

T8M50T600B(LS)

Triacs Silicon Bidirectional Thyristors

TRIACS 8 AMPERES RMS 600 VOLTS

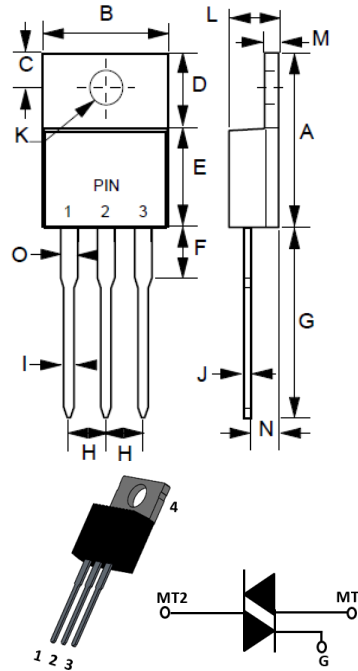
FEATURES

- Blocking voltage to 600V
- High immunity to dv/dt – 500V/us Minimum at +125°C
- Uniform Gate Trigger Currents in Three Quadrants
- On-State Current Rating of 8.0 Amperes RMS at 100°C
- Minimizes Snubber Networks for Protection
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. “Green” Device (Note 3)**

MECHANICAL DATA

- Package: TO-220AB
- Package Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208
- Weight: 0.07 ounces, 2.0 grams (Approximate)

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	3.53Ø	4.09Ø
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 AND ELECTRICAL CHARACTERISTICS

Ratings at +25°C ambient temperature unless otherwise specified.

MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Peak repetitive off-state voltage ($T_J = -40$ to $+125^\circ\text{C}$, sine wave, 50 to 60Hz; gate open)	V_{DRM} V_{RRM}	600 600	Volts
On-stage RMS current (full sine wave 50 to 60Hz, $T_C = +100^\circ\text{C}$)	$I_{T(RMS)}$	8	Amp
Peak non-repetitive surge current (one full cycle 60Hz, $T_J = +25^\circ\text{C}$)	I_{TSM}	80	Amps
Circuit fusing consideration ($t = 8.3\text{ms}$)	I^2t	26	A^2s
Operating junction temperature range	T_J	-40 to +125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-40 to +150	$^\circ\text{C}$

Notes:

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

OFF CHARACTERISTICS

PARAMETER		SYMBOL	MAX	UNIT
Peak repetitive forward or reverse blocking current ($V_{AK} = \text{rated } V_{DRM}$ and V_{RRM} , gate open)	$T_J = +25^\circ\text{C}$	I_{DRM}	10	μA
	$T_J = +125^\circ\text{C}$	I_{RRM}	2.0	mA

ON CHARACTERISTICS

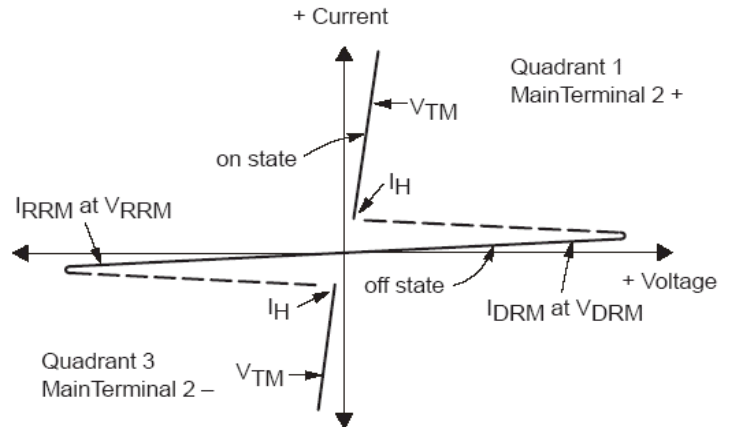
PARAMETER	SYMBOL	MAX	UNIT
Peak forward on-state voltage ($I_{TM} = \pm 8\text{A}$ @ $t_P \leq 2.0\text{ms}$, duty cycle $\leq 2\%$)	V_{TM}	1.6	Volts
Gate trigger current ($V_D = 12\text{V}$, $R_L = 100\Omega$)	I_{GT1} I_{GT2} I_{GT3}	50 50 50	mA
Gate trigger voltage ($V_D = 12\text{V}$, $R_L = 100\Omega$)	V_{GT1} V_{GT2} V_{GT3}	1.5 1.5 1.5	Volts
Latching current ($V_D = 24\text{V}$, $I_G = 50\text{mA}$)	I_{L1} I_{L2} I_{L3}	50 80 50	mA
Holding current ($V_D = 12\text{V}$, initiation current = $\pm 150\text{mA}$, gate open)	I_H	50	mA

DYNAMIC CHARACTERISTICS

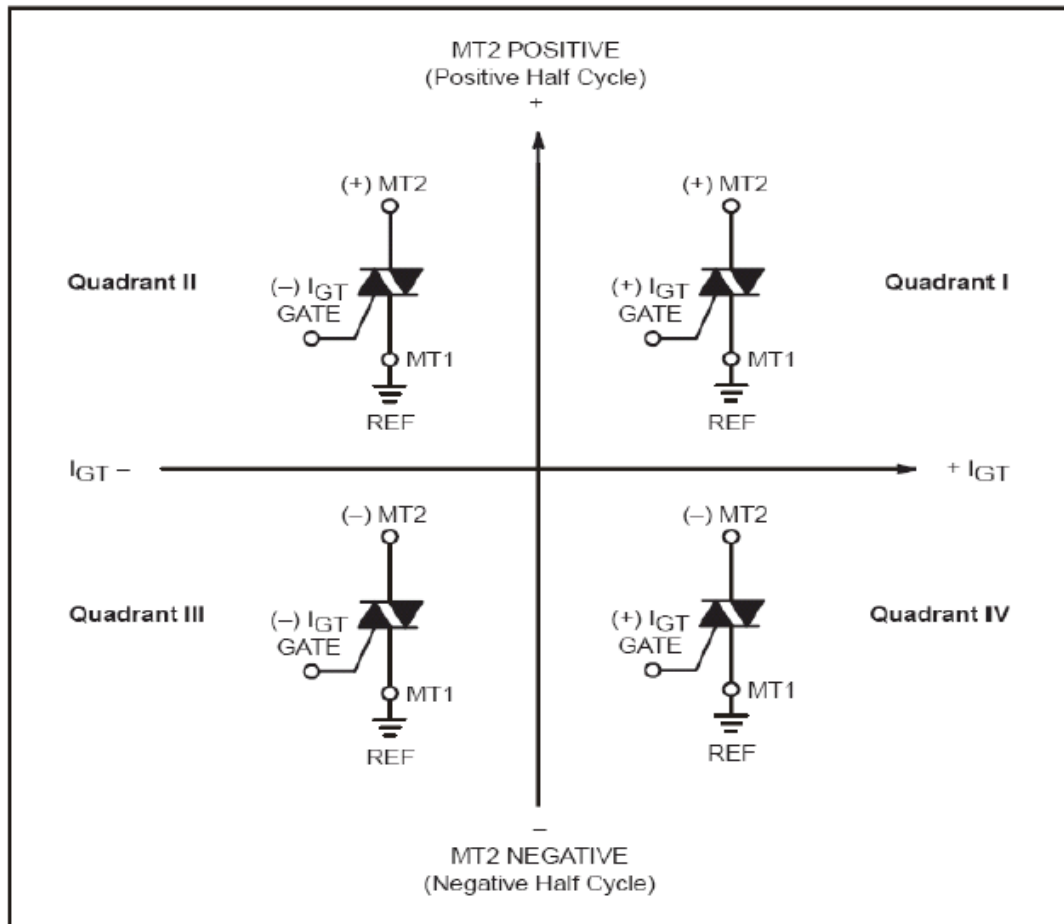
PARAMETER	SYMBOL	MIN	UNIT
Critical Rate of Rise of Off-State Voltage ($V_D = \text{Rated } V_{DRM}$, Exponential Waveform, $T_J = 125^\circ\text{C}$)	dv/dt	500	$\text{V}/\mu\text{s}$

RATING AND CHARACTERISTIC CURVES
T8M50T600B

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

RATING AND CHARACTERISTIC CURVES (continued)
T8M50T600B

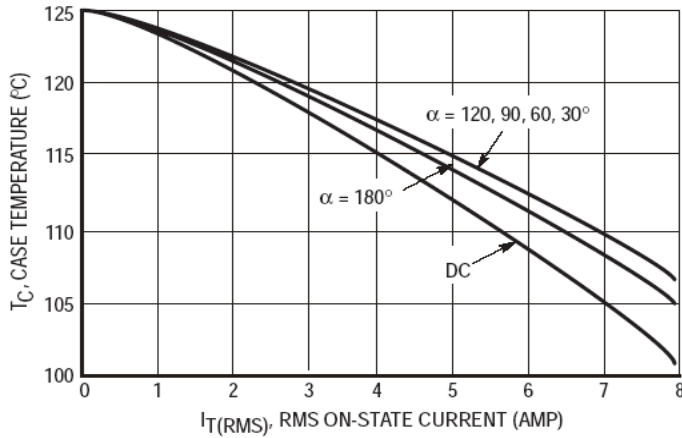


Figure 1. RMS Current Derating

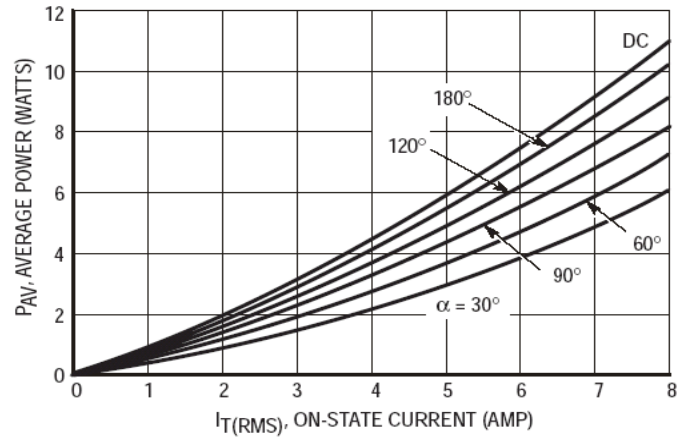


Figure 2. On-State Power Dissipation

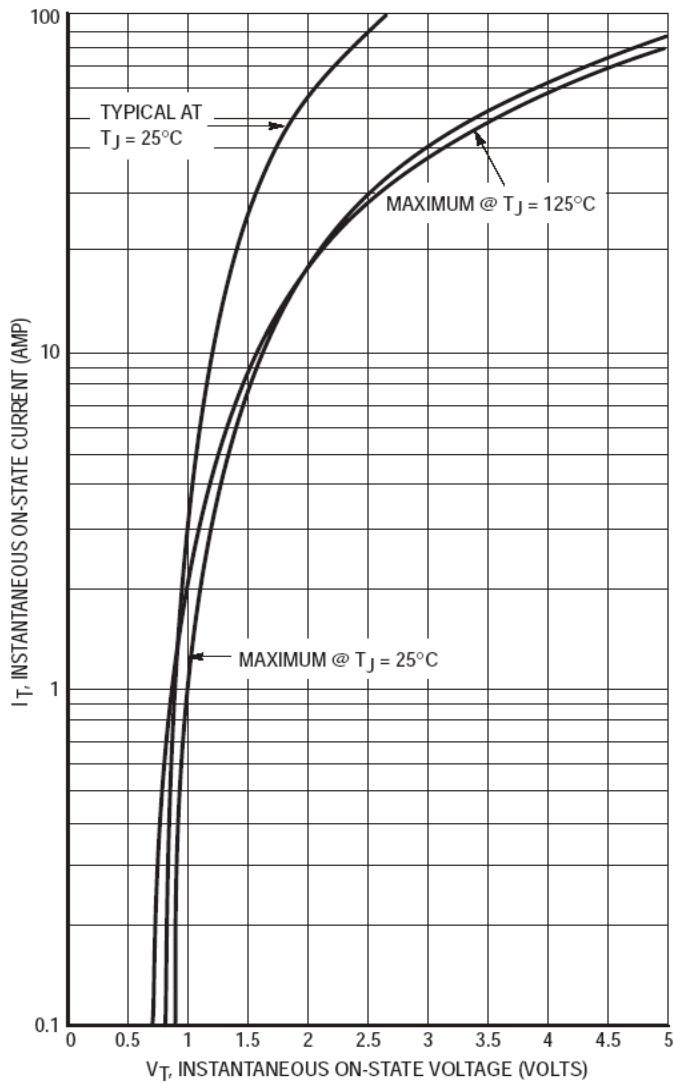


Figure 3. On-State Characteristics

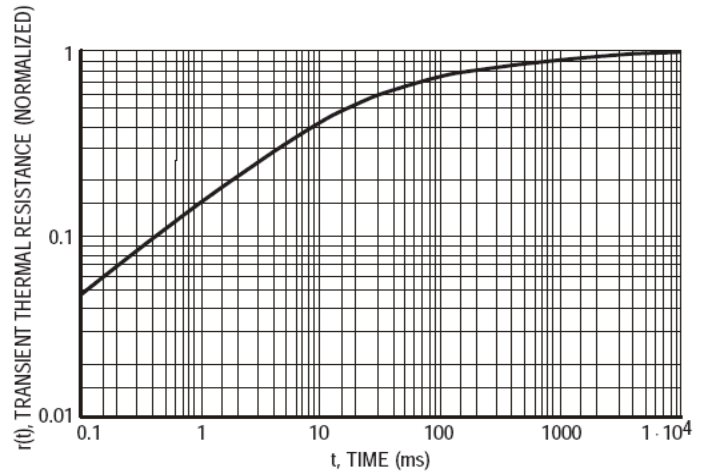


Figure 4. Thermal Response

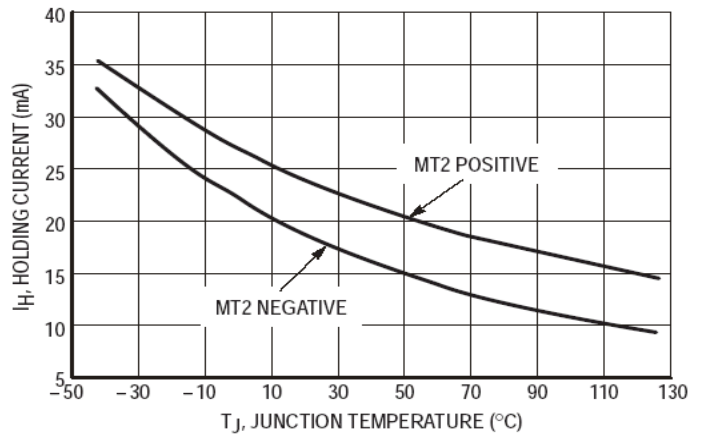


Figure 5. Holding Current Variation

RATING AND CHARACTERISTIC CURVES (continued)
T8M50T600B

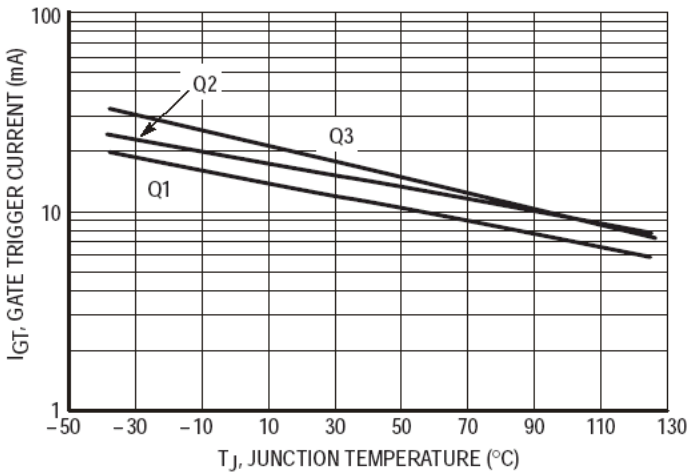


Figure 6. Gate Trigger Current Variation

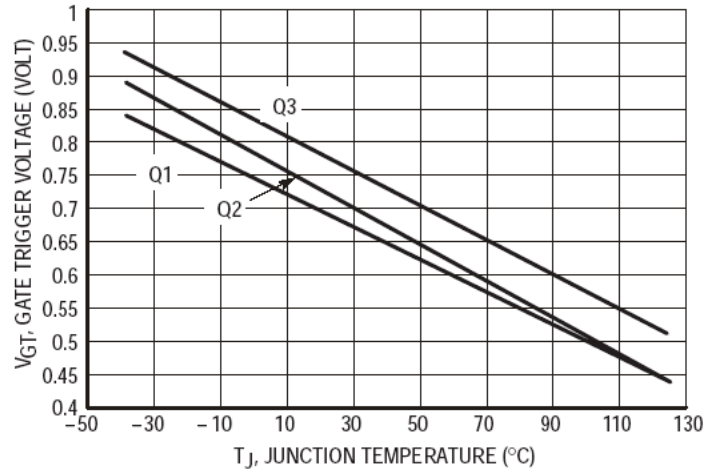


Figure 7. Gate Trigger Voltage Variation

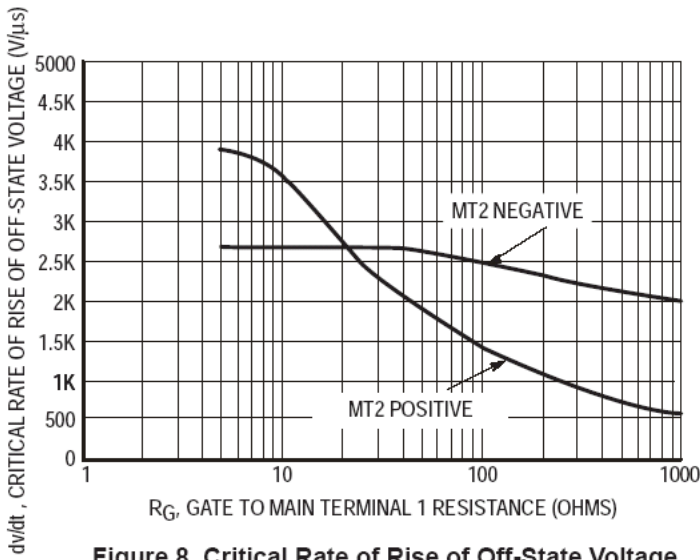


Figure 8. Critical Rate of Rise of Off-State Voltage (Exponential)

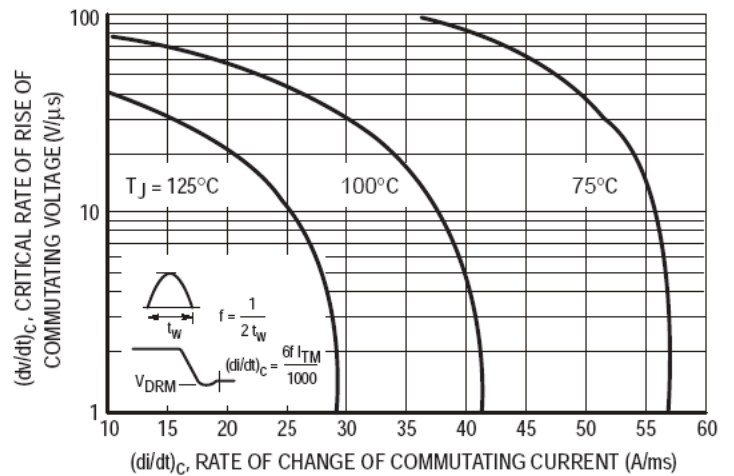
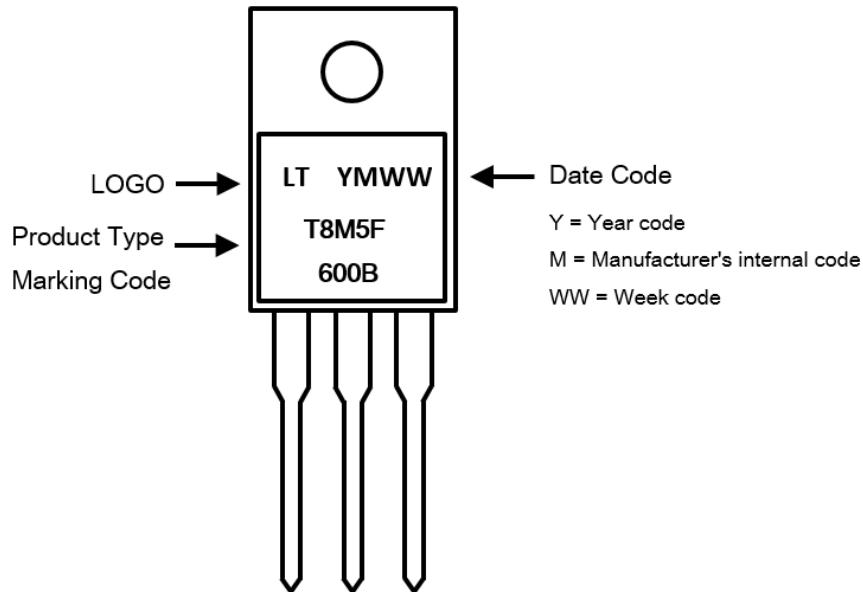


Figure 9. Critical Rate of Rise of Commutating Voltage

Ordering Information:

Part Number	Package	Packing	
		Qty.	Carrier
T8M50T600B	TO-220AB	50pcs	Tube

Marking Information:



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