

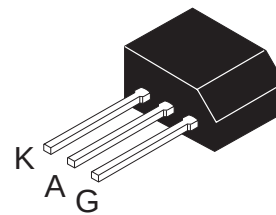
SENSITIVE GATE SCR

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.



TO202-3
(Plastic)

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

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

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 tp= 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

X	04	03	M	F
SCR TOP GLASS	CURRENT	SENSITIVITY	VOLTAGE	PACKAGE : F=TO202-3

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

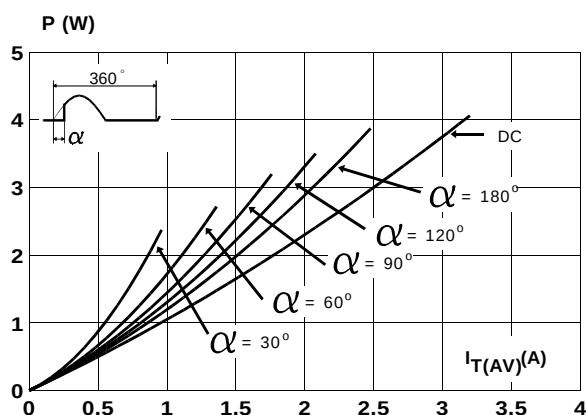


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{case}).

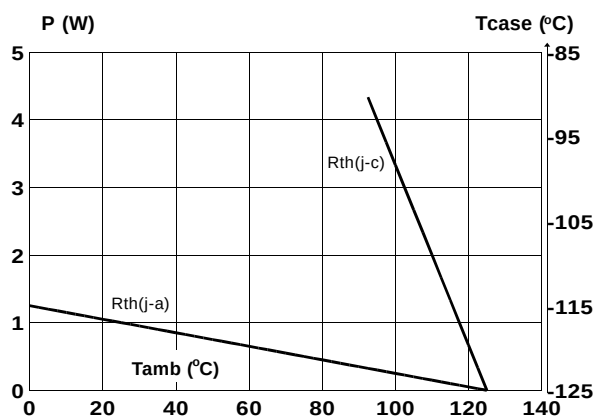


Fig.3 : Average on-state current versus case temperature.

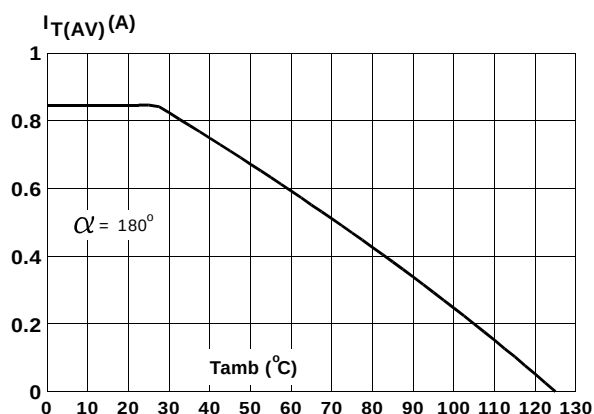


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

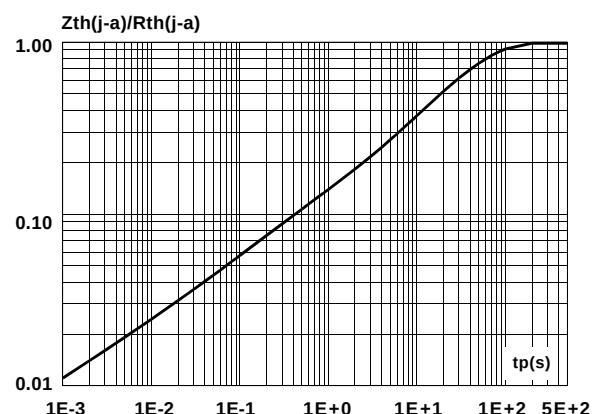


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

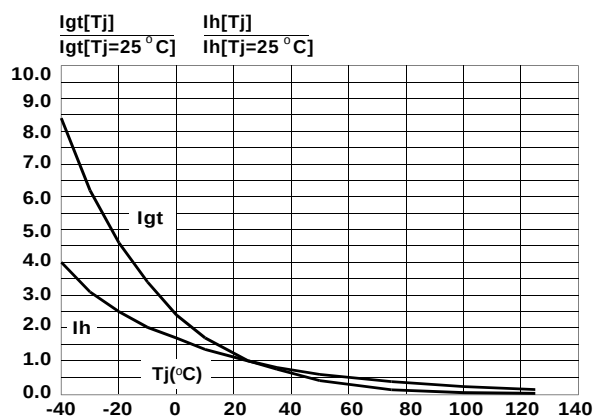
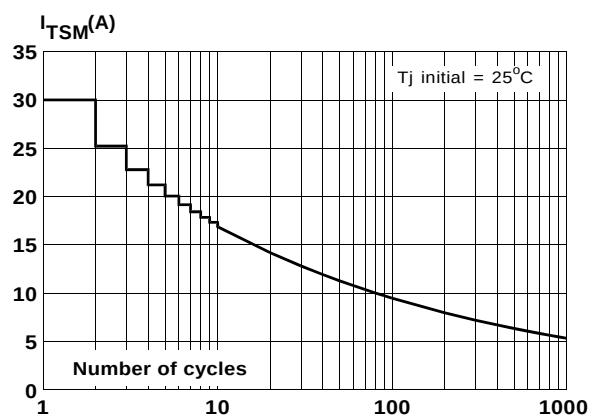


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



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 .

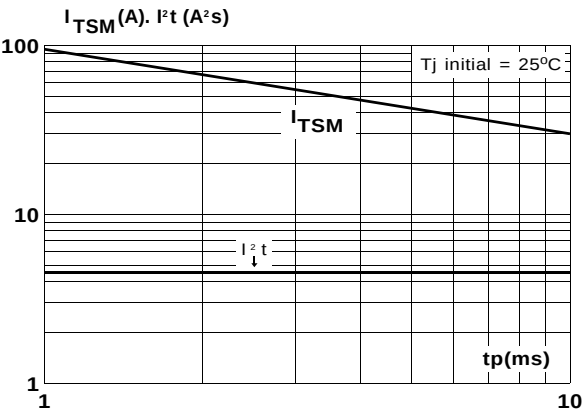
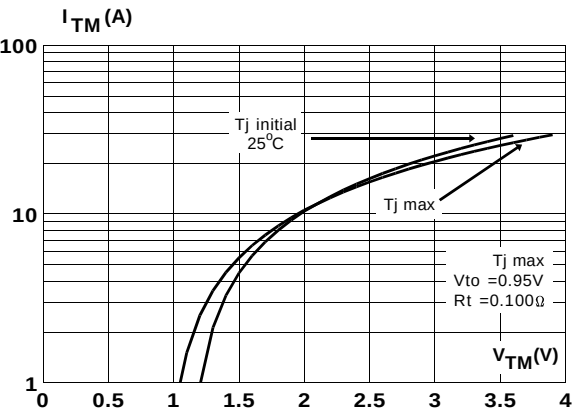
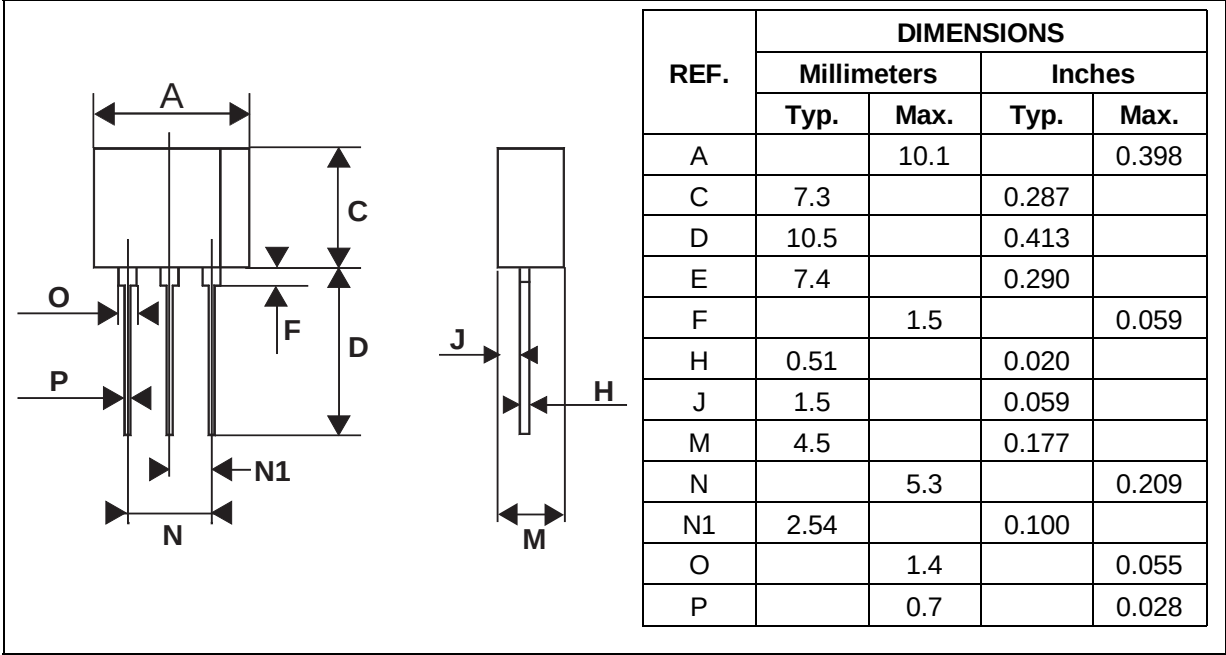


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA
TO202-3 (Plastic)



Marking : type number
Weight : 1 g

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