LITE-ON SEMICONDUCTOR

T1M5F600D

Sensitive Gate Triacs
Sillicon Bidirectional Thyristors

TRIACs
1.0 AMPERES RMS
600 VOLTS

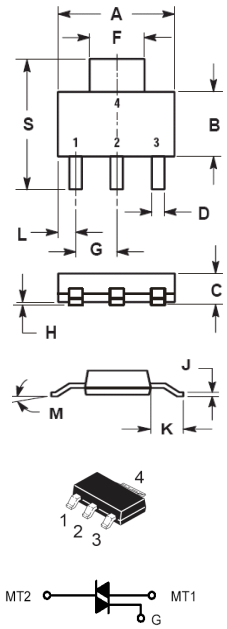
FEATURES

- Sensitive Gate Trigger Current in Four Trigger Modes
- Blocking Voltage to 600 Volts
- Glass Passivated Surface for Reliability and Uniformity
- Surface Mount Package
- Pb-Free Package

MECHANICAL DATA

- Case: Molded plastic
- Weight: 0.004 ounces, 0.12 grams

SOT-223



SOT-223		
DIM.	MIN.	MAX.
A	6.30	6.70
B	3.30	3.70
C	1.50	1.75
D	0.60	0.89
F	2.90	3.20
G	2.20	2.40
H	0.02	0.10
J	0.24	0.35
K	1.50	2.00
L	0.85	1.05
M	0°	10°
S	6.70	7.30
All Dimensions in millimeter		

PIN ASSIGNMENT	
1	Main Terminal 1
2, 4	Main Terminal 2
3	Gate

MAXIMUM RATINGS (Tj= 25℃ unless otherwise noticed)

Rating	Symbol	Value	Unit
Peak Repetitive Off– State Voltage (TJ= -40 to 110℃, Sine Wave, 50 to 60 Hz; Gate Open)	VDRM, VRRM	600	Volts
On-State RMS Current, Full Cycle Sine Wave 50 to 60 Hz (TC = 50℃)	IT(RMS)	1.0	Amp
Peak Non-Repetitive Surge Current, Full Cycle Sine Wave 60 Hz (Tj =25℃)	ITSM	8	Amps
Circuit Fusing Consideration (t = 8.3 ms)	I^2t	0.26	A^2s
Peak Gate Power (t ≦2.0us ,Tc = 80℃)	PGM	5.0	Watt
Average Gate Power (Tc = 80℃, t ≦8.3 ms)	PG(AV)	0.1	Watt
Peak Gate Current (t ≦2.0us ,Tc = 80℃)	IGM	1.0	Amp
Peak Gate Voltage (t ≦2.0us ,Tc = 80℃)	VGM	5.0	Volts
Operating Junction Temperature Range	TJ	-40 to +110	℃
Storage Temperature Range	Tstg	-40 to +150	℃

Notice: (1) VDRM and VRRM for all types can be applied on a continuous basis. 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	Value	Unit
Thermal Resistance - Junction to Ambient	RthJA	156	℃/W
Thermal Resistance - Junction to Tab (Measured on MT2 Tab adjacent to Purposes)	RthJT	25	℃/W
Maximum Device Temperature for Soldering Purposes (for 10 Seconds Maximum)	T_L	260	℃

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Peak Reptitive Forward or Reverse Blocking Current T_j =25℃ (VD=Rated VDRM and VRRM; Gate OPen) T_j =110℃	I_{DRM} I_{RRM}	---- ----	---- ----	10 100	uA uA
ON CHARACTERISTICS					
Peak Forward On-State Voltage (I_{TM}=± 1.4A Peak @Tp ≦2.0 ms, Duty Cycle ≦ 2%)	V_{TM}	----	----	1.9	Volts
Gate Trigger Current (Continuous dc) (V_D = 12 Vdc; R_L = 100 Ohms)	I_{GT1} I_{GT2} I_{GT3} I_{GT4}	---- ---- ---- ----	---- ---- ---- ----	5.0 5.0 5.0 7.0	mA
Holding Current (V_D = 12 V, Initiating Current = ± 200 mA, Gate Open)	I_H	----	1.5	10	mA
Turn-On Time (V_D = Rated VDRM , I_{TM} = 1.0 A pk, I_G = 25 mA)	tgt	----	2	----	us
Gate Trigger Voltage (Continuous dc) (V_D = 12 Vdc; R_L =100 Ohms)	V_{GT1} V_{GT2} V_{GT3} V_{GT4}	---- ---- ---- ----	0.66 0.77 0.84 0.88	2.0 2.0 2.0 2.5	Volts
Latching Current (V_D=12V,I_G= 10 mA)	I_{L1} I_{L2} I_{L3} I_{L4}	---- ---- ---- ----	1.6 10.5 1.5 2.5	15 20 15 15	mA
DYNAMIC CHARACTERISTICS					
Critical Rate of Rise of Off-State Voltage (V_D=Rated V_{DRM},Exponential Waveform, Gate Open, T_J=110℃)	dv/dt	20	60	----	V/us

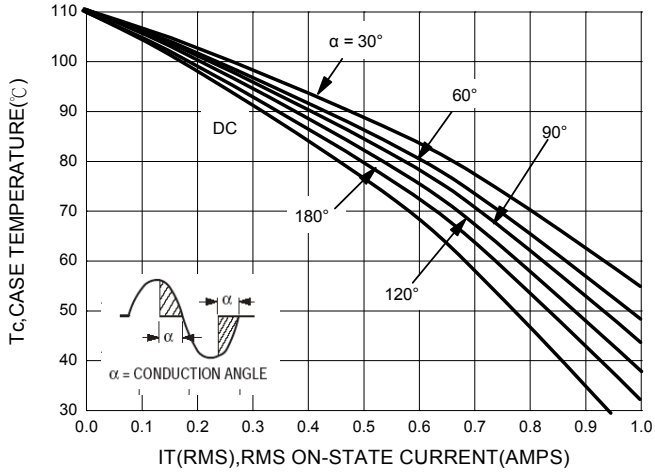


Figure 1. RMS Current Derating

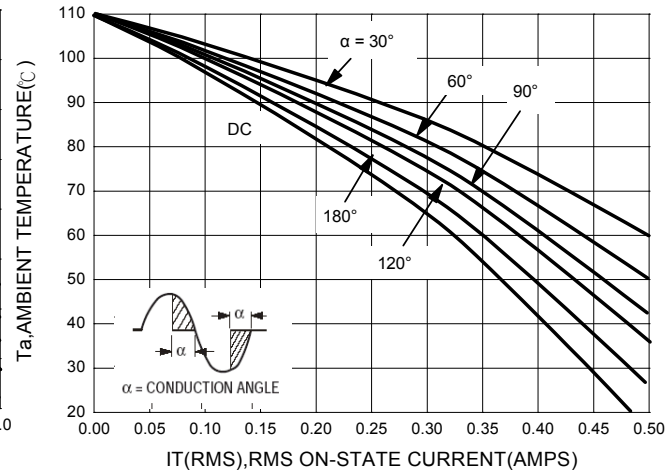


Figure 2. RMS Current Derating

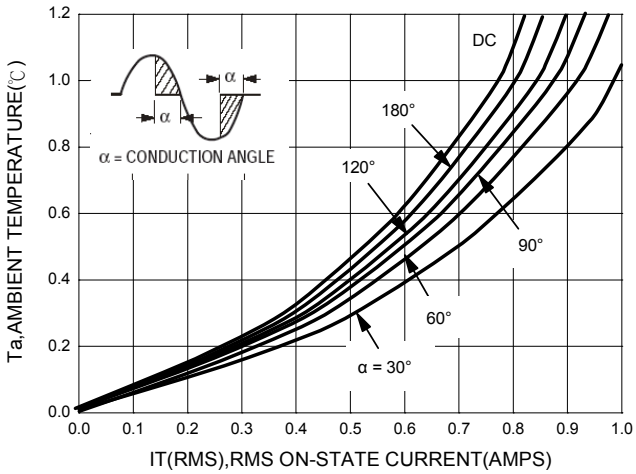


Figure 3. Power Dissipation

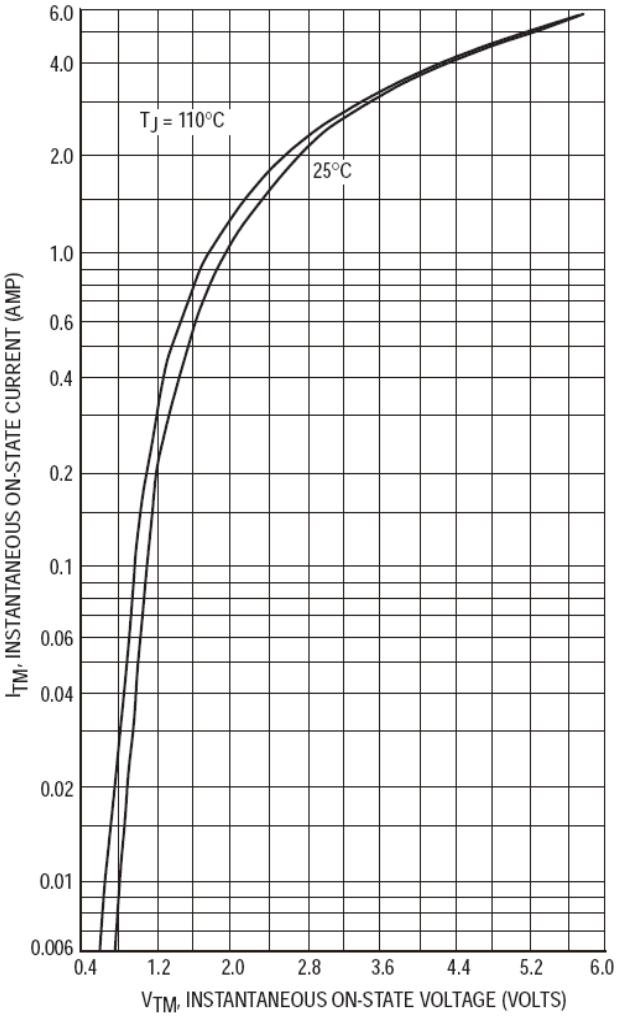


Figure 4. On–State Characteristics

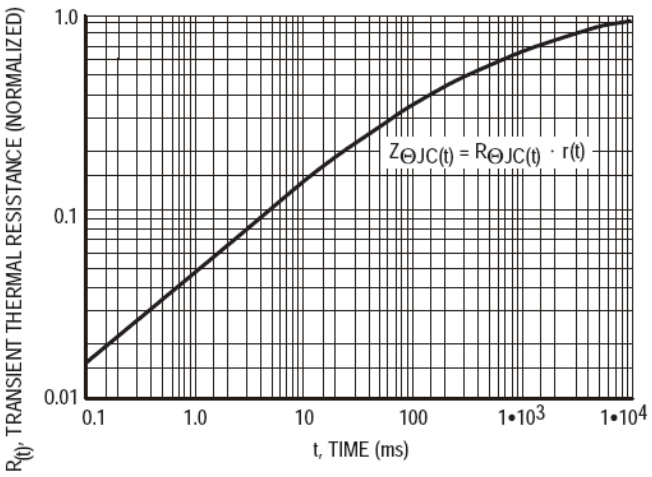


Figure 5. Transient Thermal Response

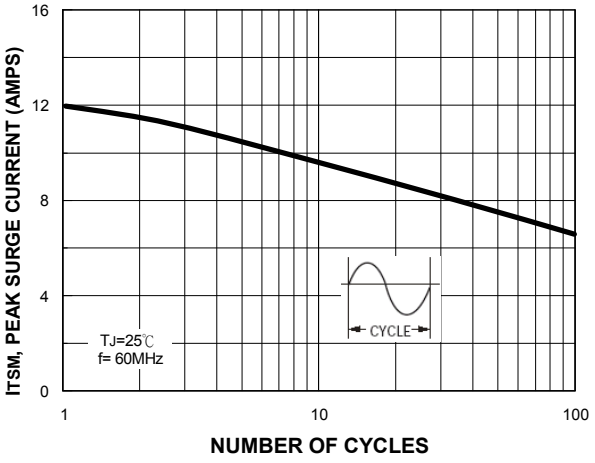


Figure 6. Maximum Allowable Surge Current

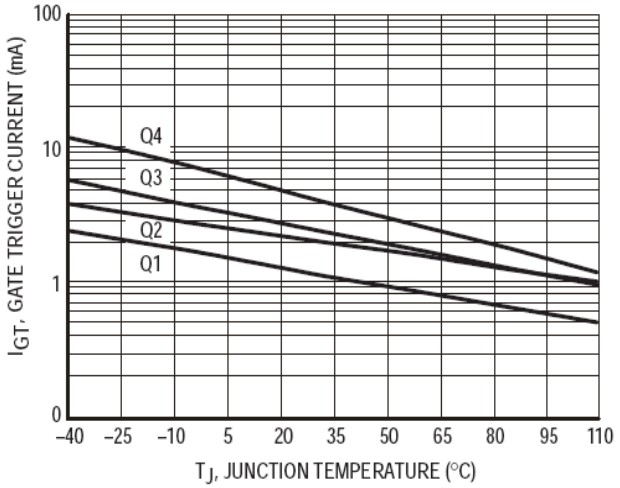


Figure 7. Typical Gate Trigger Current versus Junction Temperature

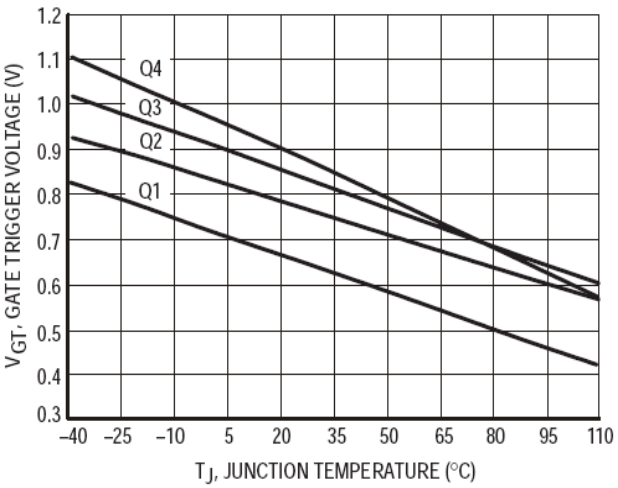


Figure 8. Typical Gate Trigger Voltage versus Junction Temperature

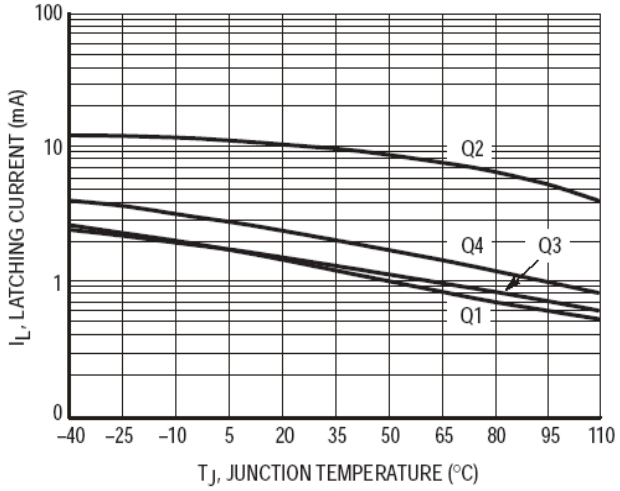


Figure 9. Typical Latching Current versus Junction Temperature

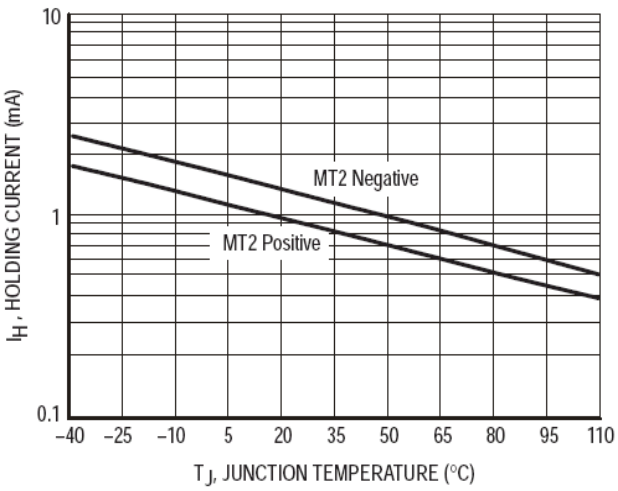


Figure 10. Typical Holding Current versus Junction Temperature