Microsemi LAWRENCE

TECHNICAL DATA

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/407

Devices	*Qualified Level*
2N3055	**JAN** **JANTX**

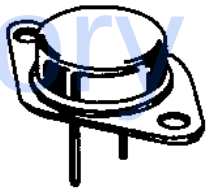
MAXIMUM RATINGS

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 @ $T_A = 25^0C$ (1) @ $T_C = 25^0C$ (2)	P_T	6.0 117	W W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200	^0C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.5	$^0C/W$

1) Derate linearly @ 34.2 mW/^{0}C for $T_A > +25^0C$
2) Derate linearly @ 668 mW/^{0}C for $T_C > +25^0C$



TO-3*
(TO-204AA)

*See Appendix A for Package Outline

ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min.	Max.	Unit
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} = 100Ω	$V_{(BR)CER}$	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

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 = 4.0 Adc, V_{CE} = 4.0 Vdc, f = 100 kHz	$\lvert h_{fe} \rvert$	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

DC Tests

T_C = +25^{0}C, 1 Cycle, t = 1.0 s

Test 1

V_{CE} = 7.8 Vdc, I_C = 15 Adc

Test 2

V_{CE} = 70 Vdc, I_C = 1.67 Adc

Switching Tests

T_A = +25^{0}C; duty cycle ≤ 10%; R_S ≤ 0.1 Ω

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

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

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