Microsemi LAWRENCE

TECHNICAL DATA

NPN DARLINGTON POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/504

Devices		*Qualified Level*
2N6283	**2N6284**	**JAN JANTX JANTXV**

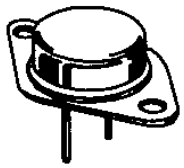
MAXIMUM RATINGS

Ratings	Symbol	2N6583	2N6284	Unit
Collector-Emitter Voltage	V_{CEO}	80	100	Vdc
Collector-Base Voltage	V_{CBO}	80	100	Vdc
Emitter-Base Voltage	V_{EBO}	7.0		Vdc
Base Current	I_B	0.5		Adc
Collector Current	I_C	20		Adc
Total Power Dissipation[1] @ $T_C = +25^0C$ @ $T_C = +100^0C$	P_T	175 87.5		W W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		^0C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.857	$^0C/W$

1) Derate linearly @ 1.17 $W/^0C$ above $T_C > +25^0C$



TO-3*
(TO-204AA)

*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	2N6283 2N6284	$V_{(BR)CEO}$	80 100		Vdc
Collector-Emitter Cutoff Current V_{CE} = 40 Vdc V_{CE} = 50 Vdc	 2N6283 2N6284	I_{CEO}		1.0 1.0	mAdc
Collector-Emitter Cutoff Current V_{CE} = 80 Vdc, V_{BE} = 1.5 Vdc V_{CE} = 100 Vdc, V_{BE} = 1.5 Vdc	 2N6283 2N6284	I_{CEX}		5.0 5.0	mAdc
Emitter-Base Cutoff Current V_{EB} = 7.0 Vdc		I_{EBO}		2.5	mAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS [2]				
Forward-Current Transfer Ratio I_C = 1.0 Adc, V_{CE} = 3.0 Vdc I_C = 10 Adc, V_{CE} = 3.0 Vdc I_C = 20 Adc, V_{CE} = 3.0 Vdc	h_{FE}	 1,500 1,250 500	 18,000	
Collector-Emitter Saturation Voltage I_C = 20 Adc, I_B = 200 mAdc I_C = 10 Adc, I_B = 40 mAdc	$V_{CE(sat)}$		 3.0 2.0	Vdc
Base-Emitter Saturation Voltage I_C = 20 Adc, I_B = 200 mAdc	$V_{BE(sat)}$		4.0	Vdc
Base-Emitter Voltage I_C = 10 Adc, V_{CE} = 3.0Vdc	V_{BE}		2.8	Vdc
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 10 Adc, V_{CE} = 3.0 Vdc, f = 1.0 MHz	$\lvert h_{fe} \rvert$	8.0	80	
Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 10 Adc, V_{CE} = 3.0 Vdc, f = 1.0 kHz	h_{fe}	700		
Output Capacitance V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C_{obo}		300	pF
SWITCHING CHARACTERISTICS				
Turn-On Time V_{CC} = 30 Vdc; I_C = 10 Adc; I_B = 40 mAdc	t_{on}		2.0	µs
Turn-Off Time V_{CC} = 30 Vdc; I_C = 10 Adc; I_{B1} = I_{B2} = 40 mAdc	t_{off}		10	µs

SAFE OPERATING AREA

DC Tests

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

Test 1

V_{CE} = 8.75 Vdc, I_C = 20 Adc

Test 2

V_{CE} = 30 Vdc, I_C = 5.8 Adc

Test 3

V_{CE} = 80 Vdc, I_C = 100 mAdc 2N6283

V_{CE} = 100 Vdc, I_C = 100 mAdc 2N6284

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