

**Sensitive Gate Triacs
Silicon Bidirectional Thyristors**

**TRIACS
4 AMPERES RMS
600 VOLTS**

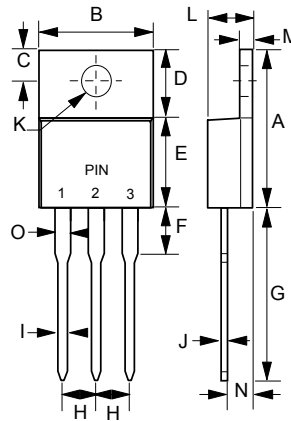
FEATURES

- Sensitive Gate Allows Triggering by Microcontrollers and other Logic Circuits
- High Immunity to dv/dt - 50 V/us Minimum at 125°C
- Commutating di/dt - 3.0 A/ms Minimum at 125°C
- Minimum and Maximum Values of IGT, VGT and IH Specified for Ease of Design
- On-State Current Rating of 4 Amperes RMS at 100°C
- High Surge Current Capability - 40 Amperes
- Blocking Voltage to 800 Volts
- Rugged, Economical TO220AB Package
- Operational in Three Quadrants: Q1, Q2, and Q3
- Pb-Free Package

MECHANICAL DATA

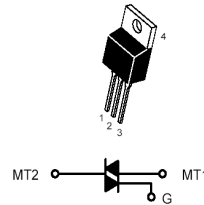
- Case: Molded plastic
- Weight: 0.07 ounces, 2.0 grams

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	0.40	0.67
K	3.53 \varnothing	4.09 \varnothing
L	3.56	4.83
M	1.14	1.40
N	2.03	2.92
O	1.17	1.37

All Dimensions in millimeter



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

MAXIMUM RATINGS (Tj= 25°C unless otherwise noticed)

Rating	Symbol	Value	Unit
Peak Repetitive Off- State Voltage (1) (Tj= -40 to 125°C, Sine Wave, 50 to 60 Hz; Gate Open)	V_{DRM} , V_{RRM}	600	Volts
On-State RMS Current (Full Cycle Sine Wave 50 to 60 Hz, Tc =100°C)	$I_{T(RMS)}$	4.0	Amp
Peak Non-Repetitive Surge Current (One Full Cycle Sine Wave, 60 Hz, Tj= 25°C)	I_{TSM}	40	Amps
Circuit Fusing Consideration (t = 8.3 ms)	I^2t	6.6	A ² s
Peak Gate Power (Tc = 100°C, Tp ≤ 1.0 us)	PGM	0.5	Watt
Average Gate Power (Tc = 100°C, t=8.3 ms)	PG(AV)	0.1	Watt
Operating Junction Temperature Range	Tj	-40 to +125	°C
Storage Temperature Range	Tstg	-40 to +150	°C

Notice: (1) V_{DRM} and V_{RRM} 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.

REV. 6, Oct-2010, KTXC05

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise noted; Electrical apply in both directions)

Characteristics	Symbol	Min	Typ	Max	Unit
-----------------	--------	-----	-----	-----	------

OFF CHARACTERISTICS

Peak Repetitive Forward or Reverse Blocking Current (V _D =Rated V _{DRM} , V _{RRM} ; Gate Open)	T _J =25°C	I _{DRM}	----	----	10	µA
	T _J =125°C	I _{RRM}	----	----	2.0	mA

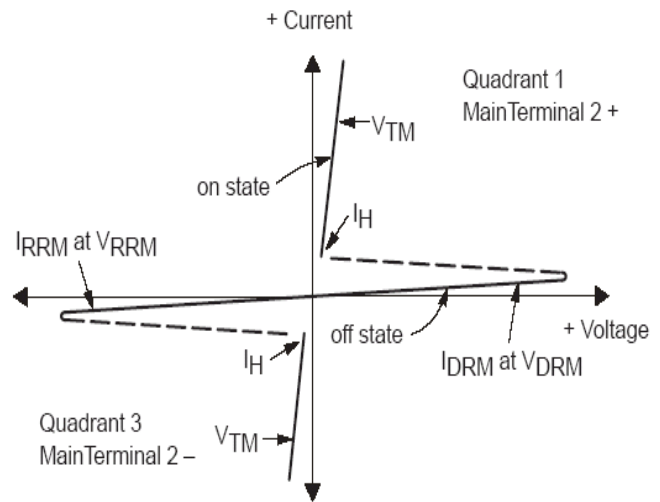
ON CHARACTERISTICS

Peak On-State Voltage (I _{TM} =± 6A Peak @T _p ≤2.0 ms, Duty Cycle ≤ 2%)	V _{TM}	----	1.3	1.6	Volts
Gate Trigger Current (V _D = 12V; R _L = 100 Ohms)	I _{GT1}	2.9	4.0	10	mA
	I _{GT2}	2.9	4.7	10	
	I _{GT3}	2.9	6.0	10	
Gate Trigger Voltage (V _D = 12 V; R _L =100 Ohms)	V _{GT1}	0.5	0.70	1.3	Volts
	V _{GT2}	0.5	0.65	1.3	
	V _{GT3}	0.5	0.70	1.3	
Latching Current (V _D = 12 V, I _G = 10 mA)	I _{L1}	----	6.0	30	mA
	I _{L2}	----	15	30	
	I _{L3}	----	6.0	30	
Holding Current (V _D = 12 V, Initiating Current = ± 200 mA, Gate Open)	I _H	2.0	5.0	15	mA

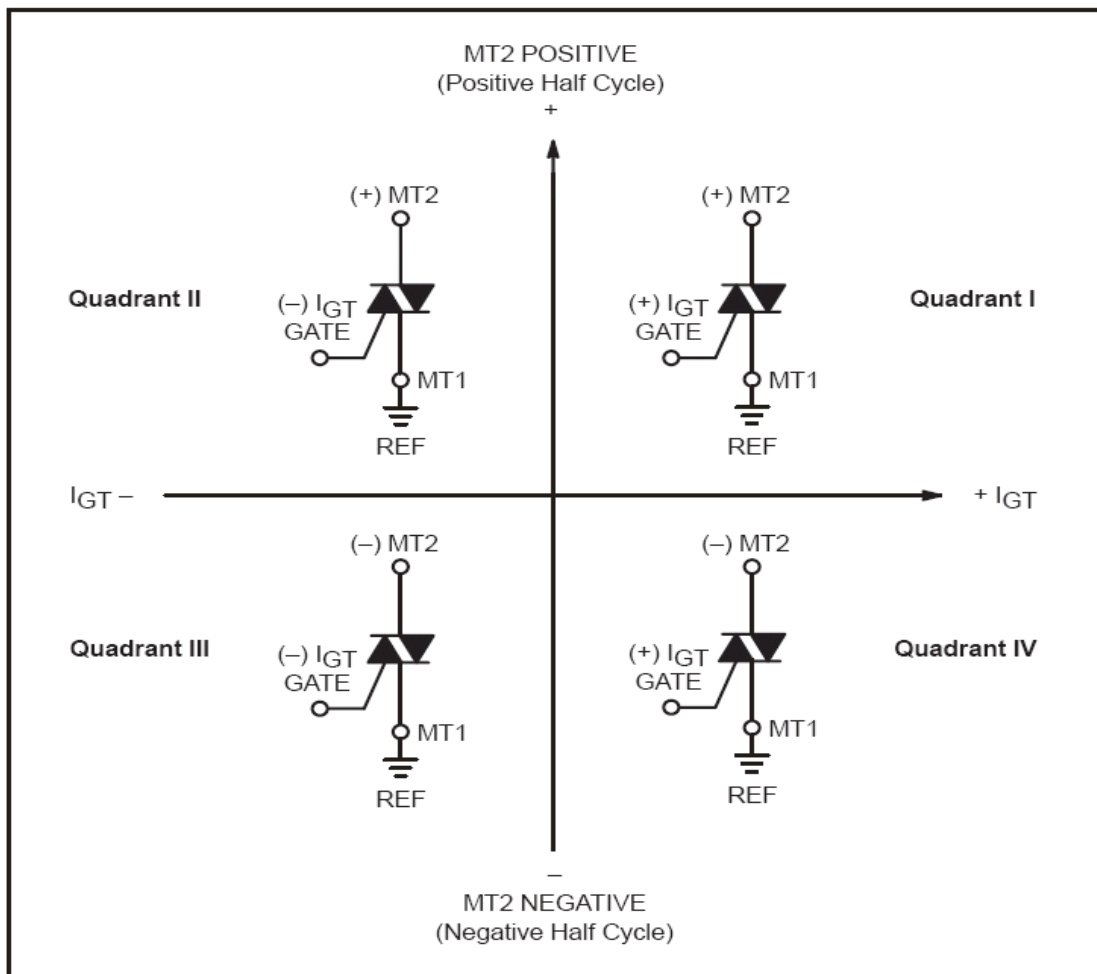
DYNAMIC CHARACTERISTICS

Critical Rate of Rise of Off-State Voltage (V _D =0.67 x Rated V _{DRM} , Exponential Waveform, Gate Open, T _J =125°C)	dv/dt	50	150	----	V/us
Repetitive Critical Rate of Rise of On-State Current I _{PK} = 50 A; PW = 40 usec; diG/dt = 200 mA/usec; f = 60 Hz	di/dt	----	----	10	A/us
Rate of Change of Commutating Current (V _D = 400 V, I _{TM} = 3.5A, Commutating dv/dt = 10 V/us, Gate Open, T _J = 125°C, f = 500 Hz, C _L = 5.0 µF, L _L = 20 mH, No Snubber)	(di/dt) _c	3.0	4.0	----	A/ms

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

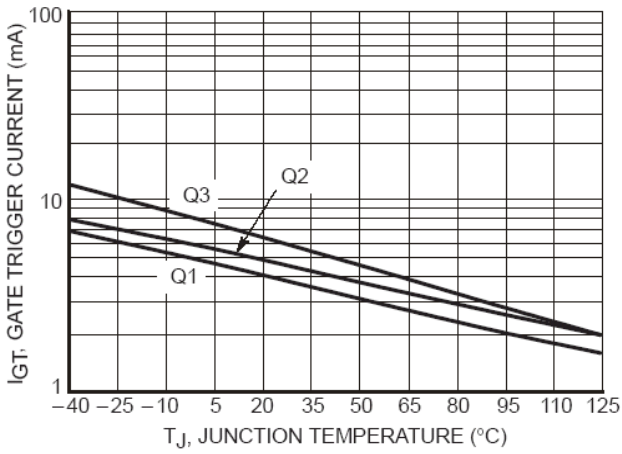


Figure 1. Typical Gate Trigger Current versus Junction Temperature

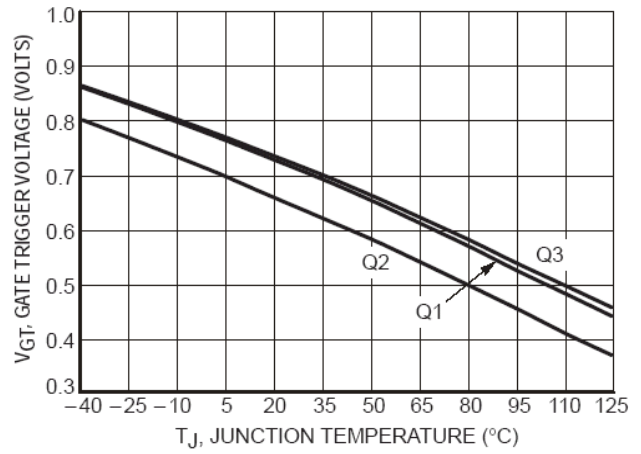


Figure 2. Typical Gate Trigger Voltage versus Junction Temperature

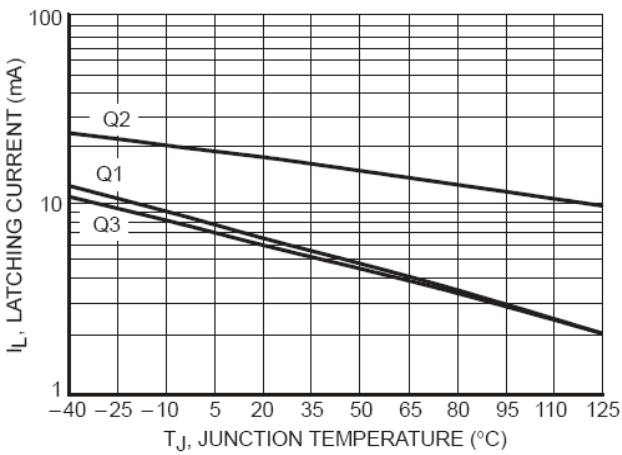


Figure 3. Typical Latching Current versus Junction Temperature

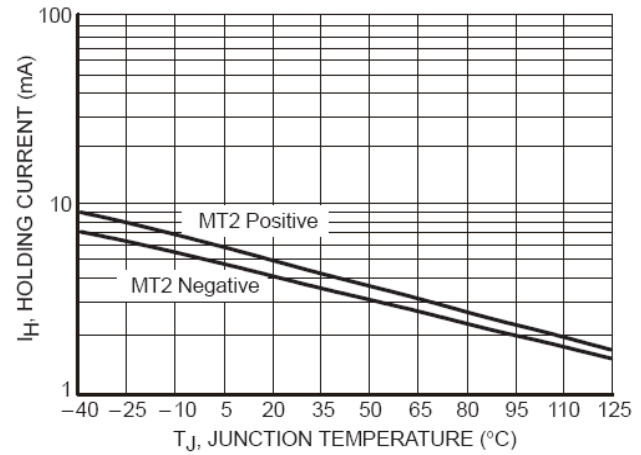


Figure 4. Typical Holding Current versus Junction Temperature

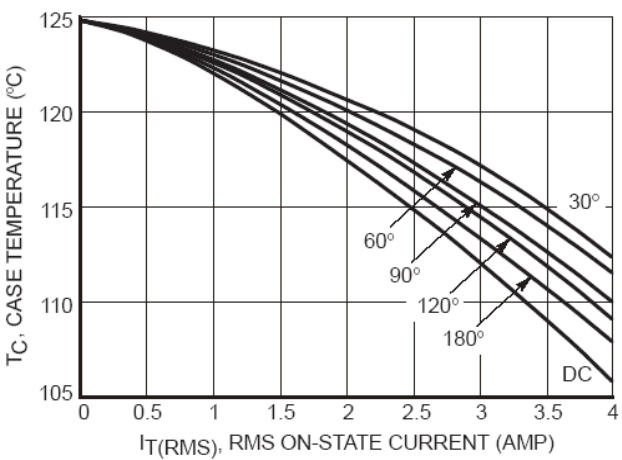


Figure 5. Typical RMS Current Derating

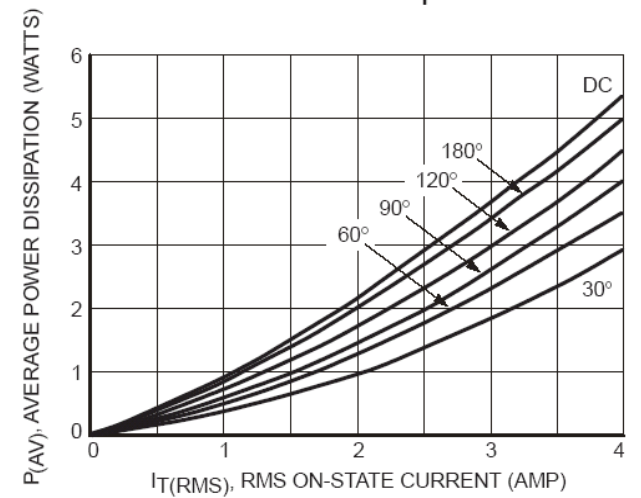


Figure 6. On-State Power Dissipation

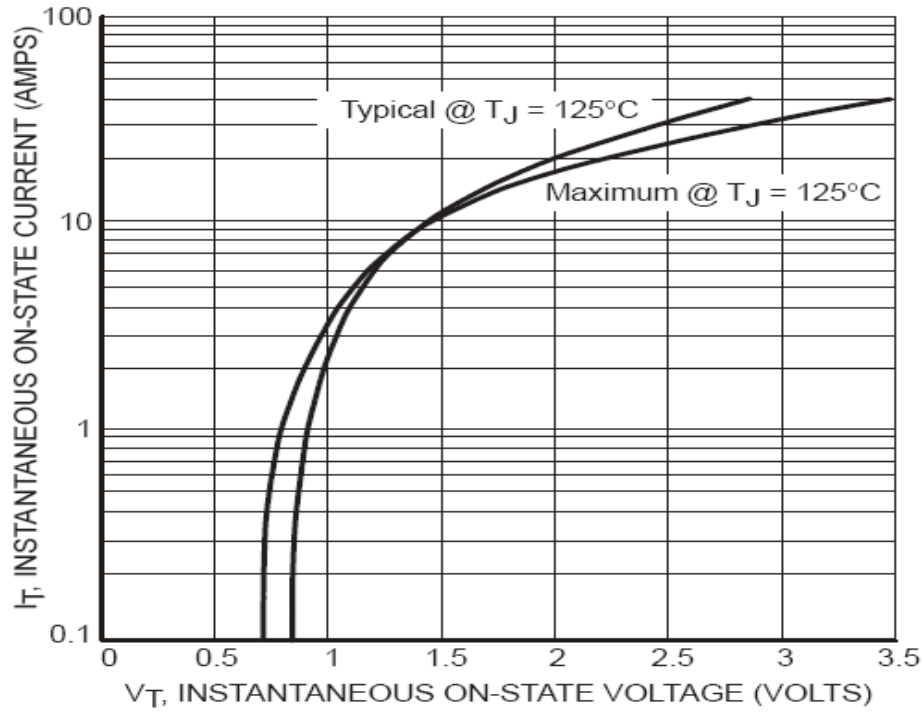


Figure 7. Typical On-State Characteristics

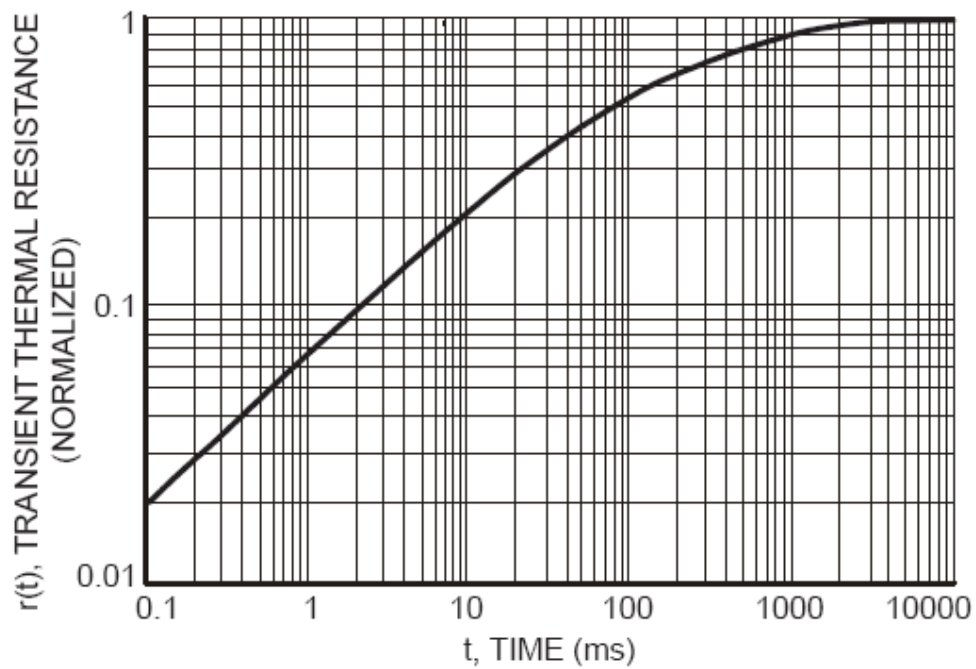


Figure 8. Typical Thermal Response

Important Notice and Disclaimer

LSC reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

LSC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does LSC assume any liability for application assistance or customer product design. LSC does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of LSC.

LSC products are not authorized for use as critical components in life support devices or systems without express written approval of LSC.