Microsemi LAWRENCE

TECHNICAL DATA

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/518

Devices		*Qualified Level*
2N3766	**2N3767**	**JAN JANTX JANTXV**

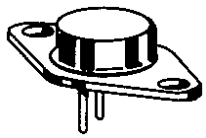
MAXIMUM RATINGS

Ratings	Symbol	2N3766	2N3767	Units
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	80	100	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Base Current	I_B	2.0		Adc
Collector Current	I_C	4.0		Adc
Total Power Dissipation @ $T_C = +25^0C$ (1)	P_T	25		W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200		^0C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	7.0	$^0C/W$

1) Derate linearly 143 mW/^{0}C between $T_C = +25^0C$ and $T_C = +200^0C$



TO-66*
(TO-213AA)

*See Appendix A for Package Outline

ELECTRICAL CHARACTERISTICS ($T_C = 25^0C$ unless otherwise noted)

Characteristics		Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage I_C = 100 mAdc	2N3766 2N3767	$V_{(BR)CEO}$	60 80		Vdc
Collector-Emitter Cutoff Current V_{CE} = 60 Vdc V_{CE} = 80 Vdc	 2N3766 2N3767	I_{CEO}		500 500	µAdc
Collector-Emitter Cutoff Current V_{CE} = 80 Vdc, V_{BE} = 1.5 Vdc V_{CE} = 100 Vdc, V_{BE} = 1.5 Vdc	 2N3766 2N3767	I_{CEX}		10 10	µAdc
Collector-Base Cutoff Current V_{CB} = 80 Vdc V_{CB} = 100 Vdc	 2N3766 2N3767	I_{CBO}		10 10	µAdc
Emitter-Base Cutoff Current V_{EB} = 6.0 Vdc		I_{EBO}		500	µAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (2)				
Forward-Current Transfer Ratio I_C = 50 mAdc, V_{CE} = 5.0 Vdc I_C = 500 mAdc, V_{CE} = 5.0 Vdc I_C = 1.0 Adc, V_{CE} = 10 Vdc	h_{FE}	30 40 20	160	
Collector-Emitter Saturation Voltage I_C = 1.0 Adc, I_B = 0.1 Adc I_C = 0.5 Adc, I_B = 0.05 Adc	$V_{CE(sat)}$		2.5 1.0	Vdc
Base-Emitter Voltage I_C = 1.0 Adc, V_{CE} = 10 Vdc	$V_{BE(on)}$		1.5	Vdc
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 500 mAdc, V_{CE} = 10 Vdc, f = 10 MHz	$\lvert h_{fe} \rvert$	1.0	8.0	
Output Capacitance V_{CB} = 10 Vdc, I_E = 0, 0.1 MHz ≤ f ≤ 1.0 MHz	C_{obo}		50	pF
SWITCHING CHARACTERISTICS				
Turn-On Time V_{CC} = 30 Vdc; I_C = 0.5 Adc; I_B = 0.05 Adc	t_{on}		0.25	µs
Turn-Off Time V_{CC} = 30 Vdc; I_C = 0.5 Adc; I_B = I_B = 0.05 Adc	t_{off}		2.5	µs

SAFE OPERATING AREA

DC Tests

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

Test 1

V_{CE} = 6.25 Vdc, I_C = 4.0 Adc

Test 2

V_{CE} = 20 Vdc, I_C = 1.25 Adc

Test 3

V_{CE} = 50 Vdc, I_C = 150 mAdc 2N3766

V_{CE} = 65 Vdc, I_C = 150 mAdc 2N3767

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

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