

Triacs
Silicon Bidirectional Thyristors

TRIACS
12 AMPERES RMS
600 VOLTS

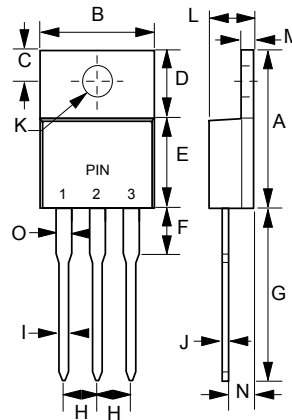
FEATURES

- Blocking Voltage to 600 Volts
- All Diffused and Glass Passivated Junctions for
- Greater Parameter Uniformity and Stability
- Gate Triggering Guaranteed in Four Modes
- Pb Free Package

MECHANICAL DATA

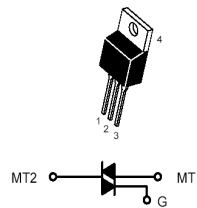
- Case: Molded plastic
- Weight: 0.07 ounces, 2.0 grams

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 (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 = +85°C) Full Cycle Sine Wave 50 to 60 Hz	I _{T(RMS)}	12	Amp
Peak Non-Repetitive Surge Current (One Full Cycle Sine Wave, 60 Hz, T _J = +25°C) Preceded and followed by rated current.	I _{TSM}	100	Amps
Circuit Fusing Consideration (t = 8.3 ms)	I ² t	40	A ² s
Peak Gate Power (T _C = +85°C, T _p = 10 us)	P _{GM}	20	Watt
Average Gate Power (T _C = +85°C, t=8.3 ms)	P _{G(AV)}	0.35	Watt
Peak Gate Current (T _C = +85°C, T _p =10 us)	I _{GM}	2	Amp
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	R _{thJC} R _{thJA}	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_c=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 _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

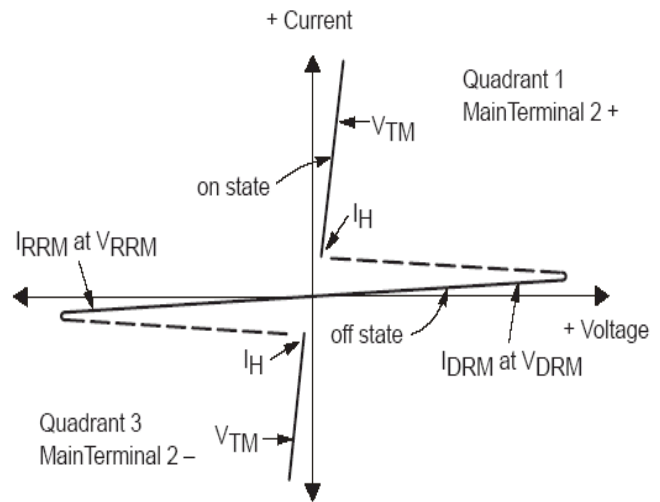
ON CHARACTERISTICS

Peak On-State Voltage (I _{TM} =± 17A Peak @T _p =1 to 2 ms, Duty Cycle ≤ 2%)	V _{TM}	----	1.3	1.75	Volts
Gate Trigger Current (V _D = 12Vdc; R _L = 100 Ohms)	I _{GT1}	----	12	50	mA
	I _{GT2}	----	12	50	
	I _{GT3}	----	20	50	
	I _{GT4}	----	35	75	
Gate Trigger Voltage (V _D = 12 Vdc; R _L =100 Ohms)	V _{GT1}	----	0.9	2.0	Volts
	V _{GT2}	----	0.9	2.0	
	V _{GT3}	----	1.1	2.0	
	V _{GT4}	----	1.4	2.5	
Holding Current (V _D = 12 V, Initiating Current = ± 200 mA, Gate Open)	I _H	----	6.0	50	mA
Gate Non - Trigger Voltage (Main Terminal Voltage=12 V, R _L =100 Ohms, T _J =125°C) All Four Quadrants	V _{GD}	0.2	----	----	Volts
Turn-On Time (V _D = Rated V _{DRM} , I _{TM} = 17 A, I _{GT} = 120 mA) Rise Time=0.1 us, Pulse Width= 2 us)	t _{gt}	----	1.5	----	us

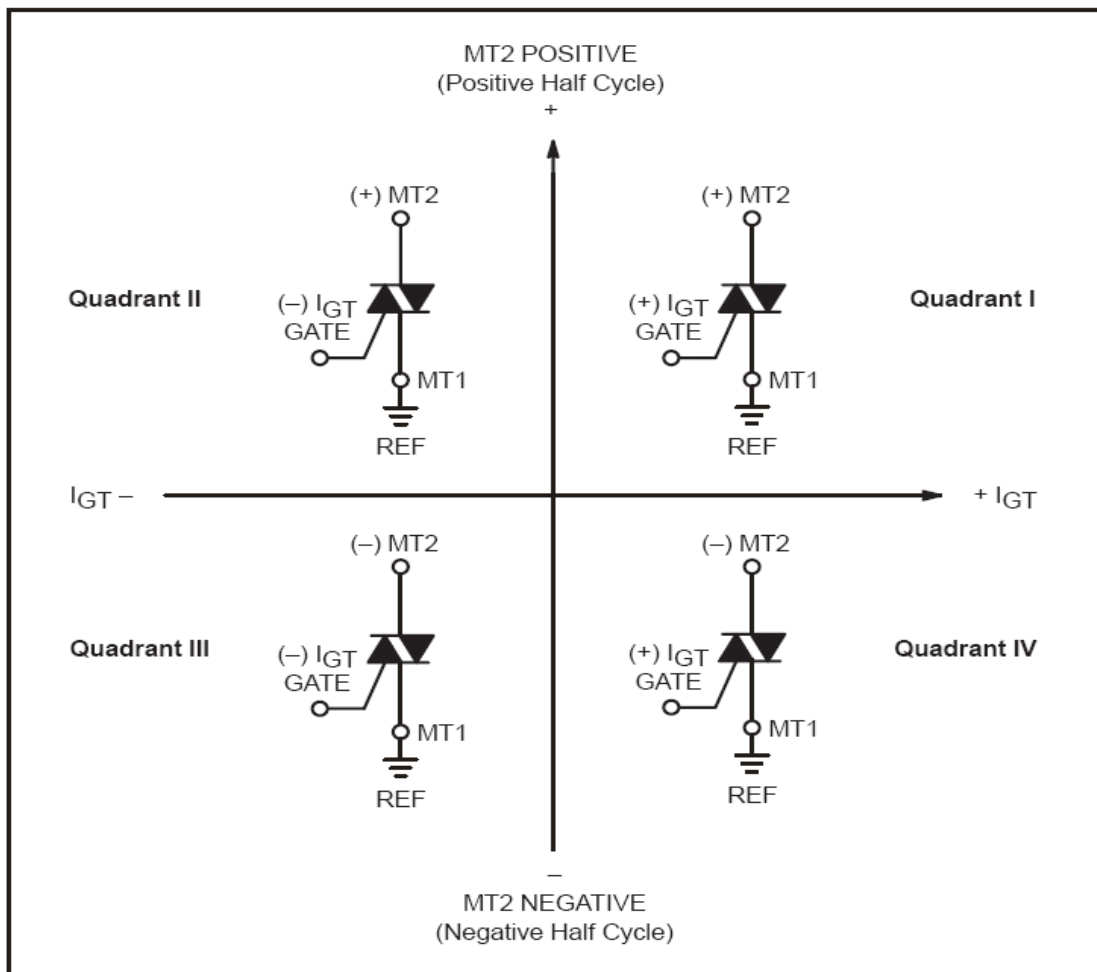
DYNAMIC CHARACTERISTICS

Critical Rate of Rise of Off-State Voltage (V _D =Rated V _{DRM} , Exponential Waveform, T _J =85°C)	dv/dt	----	100	----	V/us
Critical Rate of Rise of Commutation Voltage (V _D = Rated V _{DRM} , I _{TM} = 17 A, Commutating di/dt = 6.1 A/ms, Gate Unenergized, T _C = 85°C)	dv/dt(c)	----	5.0	----	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

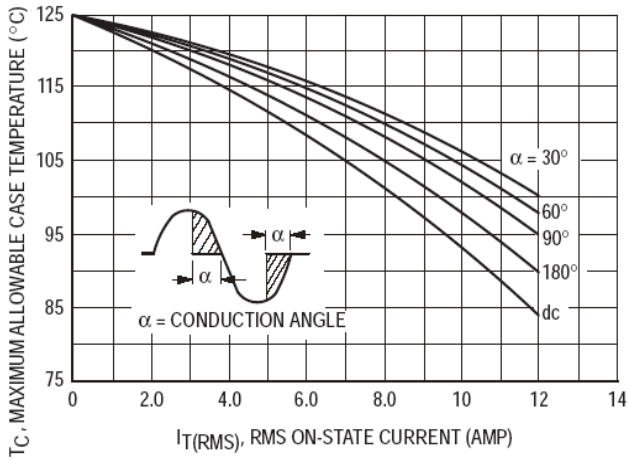


Figure 1. Current Derating

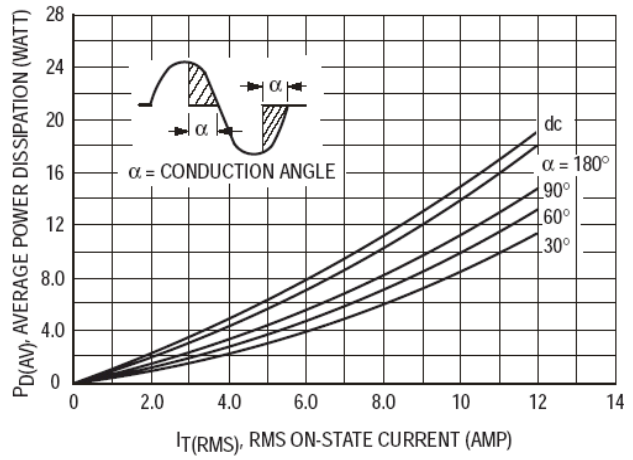


Figure 2. Power Dissipation

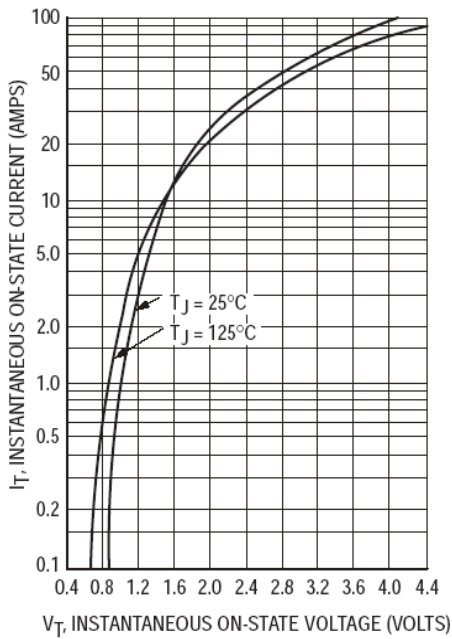


Figure 3. Maximum On-State Voltage Characteristics

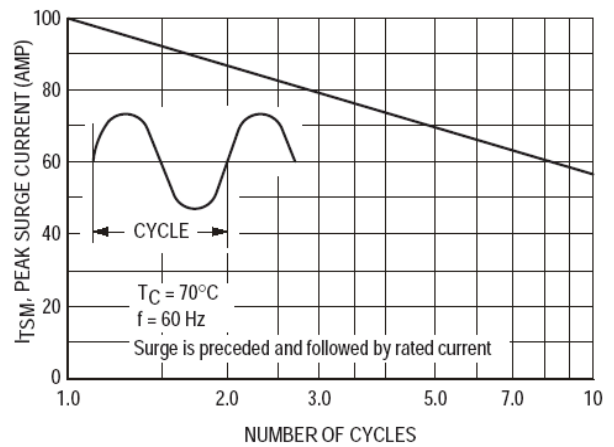
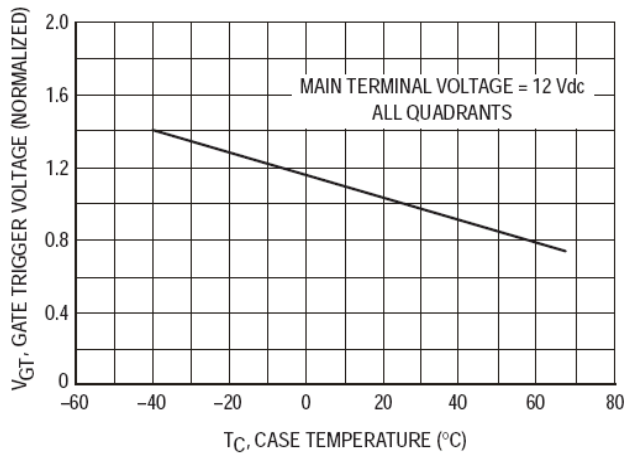


Figure 4. Maximum Non-Repetitive Surge Current



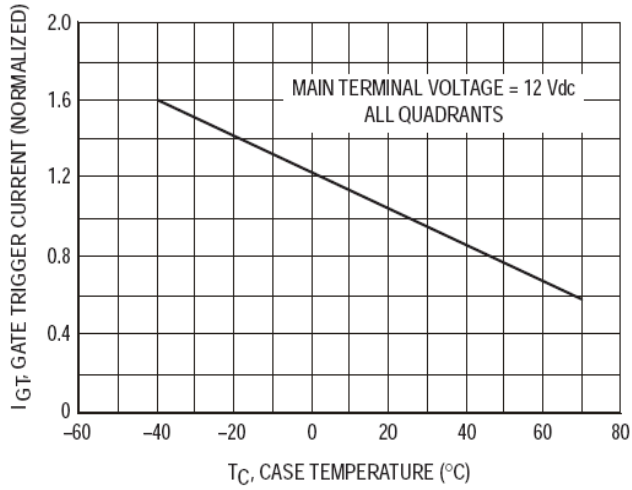


Figure 6. Typical Gate Trigger Current

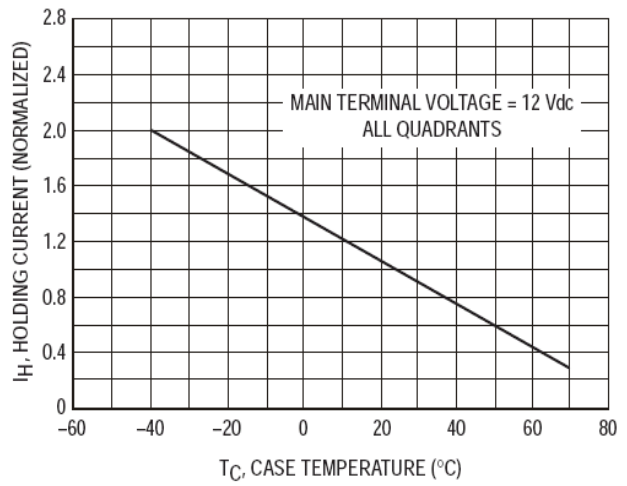


Figure 7. Typical Holding Current

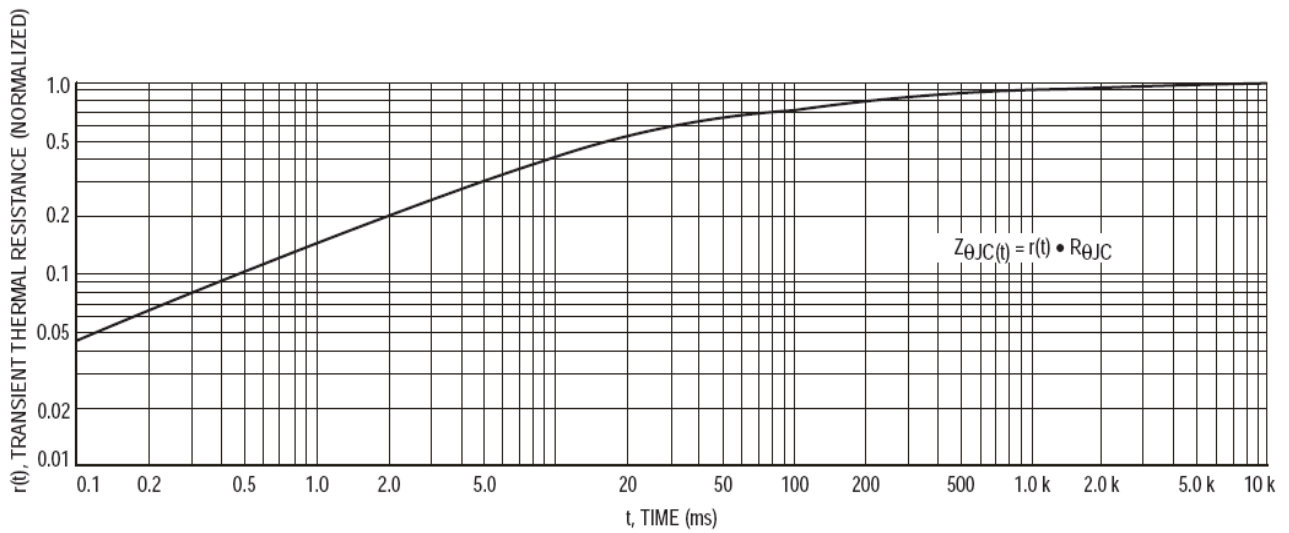


Figure 8. Thermal Response

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