

**TRIACS  
SILICON BIDIRECTIONAL THYRISTORS**

**TRIACS  
1 AMPERES RMS  
800 VOLTS**

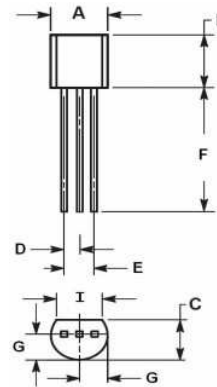
**FEATURES**

- Passivated die for reliability and uniformity
- Three-quadrant triggering Triac
- Over 800V  $V_{DRM}/V_{RRM}$
- Low level triggering and holding characteristics
- Logic control compatible
- False turn-on voltage up 600V by dv/dt
- Qualified to AEC-Q101 Rev\_C

**APPLICATIONS**

- General purpose motor control
- Small loads in washing machines
- Solenoid drivers
- Digital control drivers

**TO-92**



TO-92		
DIM.	MIN.	MAX.
A	4.45	4.70
B	4.32	5.33
C	3.18	4.19
D	1.15	1.39
E	2.42	2.66
F	12.7	-----
G	2.04	2.66
I	3.43	-----

All Dimensions in millimeter

PIN ASSIGNMENT	
1	Main Terminal 1
2	Gate
3	Main Terminal 2



**ELECTRICAL CHARACTERISTICS (T<sub>j</sub> = 25°C, unless otherwise specified.)**

**Absolute Ratings**

PARAMETER	SYMBOL	VALUE	UNIT
Peak repetitive off-state voltage ( T <sub>j</sub> = -40 to 125°C, Full sine wave, 50 to 60 Hz; Gate open) (Note 1)	$V_{DRM}$ $V_{RRM}$	800	V
On-stage RMS current (Full sine wave, T <sub>c</sub> = 110°C )	$I_{T(RMS)}$	1	A
Peak non-repetitive surge current ( one full cycle 60 Hz, T <sub>j</sub> = 25°C)	$I_{TSM}$	13.7	A
Circuit fusing consideration ( t = 8.3ms)	$I^2T$	0.4	A <sup>2</sup> S
Peak gate current	$I_{GM}$	2	A
Peak gate power	$P_{GM}$	5	W
Average gate power	$P_{G(AV)}$	0.1	W
Operating junction temperature range	T <sub>j</sub>	-40 to +125	°C
Storage temperature range	T <sub>STG</sub>	-40 to +150	°C

**Note :**

- (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.

# T1M10T800A

CHARACTERISTIC & CURVES ( $T_j = 25^\circ\text{C}$ , unless otherwise specified.)



## Thermal Characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance from junction	Rth(j-c)	60	$^\circ\text{C/W}$
	Rth(j-a)	150	
Maximum lead temperature for soldering purposes (1/8" form case for 10 seconds)	$T_L$	260	$^\circ\text{C}$

## Static Characteristics

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Threshold Voltage <sup>(1)</sup> @ $T_j = 125^\circ\text{C}$	$V_{to}$	--	--	0.9	V	
Dynamic resistors <sup>(1)</sup> @ $T_j = 125^\circ\text{C}$	$R_d$	--	--	390	m $\Omega$	
Peak repetitive forward or reverse blocking current ( $V_{AK} = \text{rated } V_{DRM}$ and $V_{RRM}$ , gate open)	$T_j = 25^\circ\text{C}$	$I_{DRM}$	--	--	5	$\mu\text{A}$
	$T_j = 125^\circ\text{C}$		$I_{RRM}$	--	--	0.5

1. For both polarities of A2 referenced to A1.

## ON Characteristics

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Peak forward on-state voltage ( $I_{TM} = 1\text{ A}$ @ $T_j = 25^\circ\text{C}$ )	$V_{TM}$	--	1.2	1.5	V
$V_D = V_{DRM}$ , $R_L = 100\Omega$ , $T_j = 125^\circ\text{C}$	$V_{GD}$	0.3	--	--	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	V
Holding current ( $V_{AK} = 12\text{V}$ , $R_L = 100\Omega$ )	$I_{H1}$ $I_{H3}$	--	--	12	mA
Latching current ( $V_{AK} = 12\text{V}$ , $R_L = 100\Omega$ )	$I_{L1}$	--	--	12	mA
	$I_{L2}$	--	--	25	
	$I_{L3}$	--	--	12	

# T1M10T800A

CHARACTERISTIC & CURVES ( $T_j = 25^\circ\text{C}$ , unless otherwise specified.)



## Dynamic Characteristics

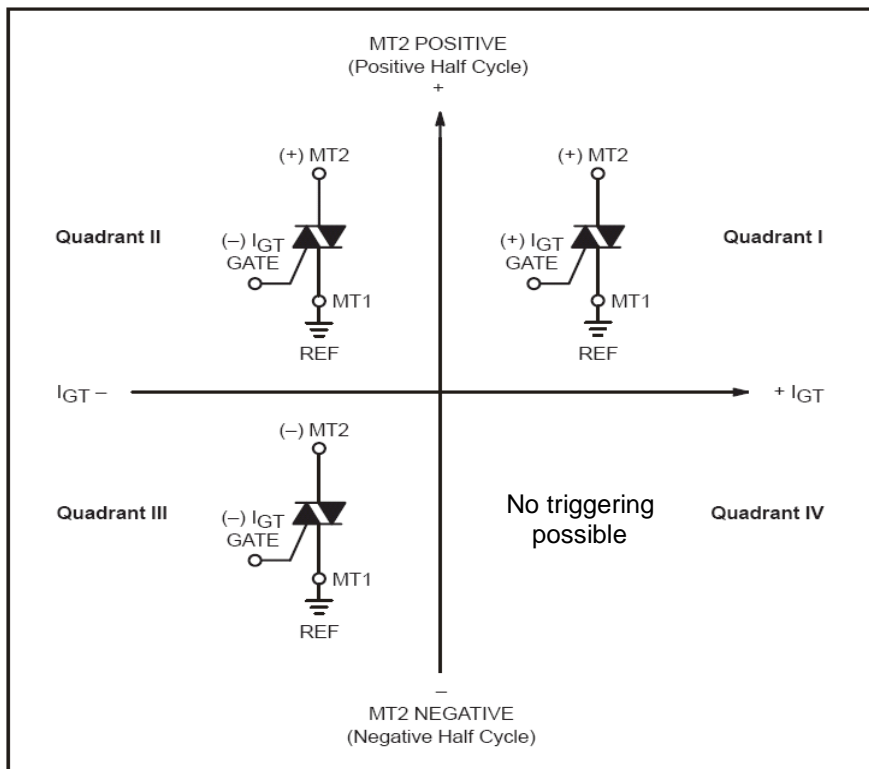
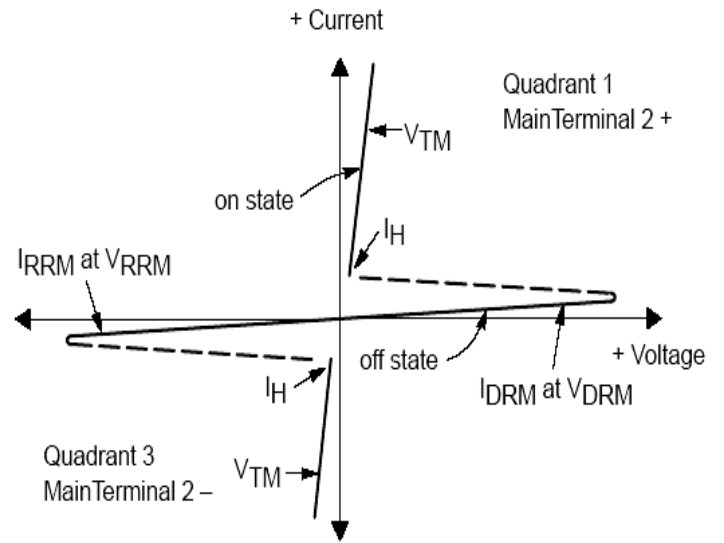
PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT
Critical rate of rise of off-stage voltage ( $V_{AK} = 67\%$ rated $V_{DRM}$ , @ $T_j = 125^\circ\text{C}$ , gate open)		dv/dt	600	--	--	V/us
Rate of rise of on-state current ( $V_{DRM} = \text{maximum } V_{DRM}$ , $T_j = 125^\circ\text{C}$ )		di/dt	--	--	100	A/us
Rate of change of commutating current	VD=400V, dv/dt(c)=10V/us, $T_j = 125^\circ\text{C}$	di/dt(c)	4	--	--	A/ms
	Without snubber, VD=400V, $T_j = 125^\circ\text{C}$		3	--	--	

# T1M10T800A

CHARACTERISTIC & CURVES ( $T_j = 25^\circ\text{C}$ , unless otherwise specified.)



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 referenced to MT1**  
**With in-phase signal (using standard AC lines) quadrants I and III are used**

# T1M10T800A

CHARACTERISTIC & CURVES ( $T_j = 25^\circ\text{C}$ , unless otherwise specified.)



Fig.1- Holding Current Variation

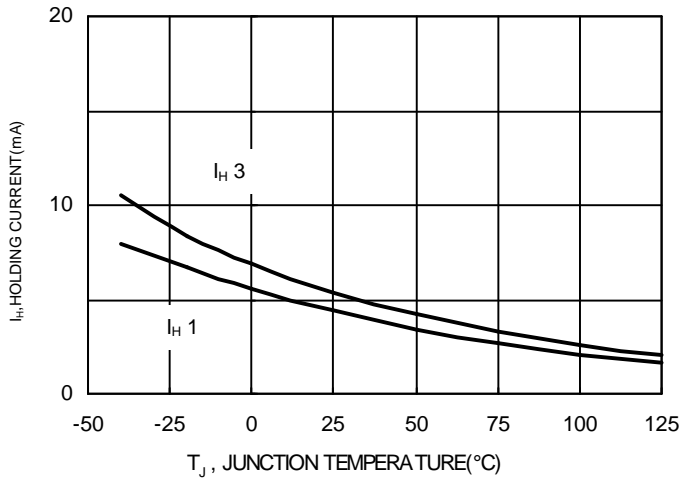


Fig.2- Gate Trigger Current Variation

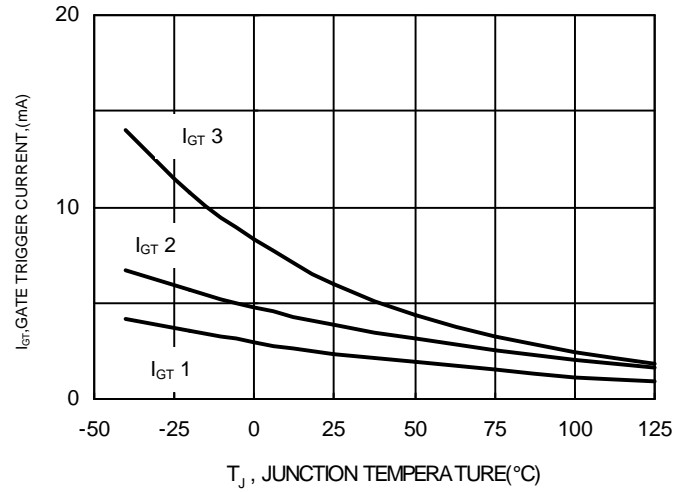


Fig.3- Gate Trigger Voltage Variation

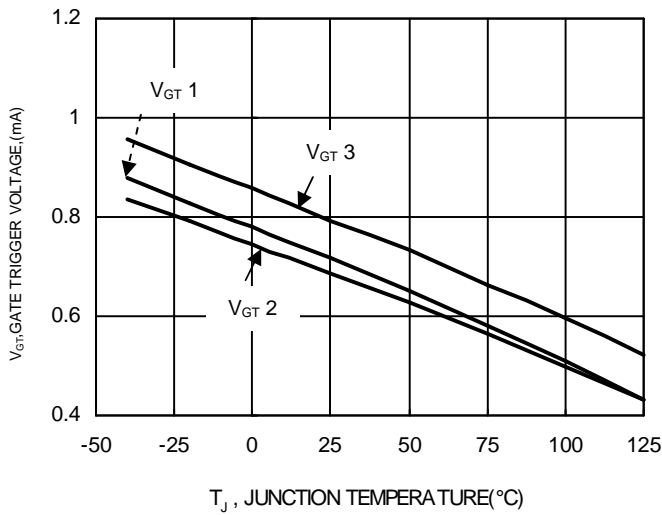


Fig.4- Typical Latching Current Versus Junction Temperature

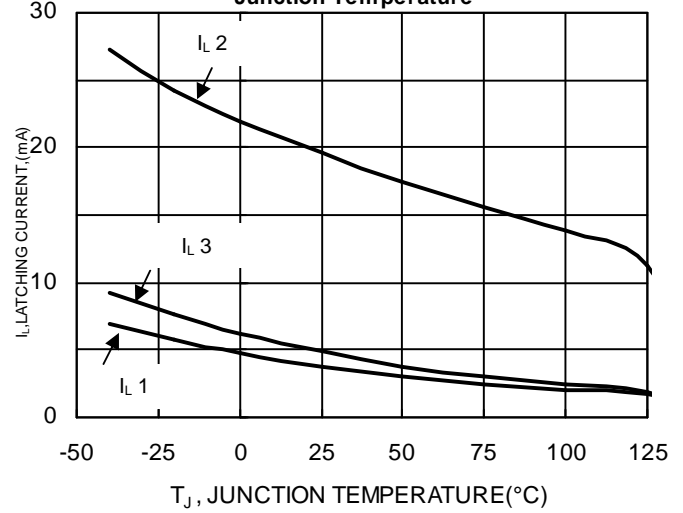


Fig.5- On-State Characteristics

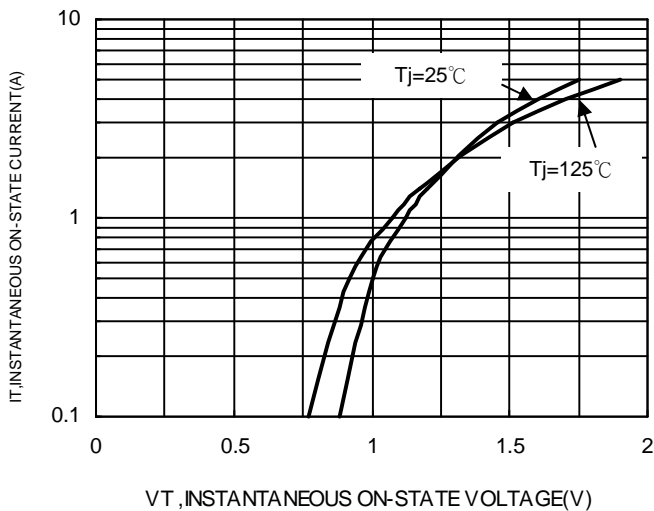
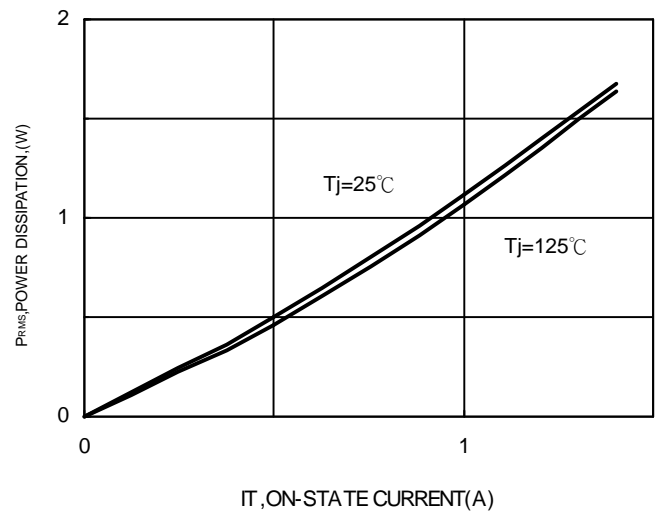


Fig.6- Power Dissipation versus  $I_T$



## **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.