File Number **1628**

S6000D, S6000M, S6000N

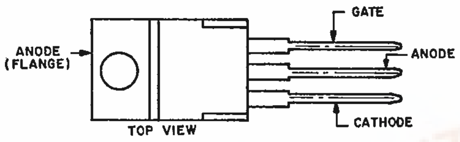
High Voltage, Medium Current Silicon Controlled Rectifiers

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*
- *Sipos Oxide Glass Multilayer Passivation System*
- *Advanced Unisurface Construction*
- *Precise Ion Implanted Diffusion Source*

TERMINAL DESIGNATIONS



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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.

All types utilize the JEDEC TO-220AB package.

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.

MAXIMUM RATINGS, *Absolute-Maximum Values:*

	S6000D	S6000M	S6000N	
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^2T (at 8.3 ms)	100			A^2s
(at 1.5 ms)	75			A^2s
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

S6000D, S6000M, S6000N

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

CHARACTERISTIC	SYMBOL	LIMITS S6000 FAMILY MIN.	TYP.	MAX.	UNITS
Repetitive Peak Forward and Reverse Blocking Current Rated VDRM and VRRM, Gate Open at TC = 125°C	IDROM IRROM	— —	— —	50 2	μA 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
S6000D		—	175	—	
S6000M		—	150	—	
S6000N		—	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 Junction to Case Junction to Ambient	RθJC RθJA	— —	— —	2.2 60	°C/W

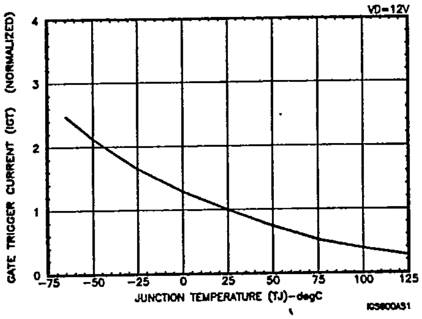

Fig. 1 - Typical Gate Trigger Current Vs. Temperature

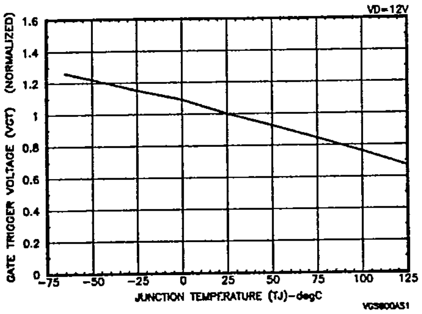

Fig. 2 - Typical Gate Trigger Voltage Vs. Temperature

S6000D, S6000M, S6000N

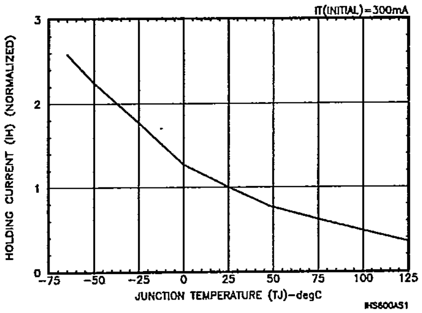

Fig. 3 - Typical Holding Current Vs. Temperature

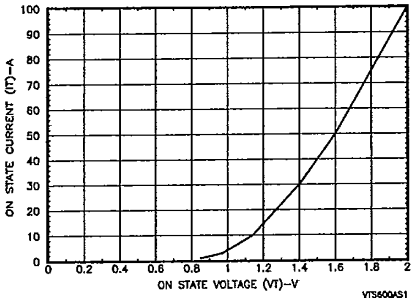

Fig. 4 - Typical On State Voltage Vs. Current

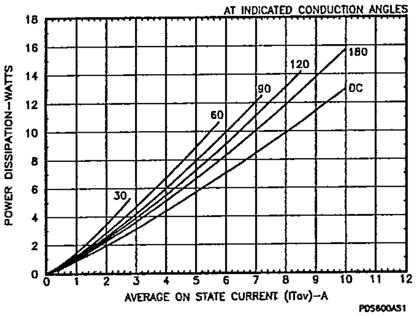

Fig. 5 - Maximum Power Dissipation Vs. Average Current

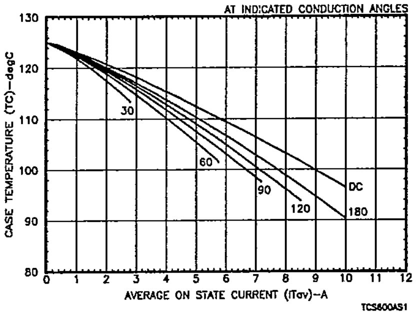

Fig. 6 - Maximum Case Temperature Vs. Average Current

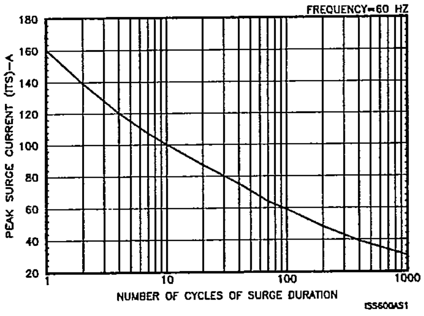

Fig. 7 - Peak Surge Current Vs. Duration