

**Sensitive Gate Triacs  
Silicon Bidirectional Thyristors**

**TRIACS  
6 AMPERES RMS  
600 VOLTS**

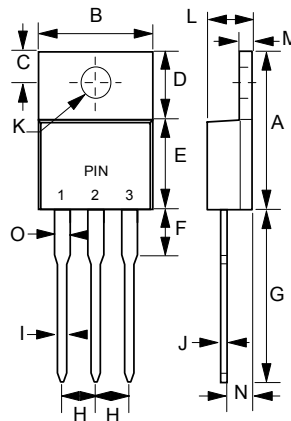
**FEATURES**

- Sensitive Gate Triggering in 3 Modes for AC Triggering on Sinking Current Sources
- Four Mode Triggering for Drive Circuits that Source Current
- All Diffused and Glass-Passivated Junctions for Parameter Uniformity and Stability
- Center Gate Geometry for Uniform Current Spreading

**MECHANICAL DATA**

- Case: Molded plastic
- RoHs Compliant (2002/95/EC)
- Weight: 0.07 ounces, 2.0 grams

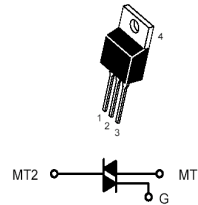
**TO-220AB**



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 110°C, Sine Wave, 50 to 60 Hz; Gate Open)	V <sub>DRM</sub> , V <sub>RRM</sub>	600	Volts
On-State RMS Current (Tc = 80°C) Full Cycle Sine Wave 50 to 60 Hz	I <sub>T(RMS)</sub>	6	Amp
Peak Non-Repetitive Surge Current (One Full Cycle Sine Wave, 60 Hz, Tj= 25°C)	I <sub>TSM</sub>	60	Amps
Circuit Fusing Consideration (t = 8.3 ms)	I <sup>2</sup> t	15	A <sup>2</sup> s
Peak Gate Power (t ≤ 2.0 us, Tc = 80°C)	P <sub>GM</sub>	20	Watt
Average Gate Power (t ≤ 8.3 ms, Tc = 80°C)	P <sub>G(AV)</sub>	0.5	Watt
Peak Gate Current (t ≤ 2.0 us, Tc = 80°C)	I <sub>GM</sub>	2.0	Amp
Peak Gate Voltage(t ≤ 2.0 us, Tc = 80°C)	V <sub>GM</sub>	10	Volts
Operating Junction Temperature Range	T <sub>J</sub>	-40 to +125	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +150	°C

Notice: (1) V<sub>DRM</sub> and V<sub>RRM</sub> 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	2.6 62.5	°C/W
Maximum Lead Temperature for Soldering Purposes 1/8" from Case for 10 Seconds	TL	260	°C

**ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C unless otherwise noted)**

Characteristics	Symbol	Min	Typ	Max	Unit
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**OFF CHARACTERISTICS**

Peak Repetitive Forward or Reverse Blocking Current (V <sub>D</sub> =Rated V <sub>DRM</sub> and V <sub>RRM</sub> )	T <sub>J</sub> =25°C	I <sub>DRM</sub>	----	----	10	µA
	T <sub>J</sub> =125°C	I <sub>RRM</sub>	----	----	2.0	mA

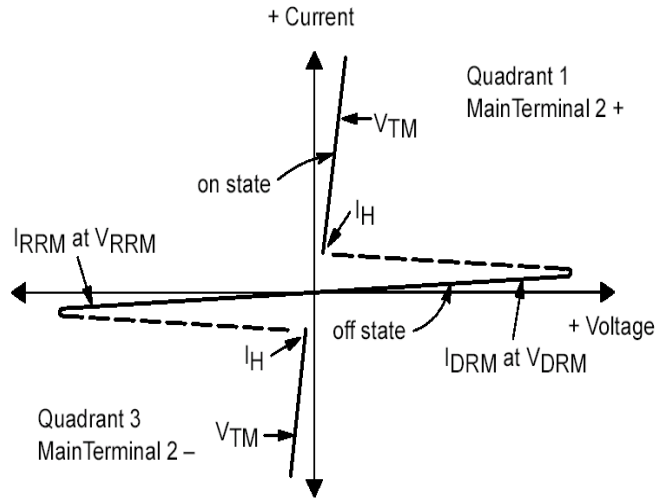
**ON CHARACTERISTICS**

Peak Forward On-State Voltage (I <sub>TM</sub> =± 8.5A Peak @T <sub>p</sub> ≤2.0 ms, Duty Cycle ≤ 2%)	V <sub>TM</sub>	----	----	1.6	Volts
Gate Trigger Current (V <sub>D</sub> = 12V, R <sub>L</sub> = 100 Ohms)	I <sub>GT1</sub>	----	----	10.0	mA
	I <sub>GT2</sub>	----	----	10.0	
	I <sub>GT3</sub>	----	----	10.0	
	I <sub>GT4</sub>	----	----	20.0	
Holding Current (V <sub>D</sub> =12 V, R <sub>L</sub> = 100 Ohms, Initiating Current = ± 200 mA, Gate Open)	I <sub>H1</sub>	----	----	15	mA
	I <sub>H2</sub>				
	I <sub>H3</sub>				
	I <sub>H4</sub>				
Gate Trigger Voltage (V <sub>D</sub> = 12 V, R <sub>L</sub> = 100 Ohms)	V <sub>GT1</sub>	----	----	1.3	Volts
	V <sub>GT2</sub>				
	V <sub>GT3</sub>				
	V <sub>GT4</sub>				
Latching Current (V <sub>D</sub> = 12 V, R <sub>L</sub> = 100 Ohms, I <sub>G</sub> = 10mA)	I <sub>L1</sub>	----	----	15	mA
	I <sub>L2</sub>			30	
	I <sub>L3</sub>			15	
	I <sub>L4</sub>			15	

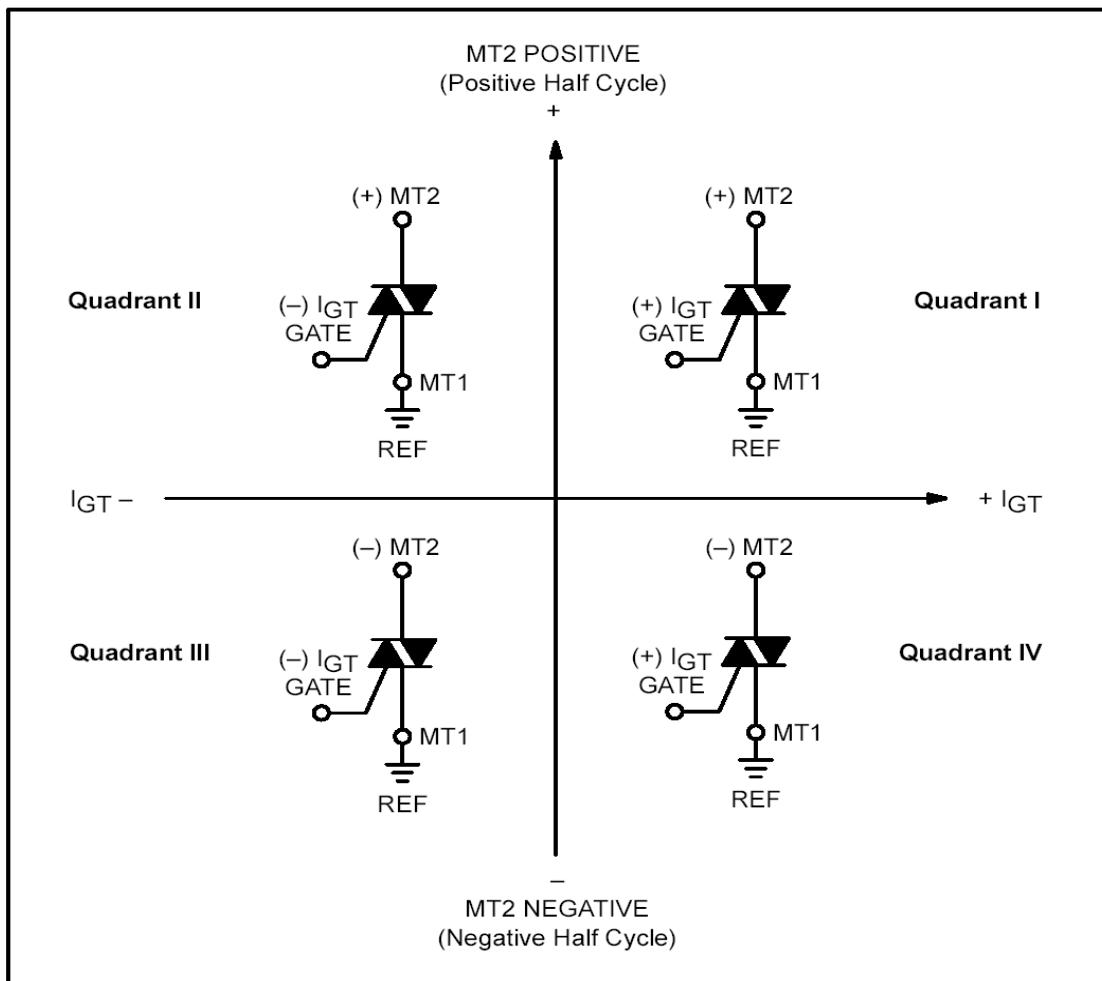
**DYNAMIC CHARACTERISTICS**

Critical Rate of Rise of Off-State Voltage (V <sub>D</sub> = 0.67 %Rated V <sub>DRM</sub> , Exponential Waveform, T <sub>C</sub> =110°C)	dv/dt	----	50	----	V/us
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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

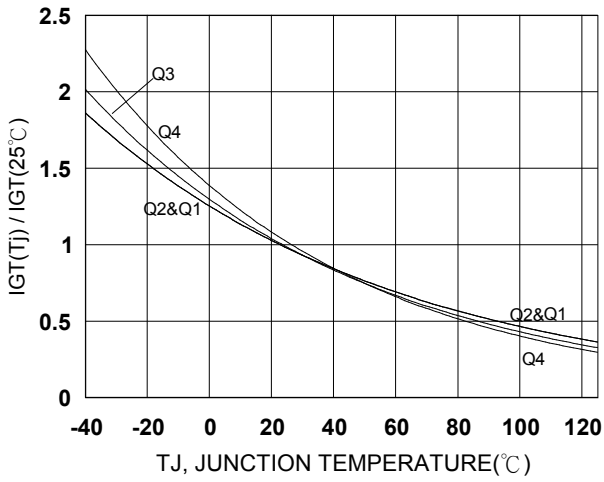


Figure 1. Typical IGT versus TJ

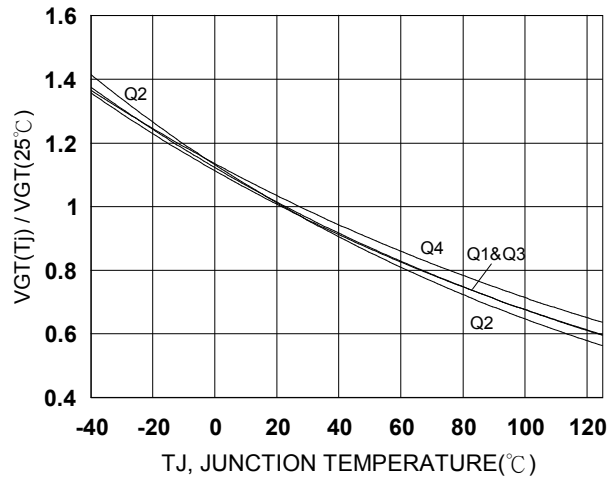


Figure 2. Typical VGT versus TJ

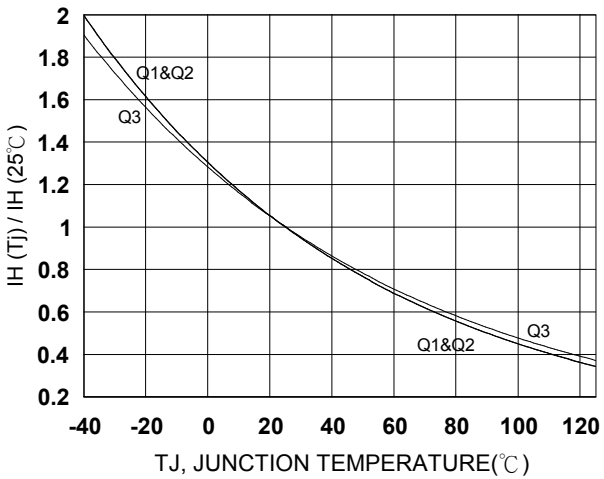


Figure 3. Typical IH versus TJ

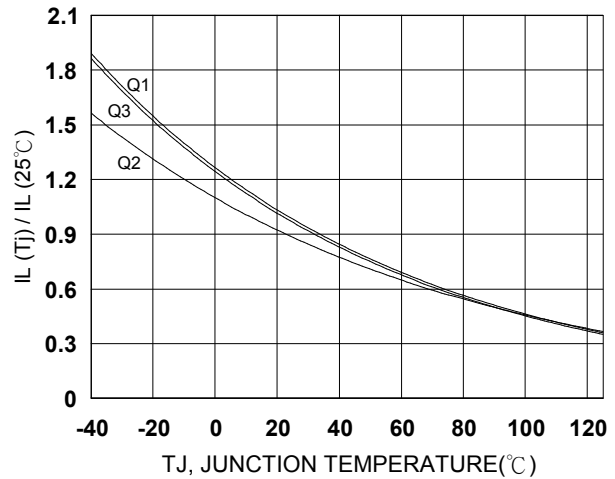


Figure 4. Typical IL versus TJ

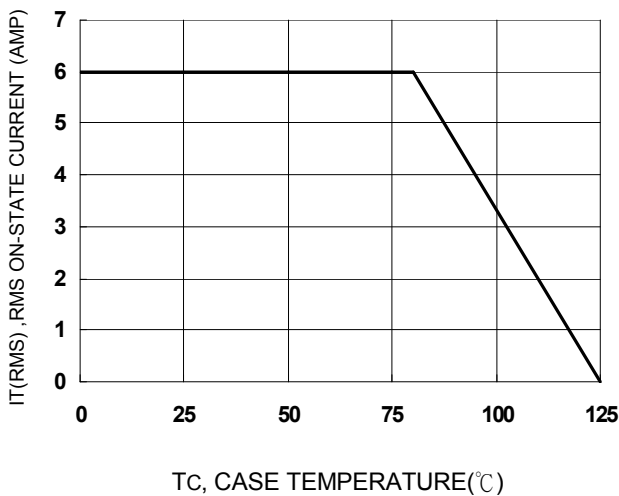


Figure 5. On-State Current Derating Curve

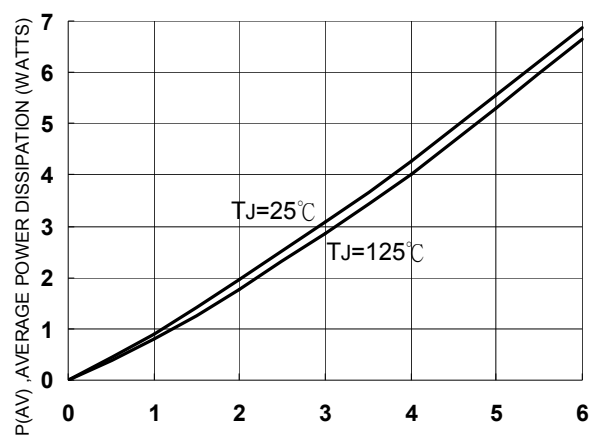


Figure 6. Power Dissipation versus  $I_T$

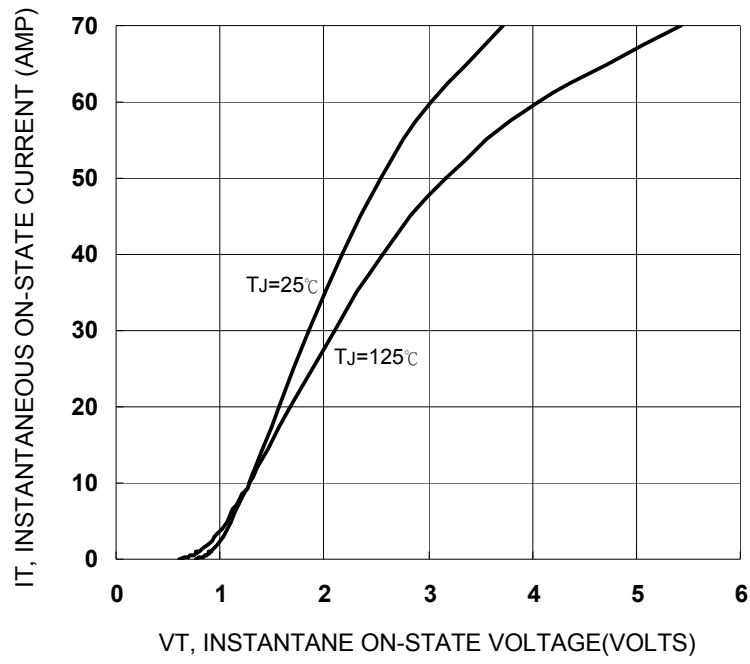


Figure 7. On-State Characteristics

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