4044
Ilnc Ind QC
Sol

2N4045
Ilnc Ind QC
Sol

2N4046
Fch HS ITT
Ray Tns

2N4047
Fch HS ITT
Ray Tns

2N4048
Mot Sol

2N4049
Mot Sol

2N4050
Mot Sol

2N4051
Mot Sol

2N4052
Mot Sol

2N4053
Mot Sol

2N4054
GE

2N4055
GE

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GE

2N4057
GE

2N4058
SMI TI

2N4059
SMI TI

2N4061
SMI TI

2N4062
SMI TI

2N4063
Ind RCA SSD

2N4064
Ind RCA SSD

2N4068
RCA SSD

2N4069
RCA SMI

2N4070
Pir Sol SSD

2N4071
Sol SSD

2N4072
Mot SSD

2N4073
Mot SSD

2N4074
RCA

2N4075
Fch SSD

2N4076
Fch SSD

2N4078
Amp

2N4080
Ray SMI

2N4100
Ilnc QC Sol

2N4101
Sol

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SSD TI

2N4106
Amp

2N4107
Amp

2N4111
Fch PD Sol
SSD

2N4112
Fch PD Sol
SSD

2N4113
Fch PD Sol
SSD

2N4114
Fch PD SSD

2N4115
Fch

2N4116
Fch

2N4121
Con CS Fch
IEC NS

2N4122
Con CS Fch
IEC NS

2N4123
Mot NS

2N4124
Mot NS

2N4125
Mot NS

2N4126
Mot NS

2N4127
Sol SSD TRW

2N4128
Sol SSD TRW

2N4130
Sol SSD

2N4131
SSD

2N4132
SSD

2N4133
SSD

2N4134
ETC Fch SSD

2N4135
ETC Fch SSD

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Fch Ray SSD

2N4138
Crs SMI SSD
TI

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CS GI NS

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Con CS NS

2N4142
Con CS GI
NS

2N4143
Con CS GI
NS

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CS PD Pir
Sol SSD Unt

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Fch

2N4208
Fch

2N4209
Fch

2N4210
Sol SSD Tns

2N4211
Sol SSD Tns

2N4225
PD Sol SSD

2N4226
PD Sol SSD

2N4227
Con CS GI
NS

2N4228
Con GI NS

2N4231
Fch Mot PD
Sol SSD

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Fch Mot PD
Sol SSD

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Fch Mot PD
Sol SSD

2N4234
Fch Mot Sol
SSD Tns

2N4235
Fch Mot Sol
SSD Tns

2N4236
Fch Mot Sol
SSD Tns

2N4237
Fch HS Mot
Sol SSD Tns

2N4238
CS Fch HS
Mot Sol SSD
Tns

2N4239
Fch HS Mot
Sol SSD Tns

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RCA

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Amp

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CS Sol

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CS Sol

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CS Sol

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CS Sol

2N4247
CS Sol

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NS

2N4249
Con CS Fch
IEC NS

2N4250
Con CS Fch
IEC NS

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Fch

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Fch SSD

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ETC SMI SSD
TI

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ETC SMI SSD
TI

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SMI TI

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SMI TI

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Con GE

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Fch

2N4257A
Fch

2N4258
Fch

2N4258A
Fch

2N4259
RCA

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Fch HS Mot

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Fch HS Mot

2N4264
Mot

2N4265
Mot

2N4269
CS Tns

2N4270
Tns

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SSD Tns

2N4272
SSD Tns

2N4273
SSD Tns

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Con CS Fch
NS SSD

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Con Fch NS

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Mot

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Mot

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Mot

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Mot

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NS SMI

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NS

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NS SMI

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NS

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SMI

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NS SMI

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NS SMI

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NS SMI

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NS SMI

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NS SMI

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SSD

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SSD

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SSD

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SSD

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CS SMI Sol
SSD TI Tns

2N4301
CS Fch Sol
SSD TI Tns

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SSD TRW

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SSD TRW

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SSD TRW

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SSD TRW

2N4309
SSD TRW

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SSD TRW

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SSD TRW

2N4312
SSD TRW

2N4313
Fch

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RCA SSD

2N4315
Amp

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RCA

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Fch RCA Sol
SSD Wst

2N4348
Fch Mot RCA
Sol SSD Wst

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Fch

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Fch

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Fch

2N4357
Fch

2N4358
Fch

2N4359
Fch Mot

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Spg

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Spg

2N4385
Spg

2N4386
Spg

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Sol SSD Tns

2N4388
Sol SSD Tns

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Fch

2N4390
RCA

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PD SSD

2N4396
PD SSD

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Fch Mot SSD
TI

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Fch Mot SSD
TI

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Mot

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Mot

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Mot

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Mot

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Mot

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Mot

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Mot

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Con Mot

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Con Mot

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Mot

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Spg

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Spg

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Spg

2N4413A
Spg

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Spg

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Spg

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Spg

2N4415A
Spg

2N4424
Con GE Spg

2N4425
Con GE Spg

2N4427
Amp Fch Mot
RCA Sol

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UNI Mot SSS
TRW

2N4429
UNI Ray SSS
TRW

2N4430
UNI Ray SSS
TRW

2N4431
UNI SSS TRW

2N4433
ETC

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Fch

2N4437
Fch SSD

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Fch

2N4439
Fch

2N4440
UNI Ray RCA
Sol SSS

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Fch

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Fch

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Fch

2N4452
Fch

2N4453
Fch

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Mot Ray TI

2N4855
Mot Ray TI

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Pir Sol

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Pir Sol SSD

2N4864
Pir Sol SSD
Tns

2N4865
Pir PT Sol
SSD Tns

2N4866
PT Sol Tns

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Fch

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Fch

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TI

2N4875
TI

2N4876
TI

2N4877
Fch Mot SSD

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Ilnc QC Sol

2N4879
Ilnc QC Sol

2N4880
Ilnc QC Sol

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Fch

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Fch

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Mot

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Fch Mot Sol
SSD

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Fch Mot Sol
SSD

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Fch Mot Sol
SSD

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Fch Mot Sol
SSD

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Fch Mot Sol
SSD

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Fch Mot Sol
SSD

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Fch Mot Sol
SSD TI

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Fch Mot Sol
SSD TI

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Fch Mot Sol
SSD TI

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Fch Mot Sol
SSD TI

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Fch Mot Sol
SSD TI

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Fch Mot Sol
SSD TI

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Fch Mot Sol
SSD

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Fch Mot Sol
SSD

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Fch Mot Sol
SSD

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Fch Mot PD
Sol SSD

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Fch Mot PD
Sol SSD

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Fch Mot PD
Sol SSD

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Fch Mot Sol
SSD TI

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Fch Mot Sol
SSD TI

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Fch Mot Sol
SSD TI

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Fch NS

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Fch NS

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Mot

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Mot

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Mot

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Mot

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Mot

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Mot

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HS Mot

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HS Mot

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Fch Mot SSD

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Fch Mot SSD

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Mot

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Mot SSD

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Mot SSD

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Mot SSD

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RCA SSD

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RCA Sol SSD

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Mot Ray

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Mot Ray

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Mot Ray

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Mot Ray

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Mot Ray

2N4942
Mot Ray

2N4943
NS

2N4944
Con Fch

2N4945
Con Fch

2N4946
Con Fch

2N4950
Sol

2N4951
GE Spg

2N4952
GE Spg

2N4953
GE Spg

2N4954
GE Spg

2N4955
Fch

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Fch

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Fch Mot

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Fch Mot

2N4959
Fch Mot

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Fch

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Fch

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Fch

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Fch

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Con Fch NS

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Con Fch NS

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Con Fch NS

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Con Fch NS

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Con Fch NS

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Con Fch NS

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Con Fch NS

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Con NS

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Con NS

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Mot

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Mot

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TRW

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Crs NS Sol

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Crs NS Sol

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Crs NS Sol

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TI

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TI

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TI

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TI

2N4998
Fch Sol

2N4999
Fch Sol

2N5000
Fch Sol SSD

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Fch Sol SSD

2N5002
Fch Sol SSD

2N5003
Fch Sol SSD

2N5004
Fch Sol SSD

2N5005
CS Fch Sol
SSD

2N5006
CS Fch Sol
SSD

2N5007
Fch Sol SSD

2N5008
CS Fch Sol
SSD

2N5009
Fch Sol SSD

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CS MS SSD
STC

2N5011
CS MS SSD
STC

2N5012
CS MS SSD
STC

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CS MS SSD
STC

2N5014
CS MS SSD
STC

2N5015
CS MS SSD
STC

2N5016
UNI Ray RCA
Sol SSD SSS

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Fch Ray SSD

2N5023
Fch Ray SSD

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CS Fch SSD

2N5026
Fch SSD

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CS GE Spg

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CS GE Spg

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CS GE

2N5030
CS GE

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KMC

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KMC

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KMC

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RCA

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RCA

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RCA

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RCA

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Fch PD RCA

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Fch PD RCA

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CS Fch Sol

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CS Fch

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CS Fch

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TI

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TI

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GE SSD

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GE

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Fch Mot SSD

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Fch Mot SSD

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Fch Mot SSD

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Amp

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Amp

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Fch

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CS Fch

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Fch

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Fch SSD TI

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Fch SSD TI

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Fch

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Crs

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Fch Mot SSD

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Fch Mot SSD

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Fch Mot SSD

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RCA Sol

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RCA Sol

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Aml Con

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Aml Con

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Fch SSD

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Fch SSD

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Fch SSD

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Mot

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Mot

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Mot

2N5089
Mot

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UNI Mot RCA
Sol SSD SSS

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Ind

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Ind SSD

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Ind SSD

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Ind SSD

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CS Ind SSD

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Ind SSD

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CS Ind SSD

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Ind SSD

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CS Ind SSD

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Ind

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CS Ind SSD

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RCA Sol SSD

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CS Fch

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CS Fch

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Mot Ray RCA
Sol

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Ray

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RCA Sol

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Crs

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Crs

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Crs

2N5113
Crs

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Fch NS

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Con CS Fch
NS

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NS

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Con CS Fch
NS

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NS

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NS

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NS

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CS Fch

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CS Fch

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NS

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Con CS Fch
NS

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Fch

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2N5251 PT Sol Tns
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2N5488 SSD Unt
2N5489 PT
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2N5492 RCA
2N5493 RCA
2N5494 RCA
2N5495 RCA
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2N5497 RCA
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2N5672 RCA Sol
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2N5729 Fch PD SSD
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2N5742 Sol
2N5743 Sol
2N5744 Sol
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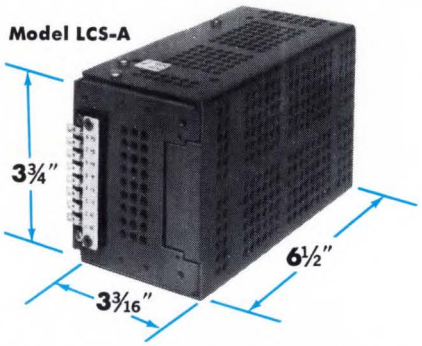
2N5857 Fch
2N5858 Fch
2N5910 Fch
2N5913 RCA

2N5914 RCA
2N5915 RCA
2N5916 RCA
2N5917 RCA
2N5919 RCA
2N5921 RCA
2N5926 PT
2N5927 PT
2N5928 PT

Advertiser's Index

New LC Series power package IC regulated Modular Power Supply

The LCS-A is another package in the LC series of 5 package sizes providing single and dual outputs; wide range of d-c voltages, up to 150 volts; wide range of currents, up to 3.0 amps; priced from $99.00.



All-silicon DC power supply using integrated circuits to provide regulation system

Convection cooled
no external heat sinking required

Regulation
line or load .01% + 1 mv

Ripple and noise
250 μv rms; 1 mv p-to-p

Wide input voltage and frequency range
105-132 vac, 47-440Hz

Wide temperature range
−20°C to +71°C

Temperature coefficient
.01% + 300μv/°C external programing resistor
.015% + 300μv/°C internal programing resistor

Remote programing
1000 ohm/v nominal or volt/volt

Remote sensing

Automatic current limiting

Series/parallel operation
with similar single or dual units

Multi-current-rated

Complete serviceability

Overvoltage protection
available as accessory up to 70 vdc

Other LC models are available with single and dual outputs and these voltage and current ranges:

LCS-1	to	120 vdc,	to	275 ma.,	from	**$ 70**
LCS-2	to	120 vdc,	to	550 ma.,	from	**$ 80**
LCS-3	to	60 vdc,	to	1.2 a,	from	**$ 90**
LCS-4	to	150 vdc,	to	4.5 a,	from	**$130**
LCD-2	to	120 vdc,	to	300 ma.,	from	**$125**
LCD-3	to	60 vdc,	to	700 ma.,	from	**$150**
LCD-A	to	120 vdc,	to	1.0 a,	from	**$155**
LCD-4	to	120 vdc,	to	1.8 a,	from	**$190**

"S" denotes single, "D" denotes dual output.

LCS-A SINGLE OUTPUT MODELS (Fixed Voltage)

3 3/16" x 3¾" x 6½"

MODEL	FIXED VOLT. RANGE VDC	MAX. AMPS. AT AMBIENT OF: [1] 40°C	50°C	60°C	71°C	PRICE [2]
LCS-A-3	3±5%	3.0	2.5	2.0	1.4	**$99**
LCS-A-3P6	3.6±5%	2.9	2.4	1.9	1.3	**99**
LCS-A-4	4±5%	2.9	2.4	1.9	1.3	**99**
LCS-A-4P5	4.5±5%	2.8	2.3	1.8	1.2	**99**
LCS-A-5	5±5%	2.7	2.3	1.8	1.2	**99**
LCS-A-6	6±5%	2.6	2.2	1.8	1.2	**99**
LCS-A-8	8±5%	2.4	2.0	1.7	1.1	**99**
LCS-A-10	10±5%	2.1	1.8	1.5	1.0	**99**
LCS-A-12	12±5%	1.9	1.7	1.3	0.9	**99**
LCS-A-15	15±5%	1.8	1.5	1.2	0.9	**99**
LCS-A-18	18±5%	1.6	1.3	1.1	0.8	**99**
LCS-A-20	20±5%	1.4	1.2	1.0	0.8	**99**
LCS-A-24	24±5%	1.1	1.0	0.85	0.70	**99**
LCS-A-28	28±5%	1.0	0.9	0.75	0.60	**99**
LCS-A-36	36±5%	0.90	0.80	0.70	0.50	**99**
LCS-A-48	48±5%	0.60	0.55	0.50	0.45	**99**
LCS-A-100	100±5%	0.18	0.18	0.18	0.18	**109**
LCS-A-120	120±5%	0.15	0.15	0.15	0.15	**109**
LCS-A-150	150±5%	0.10	0.10	0.10	0.10	**109**

LCS-A SINGLE OUTPUT MODELS (Wide Range)

3 3/16" x 3¾" x 6½"

MODEL	ADJ. VOLT. RANGE VDC	MAX. AMPS. AT AMBIENT OF [1] 40°C	50°C	60°C	71°C	PRICE [2]
LCS-A-01	0-7	2.0	1.9	1.6	1.1	**$99**
LCS-A-02	0-18	1.1	1.0	0.9	0.7	**99**
LCS-A-03	0-32	0.69	0.64	0.60	0.45	**99**
LCS-A-04	0-60	0.37	0.34	0.31	0.25	**99**
LCS-A-05	0-120	0.10	0.10	0.10	0.10	**109**

NOTES: (1) For operation at 360-440Hz, consult factory for ratings and specifications.

(2) Prices are USA list prices only, FOB Melville, N.Y.; North Hollywood, Calif.; Montreal, Canada. All prices and specifications are subject to change without notice.

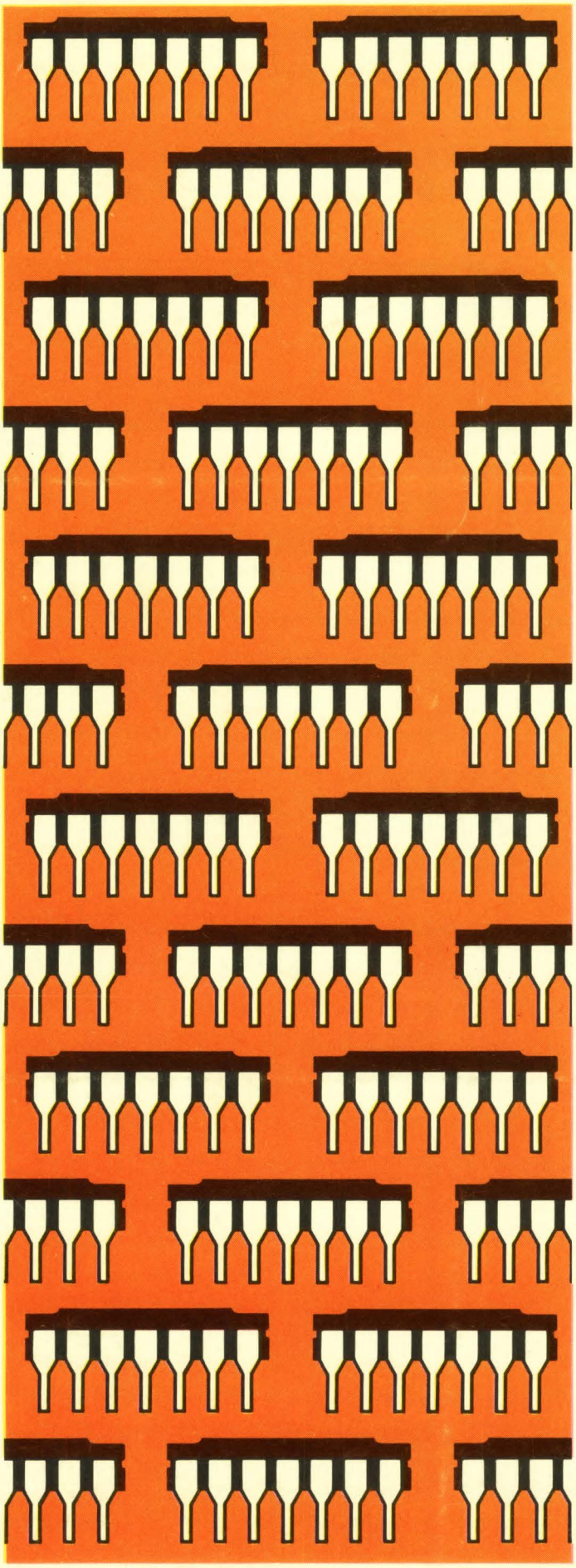
(3) The following charges are applicable for shipment from other than Melville, N.Y.:

Value of Order	Handling Charge
up to $50.00	$1.00
$51.00 to $180.00	$2.00
$181.00 to $300.00	$4.00
$301.00 to $500.00	$6.00
$501.00 and over	FOB Melville, N.Y. only

Lambda's Distributor Division maintains a total inventory of over 10,000 power supply units located in Los Angeles, Montreal and New York for 1-day delivery — 5 year guarantee.

Write for complete Lambda Catalog!
Lambda Electronics Corp., 515 Broad Hollow Road, Melville, Long Island, New York 11746 • Tel. 516-694-4200

CIRCLE NO. 71



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