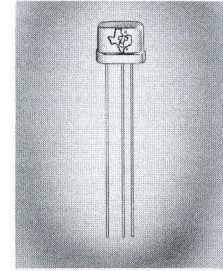




N-P-N GROWN JUNCTION SILICON TRANSISTOR

Beta From 18 to 40

Specifically designed for high gain at high temperatures



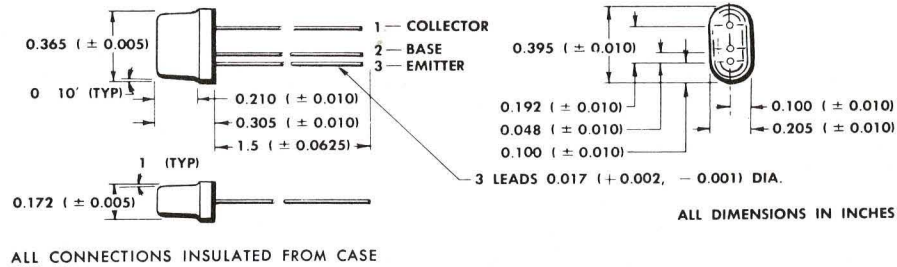
TYPE 2N1150/904
BULLETIN NO. DL-S 1071
REPLACES BULLETIN NO. DL-S 819
OCTOBER 1957

qualification testing

All units are heat cycled ten times from -65°C to $+175^{\circ}\text{C}$. The units are hermetically sealed. All units are completely tested for design characteristics and undergo a rigorous tumble test to check for mechanical reliability.

mechanical data

Metal case with glass-to-metal hermetic seal between case and leads. Unit weight is approximately 1 gram.



absolute maximum ratings at 25°C ambient

where advanced temperatures are indicated]

Collector Voltage Referred to Base	45 V
Emitter Voltage Referred to Base	1 V
Collector Current	25 mA
Emitter Current	-25 mA
Collector Dissipation	150 mW
at 100°C	100 mW
at 150°C	50 mW

junction temperature

Maximum Range -65°C to $+175^{\circ}\text{C}$

common base design characteristics at $T_j = 25^{\circ}\text{C}$

[except where advanced temperatures are indicated]

		test conditions		min.	design center	max.	unit
BV_{CB0}	Collector Breakdown Voltage	$I_C = 50\mu\text{A}$	$I_E = 0$	45	—	—	Volt
I_{CB0}	Collector Cutoff Current	$V_{CB} = 30\text{V}$	$I_E = 0$	—	—	2	μA
		at 100°C } $V_{CB} = 5\text{V}$	$I_E = 0$	—	—	10	μA
		at 150°C } $V_{CB} = 5\text{V}$	$I_E = 0$	—	—	50	μA
h_{ib}	Input Impedance	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	30	42	80	Ohm
h_{ob}	Output Admittance	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	0.0	0.4	1.2	μmho
h_{rb}	Feedback Voltage Ratio	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	0.0	250	1000	$\times 10^{-6}$
h_{fb}	Current Transfer Ratio	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	-0.948	-0.96	-0.976	—
PG_e	Power Gain*†	$V_{CE} = 20\text{V}$	$I_E = -2\text{mA}$	—	39	—	db
NF	Noise Figure*‡	$V_{CE} = 5\text{V}$	$I_E = -1\text{mA}$	—	20	—	db
$f_{\alpha b}$	Frequency Cutoff	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	—	5	—	mc
C_{ob}	Output Capacitance (1mc)	$V_{CB} = 5\text{V}$	$I_E = 0$	—	7	—	μmf
R_{cs}	Saturation Resistance*	$I_B = 2.2\text{mA}$	$I_C = 5\text{mA}$	—	100	200	Ohm

*Common Emitter

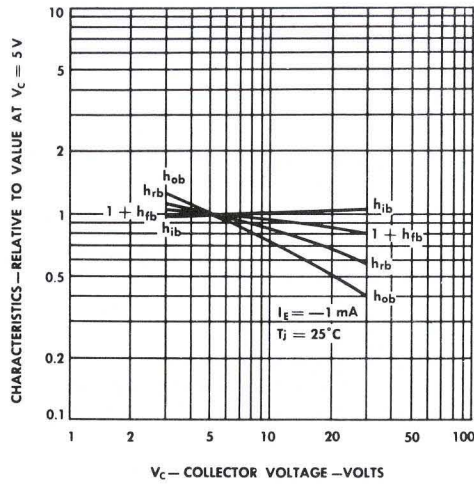
† $R_g = 1\text{k}$; $R_L = 20\text{k}$

‡Conventional Noise—Compared to 1000 ohm resistor, 1000 cps and 1 cycle band width

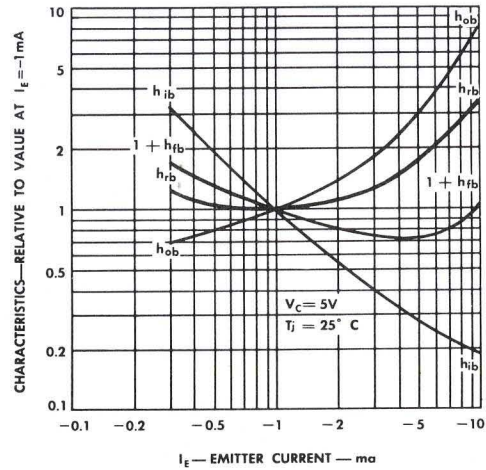
TYPE 2N1150/904

TYPICAL CHARACTERISTICS

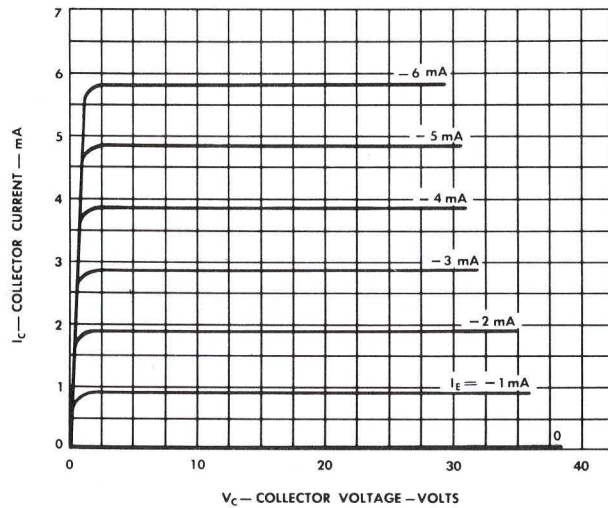
For Additional Electrical Information See Type 2N333 Data Sheet



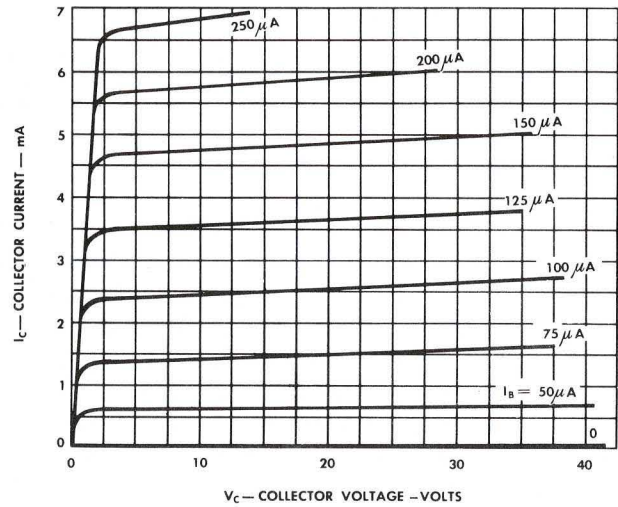
COMMON BASE CHARACTERISTICS VS. COLLECTOR VOLTAGE



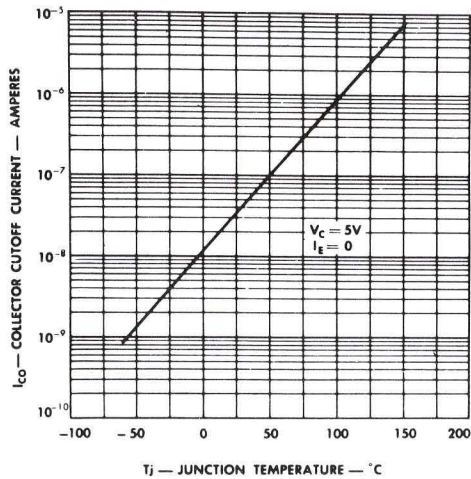
COMMON BASE CHARACTERISTICS VS. EMITTER CURRENT



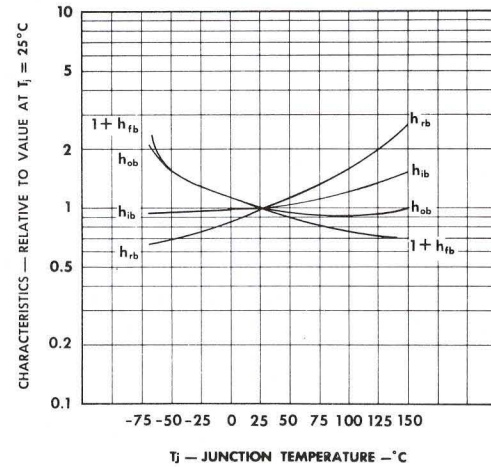
COMMON BASE OUTPUT CHARACTERISTICS



COMMON EMITTER OUTPUT CHARACTERISTICS



COLLECTOR CUTOFF CURRENT VS. JUNCTION TEMPERATURE



COMMON BASE CHARACTERISTICS VS. JUNCTION TEMPERATURE