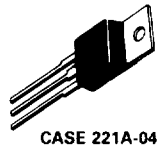
Silicon Controlled Rectifiers
Reverse Blocking Triode Thyristors

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

Rating		Symbol	Value	Unit
Peak Repetitive Reverse Voltage, Note 1 Peak Repetitive Off-State Voltage		V_{RRM} V_{DRM}		Volts
	S2800 F		50	
	S2800 A		100	
	S2800 B		200	
	S2800 D		400	
	S2800 M		600	
	S2800 N		800	
Non-Repetitive Peak Reverse Voltage Non-Repetitive Off-State Voltage		V_{RSM} V_{DSM}		Volts
	S2800 F		75	
	S2800 A		125	
	S2800 B		250	
	S2800 D		500	
	S2800 M		700	
	S2800 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 dc basis without incurring damage. Ratings apply for zero or negative gate voltage. Devices shall not have a positive bias applied to the gate concurrently with a negative potential on the anode.

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 (Rated V_{DRM} or V_{RRM}) 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

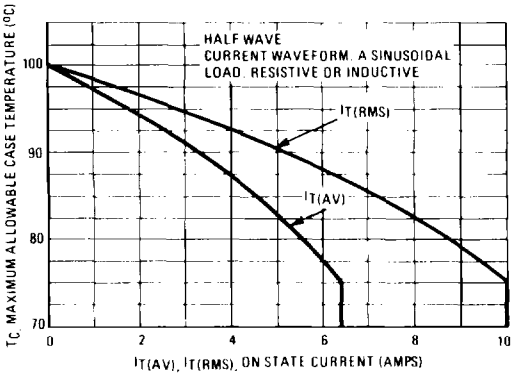

FIGURE 2 – POWER DISSIPATION