Microsemi LAWRENCE

TECHNICAL DATA

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/315

Devices		*Qualified Level*
2N2880	**2N3749**	**JAN JANTX JANTXV**

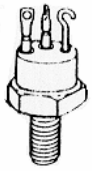
MAXIMUM RATINGS

Ratings	Symbol	Value	Units
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Base Voltage	V_{CBO}	110	Vdc
Emitter-Base Voltage	V_{EBO}	8.0	Vdc
Base Current	I_B	0.5	Adc
Collector Current	I_C	5.0	Adc
Total Power Dissipation @ $T_A = 25^0C$ (1) @ $T_C = 100^0C$ (2)	P_T	2.0 30	W
Operating & Storage Junction Temperature Range	T_{op}, T_{stg}	-65 to +200	^0C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.33	$^0C/W$

1) Derate linearly 11.4 mW/^{0}C for $T_A > 25^0C$
2) Derate linearly 300 mW/^{0}C for $T_C > 100^0C$



TO-59*

*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	$V_{(BR)CEO}$	80		Vdc
Collector-Emitter Breakdown Voltage I_C = 10 μAdc	$V_{(BR)CBO}$	110		Vdc
Emitter-Base Breakdown to Voltage I_E = 10 μAdc	$V_{(BR)EBO}$	8.0		Vdc
Collector-Emitter Cutoff Current V_{CE} = 60 Vdc	I_{CEO}		20	μAdc
Collector-Base Cutoff Current V_{CB} = 80 Vdc	I_{CBO}		0.2	μAdc
Collector-Emitter Cutoff Current V_{CE} = 110 Vdc, V_{BE} = -0.5	I_{CEX}		1.0	μAdc
Emitter-Base Cutoff Current V_{EB} = 6.0 Vdc	I_{EBO}		0.2	μAdc

ELECTRICAL CHARACTERISTICS (Con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS				
Forward-Current Transfer Ratio I_C = 50 mAdc, V_{CE} = 5.0 Vdc I_C = 1.0 Adc, V_{CE} = 2.0 Vdc I_C = 5.0 Adc, V_{CE} = 5.0 Vdc	h_{FE}	 40 40 15	 120 120	
Base-Emitter Voltage Non-Saturated V_{CE} = 2.0 Adc, I_C =1.0 Adc	V_{BE}		1.2	Vdc
Collector-Emitter Saturation Voltage I_C = 1.0 Adc, I_B = 0.1 Adc I_C = 5.0 Adc, I_B = 0.5 Adc	$V_{CE(sat)}$		0.25 1.5	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 = 1.0 Adc, V_{CE} = 10 Vdc, f = 10 MHz	$\lvert h_{fe} \rvert$	3.0	12	
Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 50 mAdc, V_{CE} = 5.0 Vdc, f = 1 kHz	h_{fe}	40	140	
Output Capacitance V_{CB} = 10 Vdc, I_E = 0, 100 ≤ f ≤ 1.0 MHz	C_{obo}		150	pF
SAFE OPERATING AREA				
DC Tests T_C = 100^{0}C, t = 10 s **Test 1** V_{CE} = 80 Vdc, I_C = 80 mAdc **Test 2** V_{CE} = 20 Vdc, I_C = 1.5 Adc				