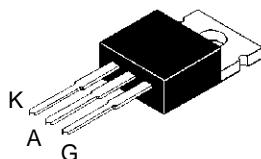


SCR

FEATURES

- $I_T(\text{RMS}) = 40\text{A}$
- $V_{\text{DRM}} = 200\text{V}$ to 800V
- High surge current capability



**TO220
non-insulated
(Plastic)**

DESCRIPTION

The S40xxxH 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° conduction angle)	40	A
$I_T(\text{AV})$	Average on-state current (180° conduction angle)	25	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	$t_p = 8.3 \text{ ms}$	A
		$t_p = 10 \text{ ms}$	
I^2t	I^2t Value for fusing	722	A^2s
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_{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_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ\text{C}$	200	400	600	800	V

S40xxxH

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-a)}	Junction to ambient	60	°C/W
R _{th(j-c)}	Junction to case for DC	1.1	°C/W

GATE CHARACTERISTICS (maximum values)

P_{G(AV)}= 1 W P_{GM} = 10 W (tp = 20 μs) I_{GM} = 4A (tp = 20 μs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity		Unit
				14	16	
I _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	MIN	30	20	mA
			MAX	75	50	
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 = 1.5A/μs I _G = 200mA	T _j = 25°C	TYP	2		μs
I _H	I _T = 500mA Gate open	T _j = 25°C	MAX	115	100	mA
I _L	I _G =1.2 I _{GT}	T _j = 25°C	MAX	230	200	mA
V _{TM}	I _{TM} = 80A tp= 380μs	T _j = 25°C	MAX	1.6		V
I _{DRM} I _{RRM}	V _D = V _{DRM} V _R = V _{RRM}	T _j = 25°C	MAX	10		μA
		T _j = 110°C	MAX	3		mA
dV/dt	V _D =67%V _{DRM} Gate open	T _j = 110°C	MIN	750	500	V/μs
t _q	I _{TM} = 3 x I _{T(AV)} V _R =35V dI/dt=25A/μs tp=100μs dV/dt=25V/μs V _D = 67%V _{DRM}	T _j = 110°C	MAX	100		μs

ORDERING INFORMATION

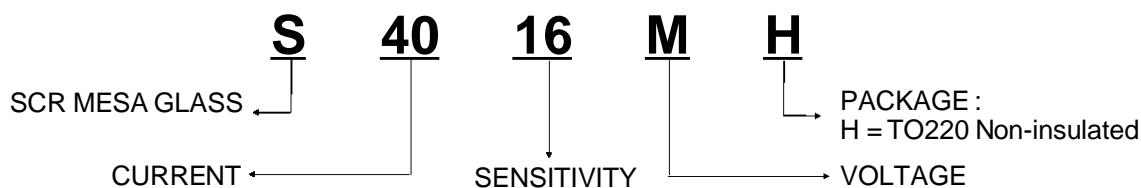


Fig.1 : Maximum average power dissipation versus average on-state current.

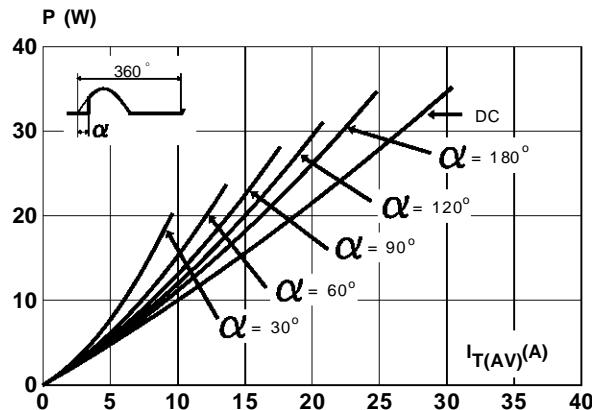


Fig.3 : Average on-state current versus case temperature.

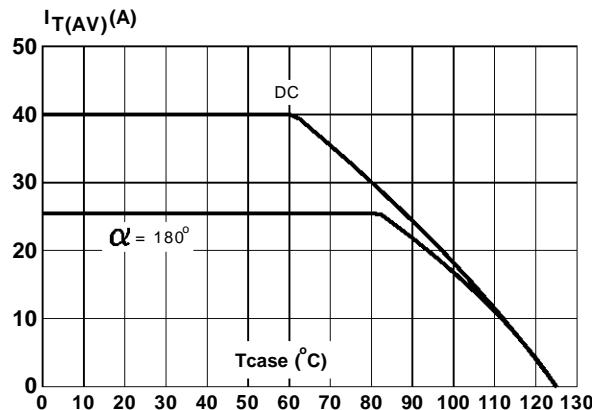


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

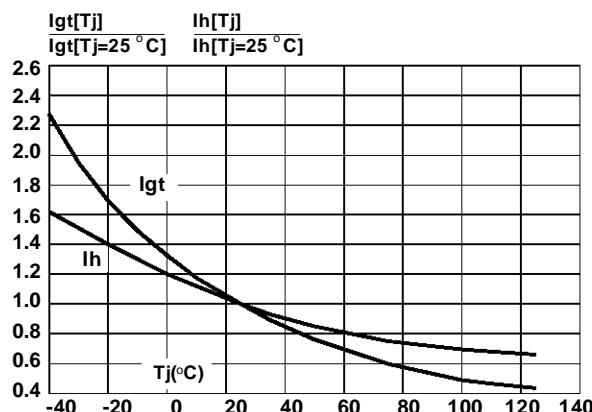


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{case}) for different thermal resistances heatsink + contact.

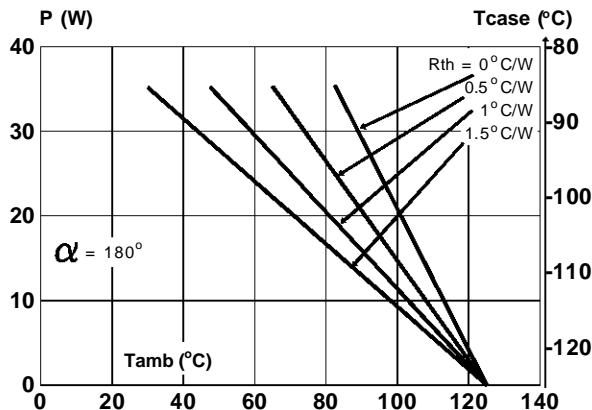


Fig.4 : Relative variation of thermal impedance versus pulse duration.

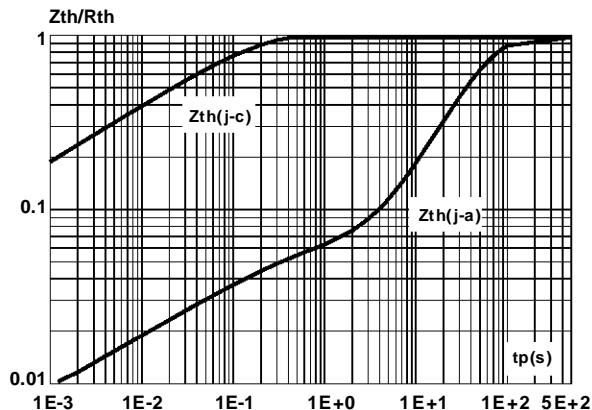
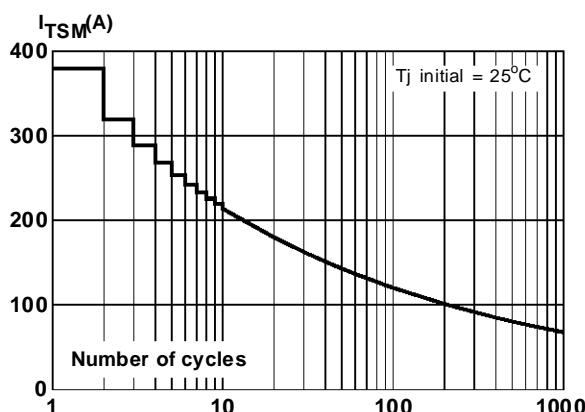


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



S40xxxH

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 .

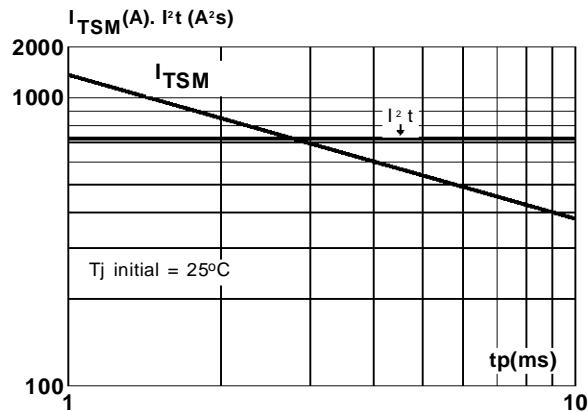
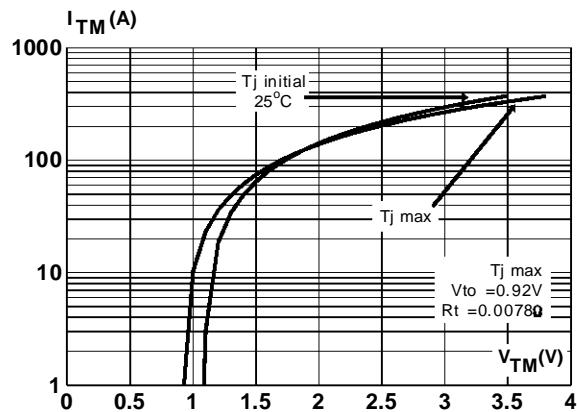


Fig.8 : On-state characteristics (maximum values).



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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