

File Number 1628

S6000D, S6000M, S6000N

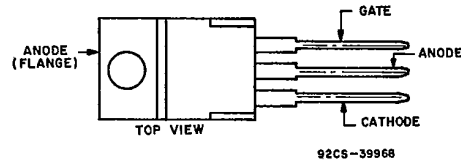
High Voltage, Medium Current Silicon Controlled Rectifiers

For Power Switching, Power Control, and Motor Speed Control

Features:

- 800V, 125 Deg. C T_J Operating
- High dv/dt and di/dt Capability
- Low Switching Losses
- High Pulse Current Capability
- Low Forward and Reverse Leakage
- Silicon Oxide Glass Multilayer Passivation System
- Advanced Unisurface Construction
- Precise Ion Implanted Diffusion Source

TERMINAL DESIGNATIONS



JEDEC TO-220AB

The S6000 series are high voltage, medium current silicon controlled rectifiers designed for switching AC and DC currents. The types within the series differ in their voltage ratings: the voltage ratings are identified by suffix letters in the type designations.

These Thyristors feature an advanced unisurface construction with a multilayer glass passivation system for improved reliability performance at high junction operating temperatures. Their dv/dt, di/dt capability and low switching losses make them suitable for applications such as lighting, power-switching, motor speed control and crowbars.

All types utilize the JEDEC TO-220AB package.

MAXIMUM RATINGS, Absolute-Maximum Values:

	<u>S6000D</u>	<u>S6000M</u>	<u>S6000N</u>	
VDRM	400	600	800	V
VRRM	400	600	800	V
IT (RMS) (T _C = 90°C)		16		A
IT (av) (T _C = 90°C, θ = 180 Deg.)		10		A
ITSM (for 1 full cycle)		160		A
di/dt		200		A/μs
I ² T (at 8.3 ms)		100		A ² s
(at 1.5 ms)		75		A ² s
PGM (for 10μs max.)		16		W
PG (av) (Averaging time 10ms max.)		0.5		W
T Storage		-65 to 150		°C
TJ		-65 to 125		°C

3875081 G E SOLID STATE

01E 17740

D T-25-15

Silicon Controlled Rectifiers

S6000D, S6000M, S6000N

ELECTRICAL CHARACTERISTICS, at Case Temperature (T_c) = 25°C Unless Otherwise Specified

CHARACTERISTIC	SYMBOL	LIMITS			UNITS
		S6000 FAMILY			
		MIN.	TYP.	MAX.	
Repetitive Peak Forward and Reverse Blocking Current Rated VDRM and VRRM, Gate Open at TC = 125°C	IDROM	—	—	50	μA
	IRROM	—	—	2	mA
Forward "On State" Voltage ITM = 100A	VTM	—	2	2.4	V
Gate Trigger Current (dc) VD = 12 Vdc RL = 30 Ohms	IGT	—	20	30	mA
Gate Trigger Voltage (dc) VD = 12 Vdc, RL = 30 Ohms VD = VDRM, RL = 500 Ohms, TC = 125°C	VGT	— 0.2	1	1.5	V
Holding Current VD = 12 Vdc, IT (initial) = 300mA	IH	—	30	—	mA
Critical Rate of Rise of Off-State Voltage (Exponential Waveform) TC = 125°C, Gate Open, VD = VDRM	dv/dt	—	—	—	V/μS
		—	175	—	
		—	150	—	
		—	100	—	
Turn-On Time IT = 10A, VD = VDRM IG = 100mA	tgt	—	1.5	—	μS
Turn-Off Time VD = VDRM, TC = 75°C, dv/dt = 20V/μS IT = 2A for 50 μS, di/dt = 10A/μS IG = 80mA at Turn-On	tq	—	65	—	μS
Thermal Resistance	RθJC	—	—	2.2	°C/W
	RθJA	—	—	60	

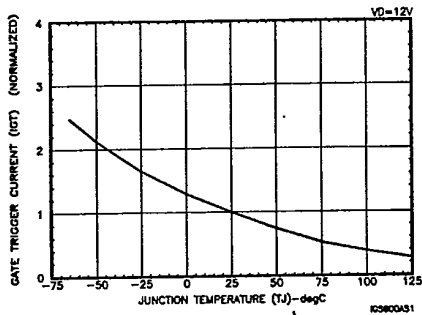


Fig. 1 - Typical Gate Trigger Current Vs. Temperature

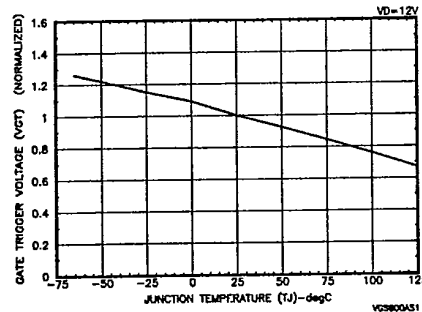


Fig. 2 - Typical Gate Trigger Voltage Vs. Temperature

S6000D, S6000M, S6000N

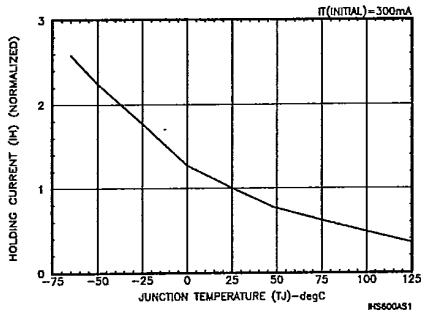


Fig. 3 - Typical Holding Current Vs. Temperature

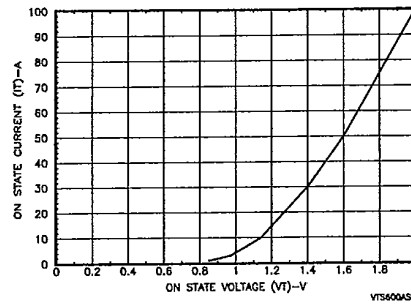


Fig. 4 - Typical On State Voltage Vs. Current

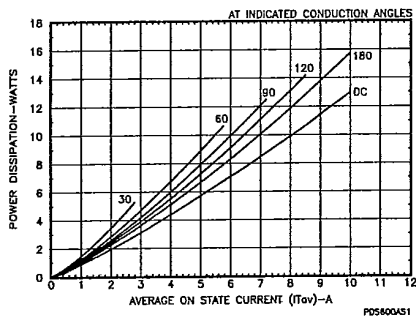


Fig. 5 - Maximum Power Dissipation Vs. Average Current

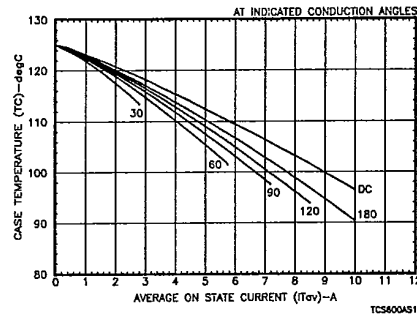


Fig. 6 - Maximum Case Temperature Vs. Average Current

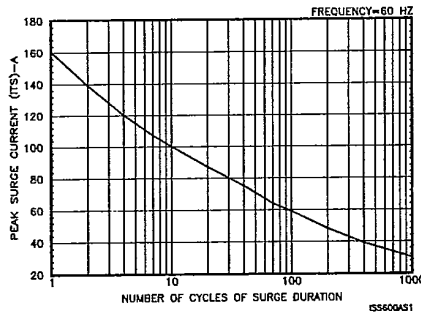


Fig. 7 - Peak Surge Current Vs. Duration