

Triacs
Silicon Bidirectional Thyristors

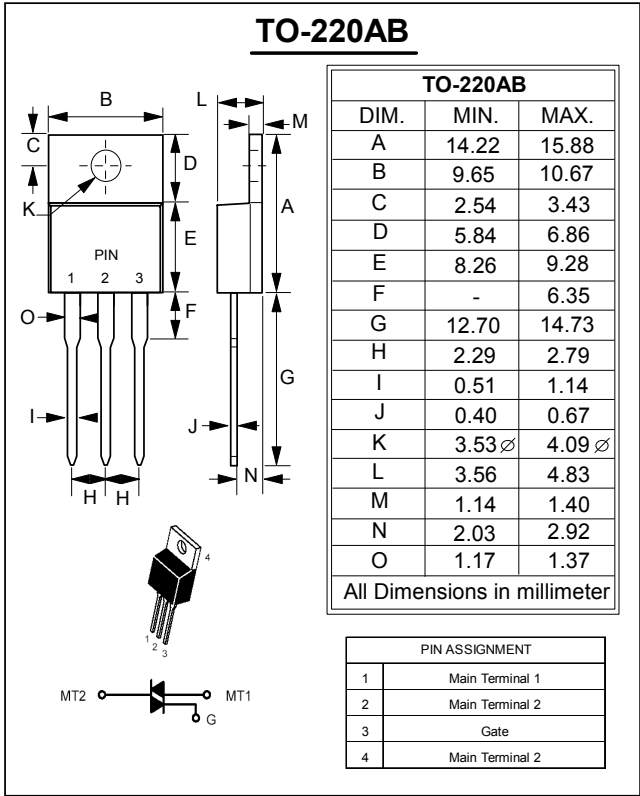
TRIACS
8 AMPERES RMS
600 VOLTS

FEATURES

- Blocking Voltage to 600 Volts
- On-State Current Rating of 8.0 Amperes RMS at 100°C
- Uniform Gate Trigger Currents in Three Quadrants
- High Immunity to dv/dt - 400 V/ms minimum at 125°C
- Minimizes Snubber Networks for Protection Industry
- Standard TO-220AB Package
- High Commutating di/dt - 6.5 A/ms minimum at 125°C
- Pb-Free Package

MECHANICAL DATA

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



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

Rating	Symbol	Value	Unit
Peak Repetitive Off- State Voltage (1) (T _J = -40 to 125°C, Sine Wave, 50 to 60 Hz; Gate Open)	V _{DRM} , V _{RRM}	600	Volts
On-State RMS Current (T _c = 100°C) Full Cycle Sine Wave 50 to 60 Hz	I _{T(RMS)}	8.0	Amp
Peak Non-Repetitive Surge Current (One Full Cycle Sine Wave, 60 Hz, T _J = 25°C)	I _{TSM}	80	Amps
Circuit Fusing Consideration (t = 8.3 ms)	I ² t	26	A ² s
Peak Gate Power (T _c = 80°C, T _p ≤ 1.0 us)	P _{GM}	16	Watt
Average Gate Power (T _c = 80°C, t = 8.3 ms)	P _{G(AV)}	0.35	Watt
Operating Junction Temperature Range	T _J	-40 to +125	°C
Storage Temperature Range	T _{stg}	-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.

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 ($T_J = 25^\circ\text{C}$ unless otherwise noted, Electrical apply in both directions)

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

OFF CHARACTERISTICS

Peak Repetitive Forward or Reverse Blocking Current ($V_D = \text{Rated } V_{DRM}, V_{RRM}; \text{ Gate Open}$)	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	I_{DRM}	----	----	10	uA
		I_{RRM}	----	----	2.0	mA

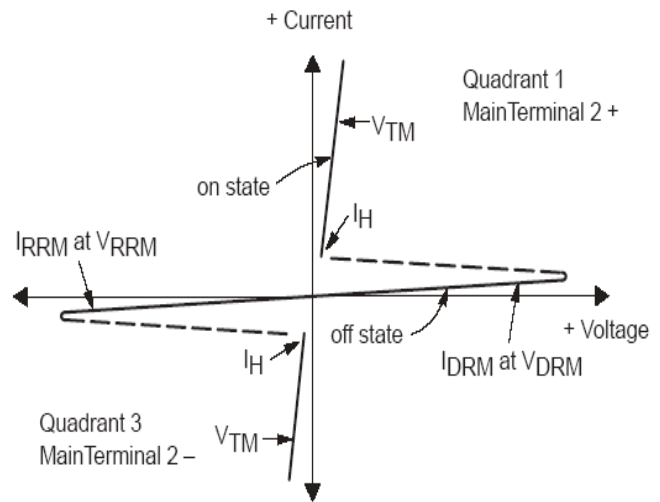
ON CHARACTERISTICS

Peak On-State Voltage ($I_{TM} = \pm 11\text{A Peak @ } T_p \leq 2.0\text{ ms, Duty Cycle} \leq 2\%$)	V_{TM}	----	1.2	1.6	Volts
Gate Trigger Current ($V_D = 12\text{ V}; R_L = 100\text{ Ohms}$)	I_{GT1}	10	13	35	mA
	I_{GT2}	10	16	35	
	I_{GT3}	10	18	35	
Gate Trigger Voltage ($V_D = 12\text{ V}; R_L = 100\text{ Ohms}$)	V_{GT1}	0.5	0.69	1.5	Volts
	V_{GT2}	0.5	0.77	1.5	
	V_{GT3}	0.5	0.72	1.5	
Latching Current ($V_D = 24\text{ V}, I_G = 35\text{ mA}$)	I_{L1}	----	20	50	mA
	I_{L2}	----	30	80	
	I_{L3}	----	20	50	
Holding Current ($V_D = 12\text{ V}, \text{ Initiating Current} = \pm 150\text{ mA}, \text{ Gate Open}$)	I_H	----	20	40	mA
Gate Non - Trigger Voltage (Main Terminal Voltage = 12 V, $R_L = 100\text{ Ohms}, T_J = 125^\circ\text{C}$)	V_{GD}	0.2	----	----	Volts

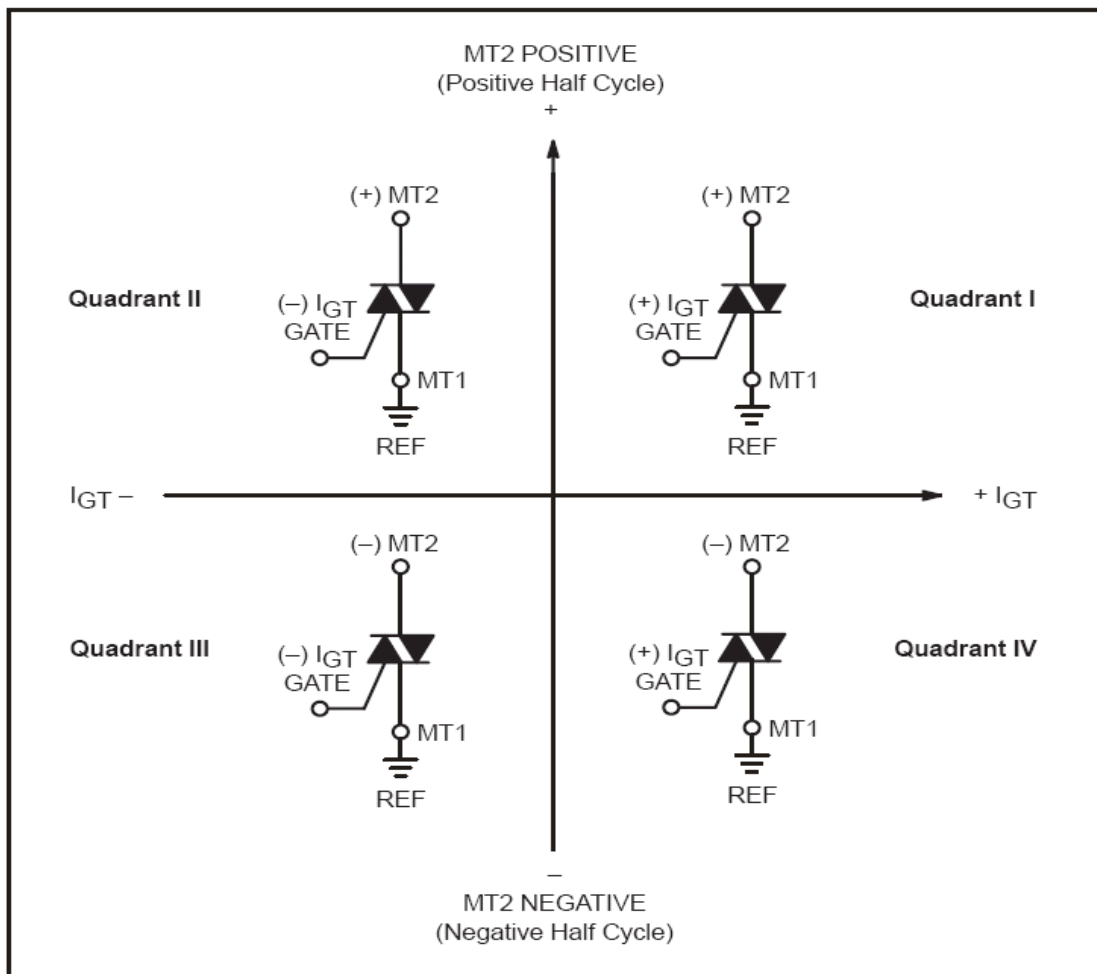
DYNAMIC CHARACTERISTICS

Critical Rate of Rise of Off-State Voltage ($V_D = 67\% \text{ Rated } V_{DRM}, \text{ Exponential Waveform, Gate Open, } T_J = 125^\circ\text{C}$)	dv/dt	400	----	----	V/us
Critical Rate of Rise of Commutation Current ($V_D = 400\text{ V}, I_{TM} = 4.4\text{ A}, \text{ Commutating } di/dt = 18\text{ V/us, Gate Open, } T_J = 125^\circ\text{C}, f = 250\text{ Hz}, C_L = 10\text{ uF}, L_L = 40\text{ mH, No Snubber}$)	$(di/dt)_c$	6.5	----	----	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. RMS Current Derating

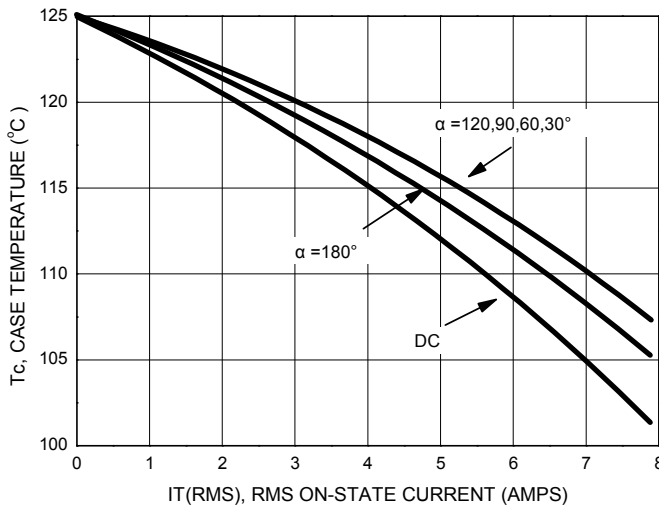


Figure 2. On-State Power Dissipation

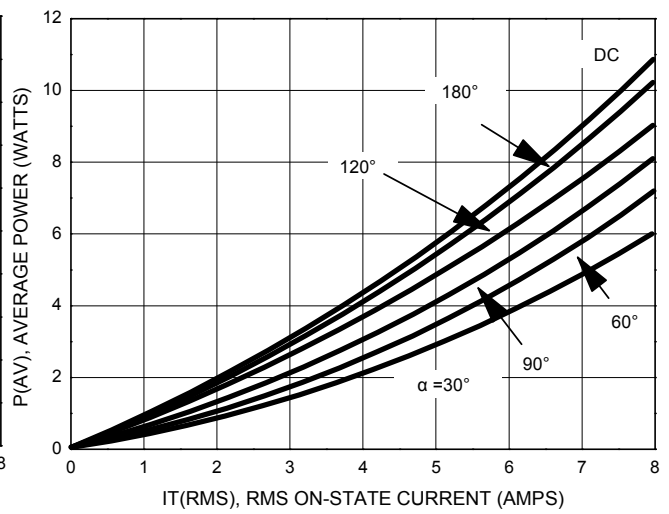


Figure 3. On-State Characteristics

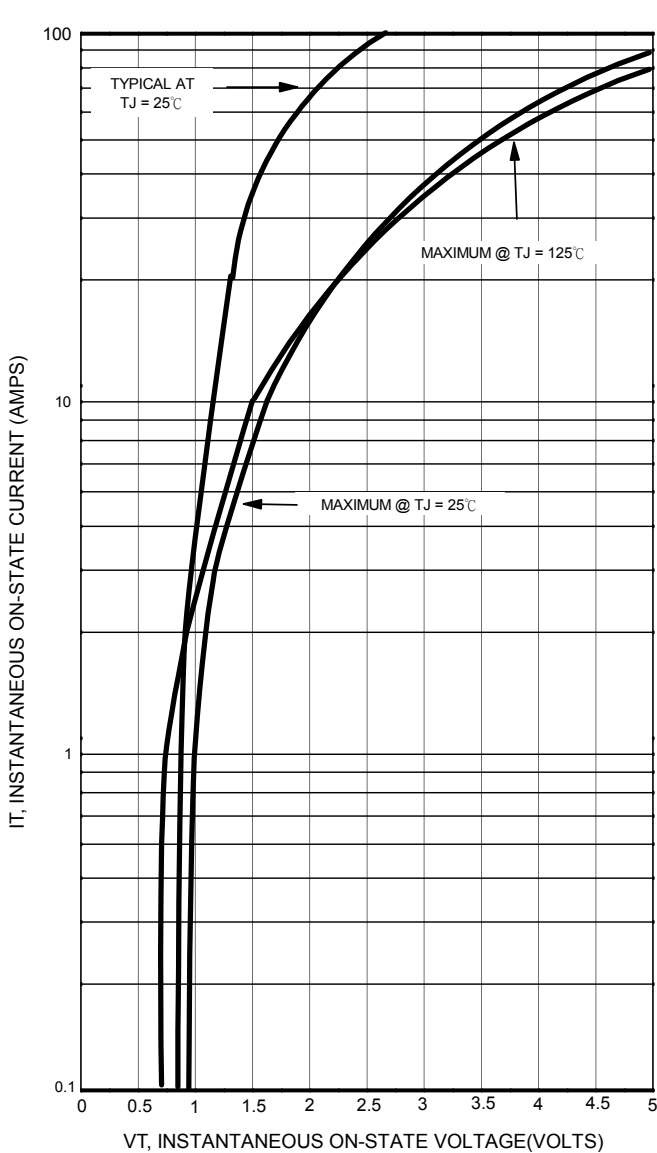


Figure 4. Thermal Response

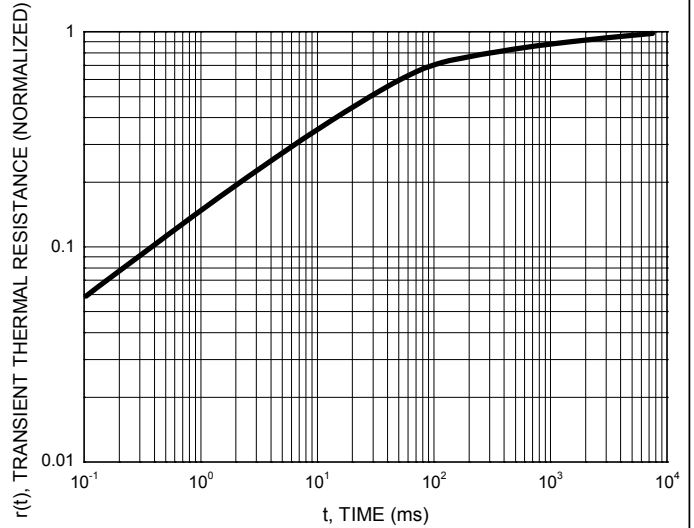


Figure 5. Holding Current Variation

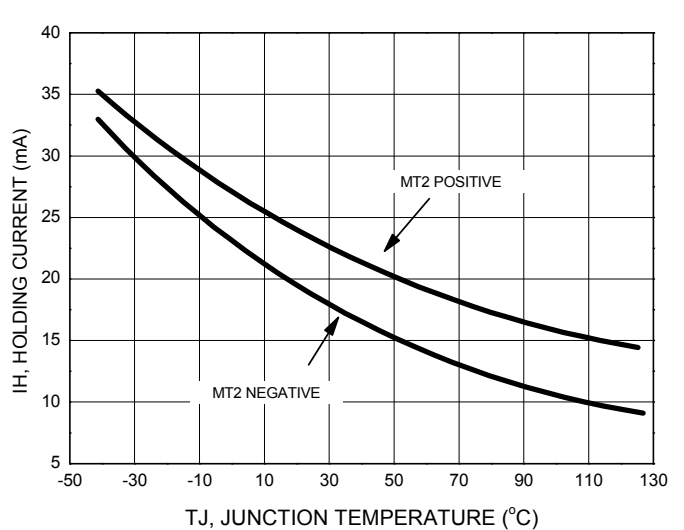


Figure 6. Gate Trigger Current Variation

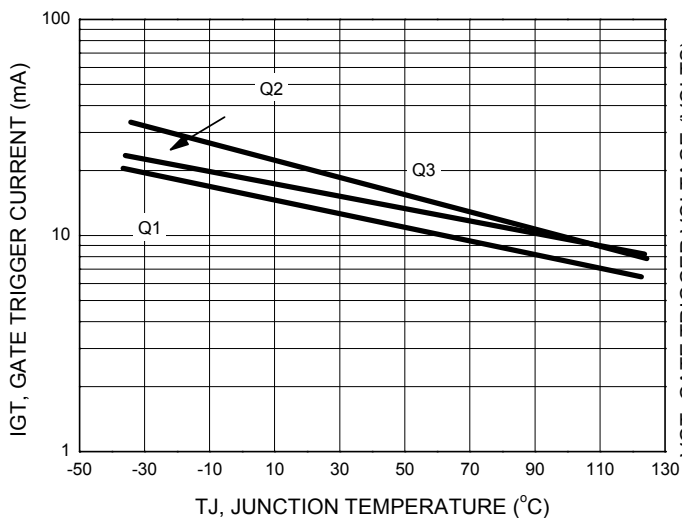


Figure 7. Gate Trigger Voltage Variation

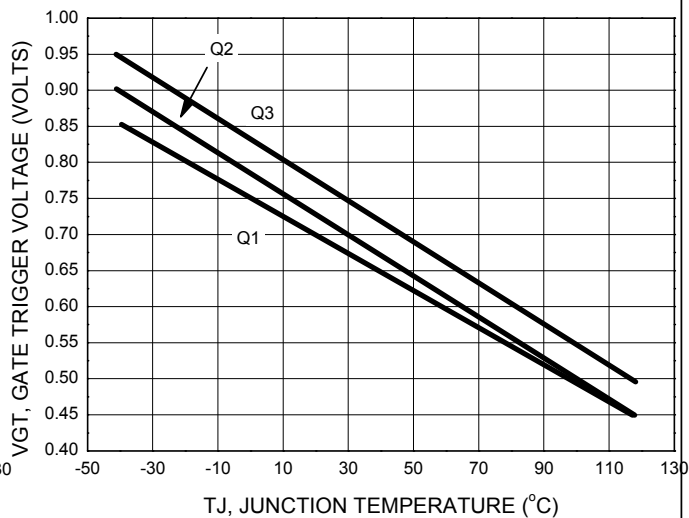


Figure 8. Critical Rate of Rise of Off-State Voltage (Exponential)

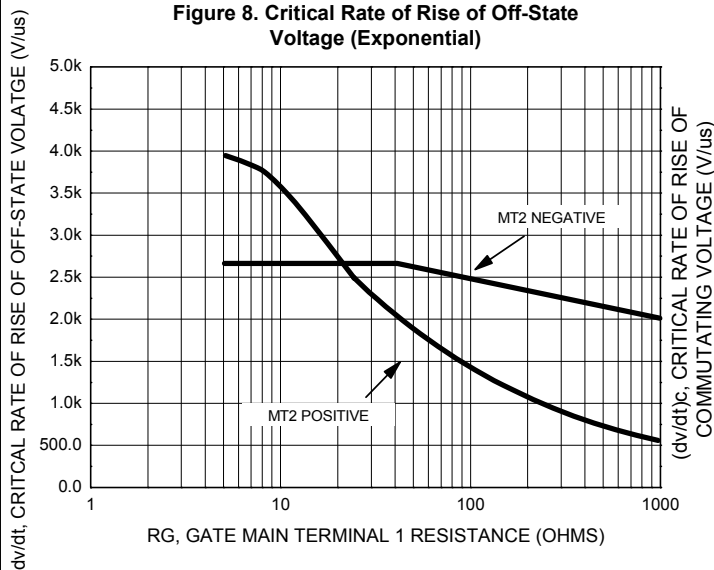
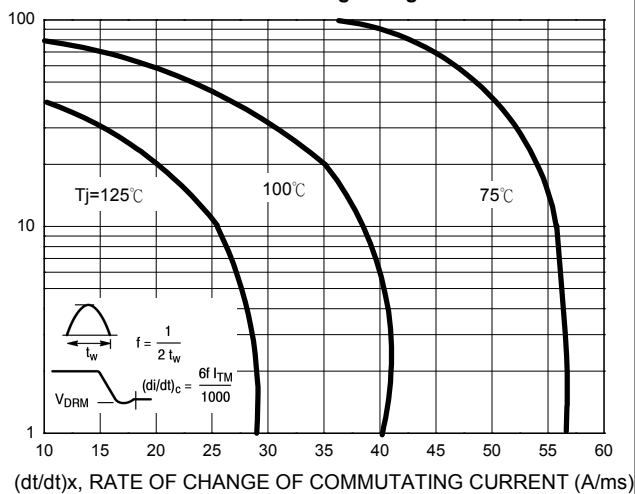


Figure 9. Critical Rate of Rise of Commutating Voltage



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.