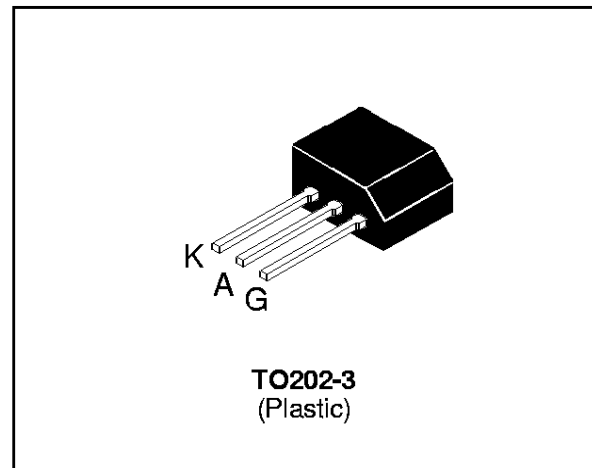


SENSITIVE GATE SCR
FEATURES

- $I_{T(RMS)} = 4A$
- $V_{DRM} = 400V$ to $800V$
- Low $I_{GT} < 200\mu A$

DESCRIPTION

The X04xxxF series of SCRs uses a high performance TOP GLASS PNP technology. These parts are intended for general purpose applications where low gate sensitivity is required, like small engine ignition, SMPS crowbar protection, food processor.


ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_c = 90^\circ C$	4	A
		$T_a = 25^\circ C$	1.35	
$I_{T(AV)}$	Mean on-state current (180° conduction angle)	$T_c = 90^\circ C$	2.5	A
		$T_a = 25^\circ C$	0.9	
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 8.3$ ms	33	A
		$t_p = 10$ ms	30	
I^2t	I^2t Value for fusing	$t_p = 10$ ms	4.5	A^2s
di/dt	Critical rate of rise of on-state current $I_G = 10$ mA $di_G/dt = 0.1$ A/ μs .		50	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
		D	M	N	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ C$ $R_{GK} = 1K\Omega$	400	600	800	V

X04xxxF

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	100	°C/W
Rth(j-c)	Junction to case for DC	7.5	°C/W

GATE CHARACTERISTICS

$P_{G(AV)} = 0.2 \text{ W max.}$ $P_{GM} = 3 \text{ W max. (} t_p = 20 \mu\text{s)}$ $I_{GM} = 1.2 \text{ A max. (} t_p = 20 \mu\text{s)}$
 $V_{GD} = 0.1 \text{ V min. (} V_D = V_{DRM} \text{ } R_L = 3.3 \text{ k}\Omega \text{ } R_{GK} = 1 \text{ k}\Omega \text{ } T_j = 125^\circ\text{C)}$

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity			Unit
				02	03	05	
I _{GT}	V _D =12V (DC) R _L =140Ω	T _j = 25°C	MIN		20	20	μA
			MAX	200	200	50	
V _{GT}	V _D =12V (DC) R _L =140Ω	T _j = 25°C	MAX	0.8			V
V _{RGM}	I _{RG} =10μA	T _j = 25°C	MIN	8			V
I _H	I _T = 50mA R _{GK} = 1 KΩ	T _j = 25°C	MAX	5			mA
I _L	I _G =1mA R _{GK} = 1 KΩ	T _j = 25°C	MAX	6			mA
V _{TM}	I _{TM} = 8A t _p = 380μs	T _j = 25°C	MAX	1.8			V
I _{DRM} I _{RRM}	V _D = V _{DRM} R _{GK} = 1 KΩ V _R = V _{RRM}	T _j = 25°C	MAX	5			μA
		T _j = 110°C	MAX	200			
dV/dt	V _D =67%V _{DRM} R _{GK} = 1 KΩ	T _j = 110°C	MIN	10	15	15	V/μs

ORDERING INFORMATION

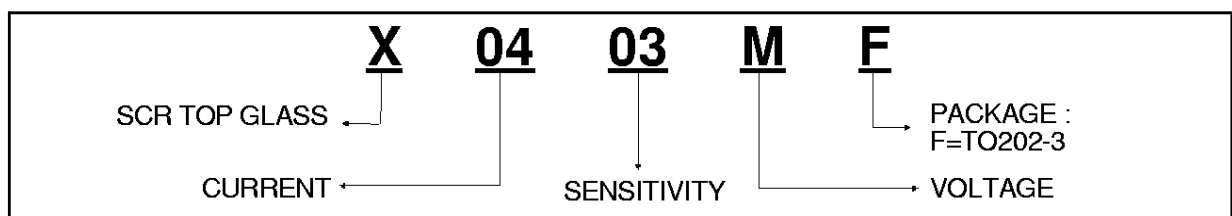


Fig.1 : Maximum average power dissipation versus average on-state current.

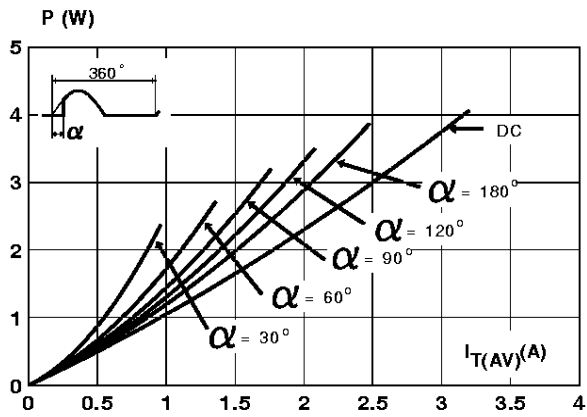


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{case}).

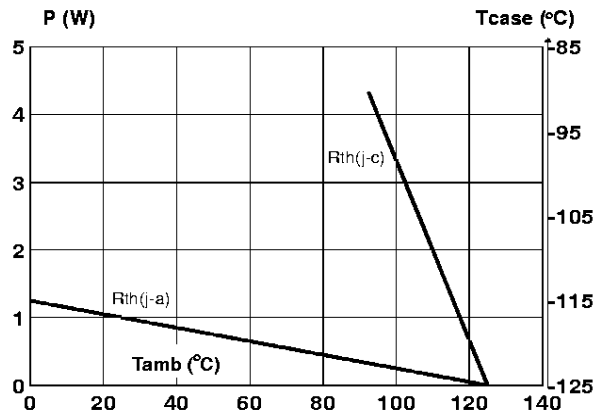


Fig.3 : Average on-state current versus case temperature.

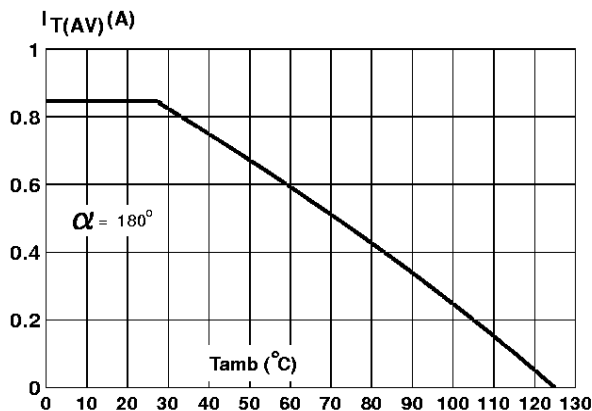


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

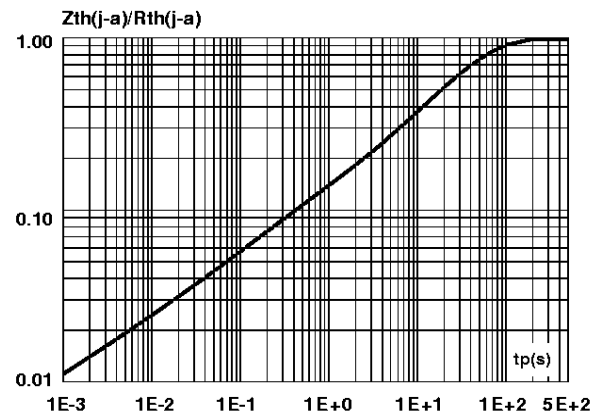


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

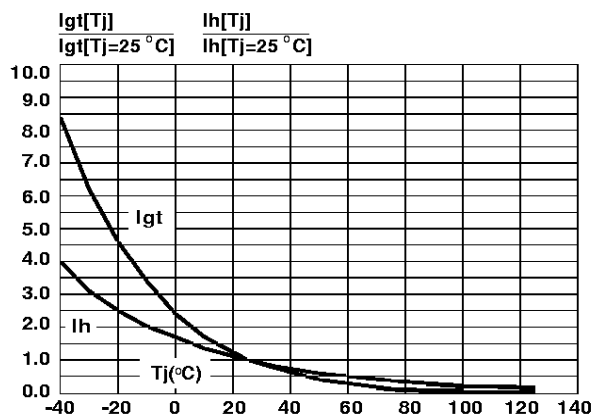
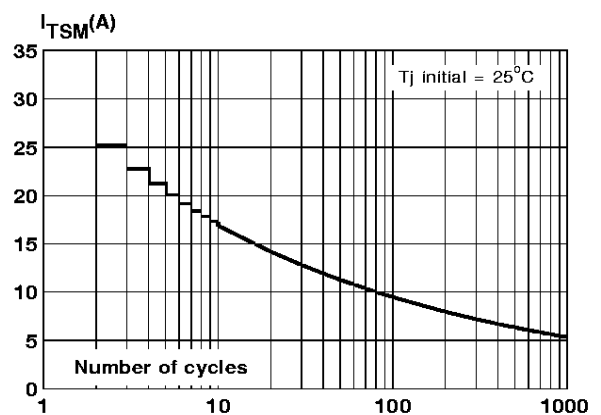


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



X04xxxF

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 .

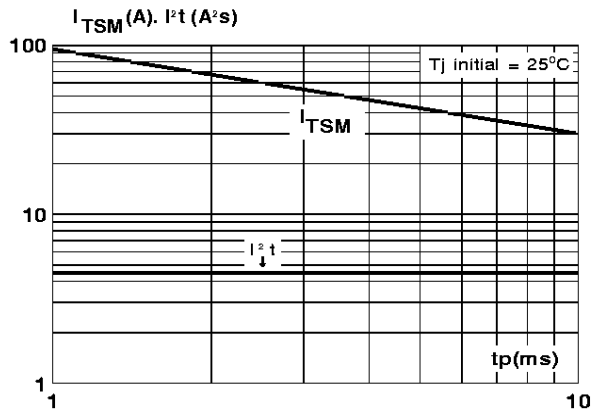
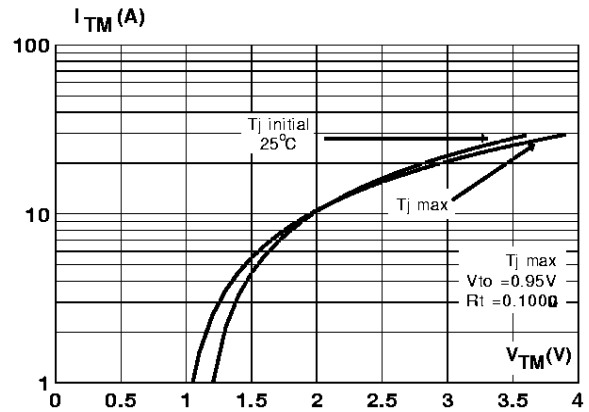
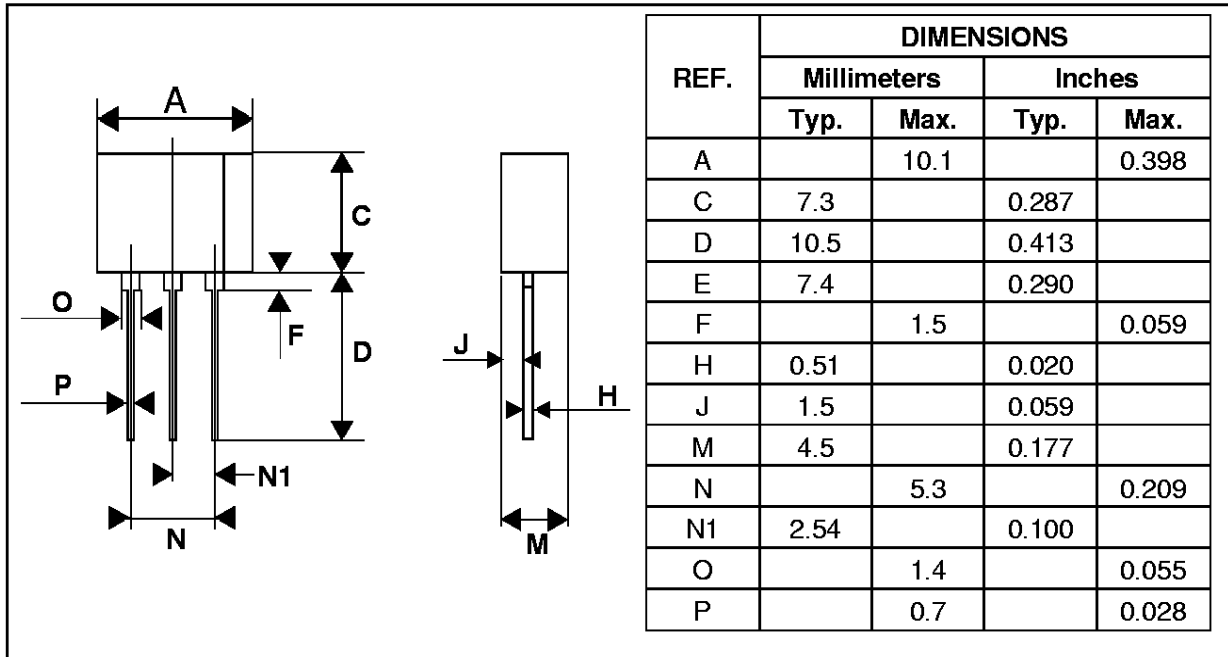


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA TO202-3 (Plastic)



Marking : type number
Weight : 1 g

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