

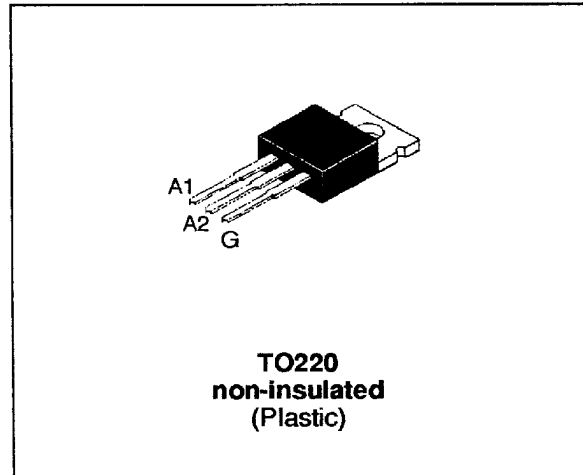
## STANDARD TRIACS

### FEATURES

- $I_{T(RMS)} = 12A$
- $V_{DRM} = 400V$  to  $800V$
- High surge current capability

### DESCRIPTION

The T12xxxH series of triacs uses a high performance MESA GLASS technology. These parts are intended for general purpose switching and phase control applications.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	$T_C = 90^\circ C$	12	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ C$ )	$t_p = 8.3$ ms	115	A
		$t_p = 10$ ms	110	
$I^2t$	$I^2t$ Value for fusing	$t_p = 10$ ms	60	$A^2s$
$di/dt$	Critical rate of rise of on-state current $i_G = 500$ mA $di_G/dt = 1$ A/ $\mu s$ .	Repetitive $F = 50$ Hz	10	A/ $\mu s$
		Non Repetitive	50	
$T_{stg}$ $T_j$	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	$^\circ C$
TI	Maximum lead temperature for soldering during 10s at 4.5mm from case		260	$^\circ C$

Symbol	Parameter	Voltage				Unit
		D	M	S	N	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 125^\circ C$	400	600	700	800	V

## T12xxxH

### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	60	°C/W
Rth(j-c)	Junction to case for D.C	3.3	°C/W
Rth(j-c)	Junction to case for A.C 360° conduction angle (F=50Hz)	2.5	°C/W

### GATE CHARACTERISTICS (maximum values)

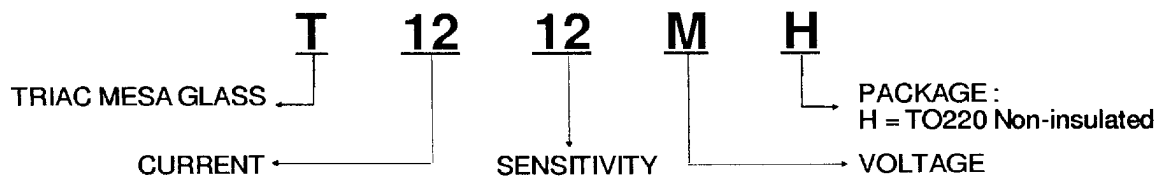
$P_{G(AV)} = 1 \text{ W}$   $P_{GM} = 10 \text{ W}$  ( $t_p = 20 \mu\text{s}$ )  $I_{GM} = 4 \text{ A}$  ( $t_p = 20 \mu\text{s}$ )

### ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions	Quadrant		Sensitivity			Unit	
				10	12	13		
$I_{GT}$	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III	MAX	25	50	50	mA
			IV	MAX	25	50	75	
$V_{GT}$	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$	$T_j = 25^\circ\text{C}$	I-II-III-IV	MAX	1.5			V
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$	$T_j = 125^\circ\text{C}$	I-II-III-IV	MIN	0.2			V
$t_{gt}$	$V_D = V_{DRM}$ $I_G = 500\text{mA}$ $I_T = 17\text{A}$ $di_G/dt = 3\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$	I-II-III-IV	TYP	2			$\mu\text{s}$
$I_H^*$	$I_T = 250\text{mA}$ Gate open	$T_j = 25^\circ\text{C}$		MAX	25	50	75	mA
$I_L$	$I_G = 1.2 I_{GT}$	$T_j = 25^\circ\text{C}$	I-III-IV	TYP	25	50	75	mA
			II	TYP	50	100	150	
$V_{TM}^*$	$I_{TM} = 17\text{A}$ $t_p = 380\mu\text{s}$	$T_j = 25^\circ\text{C}$		MAX	1.5			V
$I_{DRM}$ $I_{RRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$		MAX	10			$\mu\text{A}$
		$T_j = 110^\circ\text{C}$		MAX	2			mA
$dV/dt^*$	$V_D = 67\%V_{DRM}$ Gate open	$T_j = 110^\circ\text{C}$		MIN	200	500	500	V/ $\mu\text{s}$
$(dV/dt)^c^*$	$(di/dt)^c = 5.3 \text{ A/ms}$	$T_j = 110^\circ\text{C}$		MIN	2	5	10	V/ $\mu\text{s}$

\* For either polarity of electrode A<sub>2</sub> voltage with reference to electrode A<sub>1</sub>

### ORDERING INFORMATION



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7929237 0074611 8T4

Fig.1 : Maximum RMS power dissipation versus RMS on-state current.

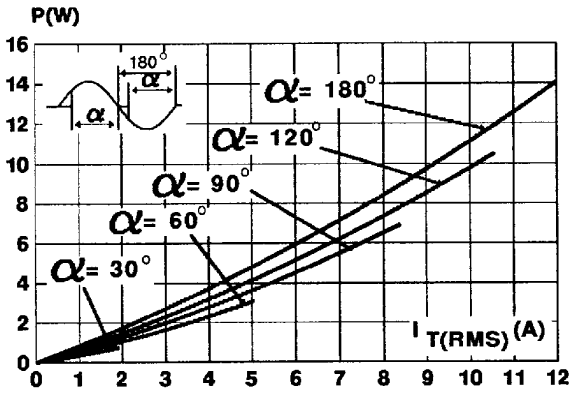


Fig.2 : Correlation between maximum RMS power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

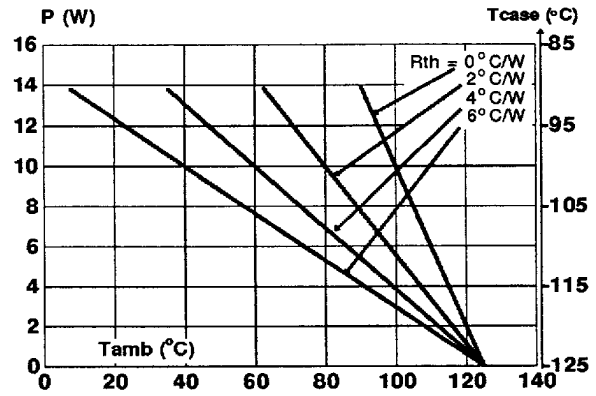


Fig.3 : RMS on-state current versus case temperature.

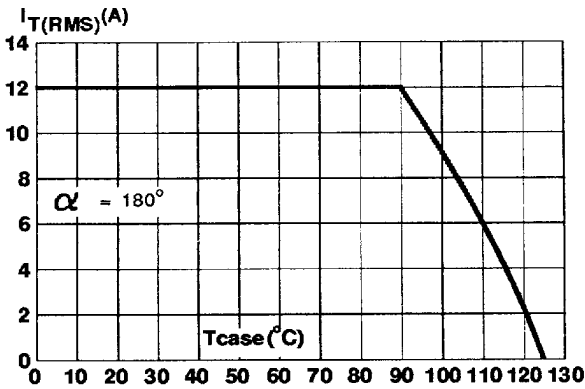


Fig.4 : Relative variation of thermal impedance versus pulse duration.

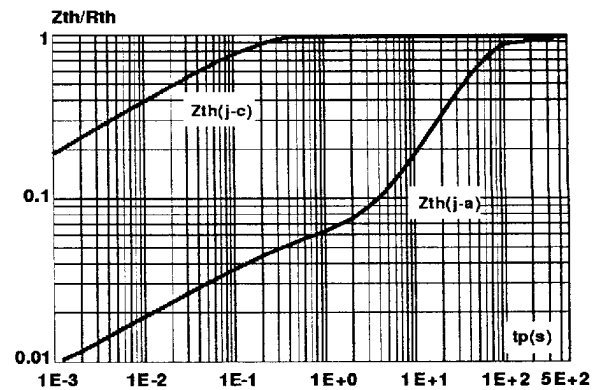


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

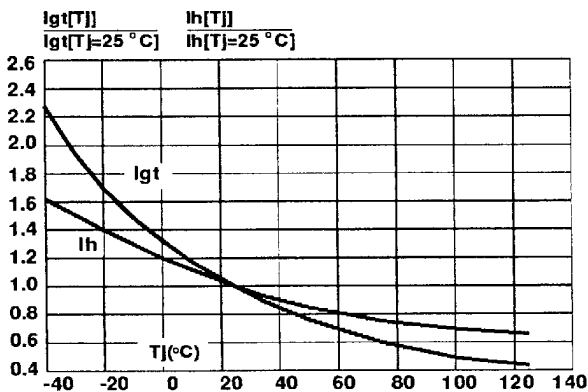
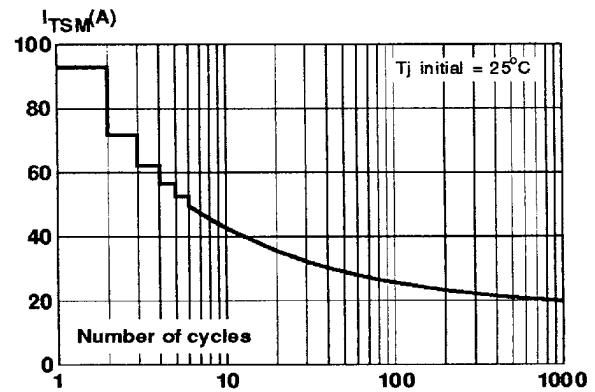


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



T12xxxH

Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .

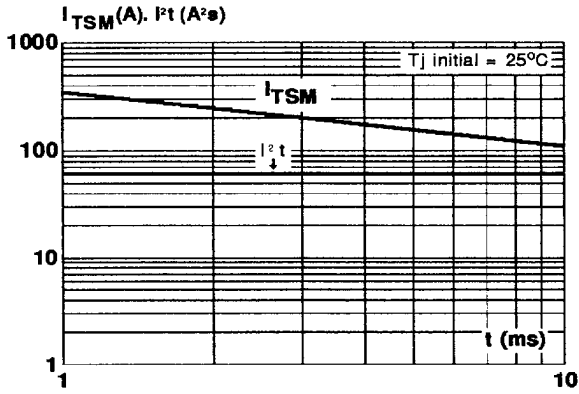
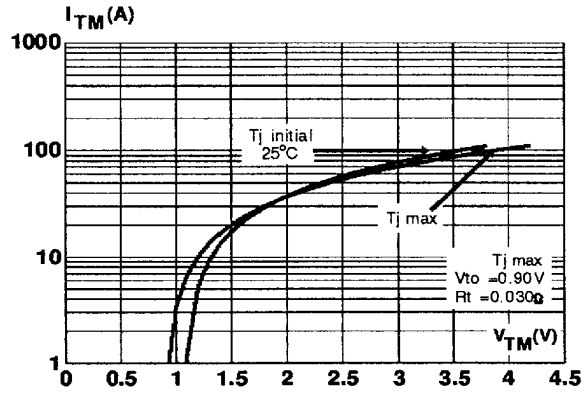


Fig.8 : On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA**  
 TO220 Non-insulated (Plastic)

REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A			10.3			0.406
B		6.3	6.5	0.248	0.256	
C			9.1			0.358
D		12.7			0.500	
F			4.2			0.165
G			3.0			0.118
H		4.5	4.7	0.177	0.185	
I		3.53	3.66	0.139	0.144	
J		1.2	1.3	0.047	0.051	
L			0.9			0.035
M	2.7			0.106		
N			5.3			0.209
N1	2.54			0.100		
O		1.2	1.4	0.047	0.055	
P			1.15			0.045

Marking : type number  
 Weight : 1.8 g

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