

Silicon Controlled Rectifiers

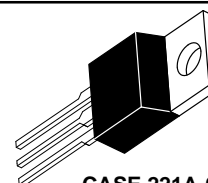
Reverse Blocking Triode Thyristors

... designed primarily for half-wave ac control applications, such as motor controls, heating controls and power supplies; or wherever half-wave silicon gate-controlled, solid-state devices are needed.

- Glass Passivated Junctions with Center Gate Fire for Greater Parameter Uniformity and Stability
- Small, Rugged, Thermowatt Construction for Low Thermal Resistance, High Heat Dissipation and Durability
- Blocking Voltage to 800 Volts

S2800 Series

SCRs
10 AMPERES RMS
50 thru 800 VOLTS



CASE 221A-04
(TO-220AB)
STYLE 3

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage ⁽¹⁾ ($T_J = 25$ to 100°C , Gate Open)	V_{RRM} V_{DRM}		Volts
F		50	
A		100	
B		200	
S2800 D		400	
M		600	
N		800	
Peak Non-repetitive Reverse Voltage and Non-Repetitive Off-State Voltage ⁽¹⁾	V_{RSM} V_{DSM}		Volts
F		75	
A		125	
B		250	
S2800 D		500	
M		700	
N		900	
RMS Forward Current (All Conduction Angles) $T_C = 75^\circ\text{C}$	$I_T(\text{RMS})$	10	Amps
Peak Forward Surge Current (1 Cycle, Sine Wave, 60 Hz, $T_C = 80^\circ\text{C}$)	I_{TSM}	100	Amps
Circuit Fusing Considerations ($t = 8.3$ ms)	I^2t	40	A^2s
Forward Peak Gate Power ($t \leq 10$ μs)	P_{GM}	16	Watts
Forward Average Gate Power	$P_{G(AV)}$	0.5	Watt
Operating Junction Temperature Range	T_J	-40 to +100	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +150	$^\circ\text{C}$

1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

S2800 Series

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2	$^{\circ}\text{C/W}$

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

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current ($V_{AK} = \text{Rated } V_{DRM} \text{ or } V_{RRM}$, Gate Open) $T_C = 25^{\circ}\text{C}$ $T_C = 100^{\circ}\text{C}$	I_{DRM} , I_{RRM}	— —	— —	10 2	μA mA
Instantaneous On-State Voltage, ($I_{TM} = 30 \text{ A Peak}$, Pulse Width $\leq 1 \text{ ms}$, Duty Cycle $\leq 2\%$)	V_T	—	1.7	2	Volts
Gate Trigger Current (Continuous dc) ($V_D = 12 \text{ Vdc}$, $R_L = 30 \text{ Ohms}$)	I_{GT}	—	8	15	mA
Gate Trigger Voltage (Continuous dc) ($V_D = 12 \text{ Vdc}$, $R_L = 30 \text{ Ohms}$)	V_{GT}	—	0.9	1.5	Volts
Holding Current (Gate Open, $V_D = 12 \text{ Vdc}$, $I_T = 150 \text{ mA}$)	I_H	—	10	20	mA
Gate Controlled Turn-On Time ($V_D = \text{Rated } V_{DRM}$, $I_{TM} = 2 \text{ A}$, $I_{GR} = 80 \text{ mA}$)	t_{gt}	—	1.6	—	μs
Circuit Commutated Turn-Off Time ($V_D = V_{DRM}$, $I_{TM} = 2 \text{ A}$, Pulse Width = $50 \mu\text{s}$, $dv/dt = 200 \text{ V}/\mu\text{s}$, $di/dt = 10 \text{ A}/\mu\text{s}$, $T_C = 75^{\circ}\text{C}$)	t_q	—	25	—	μs
Critical Rate-of-Rise of Off-State Voltage ($V_D = \text{Rated } V_{DRM}$, Exponential Rise, $T_C = 100^{\circ}\text{C}$)	dv/dt	—	100	—	$\text{V}/\mu\text{s}$

FIGURE 1 – CURRENT DERATING

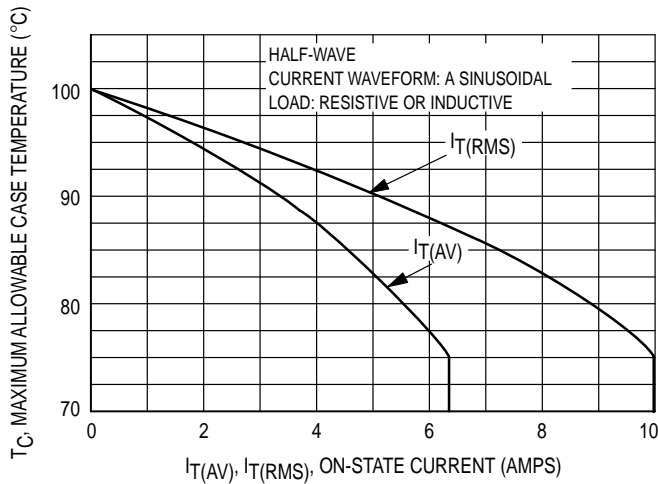
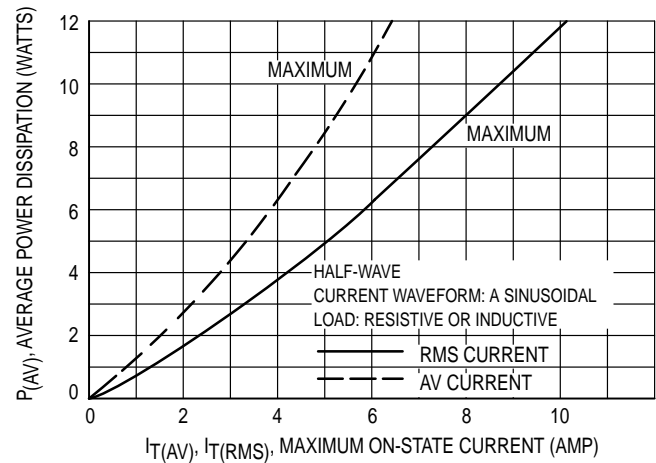
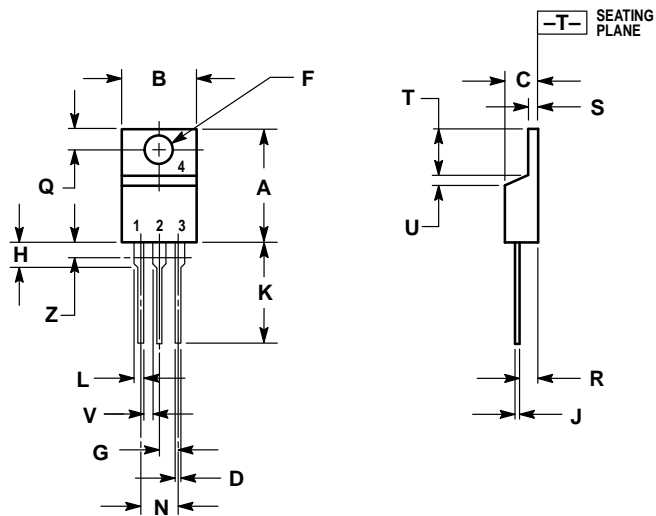


FIGURE 2 – POWER DISSIPATION



PACKAGE DIMENSIONS




STYLE 3:
PIN 1. CATHODE
2. ANODE
3. GATE
4. ANODE

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.022	0.36	0.55
K	0.500	0.562	12.70	14.27
L	0.045	0.055	1.15	1.39
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	—	1.15	—
Z	—	0.080	—	2.04

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(TO-220AB)

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