Microsemi LAWRENCE

TECHNICAL DATA

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/277

Devices		*Qualified Level*
2N2150	**2N2151**	**JANTX**

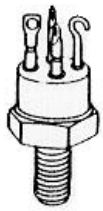
MAXIMUM RATINGS (T_C = 25^{0}C unless otherwise noted)

Ratings	Symbol	Value	Units
Collector-Emitter Voltage	V_{CEO}	100	Vdc
Collector-Base Voltage	V_{CBO}	150	Vdc
Emitter-Base Voltage	V_{EBO}	8.0	Vdc
Base Current	I_B	2.0	Adc
Collector Current	I_C	2.0	Adc
Total Power Dissipation @ T_c = +100^{0}C(1)	P_T	30	W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	^{0}C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.3	^{0}C/W

1) Derate linearly @ 0.3 W/^{0}C for T_C > +100^{0}C



TO-111*

*See Appendix A for Package Outline

ELECTRICAL CHARACTERISTICS (T_C = +25^{0}C)

Characteristics	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage I_C = 50 mAdc	$V_{(BR)CEO}$	100		Vdc
Collector-Emitter Breakdown Voltage I_C = 100 µAdc	V_{CBO}	150		Vdc
Collector-Emitter Cutoff Current V_{CE} = 80 Vdc	I_{CEO}		10	µAdc
Collector-Base Cutoff Current V_{CB} = 120 Vdc	I_{CBO}		5.0	µAdc
Collector-Emitter Cutoff Current V_{CE} = 120 Vdc, V_{BE} = -1.0 Vdc	I_{CEX}		5.0	µAdc
Emitter-Base Cutoff Current V_{EB} = 8.0 Vdc	I_{EBO}		2.0	µAdc
Collector-Emitter Cutoff Current V_{CE} = 120 Vdc, V_{BE} = 0 Vdc	I_{CES}		5.0	µAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics		Symbol	Min.	Max.	Unit
ON CHARACTERISTICS					
Forward-Current Transfer Ratio					
I_C = 1.0 Adc, V_{CE} = 5.0 Vdc			20	60	
I_C = 0.5 Adc, V_{CE} = 5.0 Vdc	2N2150		20	60	
I_C = 0.1 Adc, V_{CE} = 5.0 Vdc			20		
		h_{FE}			
I_C = 1.0 Adc, V_{CE} = 5.0 Vdc	2N2151		40	120	
I_C = 0.5 Adc, V_{CE} = 5.0 Vdc			40	120	
I_C = 0.1 Adc, V_{CE} = 5.0 Vdc			40		
Base-Emitter Voltage Non -Saturated					
V_{CE} = 5.0 Vdc, I_C =1.0 Adc		V_{BE}		1.2	Vdc
Collector-Emitter Saturation Voltage					
I_C = 1.0 Adc, I_B = 0.1 Adc		$V_{CE(sat)}$		1.0	Vdc
Base-Emitter Saturation Voltage					
I_C = 1.0 Adc, I_B = 0.1 Adc		$V_{BE(sat)}$		1.2	Vdc
DYNAMIC CHARACTERISTICS					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio					
I_C = 0.1 mAdc, V_{CE} = 30 Vdc, f = 10 MHz		$\lvert h_{fe} \rvert$	1.0	7.0	
Output Capacitance					
V_{CB} = 20 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz		C_{obo}		160	pF

SAFE OPERATING AREA

Test 1
V_{CE} = 15 Vdc, I_C = 2.0 Adc
Test 2
V_{CE} = 57 Vdc, I_C = 200 mAdc
Test 3
V_{CE} = 100 Vdc, I_C = 25 mAdc