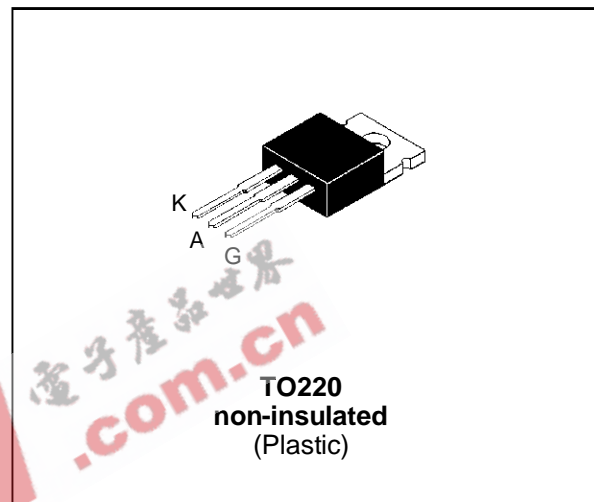


FEATURES

- $I_{T(RMS)} = 12A$
- $V_{DRM} = 200V$ to $800V$
- High surge current capability

DESCRIPTION

The S12xxxH 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)	$T_c = 90^\circ C$ 12	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_c = 90^\circ C$ 7.6	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 8.3$ ms	132
		$t_p = 10$ ms	120
I^2t	I^2t Value for fusing	$t_p = 10$ ms	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 100$ mA $di_G/dt = 1$ A/ μs .	100	A/ μs
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

S12xxxH

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	60	°C/W
Rth(j-c)	Junction to case for DC	3	°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
				06	10	17	
I_{GT}	$V_D = 12\text{ V (DC)}$ $R_L = 33\ \Omega$	$T_j = 25^\circ\text{C}$	MIN	0.5	10	4	mA
			MAX	5	25	15	
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	$V_D = V_{DRM}$ $I_{TM} = 3 \times I_{T(AV)}$ $dl/dt = 0.5\text{ A}/\mu\text{s}$ $I_G = 40\text{ mA}$	$T_j = 25^\circ\text{C}$	TYP	2			μs
I_H	$I_T = 250\text{ mA}$ Gate open	$T_j = 25^\circ\text{C}$	MAX	15	50	30	mA
I_L	$I_G = 1.2 I_{GT}$	$T_j = 25^\circ\text{C}$	MAX	30	100	60	mA
V_{TM}	$I_{TM} = 24\text{ A}$ $t_p = 380\ \mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX	1.6			V
I_{DRM} I_{RRM}	$V_D = V_{DRM}$ $V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX	5			μA
		$T_j = 110^\circ\text{C}$	MAX	1.5			mA
dV/dt	$V_D = 67\% V_{DRM}$ Gate open	$T_j = 110^\circ\text{C}$	MIN		200	100	V/ μs
		$T_j = 110^\circ\text{C}$	TYP	10			
tq	$I_{TM} = 3 \times I_{T(AV)}$ $V_R = 35\text{ V}$ $dl/dt = 10\text{ A}/\mu\text{s}$ $t_p = 100\ \mu\text{s}$ $dV/dt = 5\text{ V}/\mu\text{s}$ $V_D = 67\% V_{DRM}$	$T_j = 110^\circ\text{C}$	MAX	100			μs

ORDERING INFORMATION

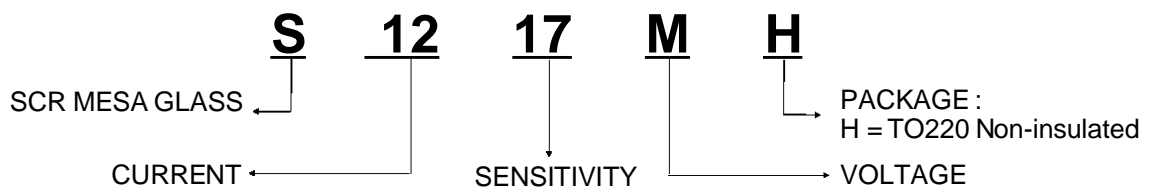


Fig.1 : Maximum average power dissipation versus average on-state current.

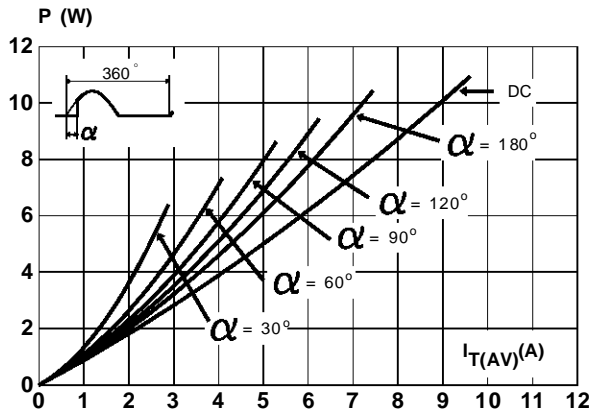


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

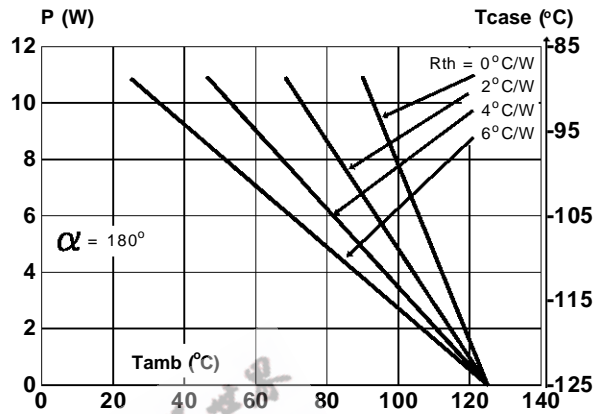


Fig.3 : Average on-state current versus case temperature.

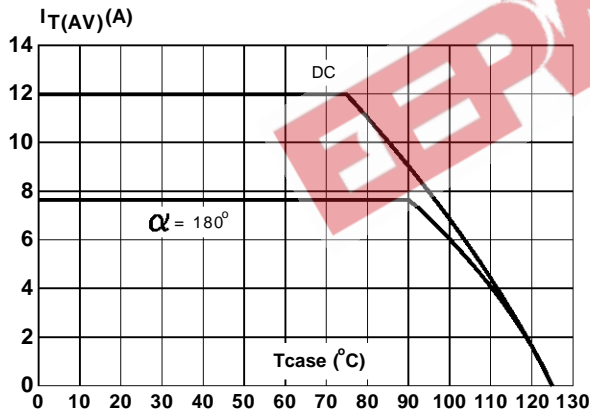


Fig.4 : Relative variation of thermal impedance versus pulse duration.

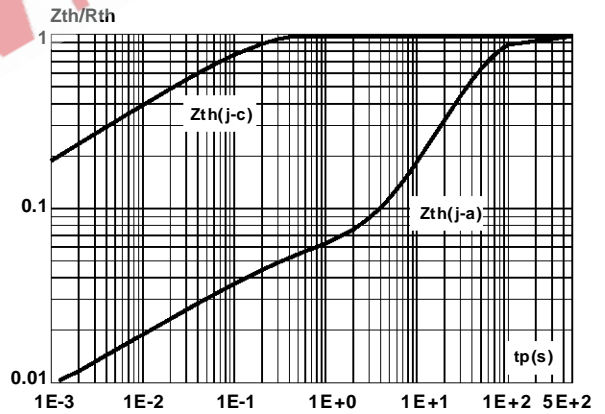


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

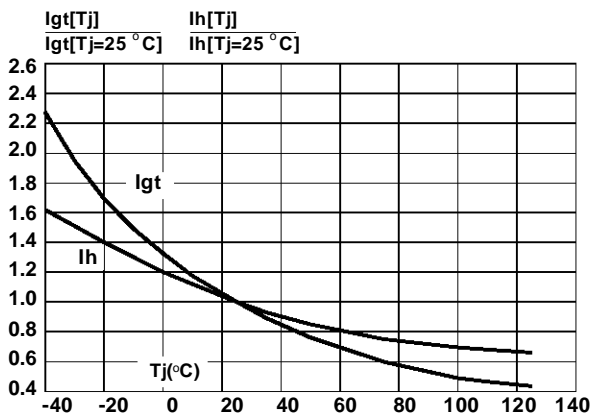
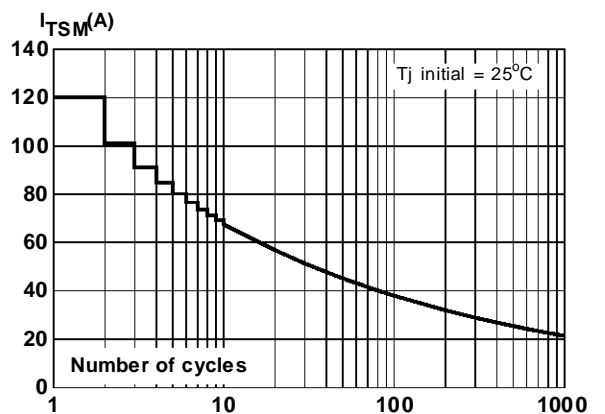


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



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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 .

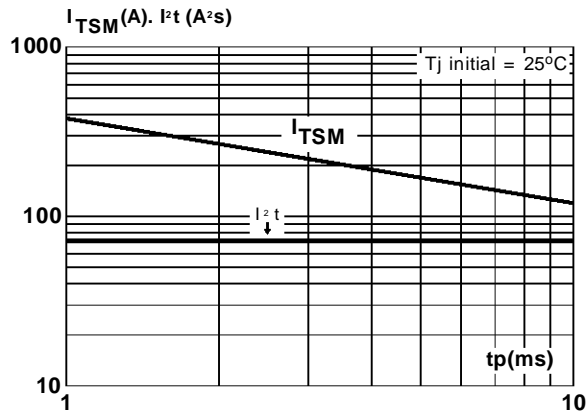
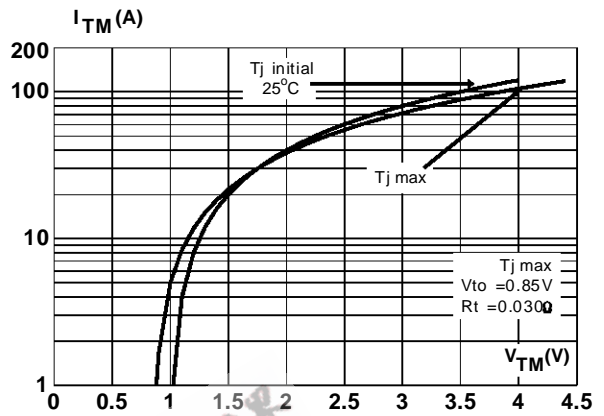
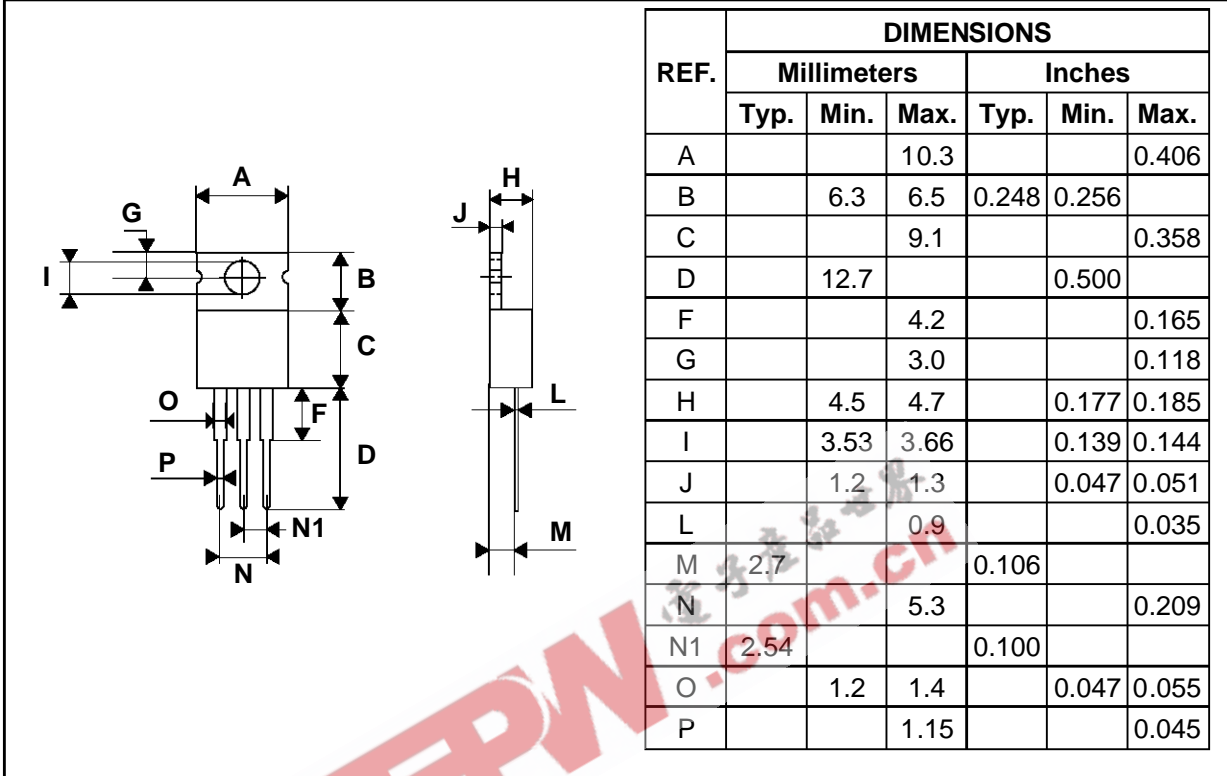


Fig.8 : On-state characteristics (maximum values).



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PACKAGE MECHANICAL DATA
TO220 Non-insulated (Plastic)



Marking : type number
Weight : 1.8 g

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