



T12xxxH

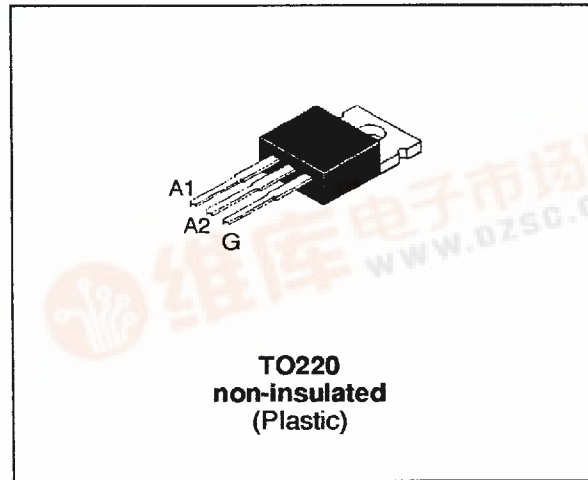
STANDARD TRIACS

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
		$t_p = 10$ ms	110
$I^2t$	$I^2t$ Value for fusing	$t_p = 10$ ms	60
$di/dt$	Critical rate of rise of on-state current $I_G = 500$ mA $di_G/dt = 1$ A/ $\mu$ s.	Repetitive F = 50 Hz	10
		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

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**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)**

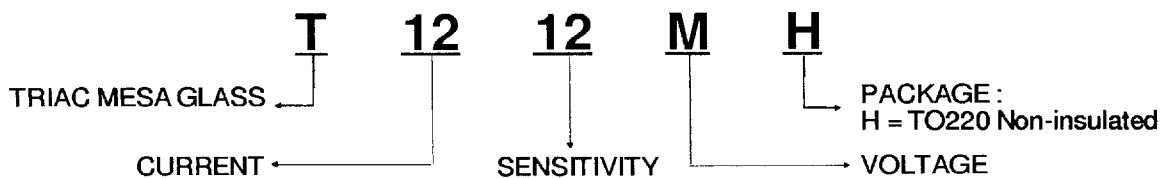
$P_G (AV) = 1 W$   $P_{GM} = 10 W$  ( $t_p = 20 \mu s$ )  $I_{GM} = 4 A$  ( $t_p = 20 \mu s$ )

**ELECTRICAL CHARACTERISTICS**

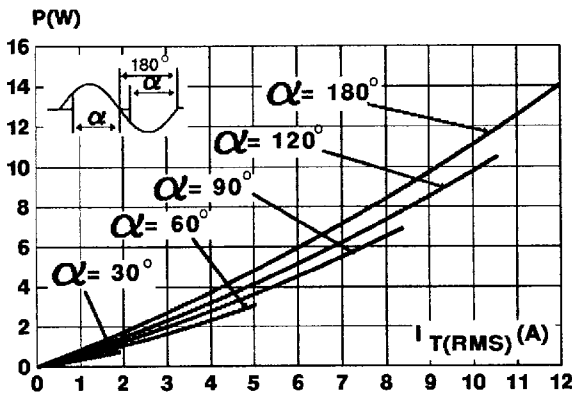
Symbol	Test Conditions		Quadrant		Sensitivity			Unit
					10	12	13	
I <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> = 25°C	I-II-III	MAX	25	50	50	mA
			IV	MAX	25	50	75	
V <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> = 25°C	I-II-III-IV	MAX	1.5			V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ	T <sub>j</sub> = 125°C	I-II-III-IV	MIN	0.2			V
t <sub>gt</sub>	V <sub>D</sub> =V <sub>DRM</sub> I <sub>G</sub> = 500mA I <sub>T</sub> = 17A dI <sub>G</sub> /dt = 3A/μs	T <sub>j</sub> = 25°C	I-II-III-IV	TYP	2			μs
I <sub>H</sub> *	I <sub>T</sub> = 250 mA Gate open	T <sub>j</sub> = 25°C		MAX	25	50	75	mA
I <sub>L</sub>	I <sub>G</sub> = 1.2 I <sub>GT</sub>	T <sub>j</sub> = 25°C	I-III-IV	TYP	25	50	75	mA
			II	TYP	50	100	150	
V <sub>TM</sub> *	I <sub>TM</sub> = 17A t <sub>p</sub> = 380μs	T <sub>j</sub> = 25°C		MAX	1.5			V
I <sub>DRM</sub> I <sub>RRM</sub>	V <sub>D</sub> = V <sub>DRM</sub> V <sub>R</sub> = V <sub>RRM</sub>	T <sub>j</sub> = 25°C		MAX	10			μA
		T <sub>j</sub> = 110°C		MAX	2			mA
dV/dt *	V <sub>D</sub> =67%V <sub>DRM</sub> Gate open	T <sub>j</sub> = 110°C		MIN	200	500	500	V/μs
(dV/dt) <sub>c</sub> *	(dI/dt) <sub>c</sub> = 5.3 A/ms	T <sub>j</sub> = 110°C		MIN	2	5	10	V/μs

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

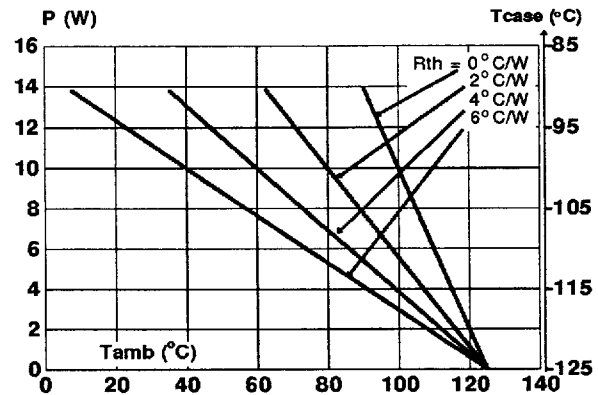
**ORDERING INFORMATION**



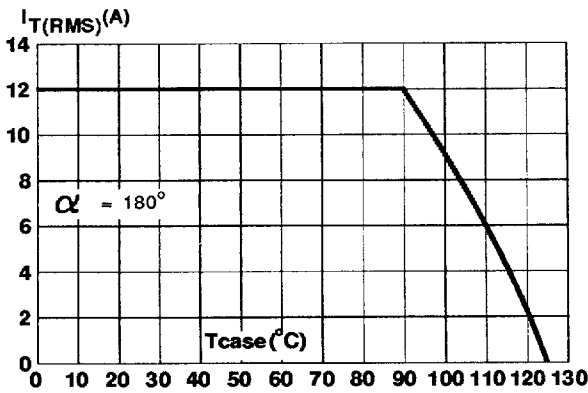
**Fig.1 :** Maximum RMS power dissipation versus RMS on-state current.



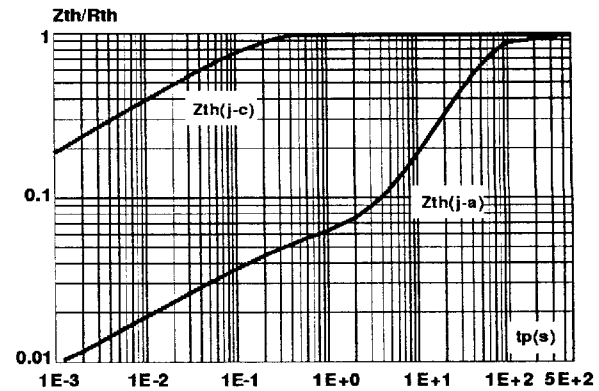
**Fig.2 :** Correlation between maximum RMS power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.



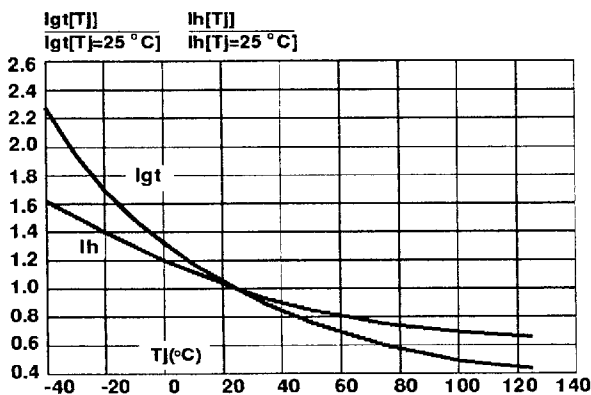
**Fig.3 :** RMS on-state current versus case temperature.



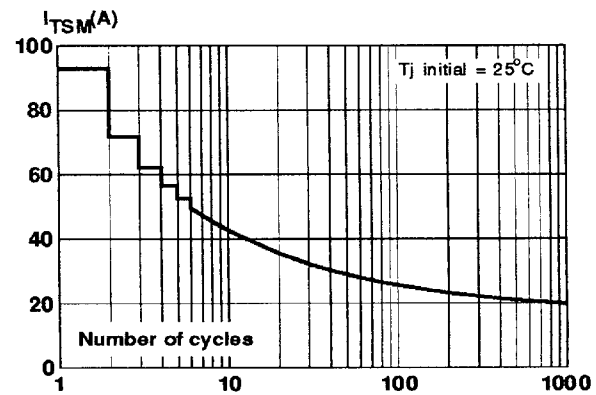
**Fig.4 :** Relative variation of thermal impedance versus pulse duration.



**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.



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

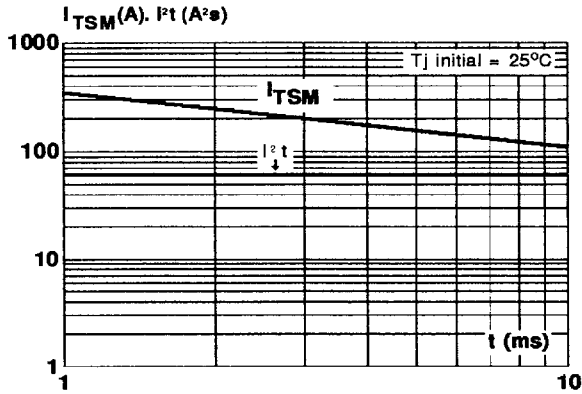
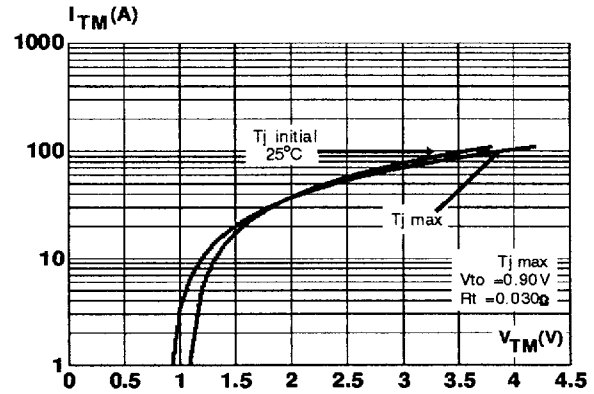
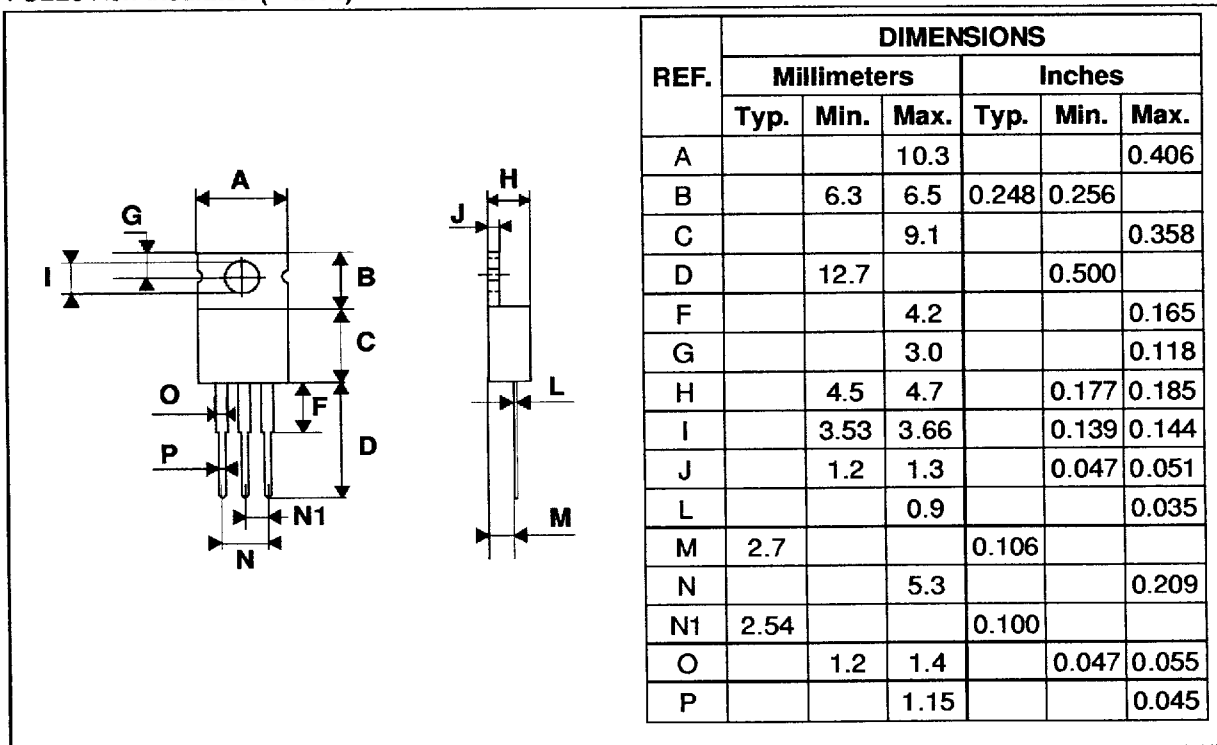


Fig.8 : On-state characteristics (maximum values).



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



Marking : type number  
Weight : 1.8 g

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