

## PNP POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/315

### Devices

2N2880

2N3749

### Qualified Level

JAN  
JANTX  
JANTXV

### MAXIMUM RATINGS

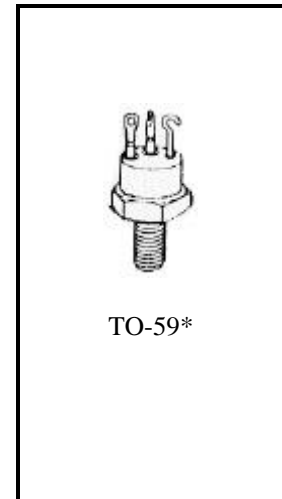
Ratings	Symbol	Value	Units
Collector-Emitter Voltage	$V_{CEO}$	80	Vdc
Collector-Base Voltage	$V_{CBO}$	110	Vdc
Emitter-Base Voltage	$V_{EBO}$	8.0	Vdc
Base Current	$I_B$	0.5	Adc
Collector Current	$I_C$	5.0	Adc
Total Power Dissipation @ $T_A = 25^{\circ}\text{C}$ <sup>(1)</sup> @ $T_C = 100^{\circ}\text{C}$ <sup>(2)</sup>	$P_T$	2.0 30	W
Operating & Storage Junction Temperature Range	$T_{op}, T_{stg}$	-65 to +200	$^{\circ}\text{C}$

### THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.33	$^{\circ}\text{C/W}$

1) Derate linearly 11.4 mW/ $^{\circ}\text{C}$  for  $T_A > 25^{\circ}\text{C}$

2) Derate linearly 300 mW/ $^{\circ}\text{C}$  for  $T_C > 100^{\circ}\text{C}$



\*See Appendix A for Package Outline

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
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### OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 100 \text{ mAdc}$	$V_{(BR)CEO}$	80		Vdc
Collector-Emitter Breakdown Voltage $I_C = 10 \mu\text{Adc}$	$V_{(BR)CBO}$	110		Vdc
Emitter-Base Breakdown to Voltage $I_E = 10 \mu\text{Adc}$	$V_{(BR)EBO}$	8.0		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 60 \text{ Vdc}$	$I_{CEO}$		20	$\mu\text{Adc}$
Collector-Base Cutoff Current $V_{CB} = 80 \text{ Vdc}$	$I_{CBO}$		0.2	$\mu\text{Adc}$
Collector-Emitter Cutoff Current $V_{CE} = 110 \text{ Vdc}, V_{BE} = -0.5$	$I_{CEX}$		1.0	$\mu\text{Adc}$
Emitter-Base Cutoff Current $V_{EB} = 6.0 \text{ Vdc}$	$I_{EBO}$		0.2	$\mu\text{Adc}$

**ELECTRICAL CHARACTERISTICS (Con't)**

Characteristics	Symbol	Min.	Max.	Unit
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**ON CHARACTERISTICS**

Forward-Current Transfer Ratio $I_C = 50 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}$ $I_C = 1.0 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 5.0 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$	$h_{FE}$	40 40 15	120 120	
Base-Emitter Voltage Non-Saturated $V_{CE} = 2.0 \text{ Adc}, I_C = 1.0 \text{ Adc}$	$V_{BE}$		1.2	Vdc
Collector-Emitter Saturation Voltage $I_C = 1.0 \text{ Adc}, I_B = 0.1 \text{ Adc}$ $I_C = 5.0 \text{ Adc}, I_B = 0.5 \text{ Adc}$	$V_{CE(sat)}$		0.25 1.5	Vdc
Base-Emitter Saturation Voltage $I_C = 1.0 \text{ Adc}, I_B = 0.1 \text{ Adc}$	$V_{BE(sat)}$		1.2	Vdc

**DYNAMIC CHARACTERISTICS**

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 1.0 \text{ Adc}, V_{CE} = 10 \text{ Vdc}, f = 10 \text{ MHz}$	$ h_{fe} $	3.0	12	
Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 50 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}, f = 1 \text{ kHz}$	$h_{fe}$	40	140	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \leq f \leq 1.0 \text{ MHz}$	$C_{obo}$		150	pF

**SAFE OPERATING AREA**

<b>DC Tests</b> $T_C = 100^\circ\text{C}, t = 10 \text{ s}$ <b>Test 1</b> $V_{CE} = 80 \text{ Vdc}, I_C = 80 \text{ mAdc}$ <b>Test 2</b> $V_{CE} = 20 \text{ Vdc}, I_C = 1.5 \text{ Adc}$
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