

## NPN Power Silicon Transistor

Rev. V1

### Features

- Available in JAN, JANTX, JANTXV per MIL-PRF-19500/407
- TO-3 (TO-204AA) Package



### Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
<b>Off Characteristics</b>					
Collector - Emitter Breakdown Voltage	$I_C = 200 \text{ mAdc}$ $I_C = 200 \text{ mAdc}, R_{BE} = 100 \Omega$ $V_{BE} = -1.5 \text{ Vdc}, I_C = 200 \text{ mAdc}$	$V_{(BR)CEO}$ $V_{(BR)CER}$ $V_{(BR)CEX}$	Vdc	70 80 90	—
Collector - Emitter Cutoff Current	$V_{CE} = 60 \text{ Vdc}$ $V_{BE} = -1.5 \text{ Vdc}, V_{CE} = 100 \text{ Vdc}$	$I_{CEO}$ $I_{CEX}$	mAdc	—	1 1
Emitter - Base Cutoff Current	$V_{EB} = 7.0 \text{ Vdc}$	$I_{EBO}$	mAdc	—	1
<b>On Characteristics</b>					
Forward Current Transfer Ratio	$I_C = 0.5 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$ $I_C = 10.0 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$	$H_{FE}$	-	40 20 5	— 60 —
Collector - Emitter Saturation Voltage	$I_C = 4.0 \text{ Adc}, I_B = 0.4 \text{ Adc}$ $I_C = 10.0 \text{ Adc}, I_B = 3.3 \text{ Adc}$	$V_{CE(SAT)}$	Vdc	—	0.75 2.0
Emitter - Base Saturation Voltage	$I_C = 4.0 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$	$V_{BE(SAT)}$	Vdc	—	1.4
<b>Dynamic Characteristics</b>					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 1 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}, f = 100 \text{ kHz}$	$ H_{FE} $		8	40
Output Capacitance	$V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	$C_{OBO}$	pF	—	700
<b>Switching Characteristics</b>					
Turn-On Time	$V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = 0.4 \text{ Adc}$	$T_{ON}$	$\mu\text{s}$	—	6
Turn-Off Time	$I_C = 4.0 \text{ Adc}; I_{B1} = -I_{B2} = 0.4 \text{ Adc}$	$T_{OFF}$	$\mu\text{s}$	—	12
<b>Safe Operating Area</b>					
DC Tests:	$T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$				
Test 1:	$V_{CE} = 7.8 \text{ Vdc}, I_C = 15 \text{ Adc}$				
Test 2:	$V_{CE} = 70.0 \text{ Vdc}, I_C = 1.67 \text{ Adc}$				

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### Absolute Maximum Ratings

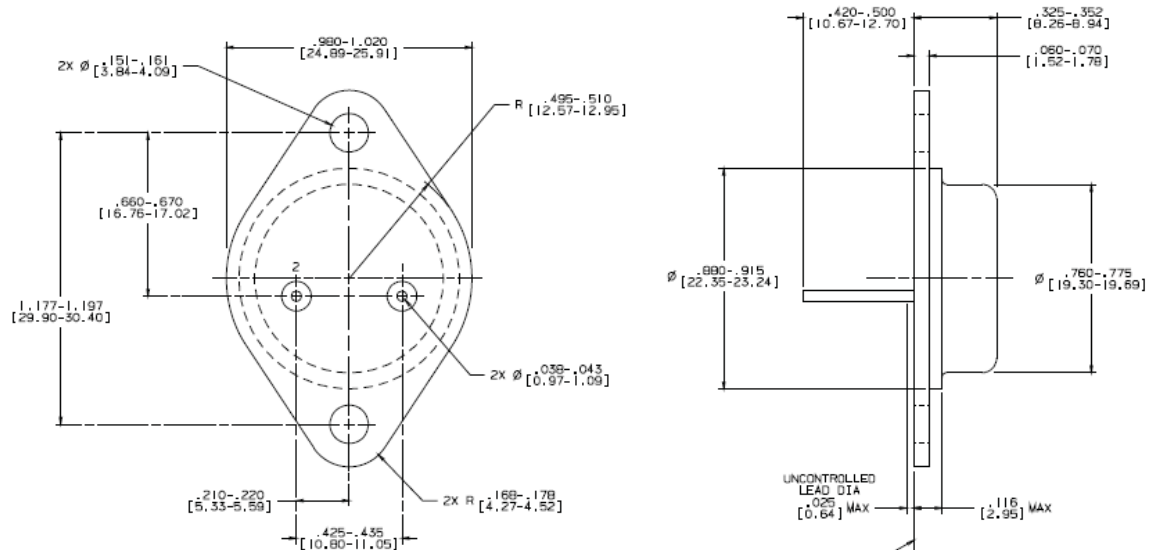
Ratings	Symbol	Value
Collector - Emitter Voltage	$V_{CEO}$	70 Vdc
Collector - Base Voltage	$V_{CBO}$	100 Vdc
Emitter - Base Voltage	$V_{EBO}$	7 Vdc
Base Current	$I_B$	7 Vdc
Collector Current	$I_C$	15 Adc
Total Power Dissipation @ $T_A = 25^\circ\text{C}^1$	$P_T$	6 W
Operating & Storage Temperature Range	$T_{OP}, T_{STG}$	$-65^\circ\text{C}$ to $+200^\circ\text{C}$

1. Derate linearly @ 34.2 mW / °C for  $T_A = 25^\circ\text{C}$

### Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5°C/W

### Outline Drawing



#### NOTES:

- STANDARD HEADER TYPE SOLID BASE.
- STANDARD LEAD FINISH PER MIL-M-38510 TYPE X OR EQUIVALENT.
- LEAD NOT BENT GREATER THAN 15°.
- DIMENSIONS BASED ON JEDEC STANDARD TO-3 PUBLICATION 95, PA

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