

NPN SILICON HIGH POWER TRANSISTOR

Qualified per MIL-PRF-19500/208

Devices

2N1487 2N1488 2N1489 2N1490

Qualified Level

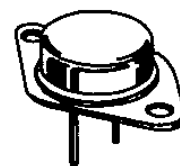
MAXIMUM RATINGS

Ratings	Symbol	2N1487 2N1498	2N1488 2N1490	Unit
Collector-Emitter Voltage	V_{CEO}	40	55	Vdc
Collector-Base Voltage	V_{CBO}	60	100	Vdc
Collector-Emitter Voltage	V_{CEX}	60	100	Vdc
Emitter-Base Voltage	V_{EBO}	10		Vdc
Base Current	I_B	3.0		Adc
Collector Current	I_C	6.0		Adc
Total Power Dissipation @ $T_C = 25^{\circ}\text{C}$ ⁽¹⁾	P_T	75		W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.33	$^{\circ}\text{C/W}$

1) Derate linearly @ 0.429 W/ $^{\circ}\text{C}$ for $T_C > 25^{\circ}\text{C}$



TO-33*
(TO-204AA)

*See Appendix A for
Package Outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage $I_C = 100 \text{ mAdc}$	2N1487, 2N1489 2N1488, 2N1490	$V_{(BR)CEO}$	40 55	Vdc
Collector-Emitter Breakdown Voltage $I_C = 200 \mu\text{Adc}$	2N1487, 2N1489 2N1488, 2N1490	$V_{(BR)CBO}$	60 100	Vdc
Collector-Emitter Breakdown Voltage $I_C = 0.5 \text{ mAdc}, V_{EB} = 1.5 \text{ Vdc}$	2N1487, 2N1489 2N1488, 2N1490	$V_{(BR)CEX}$	60 100	Vdc
Collector-Base Cutoff Current $V_{CB} = 30 \text{ Vdc}$		I_{CBO}	25	μAdc
Emitter-Base Cutoff Current $V_{EB} = 10 \text{ Vdc}$		I_{EBO}	25	μAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽²⁾				
Forward-Current Transfer Ratio $I_C = 1.5 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$ 2N1487, 2N1488 2N1489, 2N1490	h_{FE}	15 25	45 75	
Collector-Emitter Saturation Voltage $I_C = 1.5 \text{ Adc}$, $I_B = 300 \text{ mAdc}$ $I_C = 1.5 \text{ Adc}$, $I_B = 100 \text{ mAdc}$ 2N1487, 2N1488 2N1489, 2N1490	$V_{CE(sat)}$		3.0 1.0	Vdc
Base-Emitter Voltage $I_C = 1.5 \text{ Adc}$, $V_{CE} = 4.0 \text{ Vdc}$ 2N1487, 2N1488 2N1489, 2N1490	$V_{BE(on)}$		3.0 2.0	Vdc

DYNAMIC CHARACTERISTICS

Small-Signal Short-Circuit Forward Current Transfer Ratio Cutoff Frequency $I_C = 100 \text{ mAdc}$, $V_{CB} = 12 \text{ Vdc}$	$ f_{hfb} $	500		kc
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		700	pF

SWITCHING CHARACTERISTICS

Turn-On / Turn-Off Time $V_{CC} = 12 \text{ Vdc}$; $I_{B0} = I_{B2} = 150 \text{ mAdc}$; $I_{B1} = 300 \text{ mAdc}$; $R_C = 7.8 \Omega$	$t_{on} + t_{off}$		25	μs
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(2) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.