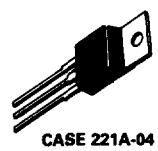
Silicon Controlled Rectifiers
Reverse Blocking Triode Thyristors

S2800 Series

SCRs
10 AMPERES RMS
50 thru 800 VOLTS

. . . 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 and 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



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

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MAXIMUM RATINGS (T_J = 25°C unless otherwise noted.)

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

Note 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.

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

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

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FIGURE 1 – CURRENT DERATING

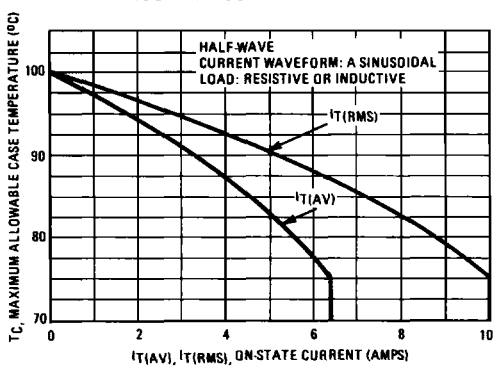

FIGURE 2 – POWER DISSIPATION