

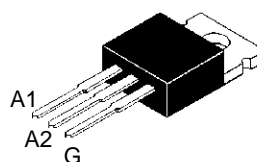
## SENSITIVE GATE TRIACS

### FEATURES

- $I_{T(RMS)} = 5A$
- $V_{DRM} = 400V$  to  $800V$
- $I_{GT} \leq 5mA$  to  $\leq 10mA$

### DESCRIPTION

The T05xxxH series of triacs uses a high performance MESA GLASS technology. These parts are intended for general purpose applications where gate high sensitivity is required.



**TO220**  
**non-insulated**  
 (Plastic)

### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (360° conduction angle)	$T_c = 100\text{ }^\circ\text{C}$	5	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ\text{C}$ )	$t_p = 8.3\text{ ms}$	42	A
		$t_p = 10\text{ ms}$	40	
$I^2t$	$I^2t$ Value for fusing	$t_p = 10\text{ ms}$	8	$A^2s$
$di/dt$	Critical rate of rise of on-state current $I_G = 50\text{ mA}$ $di_G/dt = 0.1\text{ A}/\mu\text{s}$ .	Repetitive $F = 50\text{ Hz}$	10	$A/\mu\text{s}$
		Non Repetitive	50	
$T_{stg}$ $T_j$	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	$^\circ\text{C}$
$T_l$	Maximum lead temperature for soldering during 10s at 4.5mm from case		260	$^\circ\text{C}$

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

## T0505xH / T0509xH

### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	60	°C/W
Rth(j-c)	Junction to case for D.C	5.3	°C/W
Rth(j-c)	Junction to case for A.C 360° conduction angle (F=50Hz)	4	°C/W

### GATE CHARACTERISTICS (maximum values)

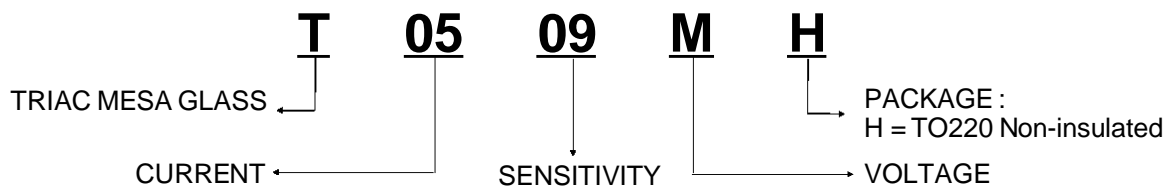
$P_G (AV) = 1 \text{ W}$   $P_{GM} = 10 \text{ W}$  ( $t_p = 20 \mu\text{s}$ )  $I_{GM} = 4 \text{ A}$  ( $t_p = 20 \mu\text{s}$ )

### ELECTRICAL CHARACTERISTICS

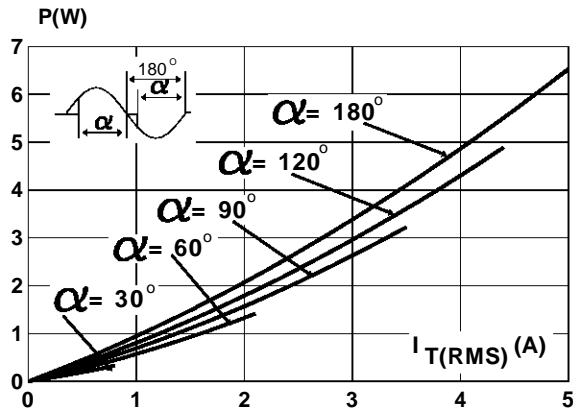
Symbol	Test Conditions	Quadrant		Sensitivity		Unit
				05	09	
$I_{GT}$	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$ $T_j = 25^\circ\text{C}$	I-II-III-IV	MAX	5	10	mA
$V_{GT}$	$V_D = 12\text{V (DC)}$ $R_L = 33\Omega$ $T_j = 25^\circ\text{C}$	I-II-III-IV	MAX	1.5		V
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$ $T_j = 125^\circ\text{C}$	I-II-III-IV	MIN	0.2		V
tgt	$V_D = V_{DRM}$ $I_G = 40\text{mA}$ $I_T = 7.1\text{A}$ $di_G/dt = 0.5\text{A}/\mu\text{s}$ $T_j = 25^\circ\text{C}$	I-II-III-IV	TYP	2		$\mu\text{s}$
$I_H^*$	$I_T = 50\text{mA}$ Gate open $T_j = 25^\circ\text{C}$		MAX	5	10	mA
$I_L$	$I_G = 1.2 I_{GT}$ $T_j = 25^\circ\text{C}$	I-III-IV	TYP	5	10	mA
		II	TYP	10	20	
$V_{TM}^*$	$I_{TM} = 7.1\text{A}$ $t_p = 380\mu\text{s}$ $T_j = 25^\circ\text{C}$		MAX	1.65		V
$I_{DRM}$ $I_{RRM}$	$V_D = V_{DRM}$ $V_R = V_{RRM}$ $T_j = 25^\circ\text{C}$		MAX	5		$\mu\text{A}$
			MAX	1.5		mA
$dV/dt^*$	$V_D = 67\% V_{DRM}$ Gate open $T_j = 110^\circ\text{C}$		MIN		20	$\text{V}/\mu\text{s}$
			TYP	10		
$(dV/dt)_c^*$	$(di/dt)_c = 2.2 \text{ A/ms}$ $T_j = 110^\circ\text{C}$		TYP	1	2	$\text{V}/\mu\text{s}$

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

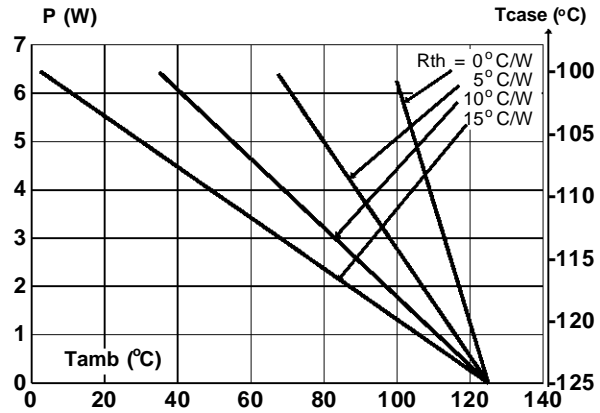
### ORDERING INFORMATION



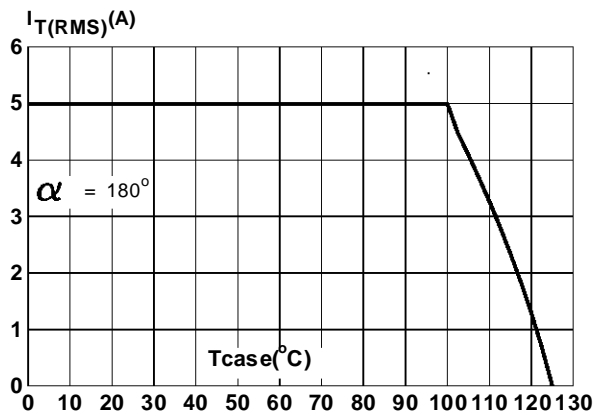
**Fig.1 :** Maximum RMS power dissipation versus RMS on-state current.



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



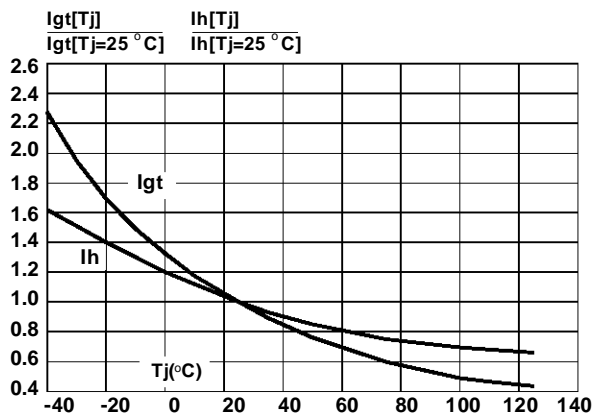
**Fig.3 :** RMS on-state current versus case temperature.



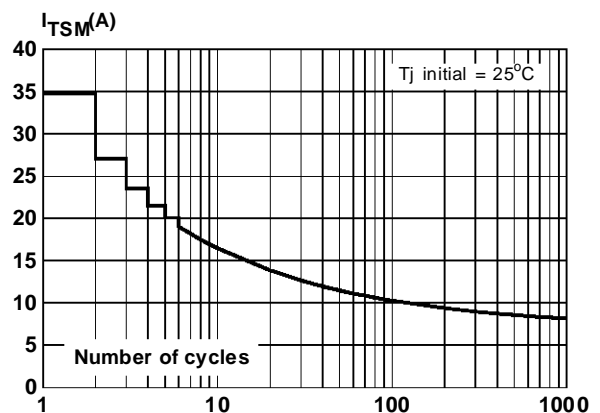
**Fig.4 :** Relative variation of thermal impedance versus pulse duration.



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

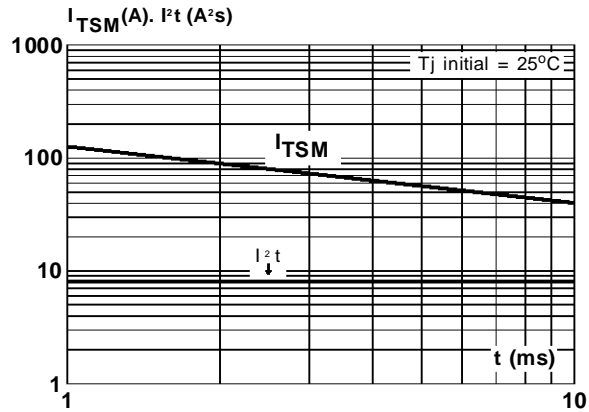


**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.

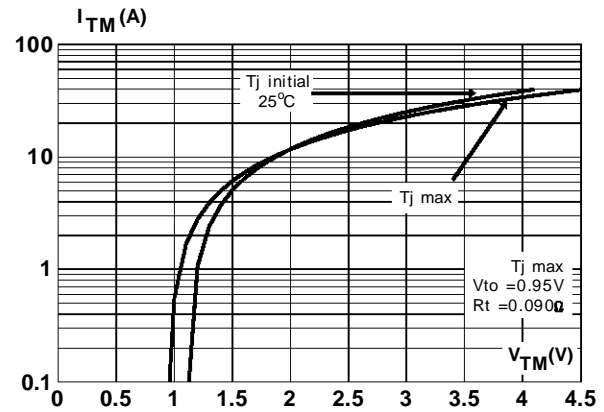


## T0505xH / T0509xH

**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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