Microsemi LAWRENCE

TECHNICAL DATA

PNP HIGH POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/433

Devices		*Qualified Level*
2N4399	**2N5745**	**JANTX JANTXV**

MAXIMUM RATINGS

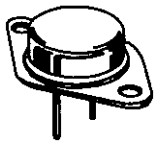
Ratings	Symbol	2N4399	2N5745	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	60	80	Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Base Current	I_B	7.5		Adc
Collector Current	I_C	30	20	Adc
Total Power Dissipation @ T_A =+ 25^{0}C (1) @ T_C = +100^{0}C (2)	P_T	5.0 115		W W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-55 to +200		^{0}C

THERMAL CHARACTERISTICS

Characteristics		Symbol	Max.	Unit
Thermal Resistance,	Junction-to-Case	$R_{\theta JC}$	0.875	^{0}C/W
	Junction-to-Ambient	$R_{\theta JA}$	35	

1) Derate linearly @ 28.57 mW/^{0}C for T_A > +25^{0}C

2) Derate linearly @ 1.15 W/^{0}C for T_C > +100^{0}C



TO-3*
(TO-204AA)

*See appendix A for package outline

ELECTRICAL CHARACTERISTICS (T_A = 25^{0}C unless otherwise noted)

Characteristics		Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage I_C = 200 mAdc	2N4399 2N5745	$V_{(BR)CEO}$	60 80		Vdc
Collector-Emitter Cutoff Current V_{CE} = 60 Vdc V_{CE} = 80 Vdc	2N4399 2N5745	I_{CEO}		100 100	µAdc
Collector-Emitter Cutoff Current V_{CE} = 60 Vdc, V_{BE} = 1.5 Vdc V_{CE} = 80 Vdc, V_{BE} = 1.5 Vdc	2N4399 2N5745	I_{CEX}		5.0 5.0	µAdc
Emitter-Base Cutoff Current V_{EB} = 5.0 Vdc		I_{EBO}		5.0	µAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics		Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (3)					
Forward-Current Transfer Ratio					
I_C = 1.0 Adc, V_{CE} = 2.0 Vdc		h_{FE}	40	425	
I_C = 15 Adc, V_{CE} = 2.0 Vdc	2N4399		15	60	
I_C = 10 Adc, V_{CE} = 2.0 Vdc	2N5745		15	60	
I_C = 30 Adc, V_{CE} = 5.0 Vdc	2N4399		5.0		
I_C = 20 Adc, V_{CE} = 5.0 Vdc	2N5745		5.0		
Collector-Emitter Saturation Voltage					
I_C = 5.0 Adc, I_B = 0.5 Adc		$V_{CE(sat)}$		0.55	Vdc
I_C = 10 Adc, I_B = 1.0 Adc	2N4399			0.75	
	2N5745			1.0	
Base-Emitter Saturation Voltage					
I_C = 10 Adc, I_B = 1.0 Adc		$V_{BE(sat)}$		1.7	Vdc
I_C = 15 Adc, I_B = 1.5 Adc	2N4399			1.8	
	2N5745			2.0	
DYNAMIC CHARACTERISTICS					
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 1.0 Adc, V_{CE} = 10 Vdc, f = 1.0 MHz		$\lvert h_{fe} \rvert$	4.0	40	
Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 1.0 Adc, V_{CE} = 10 Vdc, f = 1.0 MHz		h_{fe}	40	425	
Output Capacitance V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz		C_{obo}		1000	pF

SAFE OPERATING AREA

DC Tests	
T_C = +25^{0}C, 1 Cycle, t = 1.0 s	
Test 1	
V_{CE} = 6.67 Vdc, I_C = 30 Adc	2N4399
V_{CE} = 10 Vdc, I_C = 20 Adc	2N5745
Test 2	
V_{CE} = 20 Vdc, I_C = 10 Adc	All Types
Test 3	
V_{CE} = 40 Vdc, I_C = 3.0 Adc	All Types
Test 4	
V_{CE} = 50 Vdc, I_C = 600 mAdc	2N4399
V_{CE} = 60 Vdc, I_C = 600 mAdc	2N5745

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