

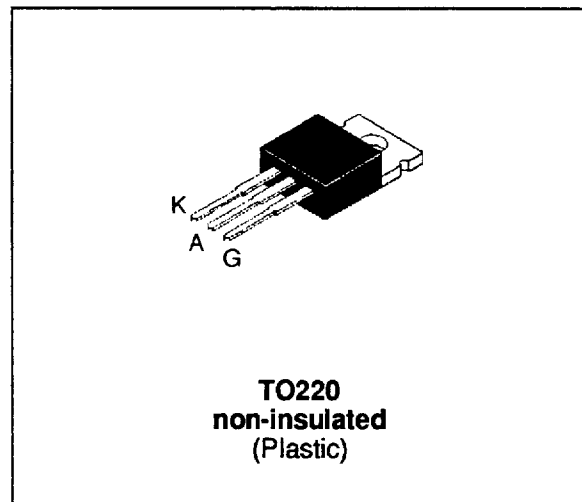
FAST SWITCHING SCR

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/ 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

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 _{GT}	V _D =12V (DC) R _L =33Ω	T _j = 25°C	MIN	10	mA
			MAX	25	
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 = 0.8A/μs I _G = 90mA	T _j = 25°C	TYP	2	μs
I _H	I _T = 250mA Gate open	T _j = 25°C	MAX	75	mA
I _L	I _G =1.2 I _{GT}	T _j = 25°C	MAX	150	mA
V _{TM}	I _{TM} = 16A t _p = 380μs	T _j = 25°C	MAX	2	V
I _{DRM} I _{RRM}	V _D = V _{DRM} V _R = V _{RRM}	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	300	V/μs
t _q	I _{TM} = 3 x I _{T(AV)} V _R =35V dI/dt=25A/μs t _p =100μs dV/dt=25V/μs V _D = 67%V _{DRM}	T _j = 110°C	MAX	20	μs

ORDERING INFORMATION

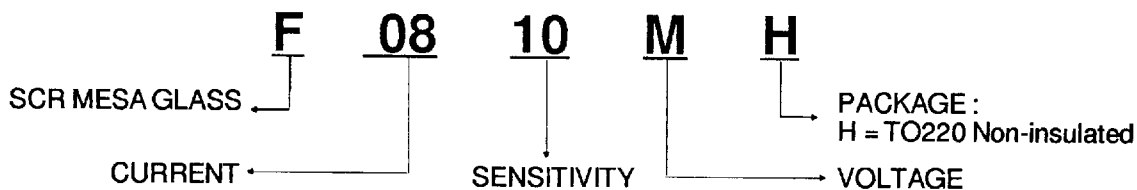


Fig.1 : Maximum average power dissipation versus average on-state current.

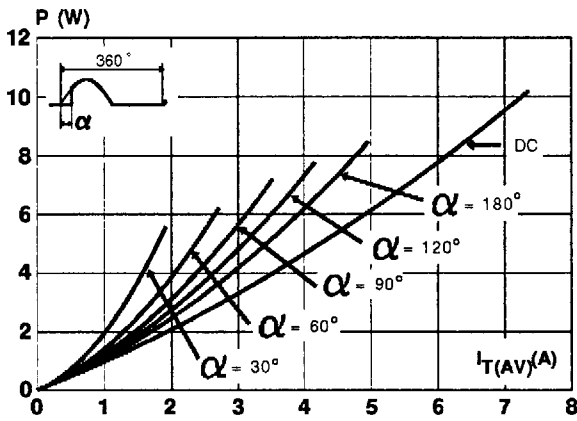


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tcase) for different thermal resistances heatsink + contact.

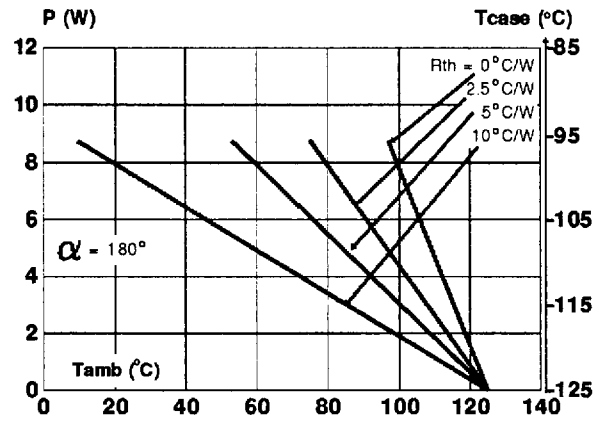


Fig.3 : Average on-state current versus case temperature.

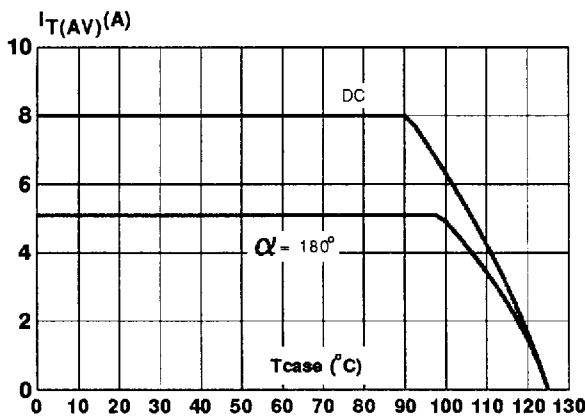


Fig.4 : Relative variation of thermal impedance versus pulse duration.

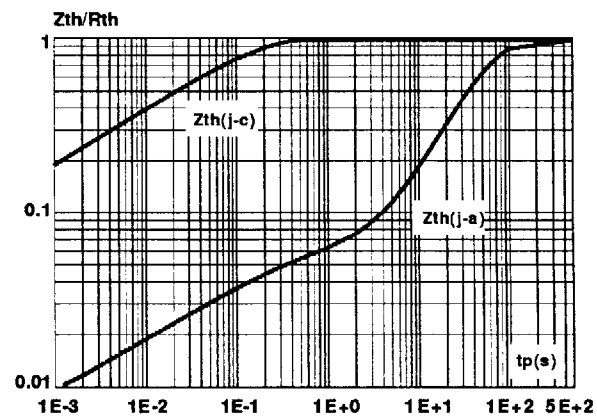


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

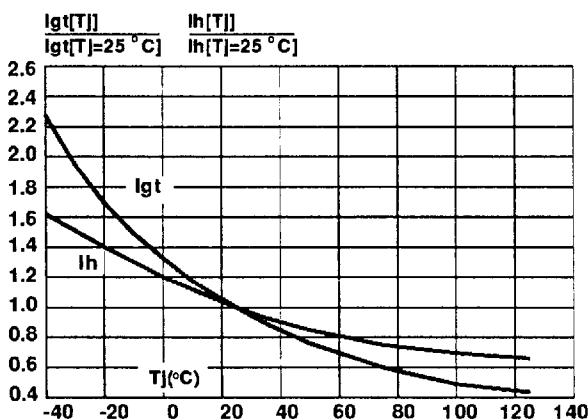


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.

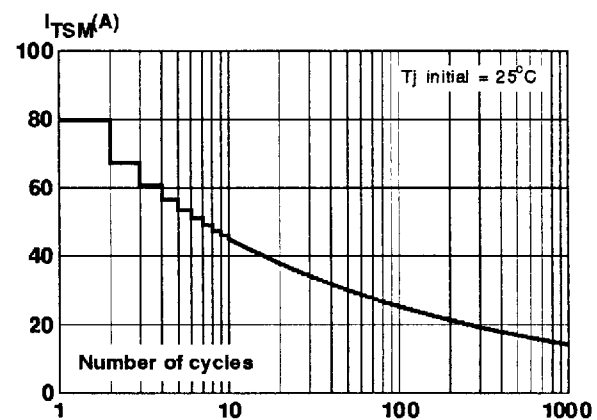


Fig.7 : Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10\text{ms}$, and corresponding value of I^2t .

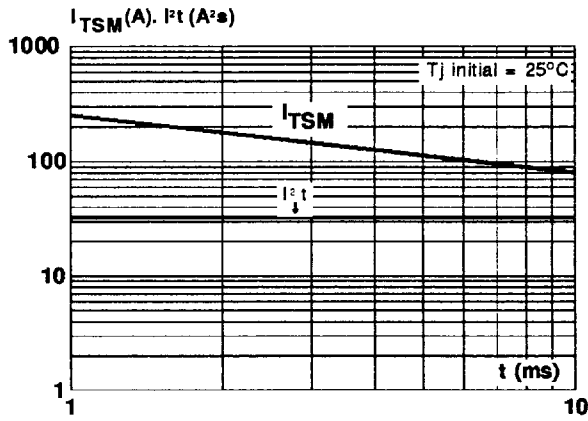
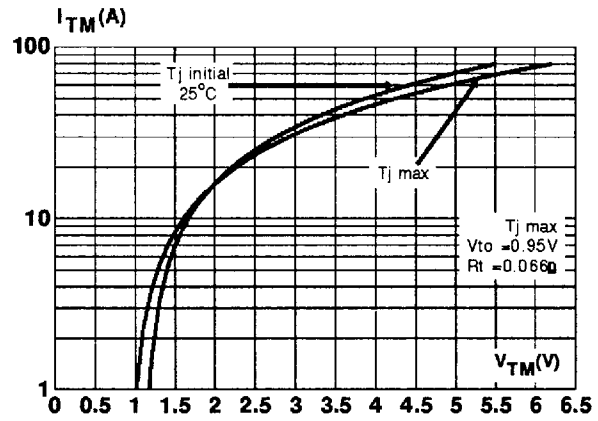
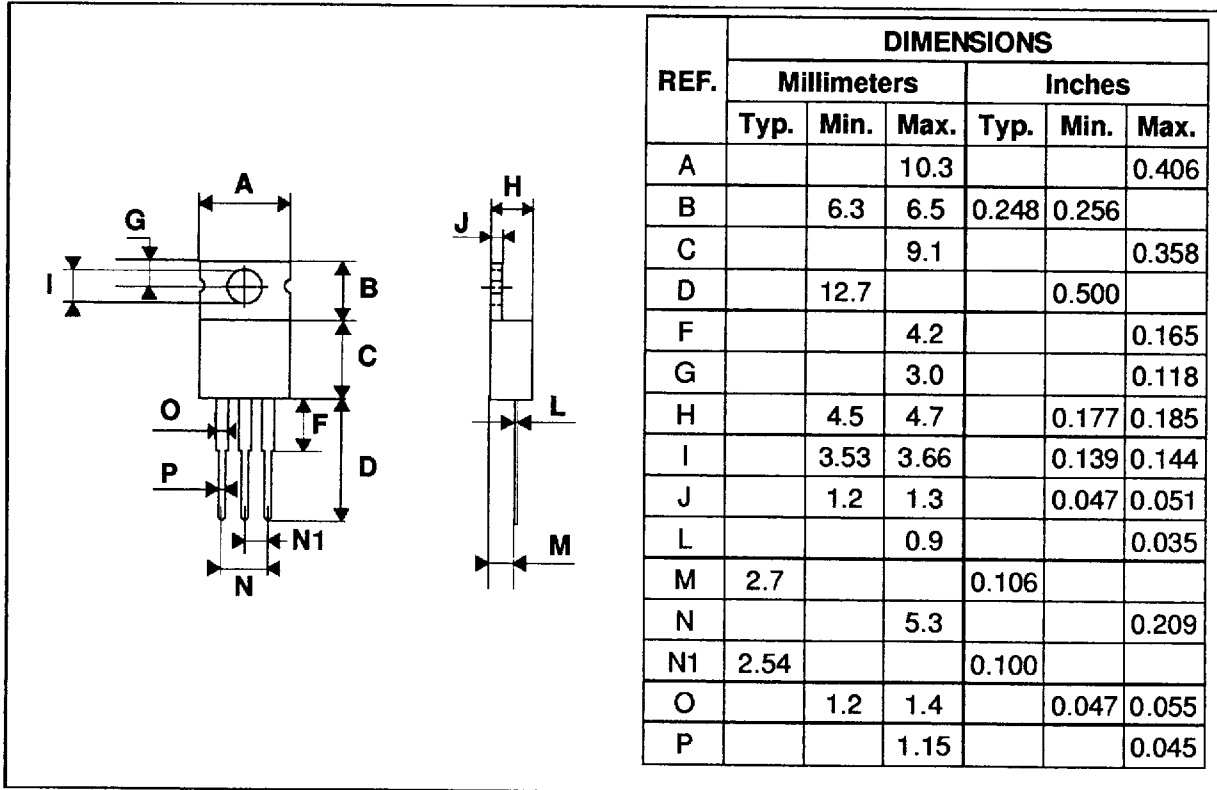


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA
 TO220 Non-insulated (Plastic)


Marking : type number
 Weight : 1.8 g

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