LITE-ON SEMICONDUCTOR

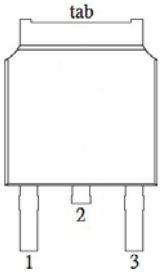
T8M30T800HE

TRIACS SILLICON BIDIRECTIONAL THYRISTORS	TRIACS 8 AMPERES RMS 800 VOLTS

FEATURES
- Passivated die for reliability and uniformity
- Three-quadrants triggering Triac
- 150°C Operation temperature
- Over 800V V_{DRM}/V_{RRM}
- Low triggering level V_{GT}/I_{GT} and Low holding current characteristics
- Qualified to AEC-Q101 Rev_C

APPLICATIONS
- Electronic thermostats
- General purpose motor controls
- Rectifier-fed DC inductive loads
- Power Tool
- AC power control

D-PAK Top view



PIN NUMBER	STANDARD
1	MT1
2	MT2
3	Gate
tab	MT2

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified.)

Absolute Ratings

PARAMETER	SYMBOL	VALUE	UNIT
Peak repetitive off-state voltage (Tj = -40 to 150°C, Full sine wave, 50 to 60 Hz; Gate open) (Note 1)	V_{DRM} V_{RRM}	800 800	V
On-stage RMS current (Full sine wave, Tc = 110°C)	$I_{T(RMS)}$	8	A
Peak non-repetitive surge current (one full cycle 60 HZ, Tj = 25°C)	I_{TSM}	80	A
Circuit fusing consideration (t = 10ms)	I^2T	21	A^2S
Peak gate current	I_{GM}	2	A
Peak gate power	P_{GM}	5	W
Average gate power	$P_{G(AV)}$	0.5	W
Operating junction temperature range	Tj	-40 to +150	°C
Storage temperature range	T_{STG}	-40 to +150	°C

REV. 0, MAR-2017, KTXC43

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.

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CHARACTERISTIC & CURVES (Tj = 25°C, unless otherwise specified.)

Thermal Characteristics

PARAMETER		SYMBOL	VALUE		UNIT
Junction to case with heatsink		Rth(j-c)	Max	5	°C/W
Junction to ambient (DC)	$S^{(1)}$ =0.5 cm^2	Rth(j-a)	Typ	55	°C/W
Maximum lead temperature for soldering purposes (1/8" form case for 10 seconds)		T_L	Max	260	°C

1. S= Copper surface under tab.

Static Characteristics

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT
Threshold Voltage(2) @ Tj = 150°C		V_{to}	--	--	1	V
Dynamic resistors(2) @ Tj = 150°C		R_d	--	--	37	mΩ
Peak repetitive forward or reverse blocking current (V_{AK} = rated V_{DRM} and V_{RRM}, gate open)	Tj = 25°C	I_{DRM} I_{RRM}	--	--	5	uA
	Tj = 150°C		--	--	2	mA

2. For both polarities of A2 referenced to A1.

ON Characteristics

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Peak forward on-state voltage (I_{TM} = 12A @ Tj = 25°C)	V_{TM}	--	--	1.5	V
V_D= V_{DRM} , R_L=100Ω, Tj=150°C	V_{GD}	0.2	--	--	V
Gate trigger current (V_{AK} = 12V, R_L=100Ω)	I_{GT1} I_{GT2} I_{GT3}	-- -- --	-- -- --	35	mA
Gate trigger voltage (V_{AK} = 12V, R_L=100Ω)	V_{GT1} V_{GT2} V_{GT3}	-- -- --	-- -- --	1	V
Holding current (V_{AK} = 12V, R_L=100Ω)	I_{H1}	--	--	35	mA
	I_{H3}	--	--	50	
Latching current (V_{AK} = 12V, R_L=100Ω)	I_{L1}	--	--	35	mA
	I_{L2}	--	--	45	
	I_{L3}	--	--	35	

Dynamic Characteristics

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT
Critical rate of rise of off-stage voltage (V_{AK} = 67% rated V_{DRM} , @ Tj = 150°C, gate open)		dv/dt	1000	--	--	V/us
Critical rate of rise of on-state current (V_{DRM}=maximum V_{DRM} ,Tj = 150°C)		di/dt(s)	--	--	100	A/us
Rate of change of commutating current	Without snubber, VD=400V, Tj=150°C	di/dt(c)	3	--	--	A/ms

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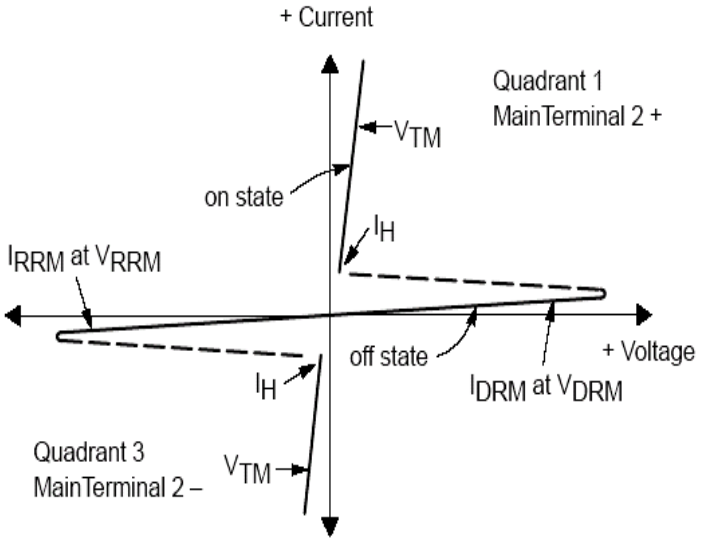
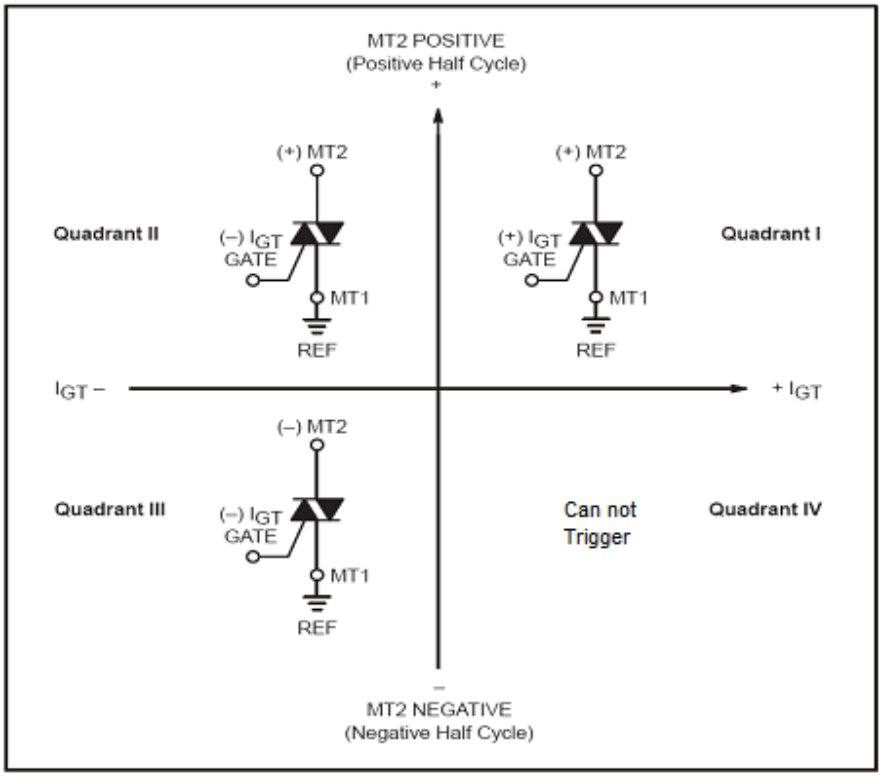
CHARACTERISTIC & CURVES (Tj = 25°C, unless otherwise specified.)

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

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CHARACTERISTIC & CURVES (Tj = 25°C, unless otherwise specified.)

Fig.1- Holding Current Variation

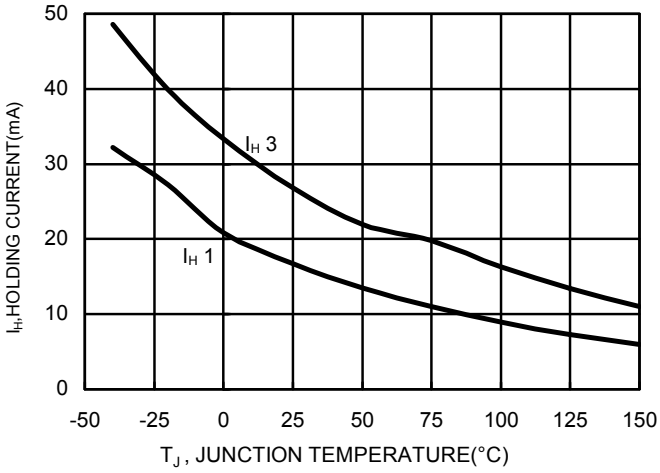


Fig.2- Gate Trigger Current Variation

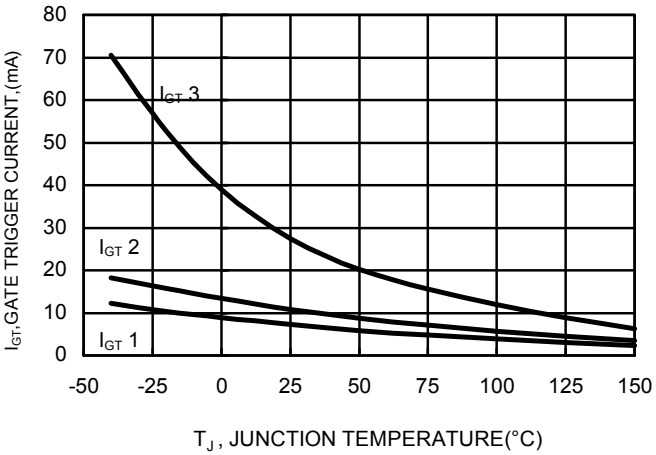


Fig.3- Gate Trigger Voltage Variation

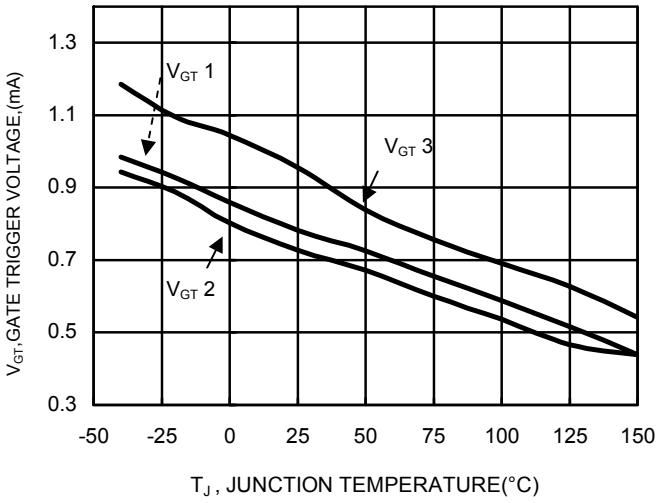


Fig.4- Typical Latching Current Versus Junction Temperature

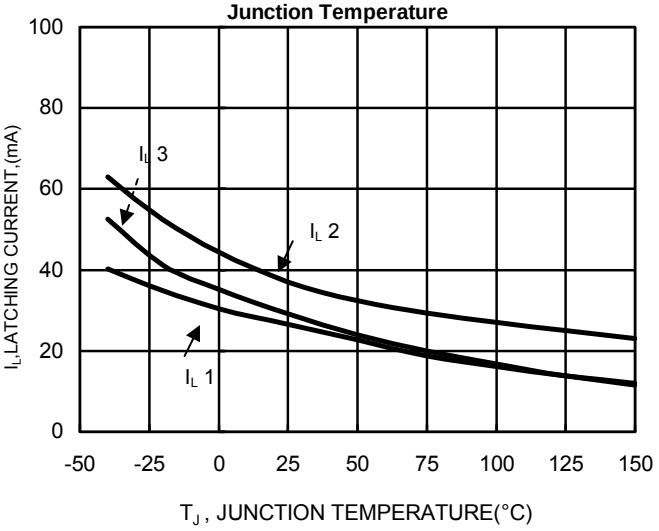


Fig.5- On-State Characteristics

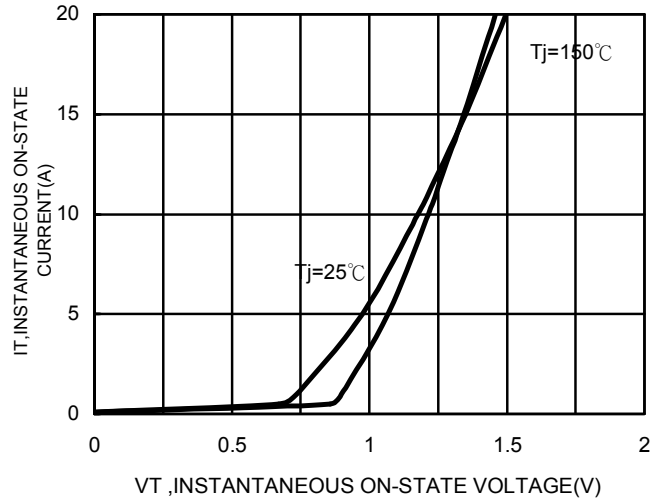
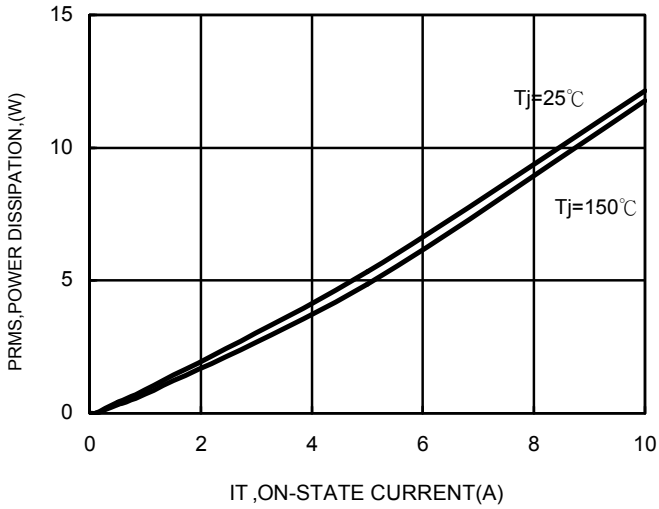


Fig.6- Power Dissipation versus IT



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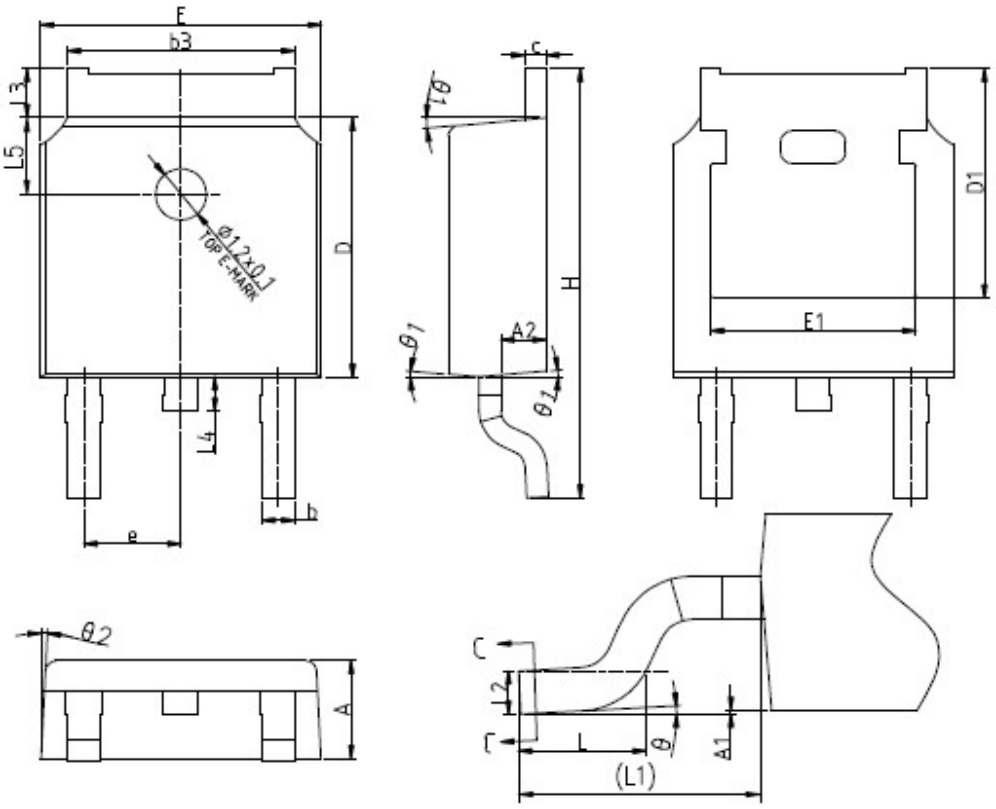
CHARACTERISTIC & CURVES (Tj = 25°C, unless otherwise specified.)



SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.38
A1	0.00	–	0.10
A2	0.97	1.07	1.17
b	0.72	0.78	0.85
b1	0.71	0.76	0.81
b3	5.23	5.33	5.46
c	0.47	0.53	0.58
c1	0.46	0.51	0.56
D	6.00	6.10	6.20
D1		5.30REF	
E	6.50	6.60	6.70
E1	4.70	4.83	4.92
e		2.286BSC	
H	9.90	10.10	10.30
L	1.40	1.50	1.70
L1		2.90REF	
L2		0.51BSC	
L3	0.90	–	1.25
L4	0.60	0.80	1.00
L5	1.70	1.80	1.90
θ	0°	–	8°
θ1	5°	7°	9°
θ2	5°	7°	9°

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