

NPN HIGH POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/ 488

Devices

2N5671

2N5672

Qualified Level

JAN
JANTX
JANTXV

MAXIMUM RATINGS

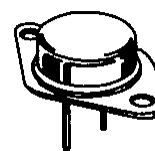
Ratings	Symbol	2N5671	2N5672	Unit
Collector-Emitter Voltage	V_{CEO}	90	120	Vdc
Collector-Base Voltage	V_{CBO}	120	150	Vdc
Emitter-Base Voltage	V_{EBO}	7.0		Vdc
Base Current	I_B	10		Adc
Collector Current	I_C	30		Adc
Total Power Dissipation @ $T_A = +25^{\circ}\text{C}$ ⁽¹⁾	P_T	6.0		W
@ $T_C = +25^{\circ}\text{C}$ ⁽²⁾		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	$^{\circ}\text{C/W}$

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			10	

ELECTRICAL CHARACTERISTICS (con't)

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

Collector-Base Cutoff Current $V_{CB} = 120 \text{ Vdc}$ $V_{CB} = 150 \text{ Vdc}$	2N5671 2N5672	I_{CBO}	25 25	mAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0 \text{ Vdc}$		I_{EBO}	10	mAdc

ON CHARACTERISTICS ⁽³⁾

Forward-Current Transfer Ratio $I_C = 15 \text{ Adc}, V_{CE} = 2.0 \text{ Vdc}$ $I_C = 20 \text{ Adc}, V_{CE} = 5.0 \text{ Vdc}$		h_{FE}	20 20	100	
Collector-Emitter Saturation Voltage $I_C = 15 \text{ Adc}, I_B = 1.2 \text{ Adc}$ $I_C = 30 \text{ Adc}, I_B = 6.0 \text{ Adc}$		$V_{CE(sat)}$		0.75 5.0	Vdc
Base-Emitter Saturation Voltage $I_C = 15 \text{ Adc}, I_B = 1.2 \text{ Adc}$		$V_{BE(sat)}$		1.5	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 2.0 \text{ Adc}, V_{CE} = 10 \text{ Vdc}, f = 5.0 \text{ MHz}$		$ h_{fe} $	10	40	
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{obo}		900	pF

SWITCHING CHARACTERISTICS

Turn-On Time $V_{CC} = 30 \pm 2.0 \text{ Vdc}; I_C = 15 \text{ Adc}; I_{B1} = 1.2 \text{ Adc}$		t_{on}		0.5	μs
Turn-Off Time $V_{CC} = 30 \pm 2.0 \text{ Vdc}; I_C = 15 \text{ Adc}; I_{B1} = I_{B2} = 1.2 \text{ Adc}$		t_{off}		1.5	μs

SAFE OPERATING AREA

DC Tests	
T _C = +25 ⁰ C, 1 Cycle, t = 1.0 s	
Test	
V _{CE} = 24 Vdc, I _C = 5.8 Adc	
Test 2	
V _{CE} = 45 Vdc, I _C = 0.9 Adc	
Test 3	
V _{CE} = 4.67 Vdc, I _C = 30 Adc	
Test 4	
V _{CE} = 90 Vdc, I _C = 0.19 Adc	2N5671
Test 5	
V _{CE} = 120 Vdc, I _C = 0.11 Adc	2N5672

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