

## NPN HIGH POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/488

### Devices

2N5671

2N5672

### Qualified Level

JAN  
JANTX  
JANTXV

### MAXIMUM RATINGS

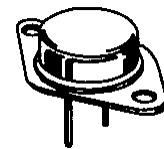
Ratings	Symbol	2N5671	2N5672	Unit
Collector-Emitter Voltage	$V_{CEO}$	90	120	Vdc
Collector-Base Voltage	$V_{CBO}$	120	150	Vdc
Emitter-Base Voltage	$V_{EBO}$	7.0		Vdc
Base Current	$I_B$	10		Adc
Collector Current	$I_C$	30		Adc
Total Power Dissipation	$P_T$	@ $T_A = +25^{\circ}\text{C}$ <sup>(1)</sup>	6.0	W
		@ $T_C = +25^{\circ}\text{C}$ <sup>(2)</sup>	140	W
Operating & Storage Temperature Range	$T_{op}, T_{stg}$	-65 to +200		$^{\circ}\text{C}$

### THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.25	$^{\circ}\text{C}/\text{W}$

1) Derate linearly 34.2 mW/ $^{\circ}\text{C}$  for  $T_A > +25^{\circ}\text{C}$

2) Derate linearly 800 mW/ $^{\circ}\text{C}$  for  $T_C > +25^{\circ}\text{C}$



TO-3\*  
(TO-204AA)

\*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 $I_C = 200 \text{ mAdc}$	2N5671 2N5672	$V_{(BR)CEO}$	90 120	Vdc
Collector-Emitter Breakdown Voltage $I_C = 200 \text{ mAdc}$	2N5671 2N5672	$V_{(BR)CER}$	110 140	Vdc
Collector-Emitter Breakdown Voltage $I_C = 200 \text{ mAdc}$	2N5671 2N5672	$V_{(BR)CEX}$	120 150	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 80 \text{ Vdc}$		$I_{CEO}$	10	mAdc
Collector-Emitter Cutoff Current $V_{CE} = 110 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	2N5671	$I_{CEX}$	12	mAdc
$V_{CE} = 135 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	2N5672			

**2N5671, 2N5672 JAN SERIES**

**ELECTRICAL CHARACTERISTICS (con't)**

Characteristics	Symbol	Min.	Max.	Unit
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**OFF CHARACTERISTICS (con't)**

Collector-Base Cutoff Current V <sub>CB</sub> = 120 Vdc V <sub>CB</sub> = 150 Vdc	2N5671 2N5672	I <sub>CBO</sub>	25 25	mAdc
Emitter-Base Cutoff Current V <sub>EB</sub> = 7.0 Vdc		I <sub>EBO</sub>	10	mAdc

**ON CHARACTERISTICS <sup>(3)</sup>**

Forward-Current Transfer Ratio I <sub>C</sub> = 15 Adc, V <sub>CE</sub> = 2.0 Vdc I <sub>C</sub> = 20 Adc, V <sub>CE</sub> = 5.0 Vdc		h <sub>FE</sub>	20 20	100
Collector-Emitter Saturation Voltage I <sub>C</sub> = 15 Adc, I <sub>B</sub> = 1.2 Adc I <sub>C</sub> = 30 Adc, I <sub>B</sub> = 6.0 Adc		V <sub>CE(sat)</sub>		0.75 5.0
Base-Emitter Saturation Voltage I <sub>C</sub> = 15 Adc, I <sub>B</sub> = 1.2 Adc		V <sub>BE(sat)</sub>		1.5

**DYNAMIC CHARACTERISTICS**

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I <sub>C</sub> = 2.0 Adc, V <sub>CE</sub> = 10 Vdc, f = 5.0 MHz		h <sub>fe</sub>	10	40
Output Capacitance V <sub>CB</sub> = 10 Vdc, I <sub>E</sub> = 0, 100 kHz ≤ f ≤ 1.0 MHz		C <sub>obo</sub>		900

**SWITCHING CHARACTERISTICS**

Turn-On Time V <sub>CC</sub> = 30 ± 2.0 Vdc; I <sub>C</sub> = 15 Adc; I <sub>B1</sub> = 1.2 Adc		t <sub>on</sub>		0.5
Turn-Off Time V <sub>CC</sub> = 30 ± 2.0 Vdc; I <sub>C</sub> = 15 Adc; I <sub>B1</sub> = I <sub>B2</sub> = 1.2 Adc	—	t <sub>off</sub>		1.5

**SAFE OPERATING AREA**

<b>DC Tests</b>				
T <sub>C</sub> = +25°C, 1 Cycle, t = 1.0 s				
<b>Test</b>				
V <sub>CE</sub> = 24 Vdc, I <sub>C</sub> = 5.8 Adc				
<b>Test 2</b>				
V <sub>CE</sub> = 45 Vdc, I <sub>C</sub> = 0.9 Adc				
<b>Test 3</b>				
V <sub>CE</sub> = 4.67 Vdc, I <sub>C</sub> = 30 Adc				
<b>Test 4</b>				
V <sub>CE</sub> = 90 Vdc, I <sub>C</sub> = 0.19 Adc				
	2N5671			
<b>Test 5</b>				
V <sub>CE</sub> = 120 Vdc, I <sub>C</sub> = 0.11 Adc				
	2N5672			

(3) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.