Microsemi LAWRENCE

TECHNICAL DATA

PNP MEDIUM POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/561

Devices	*Qualified Level*
2N6193	**JAN, JANTX JANTXV**

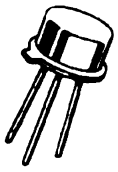
MAXIMUM RATINGS

Ratings	Symbol	2N6193	Units
Collector-Emitter Voltage	V_{CEO}	100	Vdc
Collector-Base Voltage	V_{CBO}	100	Vdc
Emitter-Base Voltage	V_{EBO}	6.0	Vdc
Collector Current	I_C	5.0	Adc
Base Current	I_B	1.0	Adc
Total Power Dissipation @ $T_A = +25^0C$(1) @ $T_C = +25^0C$(2)	P_T	1.0 10	W W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200	^0C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	17.5	$^0C/W$

1) Derate linearly 5.71mW/^{0}C for $T_A > +25^0C$
2) Derate linearly 57.1mW/^{0}C for $T_C > +25^0C$



TO-39*
(TO-205AD)

*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage I_C = 50 mAdc	$V_{CEO(sus)}$	100		Vdc
Collector-Emitter Cutoff Current V_{CE} = 100 Vdc	I_{CEO}		100	µAdc
Emitter-Base Cutoff Current V_{EB} = 6.0 Vdc	I_{EBO}		100	µAdc
Collector-Emitter Cutoff Current V_{CE} = 90 Vdc, V_{BE} = 1.5 Vdc	I_{CEX}		10	µAdc
Collector-Base Cutoff Current V_{CB} = 100 Vdc	I_{CBO}		10	µAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (3)				
DC Current Gain I_C = 0.5 Adc, V_{CE} = 2.0 Vdc I_C = 2.0 Adc, V_{CE} = 2.0 Vdc I_C = 5.0 Adc, V_{CE} = 2.0 Vdc	h_{FE}	 60 60 40	 240	
Collector-Emitter Saturation Voltage I_C = 2.0 Adc, I_B = 0.2 Adc I_C = 5.0 Adc, I_B = 0.5 Adc	$V_{CE(sat)}$		 0.7 1.2	Vdc
Base-Emitter Saturation Voltage I_C = 2.0 Adc, I_B = 0.2 Adc I_C = 5.0 Adc, I_B = 0.5 Adc	$V_{BE(sat)}$		 1.2 1.8	Vdc
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short Circuit Forward-Current Transfer Ratio I_C = 0.5 Adc, V_{CE} = 10 Vdc, f = 10 MHz	$\lvert h_{fe} \rvert$	3.0	15	
Output Capacitance V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C_{obo}		300	pF
Output Capacitance V_{BE} = 2.0 Vdc, I_C = 0, 100 kHz ≤ f ≤ 1.0 MHz	C_{ibo}		1250	pF
SWITCHING CHARACTERISTICS				
Delay Time	V_{CC} = -40 Vdc, $V_{BE(off)}$ = 3.0 Vdc	t_d	100	ηs
Rise Time	I_C = 2.0 Adc, I_{B1}= 0.2 Adc	t_r	100	ηs
Storage Time	V_{CC} = -40 Vdc I_C = 2.0 Adc,	t_s	2.0	µs
Fall Time	I_{B1} = -I_{B2} = 0.2 Adc	t_f	200	ηs

SAFE OPERATING AREA

DC Tests

T_C = +25^{0}C, 1 Cycle, t ≥ 0.5 s

Test 1

V_{CE} = 2.0 Vdc, I_C = 5.0 Adc

Test 2

V_{CE} = 90 Vdc, I_C = 55 mAdc

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