

NPN Power Silicon Transistor

2N3055



Features

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



Maximum Ratings

Ratings	Symbol	Value	Units
Collector - Emitter Voltage	V_{CEO}	70	Vdc
Collector - Base Voltage	V_{CBO}	100	Vdc
Emitter - Base Voltage	V_{EBO}	7.0	Vdc
Base Current	I_B	7.0	Adc
Collector Current	I_C	15	Adc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ (1)	P_T	6.0	W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200	$^\circ\text{C}$

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

Thermal Characteristics

Characteristics	Symbol	Maximum	Units
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$

Electrical Characteristics

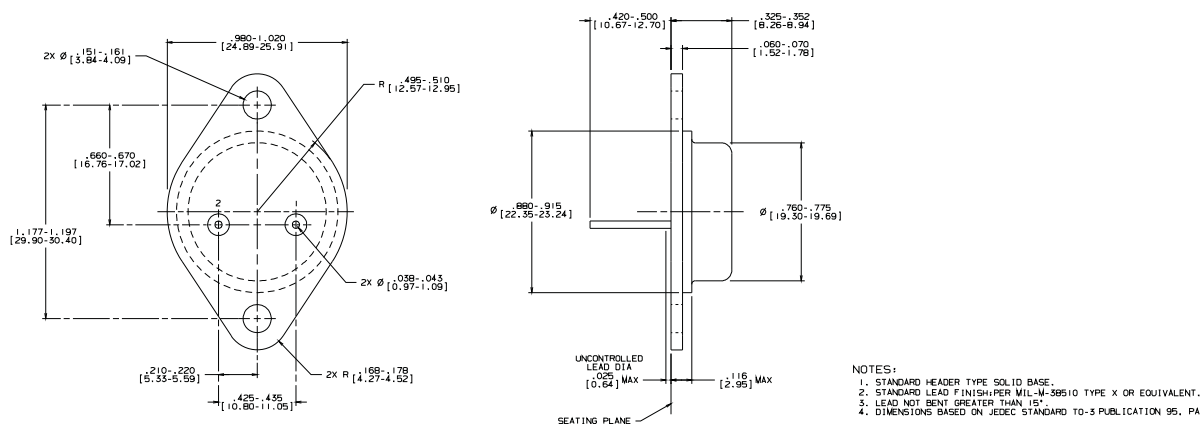
OFF Characteristics	Symbol	Minimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = 200 \text{ mAdc}$	$V_{(BR)CEO}$	70	---	Vdc
Collector - Emitter Breakdown Voltage $I_C = 200 \text{ mAdc}, R_{BE} = 100 \Omega$	$V_{(BR)CER}$	80	---	Vdc
Collector - Emitter Breakdown Voltage $V_{BE} = -1.5 \text{ Vdc}, I_C = 200 \text{ mAdc}$	$V_{(BR)CEX}$	90	---	Vdc
Collector - Emitter Cutoff Current $V_{CE} = 60 \text{ Vdc}$	I_{CEO}	---	1.0	mAdc
Collector - Emitter Cutoff Current $V_{BE} = -1.5 \text{ Vdc}, V_{CE} = 100 \text{ Vdc}$	I_{CEX}	---	1.0	mAdc
Emitter - Base Cutoff Current $V_{EB} = 7.0 \text{ Vdc}$	I_{EBO}	---	1.0	mAdc
ON Characteristics				
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 $I_C = 4.0 \text{ Adc}, I_B = 0.4 \text{ Adc}$ $I_C = 10.0 \text{ Adc}, I_B = 3.3 \text{ Adc}$	$V_{CE(sat)}$	--- ---	0.75 2.0	Vdc
Emitter - Base Saturation Voltage $I_C = 4.0 \text{ Adc}, V_{CE} = 4.0 \text{ Vdc}$	$V_{BE(sat)}$	---	1.4	Vdc



Electrical Characteristics -con't

DYNAMIC Characteristics		Symbol	Mimimum	Maximum	Units
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 1.0 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$, $f = 100 \text{ kHz}$		$ h_{fe} $	8.0	40.0	
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{obo}	---	700	pF
SWITCHING Characteristics					
Turn-On Time $V_{CC} = 30 \text{ Vdc}$; $I_C = 4.0 \text{ Adc}$; $I_{B1} = 0.4 \text{ Adc}$		t_{on}	---	6	μs
Turn-off Time $V_{CC} = 30 \text{ Vdc}$; $I_C = 4.0 \text{ Adc}$; $I_{B1} = -I_{B2} = 0.4 \text{ Adc}$		t_{off}	---	12	μs
SAFE OPERATING AREA					
DC Tests:		$T_C = +25^\circ\text{C}$, 1 Cycle, $t = 1.0 \text{ s}$			
Test 1:		$V_{CE} = 7.8 \text{ Vdc}$, $I_C = 15 \text{ Adc}$			
Test 2:		$V_{CE} = 70.0 \text{ Vdc}$, $I_C = 1.67 \text{ Adc}$			

Outline Drawing



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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.