LITE-ON SEMICONDUCTOR

T4M3F600B

Sensitive Gate Triacs
Sillicon Bidirectional Thyristors

TRIACS
4 AMPERES RMS
600 VOLTS

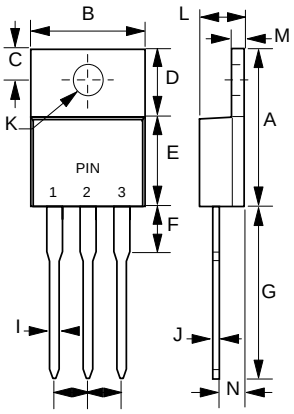
FEATURES

- Passivated Die for Reliability and Uniformity
- Four-Quadrant Triggering
- Blocking Voltage to 600 V
- On-State Current Rating of 4.0 Amperes RMS at 93° C
- Low Level Triggering and Holding Characteristics
- Pb-Free Package

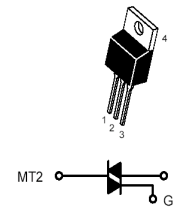
MECHANICAL DATA

- Case: Molded plastic
- Weight: 0.07 ounces, 2.0 grams

TO-220AB



TO-220AB		
DIM.	MIN.	MAX.
A	14.22	15.88
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	8.26	9.28
F	-	6.35
G	12.70	14.73
H	2.29	2.79
I	0.51	1.14
J	0.30	0.64
K	3.53 ⌀	4.09 ⌀
L	3.56	4.83
M	1.14	1.40
N	2.03	2.92
All Dimensions in millimeter		



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

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 cycles sine wave, 60Hz,Tc = 93℃)	IT(RMS)	4	Amp
Peak Non-Repetitive Surge Current (One full cycle 60Hz, Tj=25℃)	ITSM	40	Amps
Circuit Fusing Consideration (t = 8.3ms)	I^2t	6.6	A^2s
Peak Gate Power (Pulse Width<=10usec,TC =93℃)	PGM	0.5	Watt
Average Gate Power (t=8.3 msec, TC = 93℃)	PG(AV)	0.1	Watt
Peak Gate Current (Pulse Width≦10usec,TC =93℃)	IGM	0.2	Amp
Peak Gate Voltage (Pulse Width≦10usec,TC =93℃)	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.

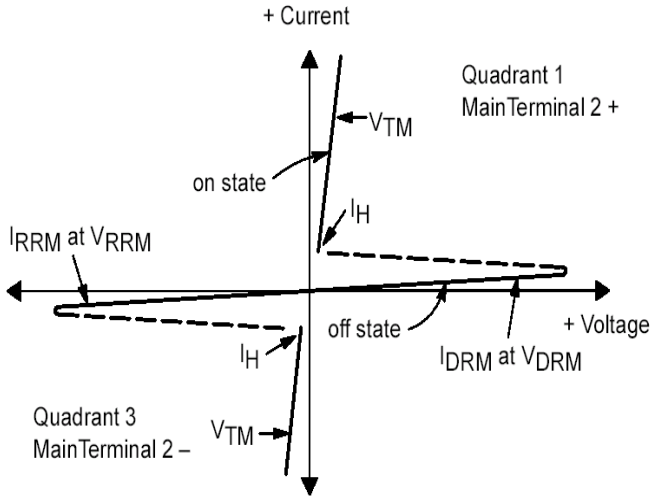
THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance - Junction to Case - Junction to Ambient	RthJC RthJA	2.2 62.5	℃/W
Maximum Lead Temperature for Soldering Purposes (1/8" from Case for 10 Seconds)	T_L	260	℃

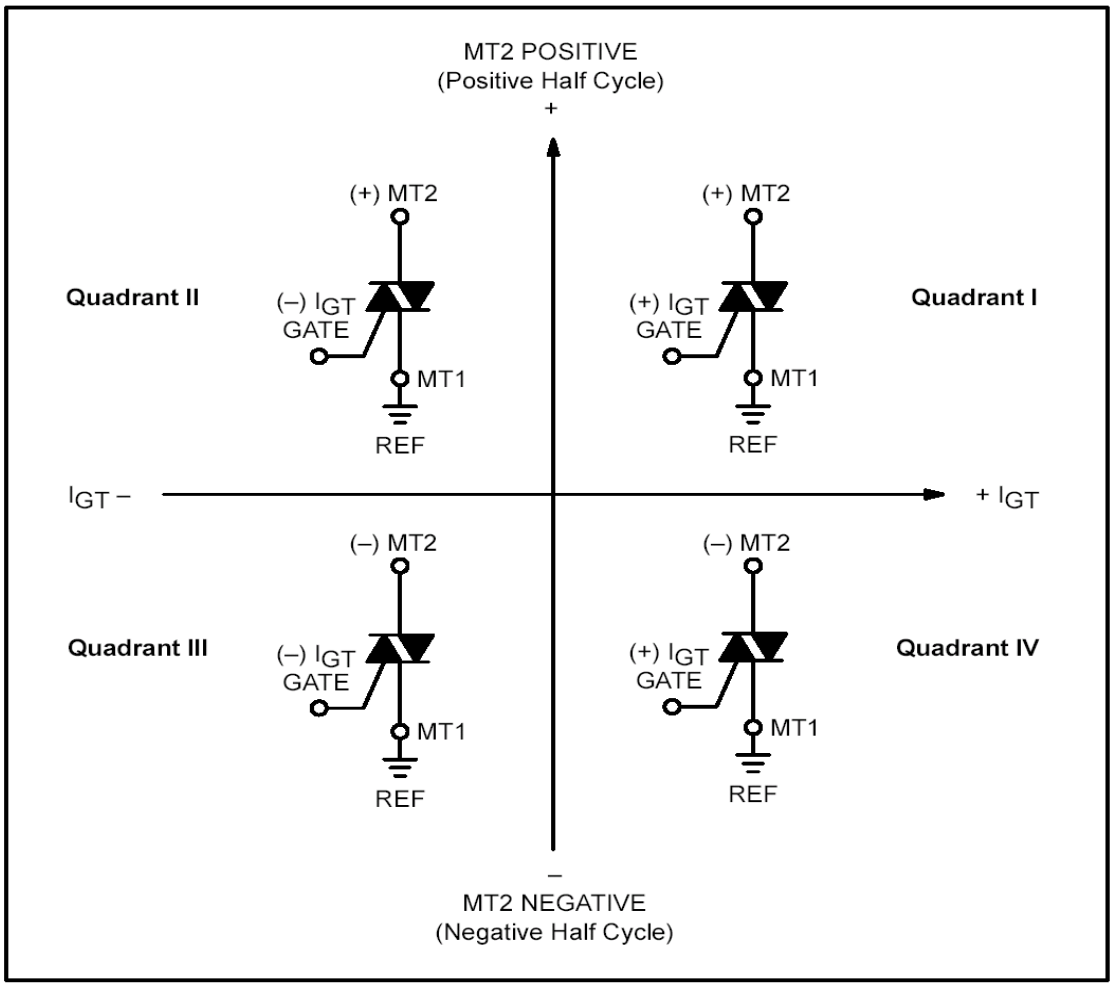
ELECTRICAL CHARACTERISTICS (T_J=25 ℃unless otherwise noted)

Characteristics		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Peak Reptitive Forward or Reverse Blocking Current (V_D=Rated V_{DRM} and V_{RRM}, Gate Open)	T_J=25℃ T_J=110℃	I_{DRM} I_{RRM}	---- ----	---- ----	10 2.0	uA mA
ON CHARACTERISTICS						
Peak Forward On-State Voltage (I_{TM}=± 6.0A Peak @Tp ≦2.0 ms, Duty Cycle ≦ 2%)		V_{TM}	----	1.3	1.6	Volts
Gate Trigger Current (Continuous dc) (V_D = 12 V, R_L = 100 Ohms)		I_{GT1} I_{GT2} I_{GT3} I_{GT4}	---- ---- ---- ----	1.8 2.1 2.4 4.2	3.0 3.0 3.0 5.0	mA
Gate Trigger Voltage (Continuous dc) (V_D = 12 V, R_L =100 Ohms)		V_{GT1} V_{GT2} V_{GT3} V_{GT4}	0.5 0.5 0.5 0.5	0.62 0.57 0.65 0.74	1.3 1.3 1.3 1.3	Volts
Holding Current (V_D = 12V, Initiating Current = ± 200 mA, Gate Open)		I_H	----	1.5	15	mA
Gate Non - Trigger Voltage (Continuous dc) (V_D = V_{DRM}, RL =100 Ohms, T_J=110℃		V_{GD}	0.1	0.4	----	Volts
Latching Current (V_D = 12V, I_G = 5.0 mA)		I_{L1} I_{L2} I_{L3} I_{L4}	---- ---- ---- ----	1.75 5.2 2.1 2.2	10 10 10 10	mA
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of Off-State Voltage (V_D = 0.67 X Rated V_{DRM} , Exponential Waveform, Gate Open, T_J = 110℃)		dv/dt	5	----	----	V/us

Symbol	Parameter
V_{DRM}	Peak Repetitive Forward Off State Voltage
I_{DRM}	Peak Forward Blocking Current
V_{RRM}	Peak Repetitive Reverse Off State Voltage
I_{RRM}	Peak Reverse Blocking Current
V_{TM}	Maximum On State Voltage
I_H	Holding Current



Quadrant Definitions



All polarities are referenced to MT1
Whith in -phase signal (using standard AC lines) quadrants I and III are used

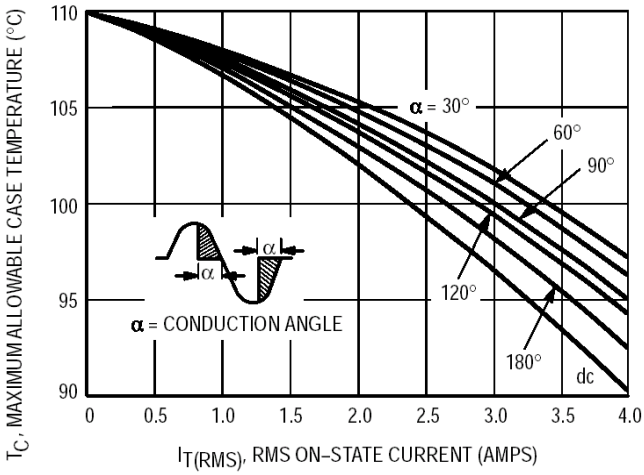


Figure 1. RMS Current Derating

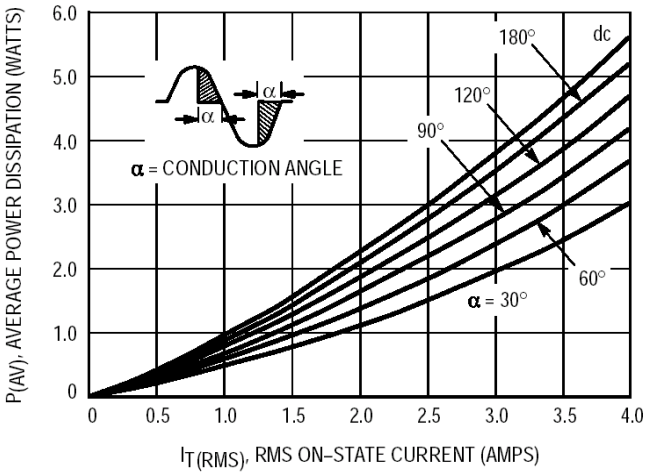


Figure 2. On–State Power Dissipation

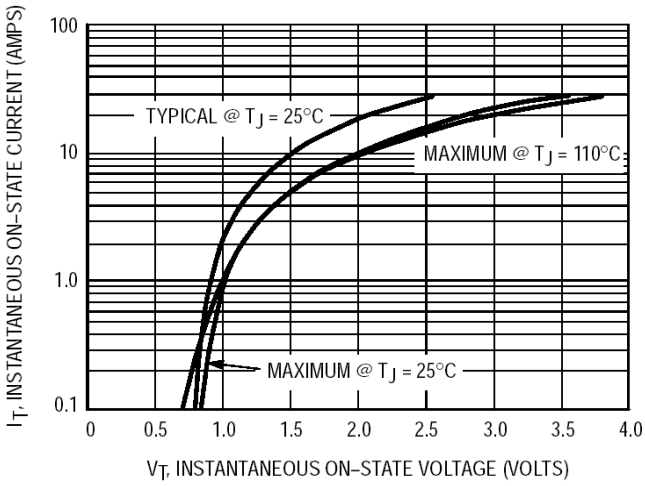


Figure 3. On–State Characteristics

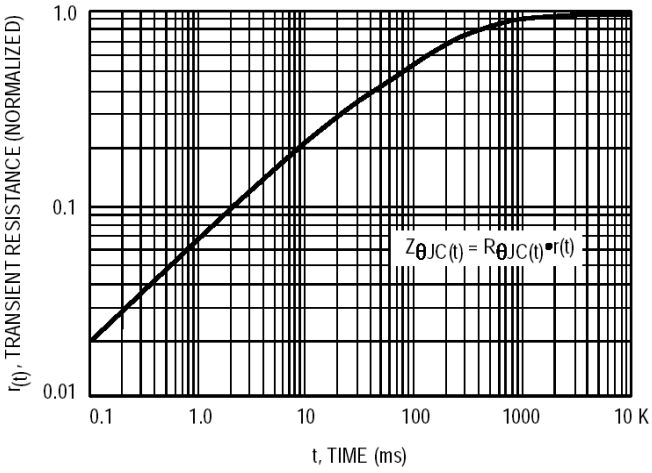


Figure 4. Transient Thermal Response

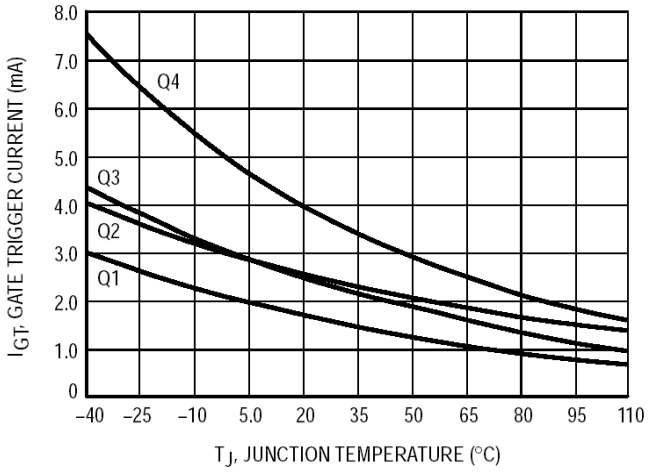


Figure 5. Typical Gate Trigger Current versus Junction Temperature

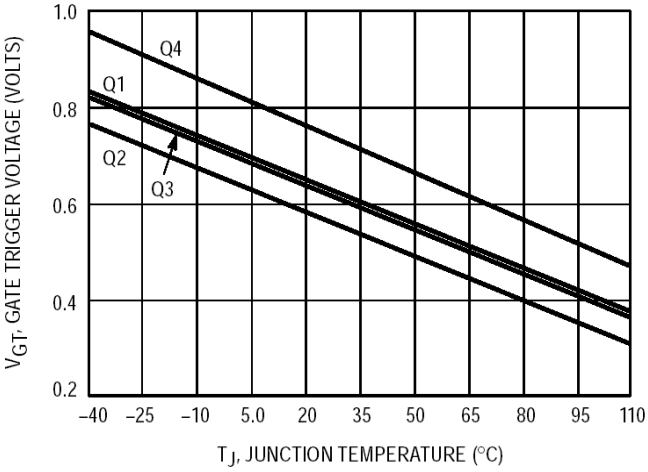


Figure 6. Typical Gate Trigger Voltage versus Junction Temperature

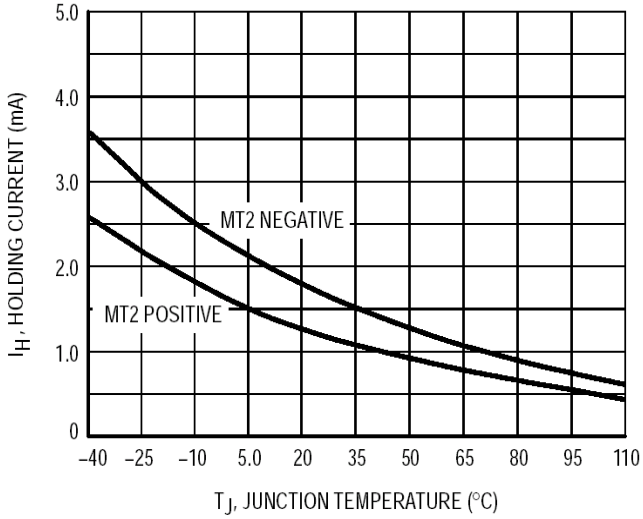


Figure 7. Typical Holding Current versus Junction Temperature

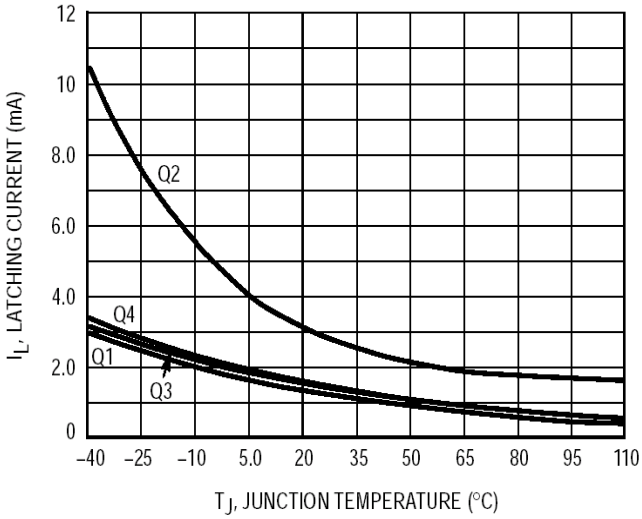


Figure 8. Typical Latching Current versus Junction Temperature

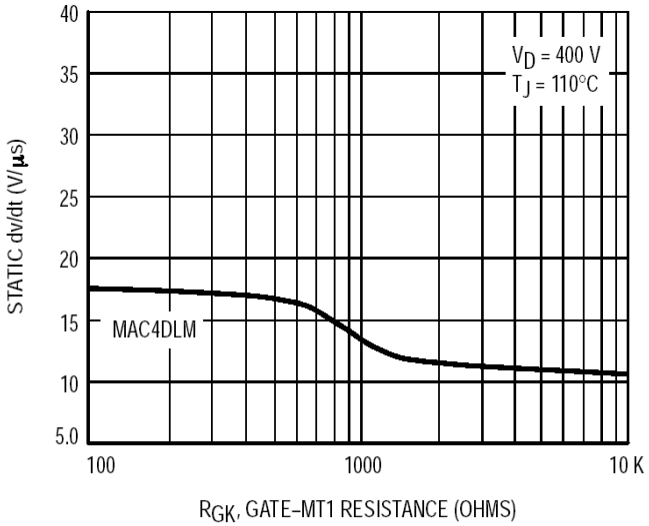


Figure 9. Minimum Exponential Static dv/dt versus Gate–MT1 Resistance

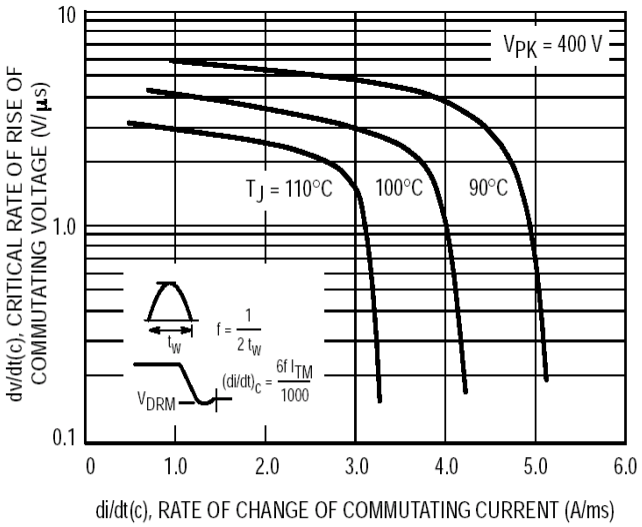


Figure 10. Critical Rate of Rise of Commutating Voltage