

T16M10T800HD(LS)

TRIACS SILICON BIDIRECTIONAL THYRISTORS

TRIACS 16 AMPERES RMS 800V VOLTS

FEATURES

- 3Q technology for improved noise immunity
- High junction operating temperature capability
- High voltage capability
- Triggering in three quadrants only
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

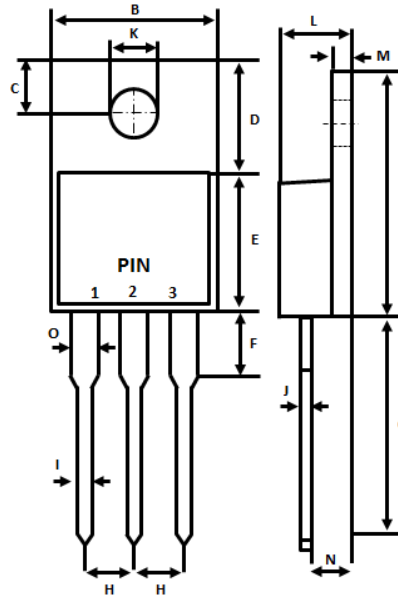
APPLICATIONS

- Applications subject to high temperature
- Heating and cooking appliances
- Electronic thermostats (heating and cooling)
- High power motor controls e.g. washing machines and vacuum

MECHANICAL DATA

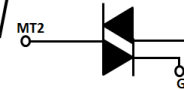
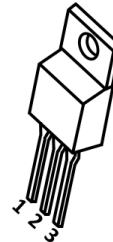
- Package: TO-220AB Insulated
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 Ⓔ
- Weight: 2.15 grams (Approximate)

TO-220AB Insulated



TO-220AB Insulated		
DIM.	MIN.	MAX
A	14.40	15.20
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	8.26	9.28
F	--	6.35
G	12.7	14.73
H	2.29	2.79
I	0.51	1.14
J	0.30	0.64
K	3.53Ø	4.09Ø
L	3.56	4.83
M	1.14	1.40
N	2.03	2.92
O	1.14	1.37

All dimensions in millimeter



PIN ASSIGNMENT	
1	Main terminal 1
2	Main terminal 2
3	Gate

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

PARAMETER	SYMBOL	VALUE	UNIT
Peak repetitive off-state voltage ($T_J = -40$ to $+150^\circ\text{C}$, full sine wave, 50 to 60Hz, gate open)	V_{DRM} V_{RRM}	800 800	V
On-stage RMS current (full sine wave, $T_C = +125^\circ\text{C}$)	$I_{T(RMS)}$	16	A
Peak non-repetitive surge current (full sine wave @ 50Hz, $T_J = +25^\circ\text{C}$)	I_{TSM}	160	A
Circuit fusing consideration ($t = 10\text{ms}$)	I^2t	128	A^2s
Operating junction temperature range	T_J	-40 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-40 to +150	$^\circ\text{C}$

- Notes:**
- EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 - 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.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

RATING AND CHARACTERISTIC CURVES
T16M10T800HD

OFF CHARACTERISTICS

PARAMETER		SYMBOL	MAX	UNIT
Peak repetitive forward or reverse blocking current (V_{AK} = rated V_{DRM} and V_{RRM} , gate open)	$T_J = +25^\circ\text{C}$	I_{DRM}	5	μA
	$T_J = +150^\circ\text{C}$	I_{RRM}	2	mA

ON CHARACTERISTICS

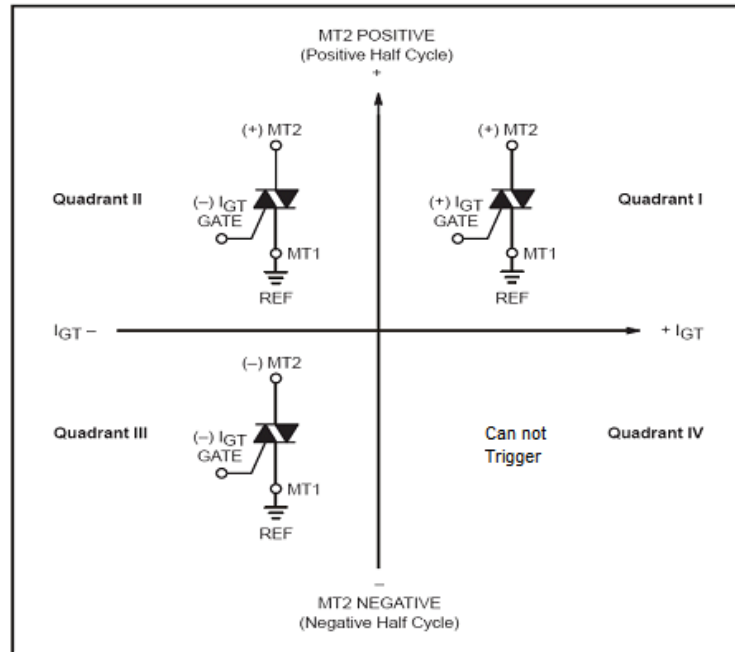
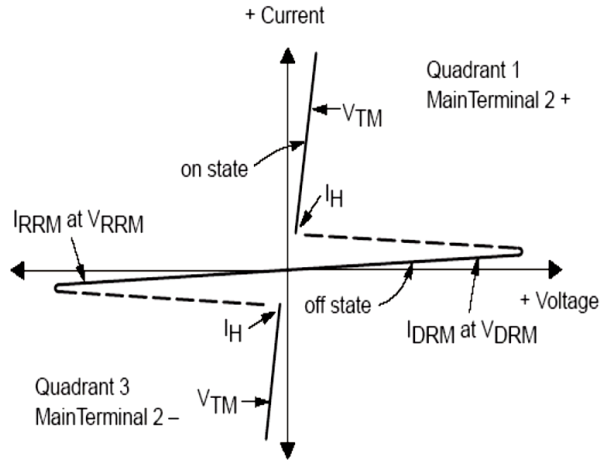
PARAMETER	SYMBOL	MAX	UNIT
Peak forward on-state voltage ($I_{TM} = 16\text{A}$ @ $T_J = +25^\circ\text{C}$)	V_{TM}	1.55	V
Gate trigger current ($V_{AK} = 12\text{V}$, $R_L = 100\Omega$)	I_{GT1} I_{GT2} I_{GT3}	10	mA
Gate trigger voltage ($V_{AK} = 12\text{V}$, $R_L = 100\Omega$)	V_{GT1} V_{GT2} V_{GT3}	1.3	V
Holding current ($V_{AK} = 12\text{V}$, $R_L = 100\Omega$)	I_{H1} I_{H3}	15	mA
Latching current ($V_{AK} = 12\text{V}$, $R_L = 100\Omega$)	I_{L1} I_{L2} I_{L3}	25 30 25	mA

DYNAMIC CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	UNIT
Critical rate of rise of off-stage voltage ($V_{AK} = 67\%$ rated V_{DRM} , exponential waveform, gate open, $T_J = +125^\circ\text{C}$)	$dv/dt(s)$	40	$\text{V}/\mu\text{s}$
Critical rate of rise of on-state current ($V_{DRM} = \text{maximum } V_{DRM}$, $T_J = +125^\circ\text{C}$)	$di/dt(s)$	60	$\text{A}/\mu\text{s}$
Rate of change of commutating current ($V_D = 400\text{V}$, $10\text{V}/\mu\text{s}$, $T_J = +125^\circ\text{C}$)	$di/dt(c)$	3.0	A/ms

RATING AND CHARACTERISTIC CURVES
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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



**All polarities are reference to MT1,
with in-phase signal (using standard AC lines) quadrants I and III are used.**

RATING AND CHARACTERISTIC CURVES
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FIG.1- Holding current variation

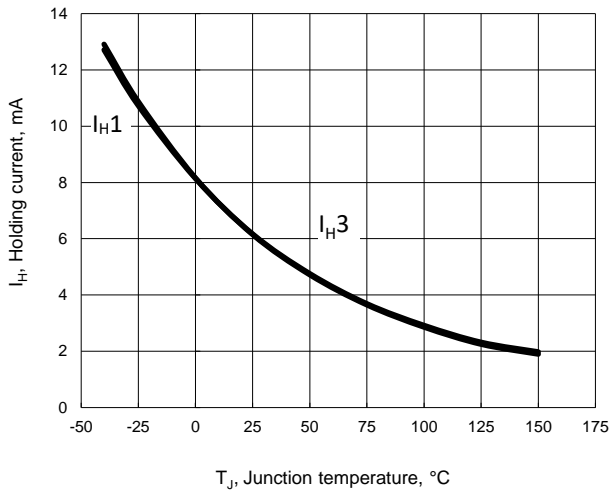


FIG.2- Gate trigger current variation

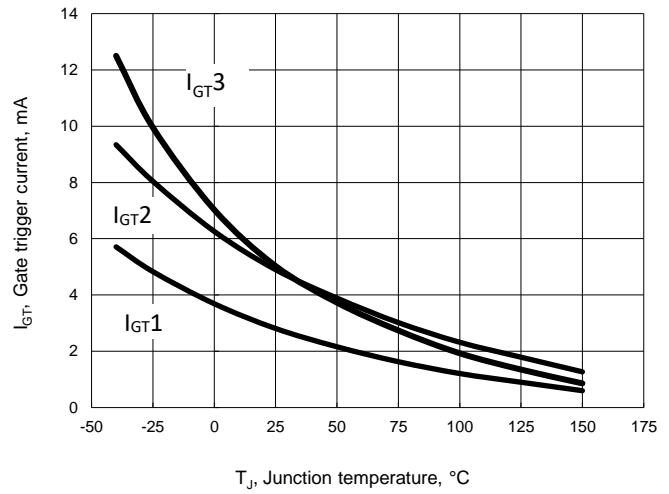


FIG.3- Gate trigger voltage variation

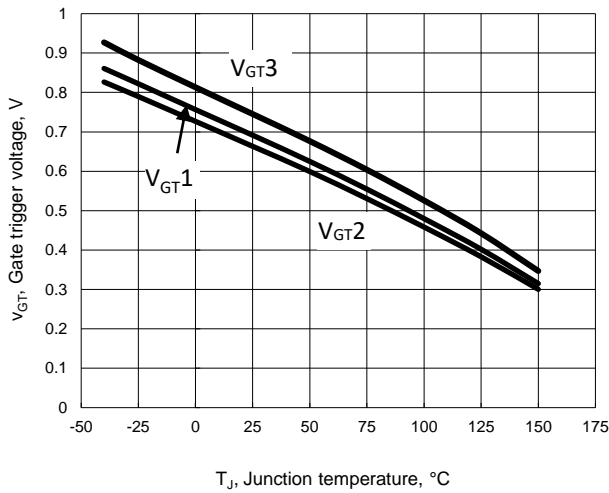


FIG.4- Typical latching current versus junction temperature

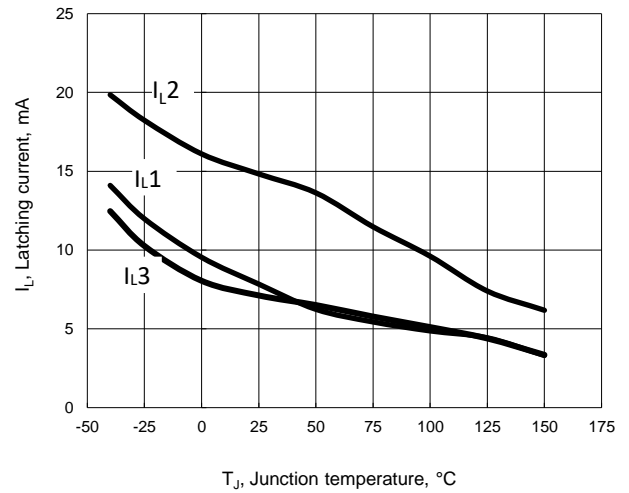


FIG.5- On-state characteristics

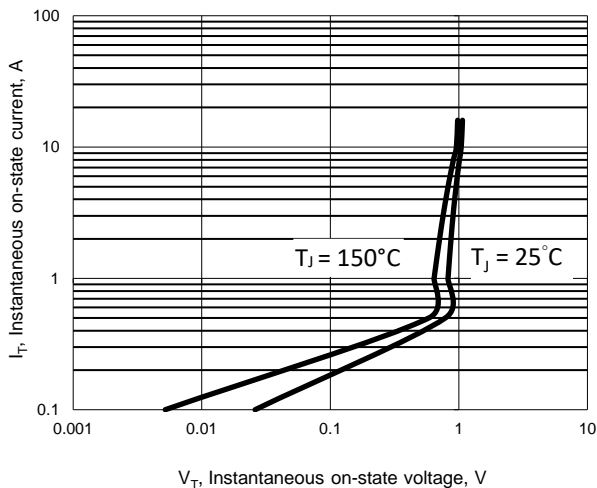
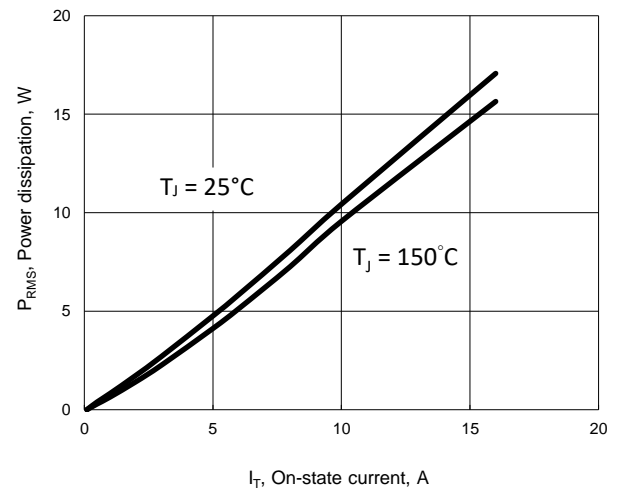
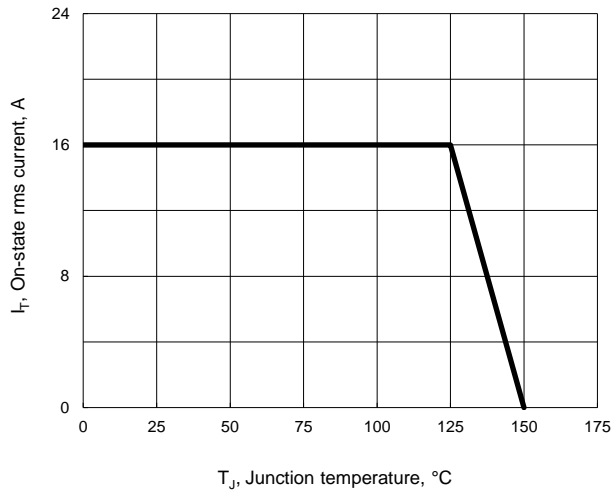


FIG.6- Power dissipation versus I_T



RATING AND CHARACTERISTIC CURVES
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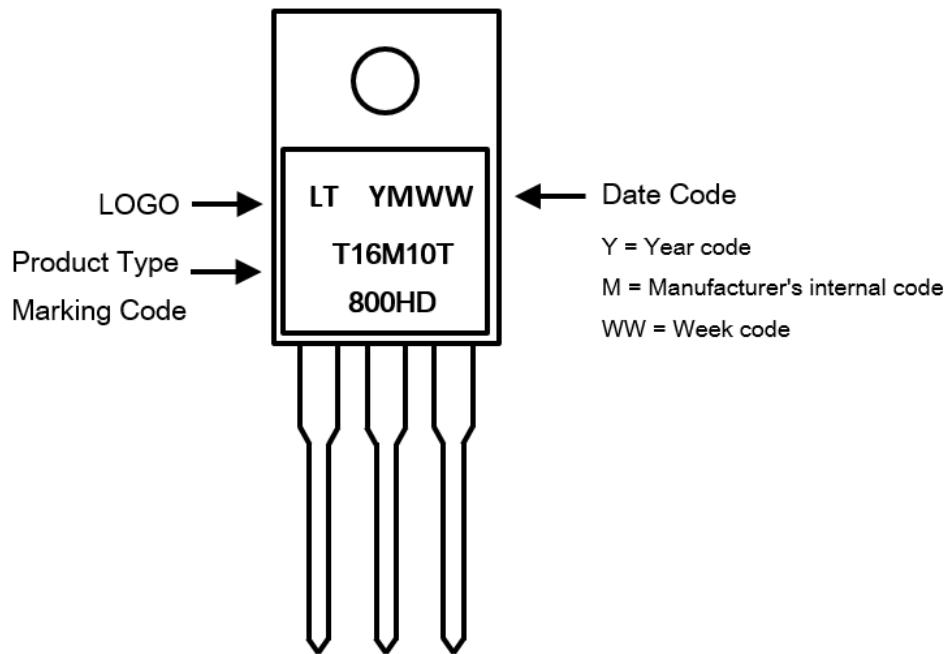
FIG.7- On-state current derating curve



Ordering Information:

Part Number	Package	Packing	
		Qty.	Carrier
T16M10T800HD	TO-220AB Insulated	50pcs	Tube

Marking Information:



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