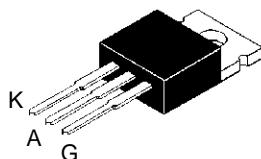


**SCR**
**FEATURES**

- $I_T(\text{RMS}) = 10\text{A}$
- $V_{\text{DRM}} = 200\text{V}$  to  $800\text{V}$
- High surge current capability


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

The S10xxxH series of SCRs uses a high performance MESA GLASS PNPN technology. These parts are intended for general purpose applications.

**ABSOLUTE RATINGS** (limiting values)

Symbol	Parameter	Value	Unit
$I_T(\text{RMS})$	RMS on-state current ( $180^\circ$ conduction angle)	10	A
$I_T(\text{AV})$	Average on-state current ( $180^\circ$ conduction angle)	6.4	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ\text{C}$ )	$t_p = 8.3 \text{ ms}$	A
		$t_p = 10 \text{ ms}$	
$I^2t$	$I^2t$ Value for fusing	50	$\text{A}^2\text{s}$
$dI/dt$	Critical rate of rise of on-state current $I_G = 100 \text{ mA}$ $dI_G/dt = 1 \text{ A}/\mu\text{s}$ .	100	$\text{A}/\mu\text{s}$
$T_{\text{stg}}$ $T_j$	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
		B	D	M	N	
$V_{\text{DRM}}$ $V_{\text{RRM}}$	Repetitive peak off-state voltage $T_j = 125^\circ\text{C}$	200	400	600	800	V

## S10xxxH

### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th(j-a)</sub>	Junction to ambient	60	°C/W
R <sub>th(j-c)</sub>	Junction to case for DC	3	°C/W

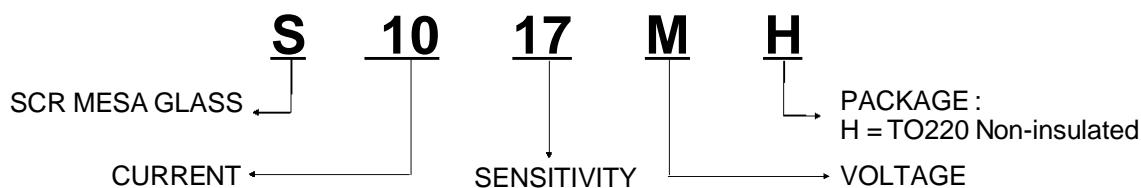
### GATE CHARACTERISTICS (maximum values)

P<sub>G(AV)</sub>= 1 W P<sub>GM</sub> = 10 W (tp = 20 μs) I<sub>GM</sub> = 4A (tp = 20 μs)

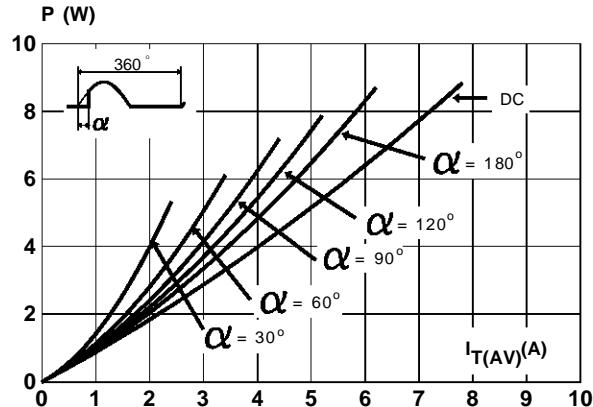
### ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Sensitivity			Unit	
			06	10	17		
I <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> = 25°C	MIN	0.5	10	4	mA
			MAX	5	25	15	
V <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> = 25°C	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	MIN	0.2		V	
t <sub>GT</sub>	V <sub>D</sub> =V <sub>DRM</sub> I <sub>TM</sub> = 3 x I <sub>T(AV)</sub> dI <sub>G</sub> /dt = 0.5A/μs I <sub>G</sub> = 40mA	T <sub>j</sub> = 25°C	TYP	2		μs	
I <sub>H</sub>	I <sub>T</sub> = 250mA Gate open	T <sub>j</sub> = 25°C	MAX	15	50	30	mA
I <sub>L</sub>	I <sub>G</sub> =1.2 I <sub>GT</sub>	T <sub>j</sub> = 25°C	MAX	30	100	60	mA
V <sub>TM</sub>	I <sub>TM</sub> = 20A tp= 380μs	T <sub>j</sub> = 25°C	MAX	1.6		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	5		μA	
		T <sub>j</sub> = 110°C	MAX	1.5		mA	
dV/dt	V <sub>D</sub> =67%V <sub>DRM</sub> Gate open	T <sub>j</sub> = 110°C	MIN		200	100	V/μs
		T <sub>j</sub> = 110°C	TYP	10			
t <sub>q</sub>	I <sub>TM</sub> = 3 x I <sub>T(AV)</sub> V <sub>R</sub> =35V dI/dt=10A/μs tp=100μs dV/dt=5V/μs V <sub>D</sub> = 67%V <sub>DRM</sub>	T <sub>j</sub> = 110°C	MAX	100		μs	

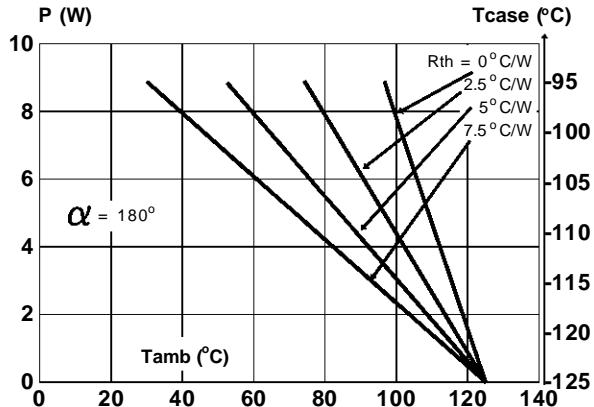
### ORDERING INFORMATION



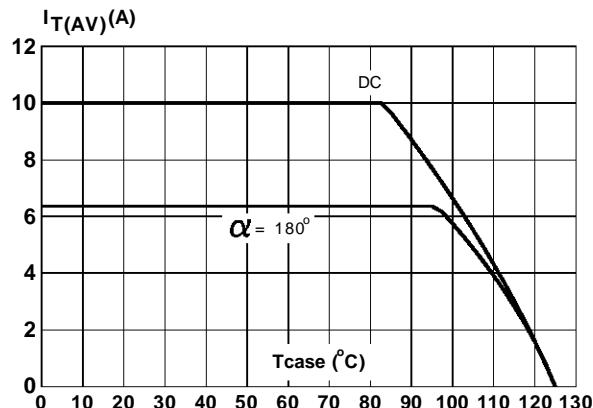
**Fig.1 :** Maximum average power dissipation versus average on-state current.



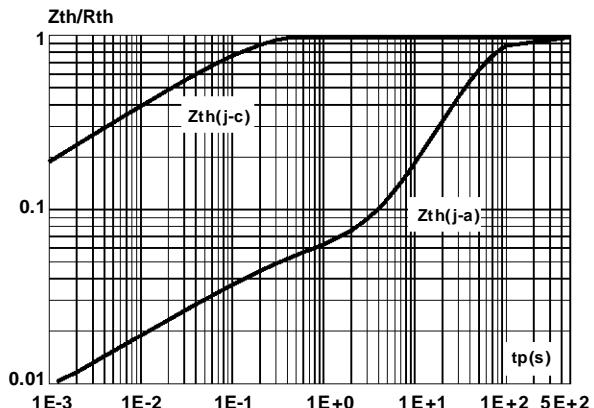
**Fig.2 :** Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.



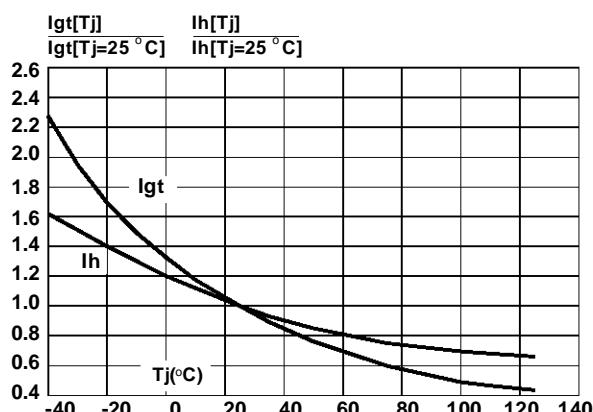
**Fig.3 :** Average on-state current versus case temperature.



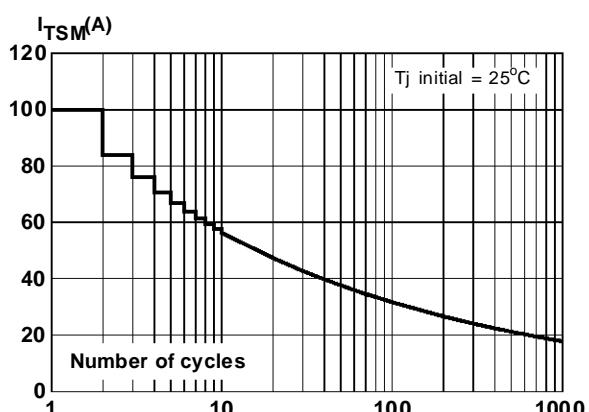
**Fig.4 :** Relative variation of thermal impedance versus pulse duration.



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

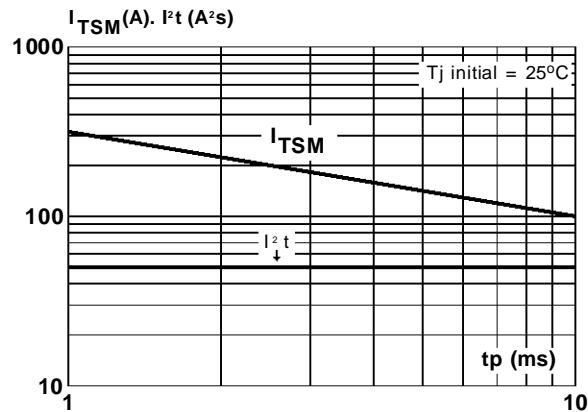


**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.

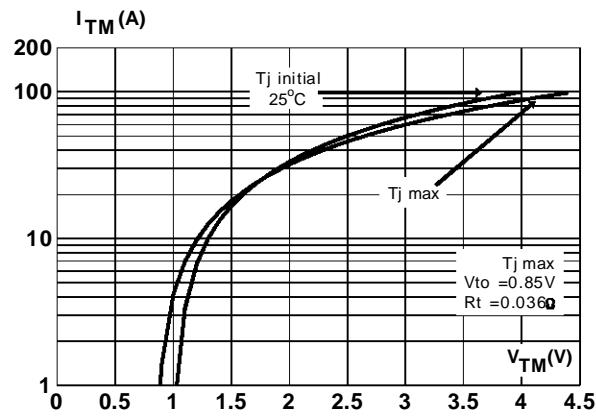


## S10xxxH

**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)

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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