

## NPN Power Silicon Transistor

Rev. V1

## Features

- Available in JAN, JANTX, JANTXV per MIL-PRF-19500/526
- TO-66 (TO-213AA) Package



## Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
<b>Off Characteristics</b>					
Collector - Emitter Breakdown Voltage	$I_C = 200 \text{ mA dc}$	$V_{(BR)CEO}$	Vdc	75	—
Collector - Emitter Cutoff Current	$V_{CE} = 50 \text{ Vdc}$	$I_{CEO}$	mA dc	—	5
Collector - Emitter Cutoff Current	$V_{CE} = 80 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	$I_{CEX}$	mA dc	—	4
Collector - Base Cutoff Current	$V_{CB} = 120 \text{ Vdc}$	$I_{CBO}$	mA dc	—	25
Emitter - Base Cutoff Current	$V_{EB} = 7 \text{ Vdc}$	$I_{EBO}$	mA dc	—	10
<b>On Characteristics<sup>1</sup></b>					
Forward Current Transfer Ratio	$I_C = 0.5 \text{ Adc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 2 \text{ Vdc}$	$H_{FE}$	-	30 20 12	— 80 100
Collector - Emitter Saturation Voltage	$I_C = 4.0 \text{ Adc}, I_B = 0.4 \text{ Adc}$	$V_{CE(SAT)}$	Vdc	—	1.2
Base - Emitter Saturation Voltage	$I_C = 4.0 \text{ Adc}, I_B = 0.4 \text{ Adc}$	$V_{BE(SAT)}$	Vdc	—	2.0
Base - Emitter Voltage	$I_C = 4.0 \text{ Adc}, I_B = 2.0 \text{ Adc}$	$V_{BE(ON)}$	Vdc	—	1.8
<b>Dynamic Characteristics</b>					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 500 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}, f = 10 \text{ MHz}$	$ h_{FE} $	-	4	20
Output Capacitance	$V_{CB} = 10 \text{ Vdc}, I_E = 0, 0.1 \text{ MHz} \leq f \leq 1 \text{ MHz}$	$C_{OBO}$	pF	—	175
<b>Switching Characteristics</b>					
Turn-On Time	$V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = 0.4 \text{ Adc}$	$T_{ON}$	$\mu\text{s}$	—	0.25
Turn-Off Time	$V_{CC} = 30 \text{ Vdc}; I_C = 4.0 \text{ Adc}; I_{B1} = -I_{B2} = 0.4 \text{ Adc}$	$T_{OFF}$	$\mu\text{s}$	—	2.5
<b>Safe Operating Area</b>					
DC Tests:	$T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 1.0 \text{ s}$				
Test 1:	$V_{CE} = 5 \text{ Vdc}, I_C = 7 \text{ Adc}$				
Test 2:	$V_{CE} = 28 \text{ Vdc}, I_C = 1.25 \text{ Adc}$				
Test 3:	$V_{CE} = 40 \text{ Vdc}, I_C = 500 \text{ Adc}$				
Test 4:	$V_{CE} = 75 \text{ Vdc}, I_C = 100 \text{ Adc}$				

1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

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### Absolute Maximum Ratings

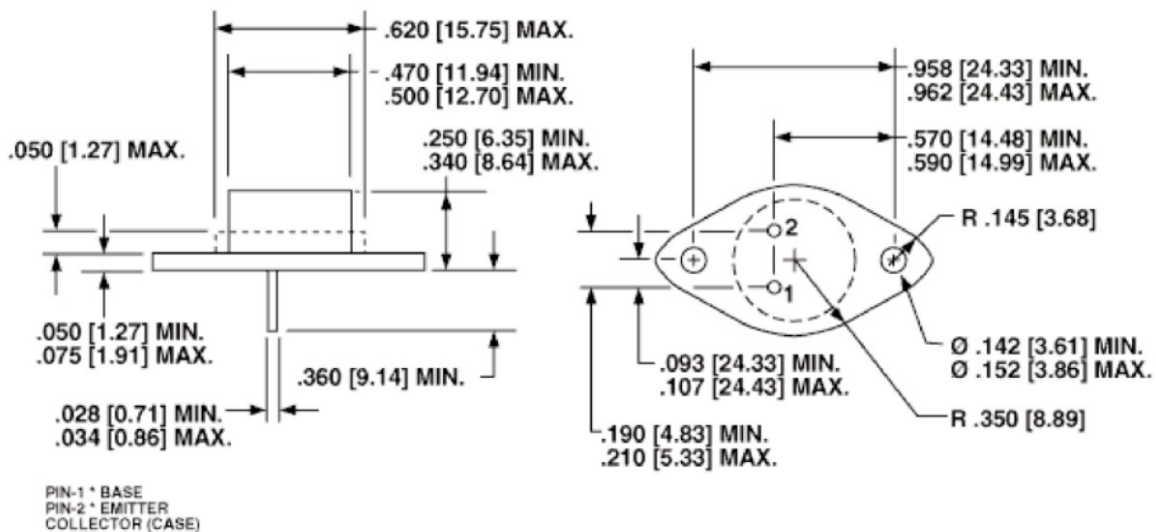
Ratings	Symbol	Value
Collector - Emitter Voltage	$V_{CEO}$	75 Vdc
Collector - Base Voltage	$V_{CBO}$	120 Vdc
Emitter - Base Voltage	$V_{EBO}$	7 Vdc
Base Current	$I_B$	5 Vdc
Collector Current	$I_C$	7 Adc
Total Power Dissipation @ $T_C = 25^\circ\text{C}^1$	$P_T$	35 W
Operating & Storage Temperature Range	$T_{OP}, T_{STG}$	$-65^\circ\text{C}$ to $+200^\circ\text{C}$

1. Derate linearly @ 200 mW / °C between  $T_C = 25^\circ\text{C}$  and  $T_C = 200^\circ\text{C}$

### Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Case	$R_{\theta JC}$	$5^\circ\text{C/W}$

### Outline Drawing



NOTE: Dimensions in Inches [mm]

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