



# 2N1842 thru 2N1850 SILICON



Industrial-type, silicon controlled rectifiers in a stud package with current handling capability to 16 amperes at junction temperatures to 100°C.

TO-208AA  
(TO-48)

## MAXIMUM RATINGS (T<sub>J</sub> = 100°C unless otherwise noted)

Rating	Symbol	Value	Unit
<b>Peak Reverse Blocking Voltage*</b> 2N1842 2N1843 2N1844 2N1845 2N1846 2N1847 2N1848 2N1849 2N1850	V <sub>RSM(rep)</sub> *	25 50 100 150 200 250 300 400 500	Volts
<b>Peak Reverse Blocking Voltage (Transient)</b> (Non-Recurrent 5 ms max.) 2N1842 2N1843 2N1844 2N1845 2N1846 2N1847 2N1848 2N1849 2N1850	V <sub>RSM(non-rep)</sub>	35 75 150 225 300 350 400 500 600	Volts
<b>Forward Current RMS</b> (All Conduction Angles)	I <sub>T(RMS)</sub>	16	Amp
<b>Circuit Fusing Considerations</b> (T <sub>J</sub> = -40 to +100°C, t ≤ 8.3 ms)	I <sup>2</sup> t	60	A <sup>2</sup> s
<b>Peak Forward Surge Current</b> (One Cycle, 60 Hz, T <sub>J</sub> = -40 to +100°C)	I <sub>TSM</sub>	125	Amp
<b>Peak Gate Power -</b>	P <sub>GM</sub>	5.0	Watts
<b>Average Gate Power</b>	P <sub>G(AV)</sub>	0.5	Watt
<b>Peak Gate Current -</b>	I <sub>GM</sub>	2.0	Amp
<b>Peak Gate Voltage - Forward</b> <b>Reverse</b>	V <sub>GFM</sub> V <sub>GRM</sub>	10 5.0	Volts
<b>Operating Junction Temperature Range</b>	T <sub>J</sub>	-40 to +100	°C
<b>Storage Temperature Range</b>	T <sub>stg</sub>	-40 to +125	°C
<b>Stud Torque</b>	—	30	in. lb.

\*V<sub>RSM(rep)</sub> for all types can be applied on a continuous dc basis without incurring damage.

Ratings apply for zero or negative gate voltage.

## 2N1842 thru 2N1850 (continued)

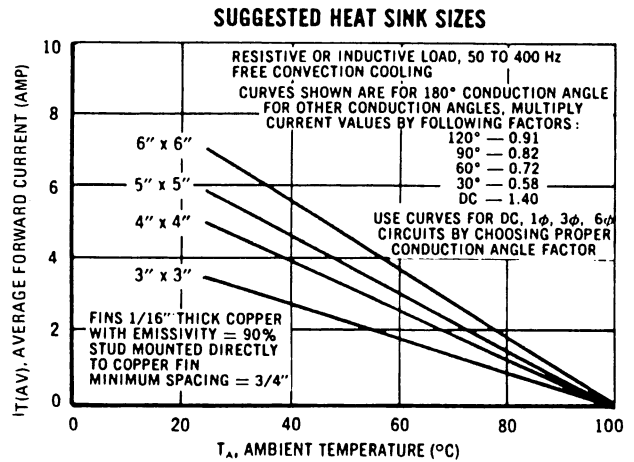
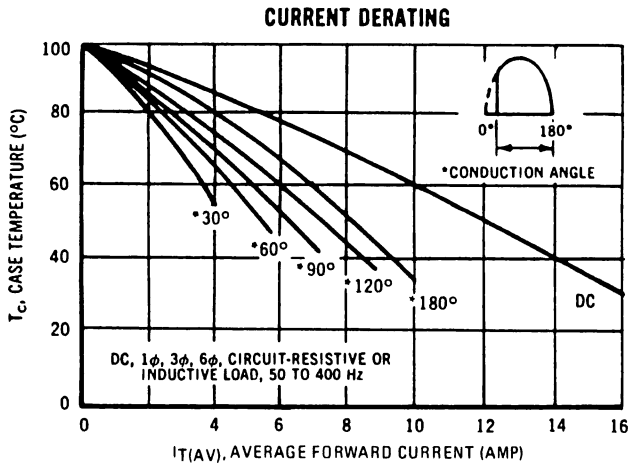
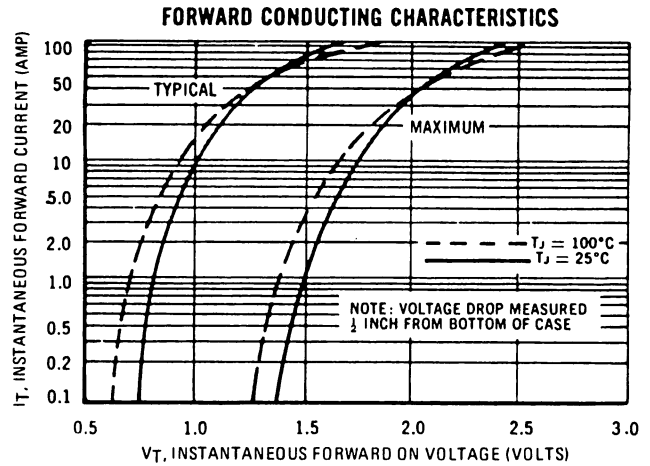
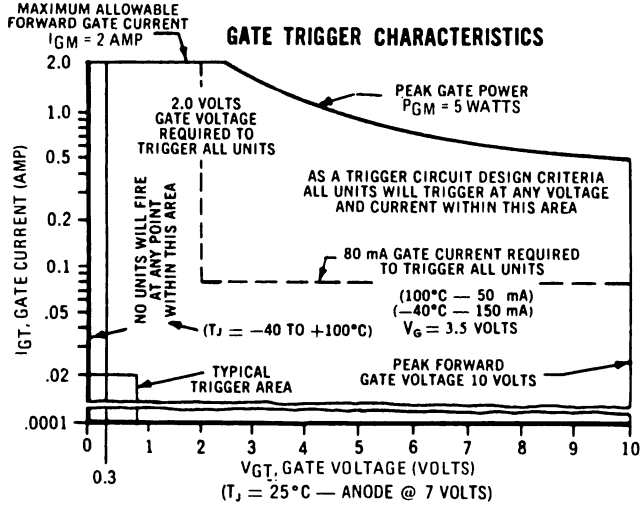
### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)

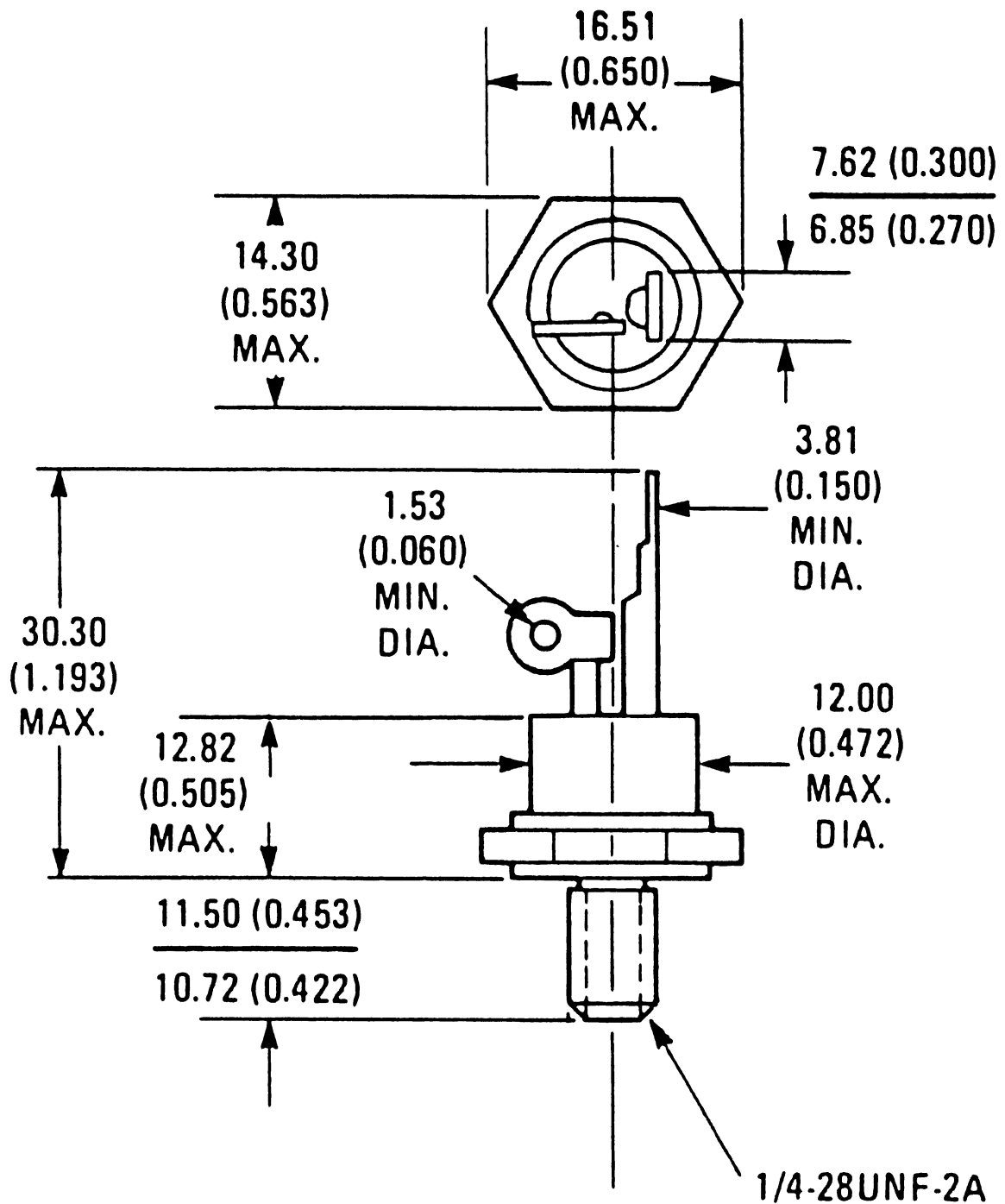
Characteristic	Symbol	Min	Typ	Max	Units
Peak Forward Blocking Voltage* (T <sub>J</sub> = 100°C)	V <sub>DRM</sub> *				Volts
2N1842		25	—	—	
2N1843		50	—	—	
2N1844		100	—	—	
2N1845		150	—	—	
2N1846		200	—	—	
2N1847		250	—	—	
2N1848		300	—	—	
2N1849		400	—	—	
2N1850		500	—	—	
Peak Forward or Reverse Blocking Current (Rated V <sub>FOM</sub> or V <sub>ROM</sub> gate open, T <sub>J</sub> = 100°C)	I <sub>DRM</sub> I <sub>RRM</sub>	—	—	6.0	mA
Gate Trigger Current (Continuous dc) (Anode Voltage = 7 Vdc, R <sub>L</sub> = 50 Ω)	I <sub>GT</sub>	—	15	80	mA
Gate Trigger Voltage (Continuous dc) (Anode Voltage = 7 Vdc, R <sub>L</sub> = 50 Ω) (V <sub>DRM</sub> = Rated V, R <sub>L</sub> = 50 Ω, T <sub>J</sub> = 100°C)	V <sub>GT</sub> V <sub>GNT</sub>	— 0.3	0.8 —	2.0 —	Volts
Holding Current (Anode Voltage = 7 Vdc, Gate Open)	I <sub>H</sub>	—	20	—	mA
Forward On Voltage (I <sub>F</sub> = 16 Adc)	V <sub>TM</sub>	—	1.1	1.8	Volts
Turn-On Time (t <sub>d</sub> + t <sub>r</sub> ) (I <sub>G</sub> = 50 mA, I <sub>F</sub> = 10 A)	t <sub>gt</sub>	—	1.0	—	μs
Turn-Off Time (I <sub>F</sub> = 10 A, I <sub>R</sub> = 10 A; dv/dt = 20 V/μs, T <sub>J</sub> = 100°C) (V <sub>DRM</sub> = rated voltage)	t <sub>q</sub>	—	25	—	μs
Forward Voltage Application Rate (Gate open, T <sub>J</sub> = 100°C)	dv/dt	—	30	—	V/μs
Thermal Resistance (Junction to Case)	θ <sub>JC</sub>	—	1.0	2.0	°C/W

\*V<sub>DRM</sub> for all types can be applied on a continuous dc basis without incurring damage.

Ratings apply for zero or negative voltage.

# 2N1842 thru 2N1850 (continued)





**Conforms to JEDEC OUTLINE TO-208AA (TO-48)**  
**Dimensions in Millimeters and (Inches)**