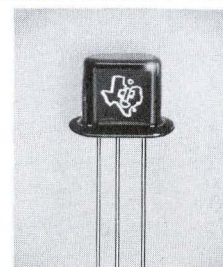




N-P-N GROWN JUNCTION SILICON TRANSISTOR

18 to 86 beta spread

Specifically designed for high gain at high temperatures



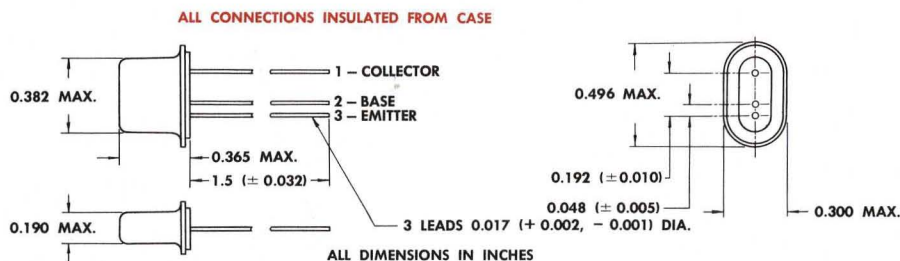
TYPE 2N118A
BULLETIN NO. DL-S 898 MARCH, 1958
REPLACES BULLETIN NO. DL-S 779 AUGUST, 1957

qualification testing

All units are thoroughly heat cycled from -65°C to $+175^{\circ}\text{C}$. This test consists of fourteen cycles, including four at 95% relative humidity (from -65°C to $+75^{\circ}\text{C}$). In addition, the hermetic seal is checked by pressure testing. All units are completely tested for design characteristics and undergo a rigorous tumble test to check for mechanical reliability.

mechanical data

Welded case with glass-to-metal hermetic seal between case and leads. Approximate weight is 1.7 grams.



absolute maximum ratings at 25°C ambient [except 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 } at 100°C } at 150°C }	$V_{CB} = 30\text{V}$	$I_E = 0$	—	—	2	μA
		$V_{CB} = 5\text{V}$	$I_E = 0$	—	—	10	μA
		$V_{CB} = 5\text{V}$	$I_E = 0$	—	—	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	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	50	400	1000	$\times 10^{-6}$
h_{fb}	Current Transfer Ratio	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	-0.948	-0.975	-0.989	—
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	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	8	—	—	mc
C_{ob}	Output Capacitance (1mc)	$V_{CB} = 5\text{V}$	$I_E = -1\text{mA}$	—	7	—	$\mu\mu\text{f}$
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 2N118A

TYPICAL CHARACTERISTICS

