

PNP MEDIUM POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/561

Devices

2N6193

Qualified Level

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 @ $T_A = +25^{\circ}\text{C}^{(1)}$	P_T	1.0	W
@ $T_C = +25^{\circ}\text{C}^{(2)}$		10	W
Operating & Storage Temperature Range	T_{op}, T_{stg}	-65 to +200	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

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

1) Derate linearly 5.71mW/ $^{\circ}\text{C}$ for $T_A > +25^{\circ}\text{C}$

2) Derate linearly 57.1mW/ $^{\circ}\text{C}$ for $T_C > +25^{\circ}\text{C}$



TO-39*
(TO-205AD)

*See appendix A for
package outline

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage $I_C = 50 \text{ mAdc}$	$V_{CEO(sus)}$	100		Vdc
Collector-Emitter Cutoff Current $V_{CE} = 100 \text{ Vdc}$	I_{CEO}		100	μAdc
Emitter-Base Cutoff Current $V_{EB} = 6.0 \text{ Vdc}$	I_{EBO}		100	μAdc
Collector-Emitter Cutoff Current $V_{CE} = 90 \text{ Vdc}, V_{BE} = 1.5 \text{ Vdc}$	I_{CEX}		10	μAdc
Collector-Base Cutoff Current $V_{CB} = 100 \text{ Vdc}$	I_{CBO}		10	μAdc

2N6193 JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
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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	h _{fe}	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	ns
Rise Time	I _C = 2.0 Adc, I _{B1} = 0.2 Adc	t _r		100	ns
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	ns

SAFE OPERATING AREA

DC Tests

T_C = +25°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%.