

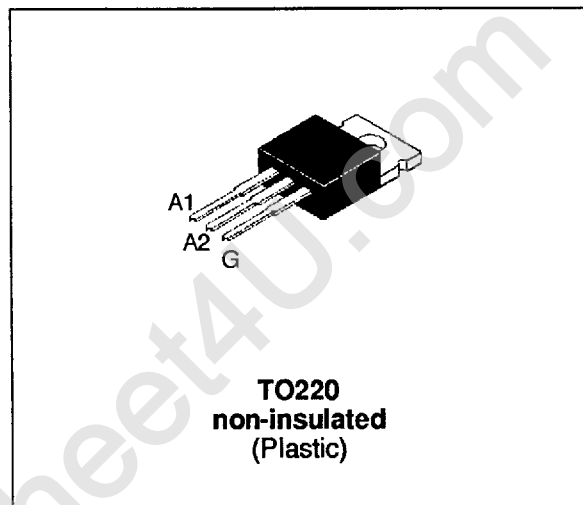
## STANDARD TRIACS

### FEATURES

- $I_{T(RMS)} = 10A$
- $V_{DRM} = 400V$  to  $800V$
- High surge current capability

### DESCRIPTION

The T10xxxH 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)	$T_c = 95^\circ C$	10	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ C$ )	$t_p = 8.3$ ms	105	A
		$t_p = 10$ ms	100	
$I^2_t$	$I^2_t$ Value for fusing	$t_p = 10$ ms	50	$A^2s$
$di/dt$	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	$^\circ C$
$Tl$	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

T10xxxH

## 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)

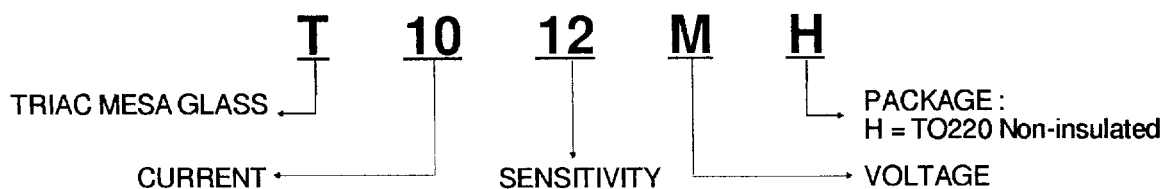
$P_{G(AV)} = 1 \text{ W}$   $P_{GM} = 10 \text{ W}$  ( $t_p = 20 \mu\text{s}$ )  $I_{GM} = 4 \text{ A}$  ( $t_p = 20 \mu\text{s}$ )

## ELECTRICAL CHARACTERISTICS

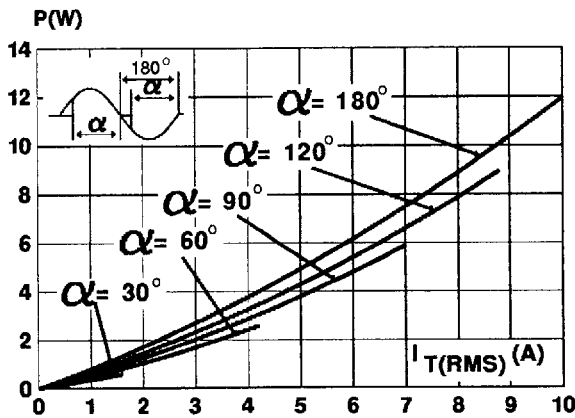
Symbol	Test Conditions		Quadrant		Sensitivity			Unit
					10	12	13	
$I_{GT}$	$V_D = 12 \text{ V (DC)}$ $R_L = 33 \Omega$	$T_j = 25^\circ\text{C}$	I-II-III	MAX	25	50	50	mA
			IV	MAX	25	50	75	
$V_{GT}$	$V_D = 12 \text{ V (DC)}$ $R_L = 33 \Omega$	$T_j = 25^\circ\text{C}$	I-II-III-IV	MAX	1.5			V
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$	$T_j = 125^\circ\text{C}$	I-II-III-IV	MIN	0.2			V
$t_{gt}$	$V_D = V_{DRM}$ $I_G = 500 \text{ mA}$ $I_T = 14 \text{ A}$ $dI_G/dt = 3 \text{ A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$	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	
			II	TYP	50	100	150	
$V_{TM}^*$	$I_{TM} = 14 \text{ A}$ $t_p = 380 \mu\text{s}$	$T_j = 25^\circ\text{C}$		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	$\text{V}/\mu\text{s}$
$(dV/dt)_c^*$	$(dI/dt)_c = 4.4 \text{ A/ms}$	$T_j = 110^\circ\text{C}$		MIN	2	5	10	$\text{V}/\mu\text{s}$

\* For either polarity of electrode  $A_2$  voltage with reference to electrode  $A_1$

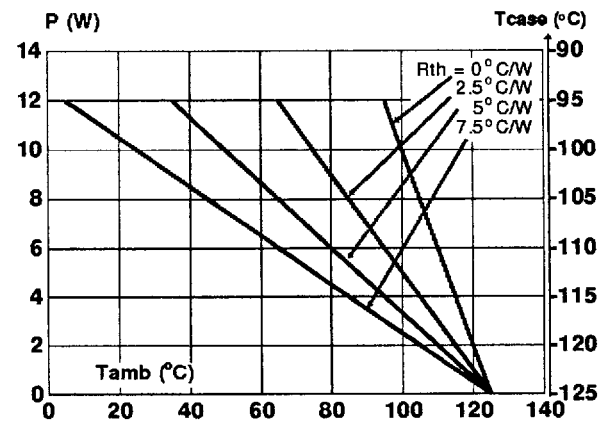
## ORDERING INFORMATION



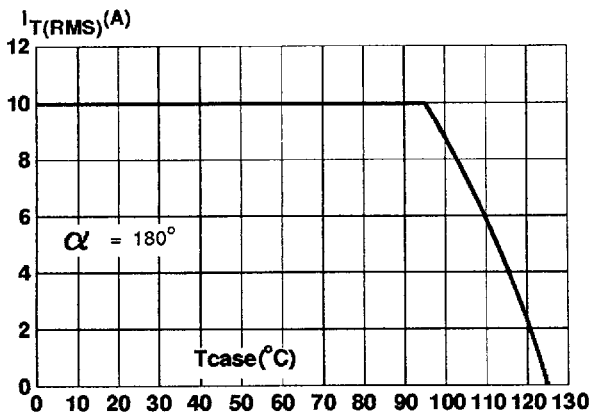
**Fig.1 :** Maximum RMS power dissipation versus RMS on-state current.



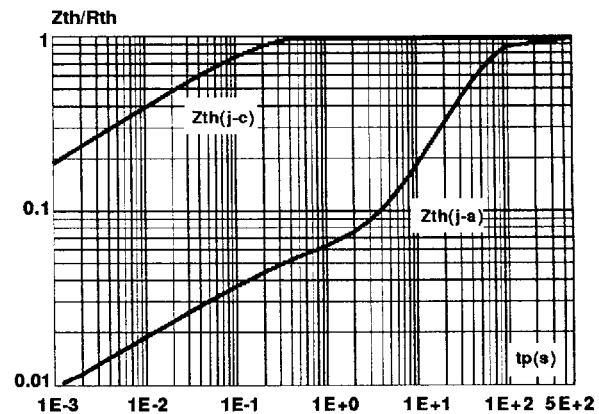
**Fig.2 :** Correlation between maximum RMS power dissipation and maximum allowable temperature ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.



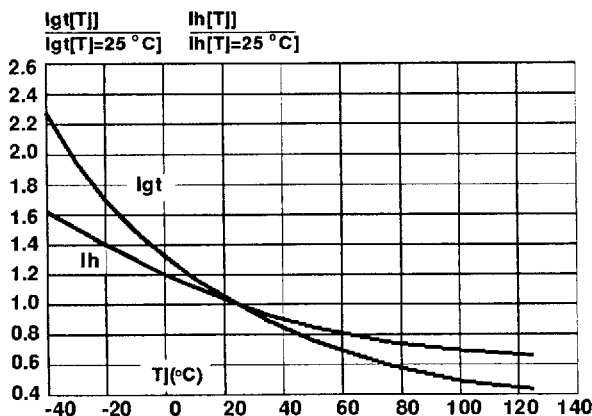
**Fig.3 :** RMS on-state current versus case temperature.



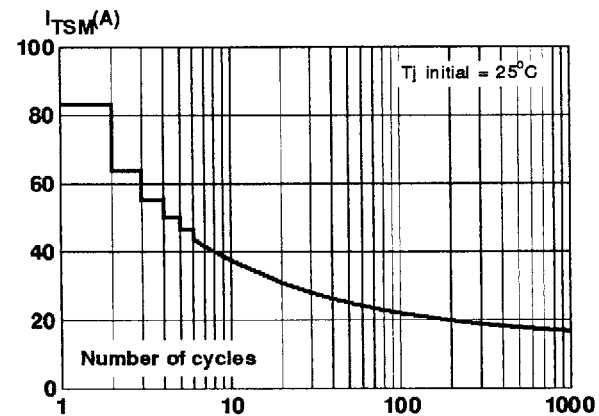
**Fig.4 :** Relative variation of thermal impedance versus pulse duration.



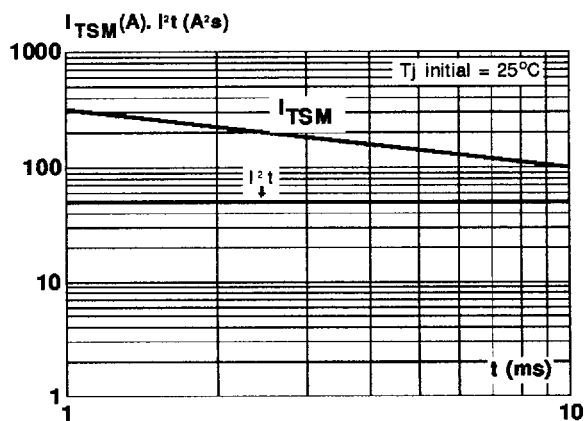
**Fig.5 :** Relative variation of gate trigger current and holding current versus junction temperature.



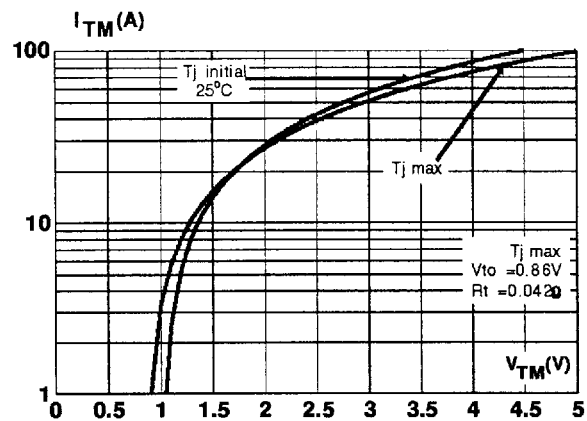
**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.

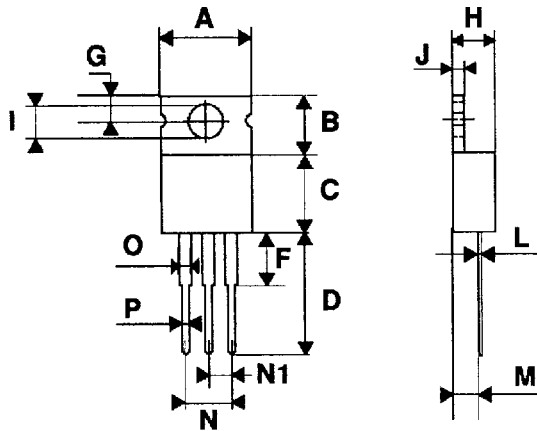


**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



**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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