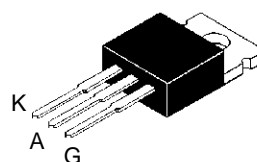


FEATURES

- $I_{T(RMS)} = 12A$
- $V_{DRM} = 200V$ 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.



TO220
non-insulated
(Plastic)

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	A
		$t_p = 10$ ms	120	
I_t^2	I_t^2 Value for fusing	$t_p = 10$ ms	72	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 =12V (DC) R _L =33Ω	T _j = 25°C	MIN	0.5	10	4	mA	
			MAX	5	25	15		
V _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	MAX	1.5			V	
V _{GD}	V _D =V _{DRM} R _L =3.3kΩ	T _j = 125°C	MIN	0.2			V	
t _{gt}	V _D =V _{DRM} I _{TM} = 3 x I _{T(AV)} dI _G /dt = 0.5A/μs I _G = 40mA	T _j = 25°C	TYP	2			μs	
I _H	I _T = 250mA Gate open	T _j = 25°C	MAX	15	50	30	mA	
I _L	I _G =1.2 I _{GT}	T _j = 25°C	MAX	30	100	60	mA	
V _{TM}	I _{TM} = 24A t _p = 380μs	T _j = 25°C	MAX	1.6			V	
I _{DRM} I _{RRM}	V _D = V _{DRM} V _R = V _R	T _j = 25°C	MAX	5			μA	
		T _j = 110°C	MAX	1.5			mA	
dV/dt	V _D =67%V _{DRM} Gate open	T _j = 110°C	MIN		200	100	V/μs	
		T _j = 110°C	TYP	10				
t _q	I _{TM} = 3 x I _{T(AV)} V _R =35V dI/dt=10A/μs t _p =100μs dV/dt=5V/μs V _D = 67%V _{DRM}	T _j = 110°C	MAX	100			μs	

ORDERING INFORMATION

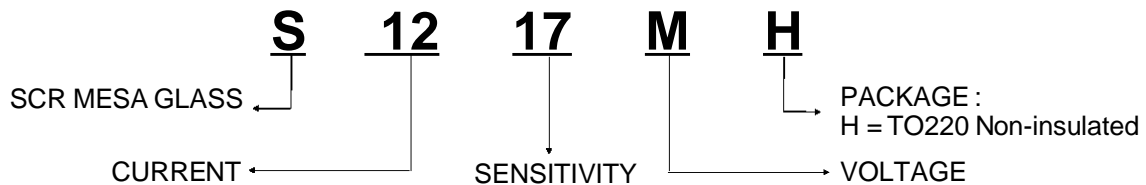


Fig.1 : Maximum average power dissipation versus average on-state current.

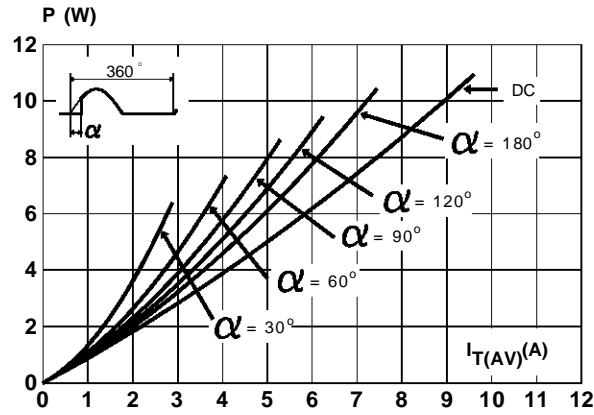


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

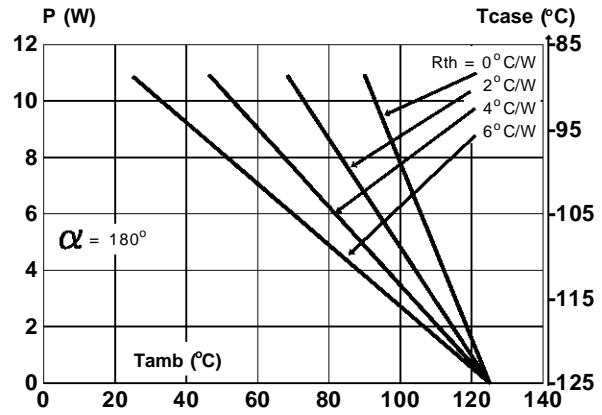


Fig.3 : Average on-state current versus case temperature.

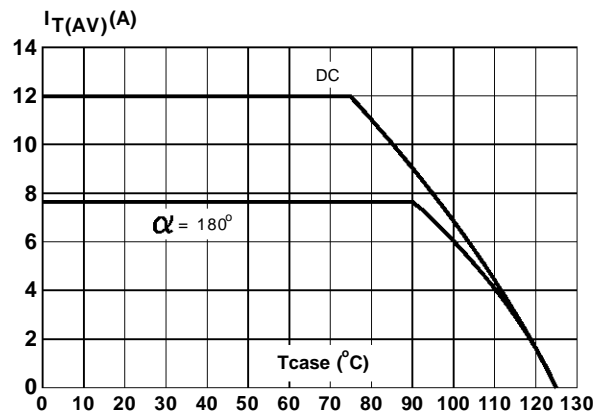


Fig.4 : Relative variation of thermal impedance versus pulse duration.

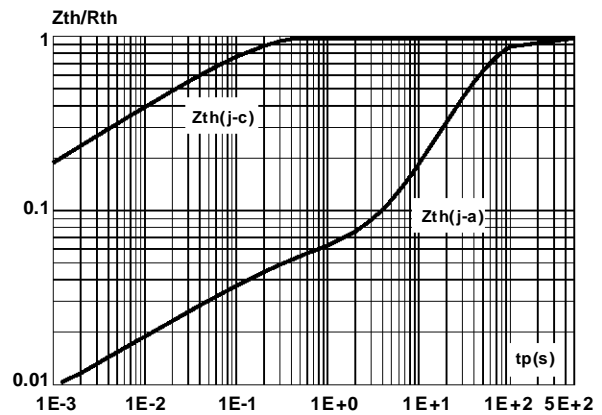


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

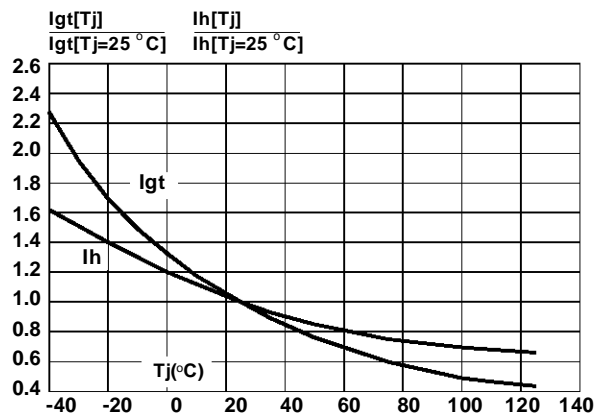
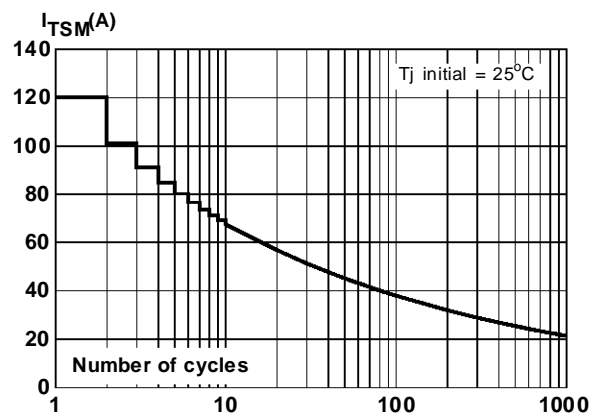


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



S12xxxH

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 .

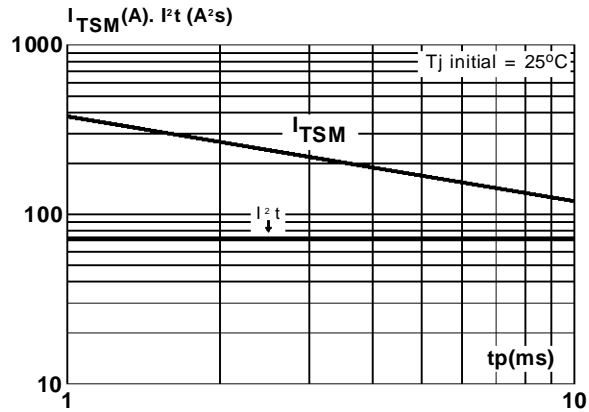
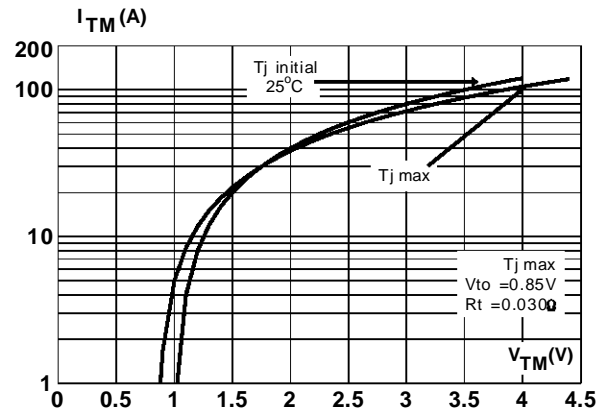


Fig.8 : On-state characteristics (maximum values).



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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