

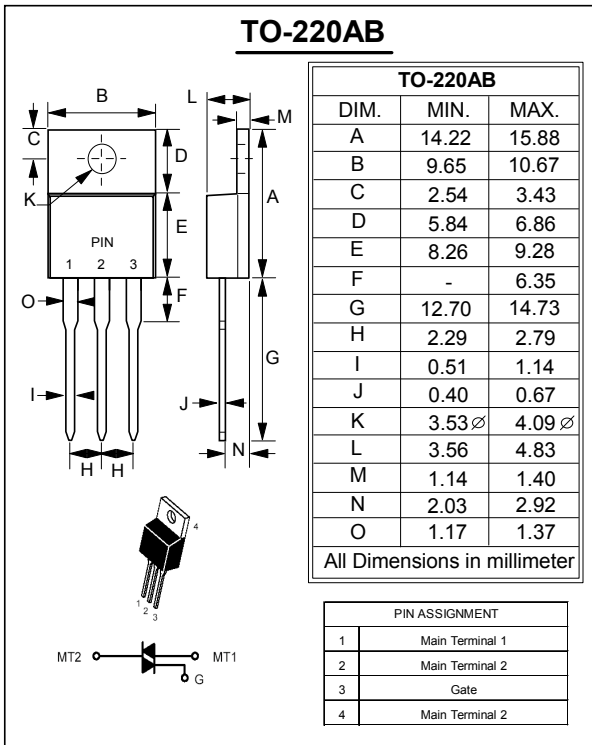
<b>Triacs</b> <b>Silicon Bidirectional Thyristors</b>	<b>TRIACS</b> <b>16 AMPERES RMS</b> <b>600 VOLTS</b>
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**FEATURES**

- Minimizes Snubber Networks for Protection
- Blocking Voltage to 600 Volts
- On-State Current Rating of 16 Amperes RMS High Surge Current Capability — 150 Amperes
- Glass Passivated Junctions for Reliability and Uniformity Operational in Three Quadrants, Q1, Q2, and Q3
- Pb Free Package

**MECHANICAL DATA**

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



**MAXIMUM RATINGS** (T<sub>J</sub>= 25°C unless otherwise noticed)

Rating	Symbol	Value	Unit
Peak Repetitive Off- State Voltage (1) (T <sub>J</sub> = -40 to 125°C, Sine Wave, 50 to 60 Hz; Gate Open)	V <sub>DRM</sub> , V <sub>RRM</sub>	600	Volts
On-State RMS Current (T <sub>c</sub> = +80°C) Full Cycle Sine Wave 50 to 60 Hz	I <sub>T(RMS)</sub>	16	Amp
Peak Non-Repetitive Surge Current (One Full Cycle Sine Wave, 60 Hz, T <sub>J</sub> = 25°C) Preceded and followed by rated current.	I <sub>TSM</sub>	150	Amps
Circuit Fusing Consideration (t = 8.3 ms)	$I^2 t$	93	$A^2 s$
Peak Gate Power (T <sub>c</sub> = +80°C, T <sub>p</sub> ≤ 1.0 us)	P <sub>GM</sub>	20	Watt
Average Gate Power (T <sub>c</sub> = +80°C, t=8.3 ms)	P <sub>G(AV)</sub>	0.5	Watt
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.

REV. 3, Mar-2010, KTXC21

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Value	Unit
Thermal Resistance - Junction to Case - Junction to Ambient	R <sub>thJC</sub> R <sub>thJA</sub>	2.0 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, Electrical apply in both directions)

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> , V <sub>RRM</sub> ; Gate Open)	I <sub>DRM</sub> I <sub>RRM</sub>	---	---	0.01 2.0	mA
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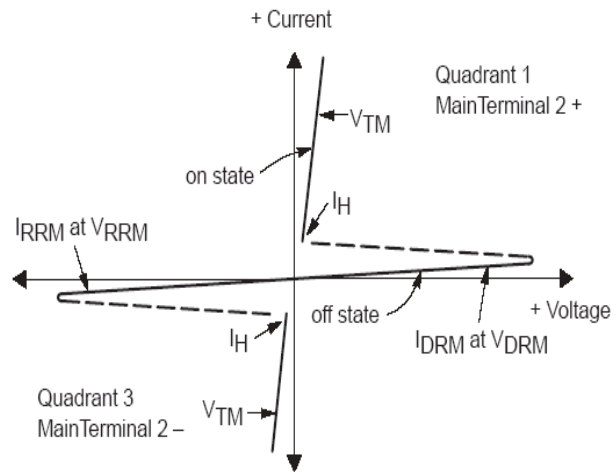
**ON CHARACTERISTICS**

Peak On-State Voltage (I <sub>TM</sub> =± 21 A Peak @T <sub>p</sub> ≤ 2.0 ms, Duty Cycle ≤ 2%)	V <sub>TM</sub>	---	1.2	1.6	Volts
Gate Trigger Current (V <sub>D</sub> = 12Vdc; R <sub>L</sub> = 100 Ohms)	I <sub>GT1</sub> I <sub>GT2</sub> I <sub>GT3</sub>	5.0 5.0 5.0	12 16 20	35 35 35	mA
Gate Trigger Voltage (V <sub>D</sub> = 12 Vdc; R <sub>L</sub> =100 Ohms)	V <sub>GT1</sub> V <sub>GT2</sub> V <sub>GT3</sub>	0.5 0.5 0.5	0.75 0.72 0.82	1.5 1.5 1.5	Volts
Holding Current (V <sub>D</sub> = 12 V, Initiating Current = ± 150 mA, Gate Open)	I <sub>H</sub>	---	20	50	mA
Latching Current (V <sub>D</sub> = 12 V, I <sub>G</sub> = 35 mA)	I <sub>L</sub>	---	25 40 24	50 80 50	mA

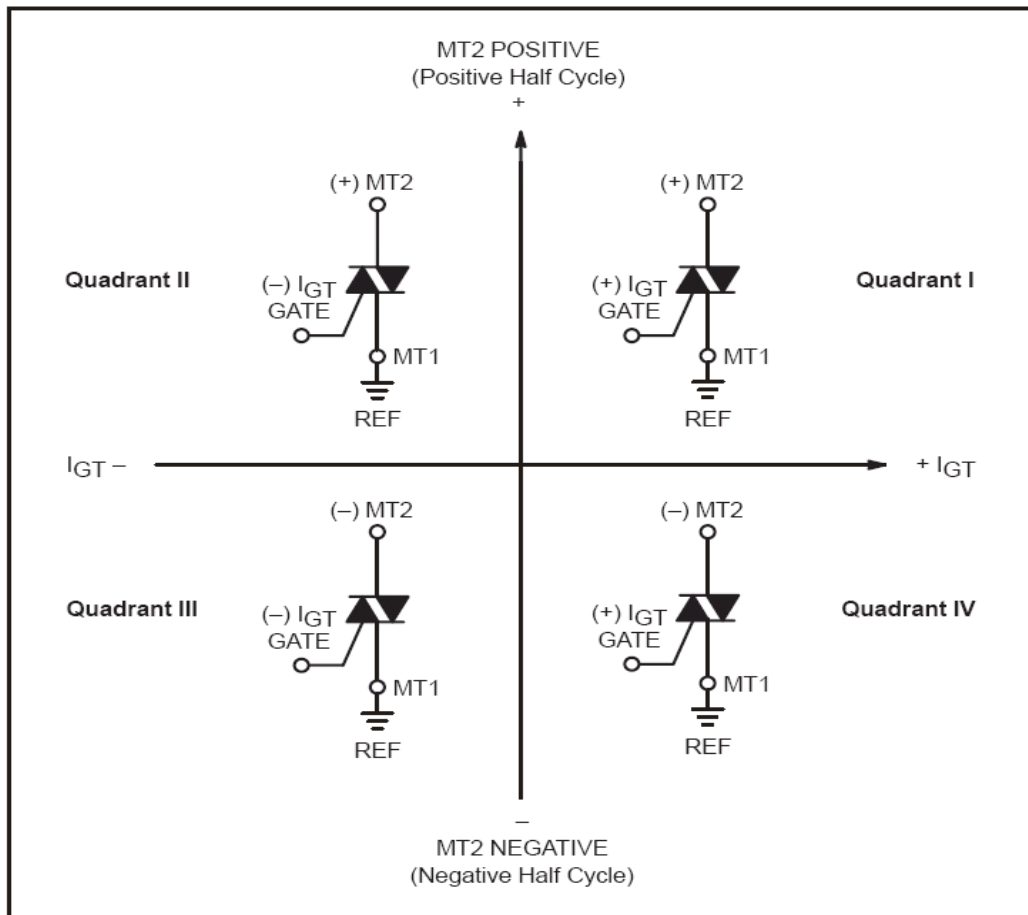
**DYNAMIC CHARACTERISTICS**

Critical Rate of Change of Commutation Current (V <sub>D</sub> = Rated V <sub>DRM</sub> , I <sub>TM</sub> = 6.0 A, Commutating dv/dt = 24 V/ms, Gate Unenergized, T <sub>C</sub> = 125°C, f = 250 Hz, Snubber: C <sub>L</sub> = 10 uf, L <sub>L</sub> =40 mH)	di/dt(c)	15	---	---	A/ms
Critical Rate of Rise of Commutation Voltage (V <sub>D</sub> = 67% V <sub>DRM</sub> , Exponential Waveform, T <sub>C</sub> = 125°C)	dv/dt	600	---	---	V/us
Repetitive Critical Rate of Rise of On-State Current IPK= 50A, PW=40 us; diG/dt = 200mA/us; f =60Hz	di/dt	---	---	10	A/us

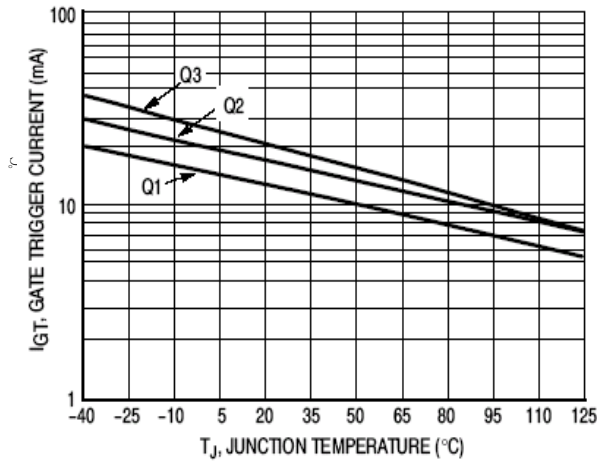
Symbol	Parameter
$V_{DRM}$	Peak Repetitive Forward Off State Voltage
$I_{DRM}$	Peak Forward Blocking Current
$V_{RRM}$	Peak Repetitive Reverse Off State Voltage
$I_{RRM}$	Peak Reverse Blocking Current
$V_{TM}$	Maximum On State Voltage
$I_H$	Holding Current



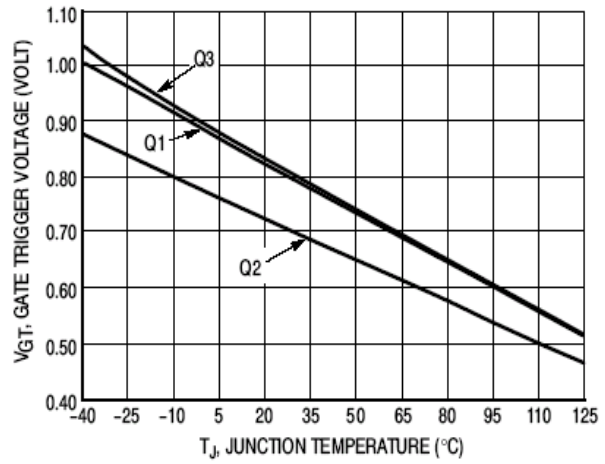
### Quadrant Definitions



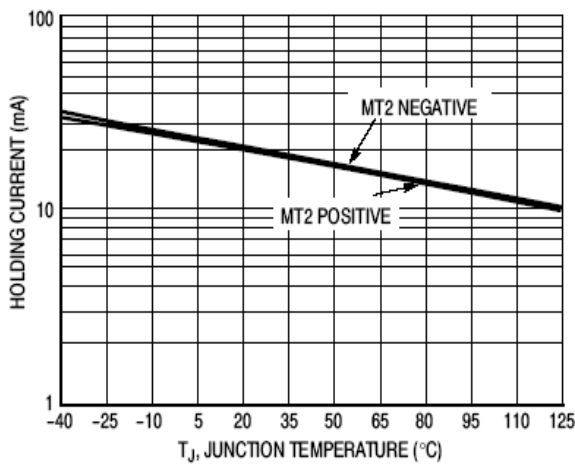
All polarities are referenced to MT1  
 Which in -phase signal (using standard AC lines) quadrants I and III are used



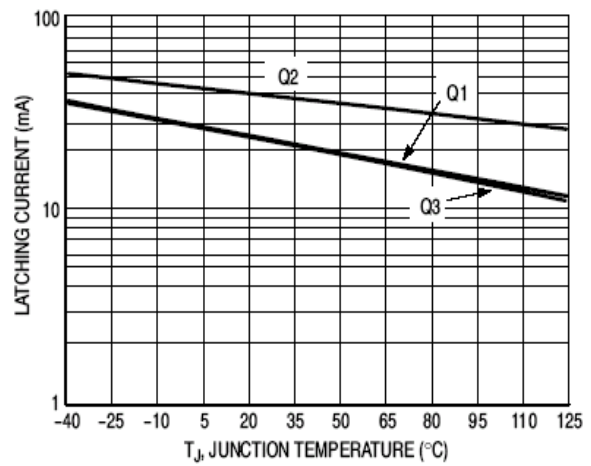
**Figure 1. Typical Gate Trigger Current versus Junction Temperature**



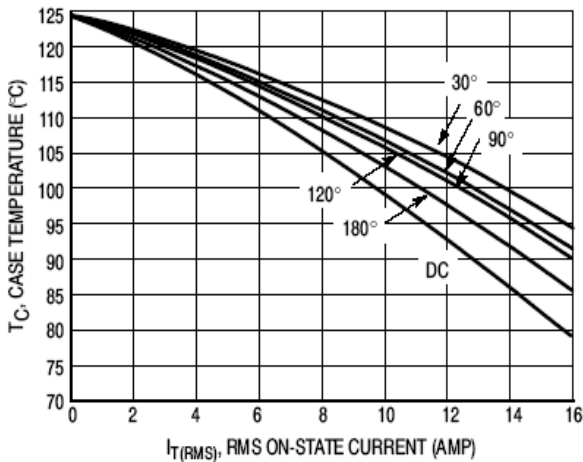
**Figure 2. Typical Gate Trigger Voltage versus Junction Temperature**



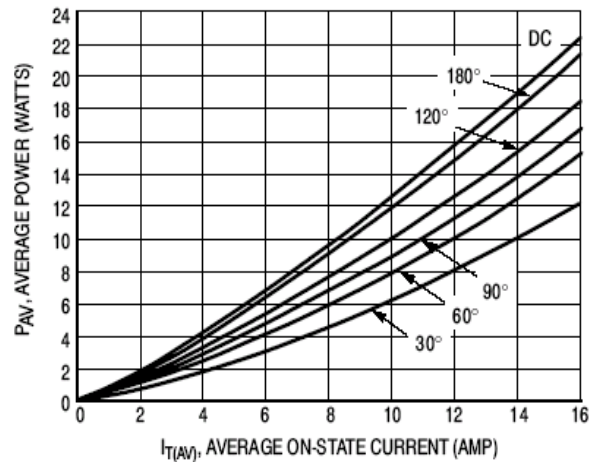
**Figure 3. Typical Holding Current versus Junction Temperature**



**Figure 4. Typical Latching Current versus Junction Temperature**



**Figure 5. Typical RMS Current Derating**



**Figure 6. On-State Power Dissipation**

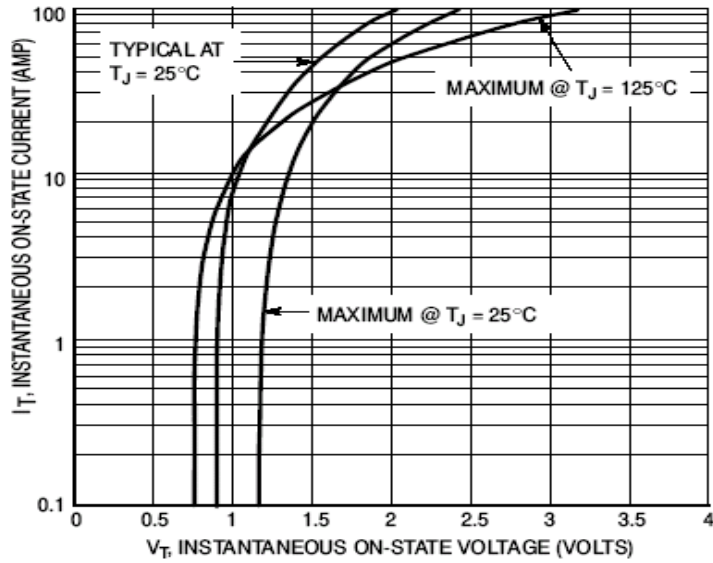


Figure 7. On-State Characteristics

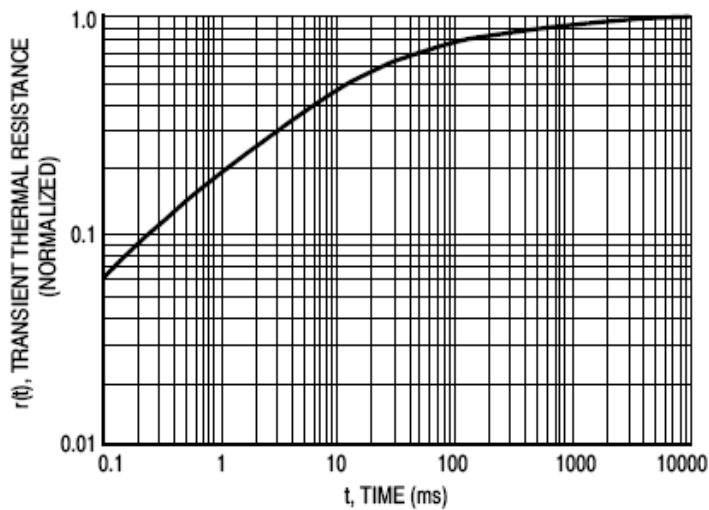


Figure 8. Typical Thermal Response