

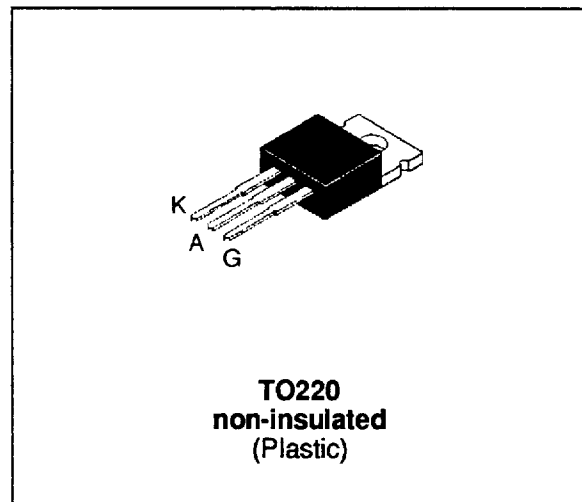
**FAST SWITCHING SCR**

**FEATURES**

- $I_{T(RMS)} = 8A$
- $V_{DRM} = 200V$  to  $800V$
- $t_q = 20\mu s$  max

**DESCRIPTION**

The F0810xH series of SCRs uses a high performance MESA GLASS PNP technology. These parts are intended for high frequency switching applications.



**ABSOLUTE RATINGS** (limiting values)

Symbol	Parameter	Value	Unit	
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_c = 95^\circ C$ 8	A	
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_c = 95^\circ C$ 5.1	A	
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ C$ )	$t_p = 8.3$ ms	88	A
		$t_p = 10$ ms	80	
$I^2t$	$I^2t$ Value for fusing	$t_p = 10$ ms	32	$A^2s$
$di/dt$	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

# F0810xH

## 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

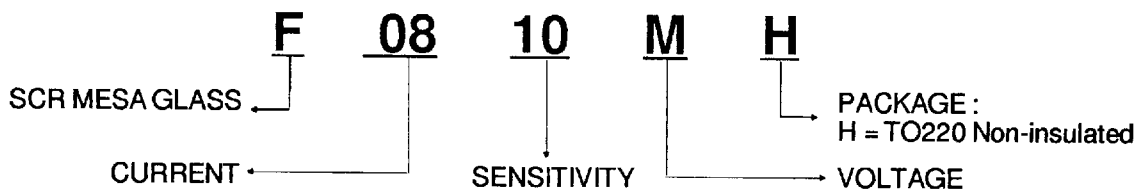
## GATE CHARACTERISTICS (maximum values)

$P_{G(AV)} = 0.5 \text{ W}$   $P_{GM} = 2 \text{ W}$  ( $t_p = 20 \mu\text{s}$ )  $I_{GM} = 2 \text{ A}$  ( $t_p = 20 \mu\text{s}$ )

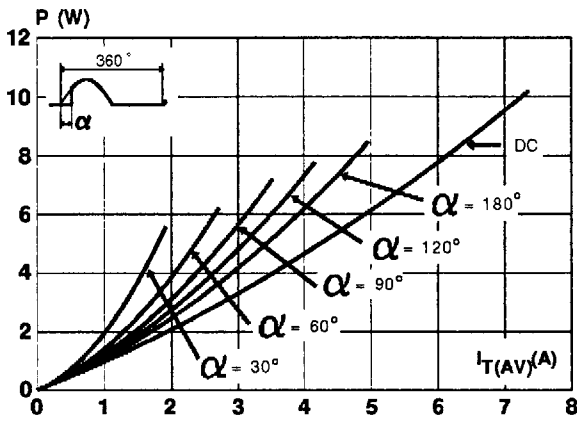
## ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity	Unit
				10	
I <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =33Ω	T <sub>j</sub> = 25°C	MIN	10	mA
			MAX	25	
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 = 0.8A/μs I <sub>G</sub> = 90mA	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	75	mA
I <sub>L</sub>	I <sub>G</sub> =1.2 I <sub>GT</sub>	T <sub>j</sub> = 25°C	MAX	150	mA
V <sub>TM</sub>	I <sub>TM</sub> = 16A t <sub>p</sub> = 380μs	T <sub>j</sub> = 25°C	MAX	2	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	300	V/μs
t <sub>q</sub>	I <sub>TM</sub> = 3 x I <sub>T(AV)</sub> V <sub>R</sub> =35V dI/dt=25A/μs t <sub>p</sub> =100μs dV/dt=25V/μs V <sub>D</sub> = 67%V <sub>DRM</sub>	T <sub>j</sub> = 110°C	MAX	20	μs

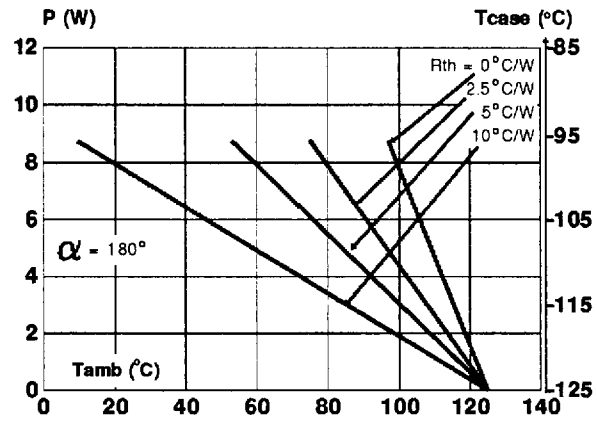
## ORDERING INFORMATION



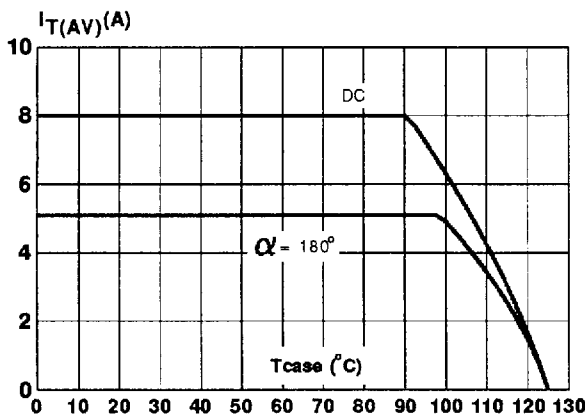
**Fig.1 :** Maximum average power dissipation versus average on-state current.



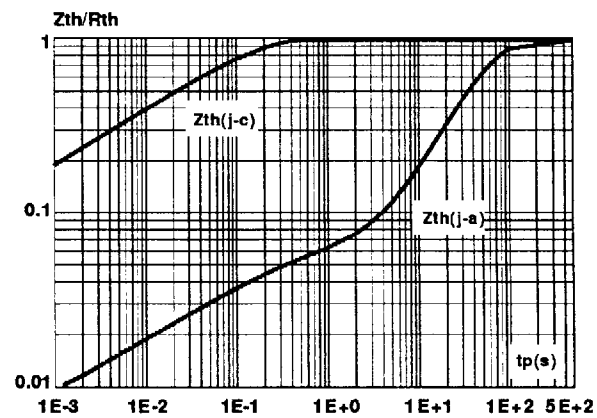
**Fig.2 :** Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.



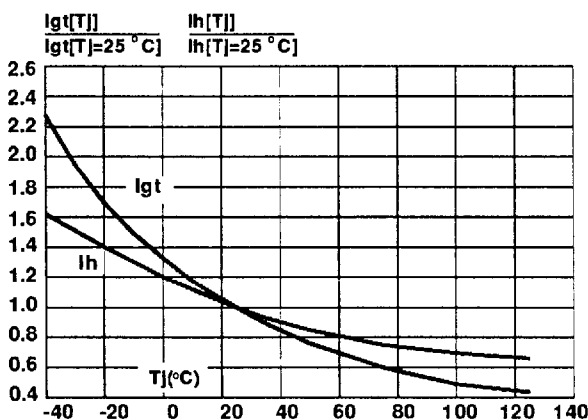
**Fig.3 :** Average on-state current versus case temperature.



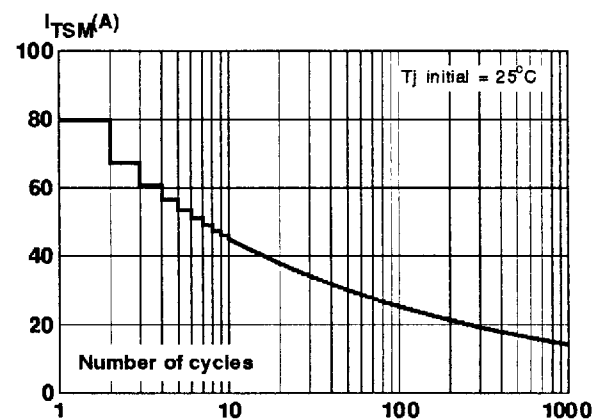
**Fig.4 :** Relative variation of thermal impedance versus pulse duration.



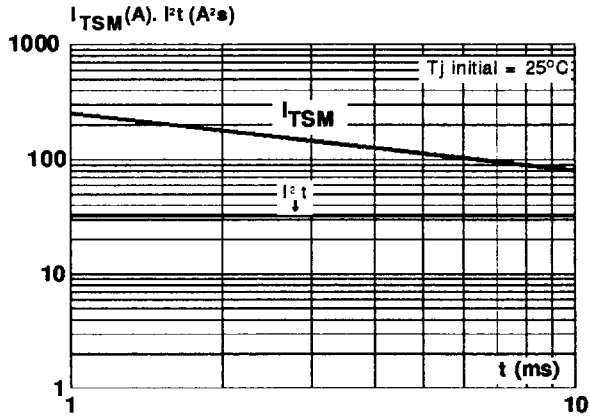
**Fig.5 :** Relative variation of gate trigger current and holding current versus junction temperature.



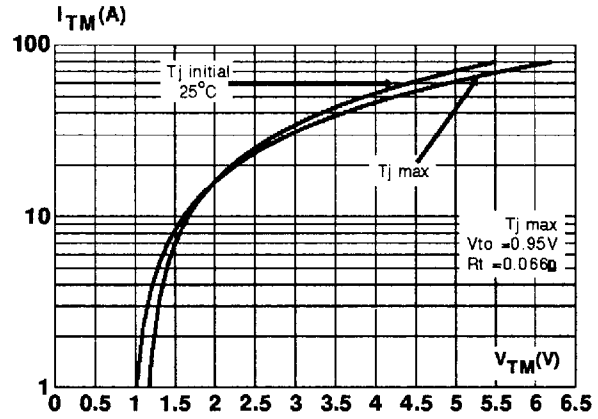
**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.

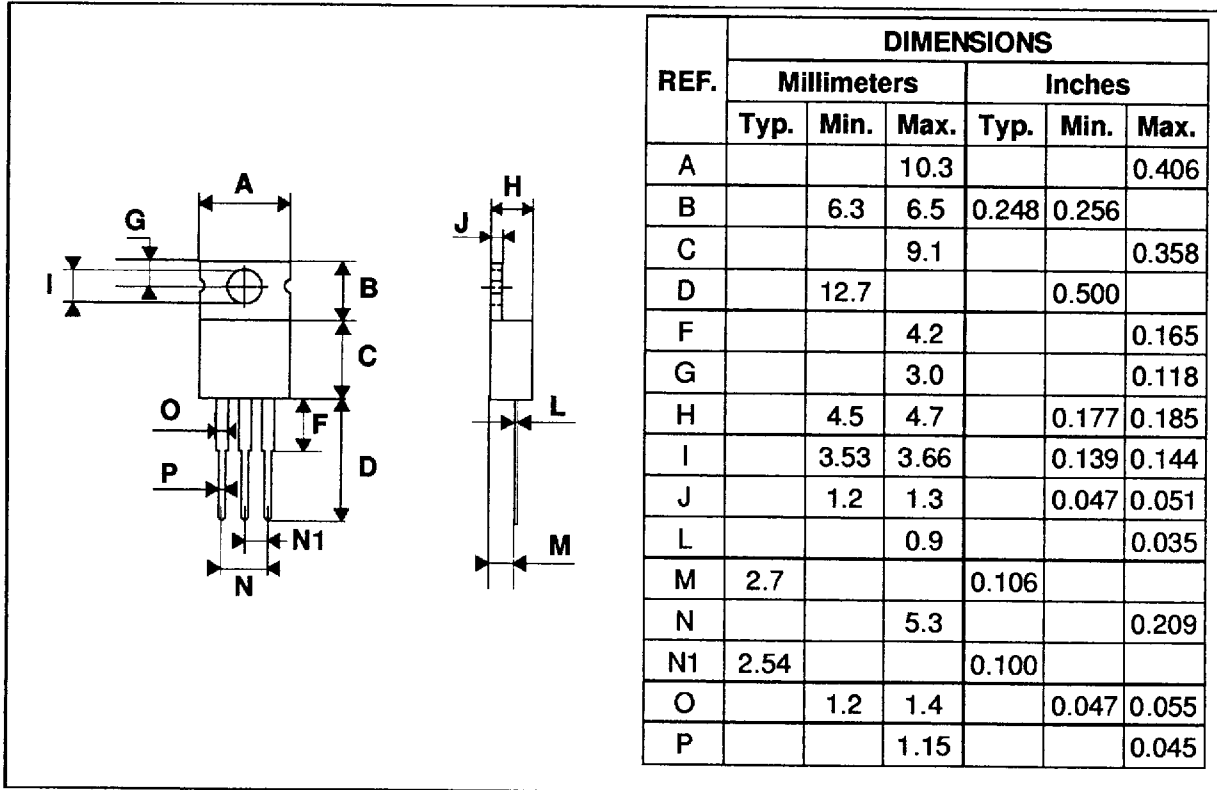


**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



**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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