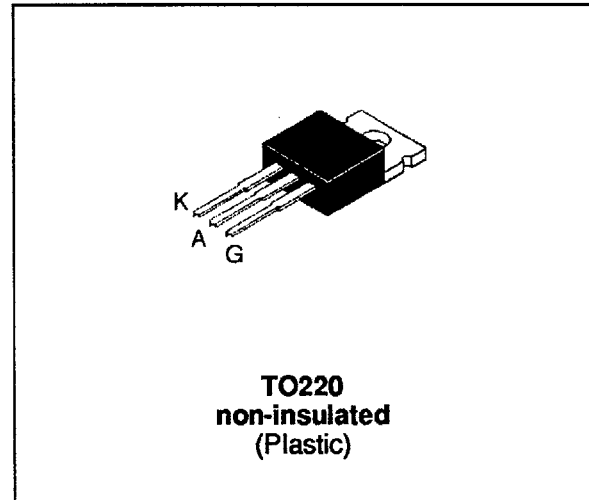


### FEATURES

- $I_{T(RMS)} = 16A$
- $V_{DRM} = 200V$  to  $800V$
- High surge current capability

### DESCRIPTION

The S16xxxH series of SCRs uses a high performance MESA GLASS PNP technology. These parts are intended for general purpose applications.



### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_c = 90^\circ C$	16	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_c = 90^\circ C$	10	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ C$ )	$t_p = 8.3$ ms	175	A
		$t_p = 10$ ms	160	
$I^2t$	$I^2t$ Value for fusing	$t_p = 10$ ms	128	$A^2s$
$di/dt$	Critical rate of rise of on-state current $I_G = 100$ mA $di_G/dt = 1$ A/ $\mu s$ .		100	A/ $\mu s$
$T_{stg}$ $T_j$	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
		B	D	M	N	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 125^\circ C$	200	400	600	800	V

# S16xxxH

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	60	°C/W
Rth(j-c)	Junction to case for DC	2.2	°C/W

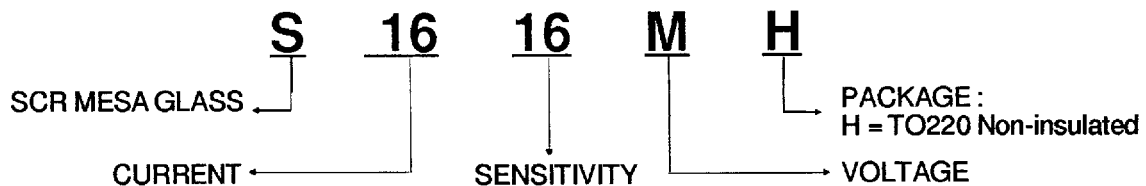
## GATE CHARACTERISTICS (maximum values)

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

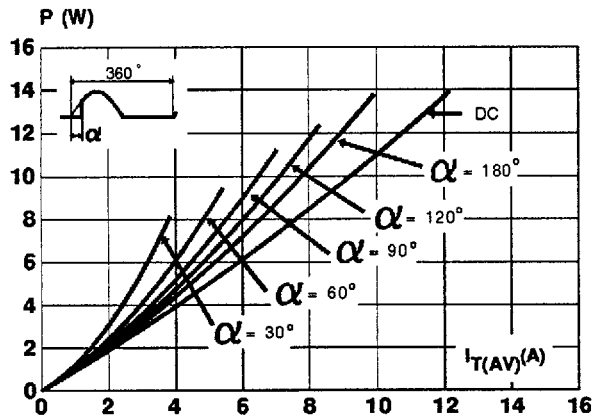
## ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity		Unit
				10	16	
$I_{GT}$	$V_D = 12 \text{ V (DC)}$ $R_L = 33 \Omega$	$T_j = 25^\circ \text{C}$	MIN	10	20	mA
			MAX	25	50	
$V_{GT}$	$V_D = 12 \text{ V (DC)}$ $R_L = 33 \Omega$	$T_j = 25^\circ \text{C}$	MAX	1.5		V
$V_{GD}$	$V_D = V_{DRM}$ $R_L = 3.3 \text{ k}\Omega$	$T_j = 125^\circ \text{C}$	MIN	0.2		V
tgt	$V_D = V_{DRM}$ $I_{TM} = 3 \times I_{T(AV)}$ $di_G/dt = 0.8 \text{ A}/\mu\text{s}$ $I_G = 90 \text{ mA}$	$T_j = 25^\circ \text{C}$	TYP	2		$\mu\text{s}$
$I_H$	$I_T = 250 \text{ mA}$ Gate open	$T_j = 25^\circ \text{C}$	MAX	50	100	mA
$I_L$	$I_G = 1.2 I_{GT}$	$T_j = 25^\circ \text{C}$	MAX	100	200	
$V_{TM}$	$I_{TM} = 32 \text{ A}$ $t_p = 380 \mu\text{s}$	$T_j = 25^\circ \text{C}$	MAX	1.6		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	400	500	V/ $\mu\text{s}$
tq	$I_{TM} = 3 \times I_{T(AV)}$ $V_R = 35 \text{ V}$ $di/dt = 25 \text{ A}/\mu\text{s}$ $t_p = 100 \mu\text{s}$ $dV/dt = 25 \text{ V}/\mu\text{s}$ $V_D = 67\% V_{DRM}$	$T_j = 110^\circ \text{C}$	MAX	100		$\mu\text{s}$

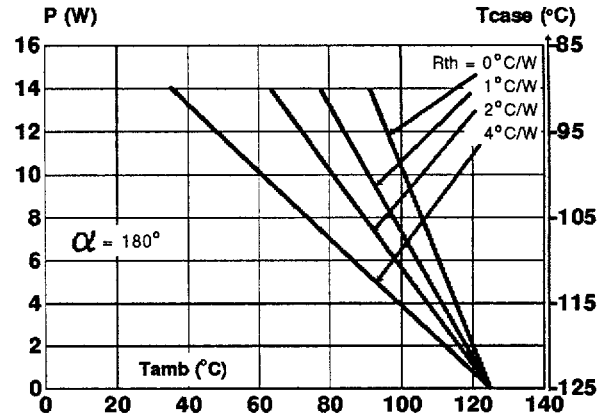
## ORDERING INFORMATION



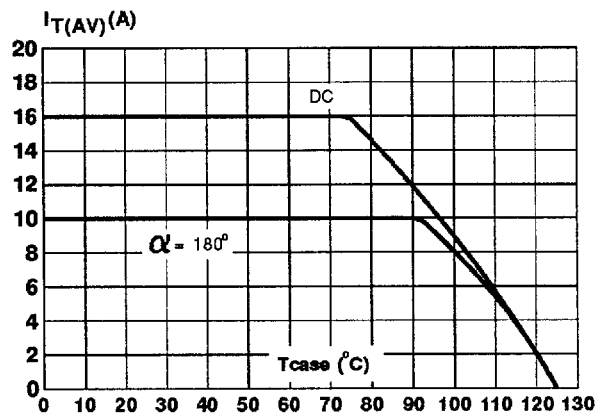
**Fig.1 :** Maximum average power dissipation versus average on-state current.



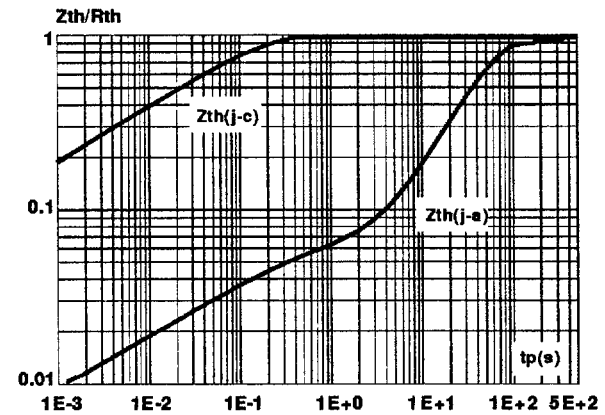
**Fig.2 :** Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.



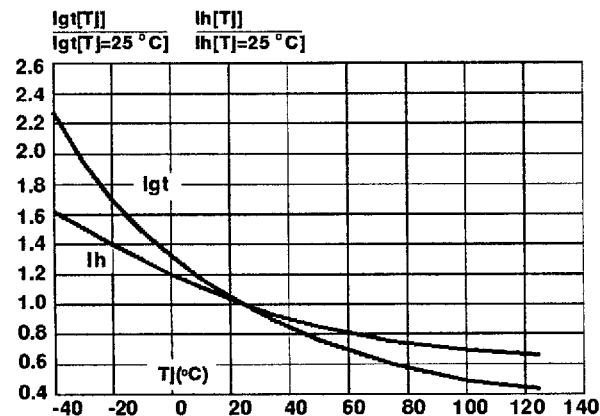
**Fig.3 :** Average on-state current versus case temperature.



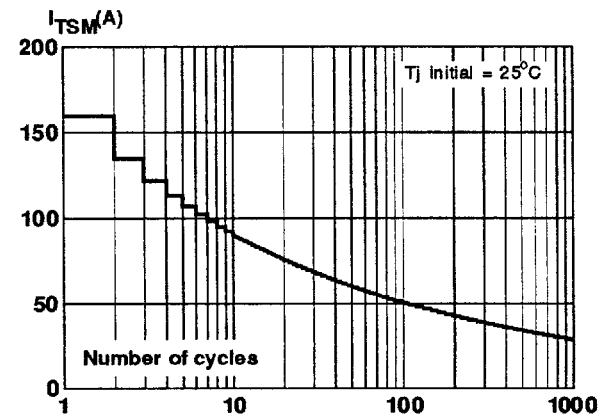
**Fig.4 :** Relative variation of thermal impedance versus pulse duration.



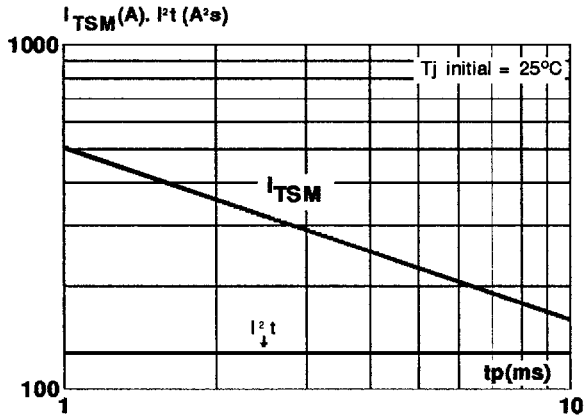
**Fig.5 :** Relative variation of gate trigger current and holding current versus junction temperature.



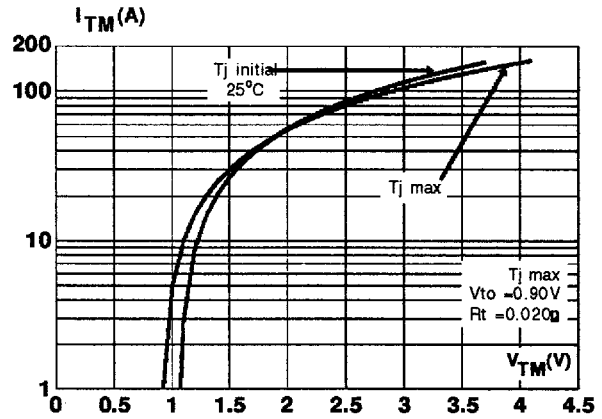
**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.



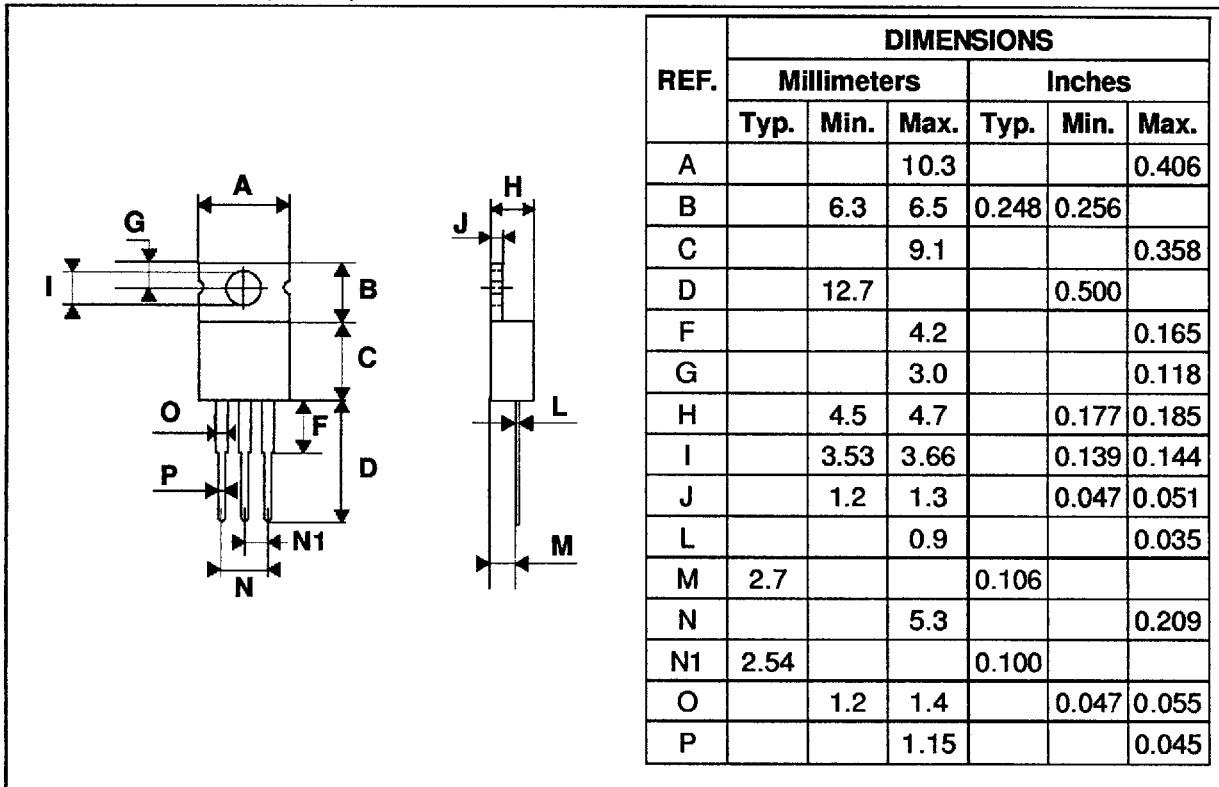
**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t_p \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



**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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