

2N3055 JAN, JTX

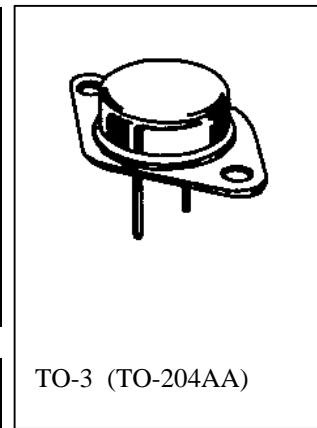
Processed per MIL-PRF-19500/407

NPN SILICON POWER TRANSISTOR



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 @ $T_A = 25^{\circ}C$ ⁽¹⁾	P_T	6.0	W
@ $T_C = 25^{\circ}C$ ⁽²⁾		117	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^{\circ}C$



THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.5	$^{\circ}C/W$

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

2) Derate linearly 668 mW/ $^{\circ}C$ for $T_C > +25^{\circ}C$

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 200$ mAdc	$V_{(BR)CEO}$	70		Vdc
Collector-Emitter Breakdown Voltage $I_C = 200$ mAdc, $R_{BE} = 100\Omega$	$V_{(BR)CER}$	80		Vdc
Collector-Emitter Breakdown Voltage $V_{BE} = -1.5$ Vdc, $I_C = 200$ mAdc	$V_{(BR)CEX}$	90		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 60$ Vdc	I_{CEO}		1.0	mAdc
Collector-Emitter Cutoff Current $V_{BE} = -1.5$ Vdc; $V_{CE} = 100$ Vdc	I_{CEX}		1.0	mAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0$ Vdc	I_{EBO}		1.0	mAdc

2N3055 JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS				
Forward-Current Transfer Ratio I _C = 0.5 Adc, V _{CE} = 4.0 Vdc I _C = 4.0 Adc, V _{CE} = 4.0 Vdc I _C = 10 Adc, V _{CE} = 4.0 Vdc	h _{FE}	40 20 5.0	60	
Collector-Emitter Saturation Voltage I _C = 4.0 Adc, I _B = 0.4 Adc I _C = 10 Adc, I _B = 3.3 Adc	V _{CE(sat)}		0.75 2.0	Vdc
Base-Emitter Saturation Voltage I _C = 4.0 Adc, V _{CE} = 4.0 Vdc	V _{BE(sat)}		1.4	Vdc

DYNAMIC CHARACTERISTICS

Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I _C = 1.0 Adc, V _{CE} = 4.0 Vdc, f = 100 kHz	h _{fe}	8.0	40	
Output Capacitance V _{CB} = 10 Vdc, I _E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C _{obo}		700	pF

SWITCHING CHARACTERISTICS

Turn-On Time V _{CC} = 30 Vdc; I _C = 4.0 Adc; I _{B1} = 0.4 Adc	t _{on}		6.0	μs
Turn-Off Time V _{CC} = 30 Vdc; I _C = 4.0 Adc; I _{B1} = -I _{B2} = 0.4 Adc	t _{off}		12	μs

SAFE OPERATING AREA

<p>DC Tests T_C = +25⁰C, 1 Cycle, t = 1.0 s</p> <p>Test 1 V_{CE} = 7.8 Vdc, I_C = 15 Adc</p> <p>Test 2 V_{CE} = 70 Vdc, I_C = 1.67 Adc</p> <p>Switching Tests T_A = +25⁰C; duty cycle ≤ 10%; R_S ≤ 0.1 Ω</p> <p>Test 1 t_p = 5.0 ms; R_{BB1} = 2.0 Ω; V_{BB1} ≥ 10 Vdc; R_{BB2} = 100 Ω; V_{CC} ≥ 10 Vdc; V_{BB2} = 1.5 Vdc; I_C = 15 Adc</p> <p>Test 2 t_p = 20 ms; R_{BB1} = 30 Ω; V_{BB1} ≥ 10 Vdc; R_{BB2} = 100 Ω; V_{CC} ≥ 10 Vdc; V_{BB2} = 1.5 Vdc; I_C = 3.8 Adc</p>
