



X02xxxA

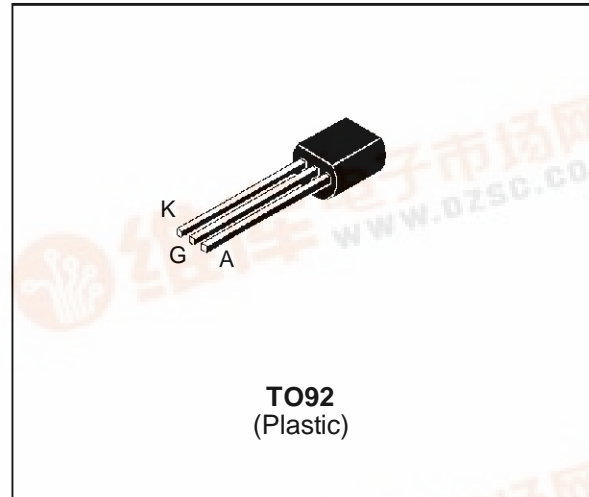
SENSITIVE GATE SCR

FEATURES

- $I_{T(RMS)} = 1.25A$
- $V_{DRM} = 200V$ to $800V$
- Low $I_{GT} < 200 \mu A$

DESCRIPTION

The X02xxxA 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.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter	Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_I = 60^\circ C$ 1.25	A
$I_{T(AV)}$	Mean on-state current (180° conduction angle)	$T_I = 60^\circ C$ 0.8	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = $25^\circ C$)	$t_p = 8.3$ ms	25
		$t_p = 10$ ms	22.5
I^2t	I^2t Value for fusing	$t_p = 10$ ms	2.5
di/dt	Critical rate of rise of on-state current $I_G = 10$ mA $di_G/dt = 0.1$ A/ μs .	30	A/ μs
T_{stg} T_j	Storage and operating junction temperature range	- 40, + 150 - 40, + 125	$^\circ C$
T_I	Maximum lead temperature for soldering during 10s at 2mm from case	260	$^\circ C$

Symbol	Parameter	Voltage				Unit
		B	D	M	N	
V_{DRM} V_{RRM}	Repetitive peak off-state voltage $T_j = 125^\circ C$ $R_{GK} = 1K\Omega$	200	400	600	800	V



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THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	150	°C/W
Rth(j-l)	Junction to leads for DC	60	°C/W

GATE CHARACTERISTICS (maximum values)

$P_{G(AV)} = 0.2 \text{ W}$ $P_{GM} = 3 \text{ W}$ ($t_p = 20 \mu\text{s}$) $I_{GM} = 1.2 \text{ A}$ ($t_p = 20 \mu\text{s}$)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity			Unit
				02	03	05	
I_{GT}	$V_D = 12\text{V (DC)}$ $R_L = 140\Omega$	$T_j = 25^\circ\text{C}$	MIN		20	20	μA
			MAX	200	200	50	
V_{GT}	$V_D = 12\text{V (DC)}$ $R_L = 140\Omega$	$T_j = 25^\circ\text{C}$	MAX	0.8			V
V_{GD}	$V_D = V_{DRM}$ $R_L = 3.3\text{k}\Omega$ $R_{GK} = 1\text{K}\Omega$	$T_j = 125^\circ\text{C}$	MIN	0.1			V
V_{RGM}	$I_{RG} = 10\mu\text{A}$	$T_j = 25^\circ\text{C}$	MIN	8			V
tg _d	$V_D = V_{DRM}$ $I_{TM} = 3 \times I_{T(AV)}$ $di_G/dt = 0.1\text{A}/\mu\text{s}$ $I_G = 10\text{mA}$	$T_j = 25^\circ\text{C}$	TYP	0.5			μs
I_H	$I_T = 50\text{mA}$ $R_{GK} = 1\text{K}\Omega$	$T_j = 25^\circ\text{C}$	MAX	5			mA
I_L	$I_G = 1\text{mA}$ $R_{GK} = 1\text{K}\Omega$	$T_j = 25^\circ\text{C}$	MAX	6			mA
V_{TM}	$I_{TM} = 2.5\text{A}$ $t_p = 380\mu\text{s}$	$T_j = 25^\circ\text{C}$	MAX	1.45			V
I_{DRM} I_{RRM}	$V_D = V_{DRM}$ $R_{GK} = 1\text{K}\Omega$ $V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$	MAX	5			μA
		$T_j = 110^\circ\text{C}$	MAX	200			μA
dV/dt	$V_D = 67\%V_{DRM}$ $R_{GK} = 1\text{K}\Omega$	$T_j = 110^\circ\text{C}$	TYP	15	20	15	V/ μs
tq	$I_{TM} = 3 \times I_{T(AV)}$ $V_R = 35\text{V}$ $di/dt = 10\text{A}/\mu\text{s}$ $t_p = 100\mu\text{s}$ $dV/dt = 2\text{V}/\mu\text{s}$ $V_D = 67\%V_{DRM}$ $R_{GK} = 1\text{K}\Omega$	$T_j = 110^\circ\text{C}$	MAX	100			μs

ORDERING INFORMATION

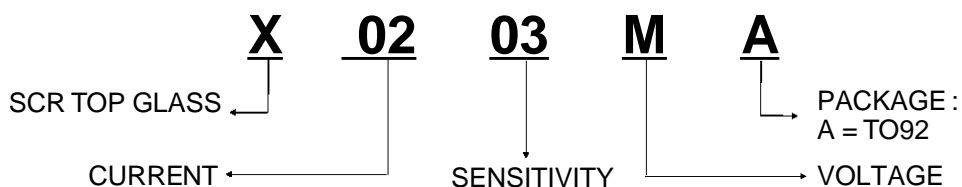


Fig.1 : Maximum average power dissipation versus average on-state current.

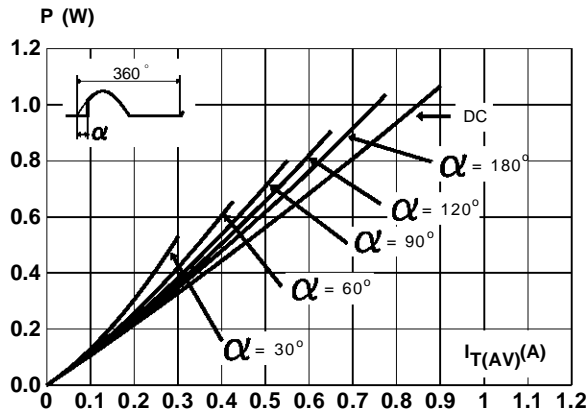


Fig.2 : Correlation between maximum average power dissipation and maximum allowable temperature (T_{amb} and T_{lead}).

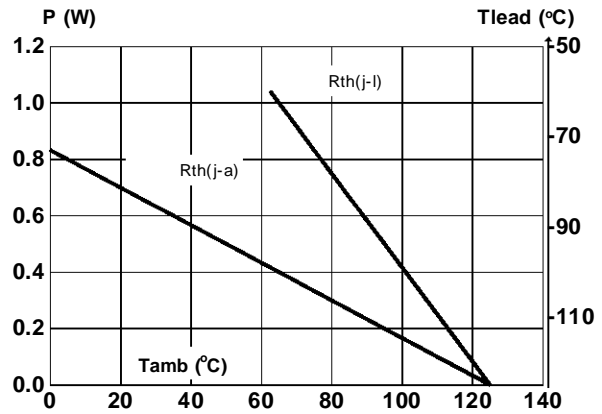


Fig.3 : Average on-state current versus lead temperature.

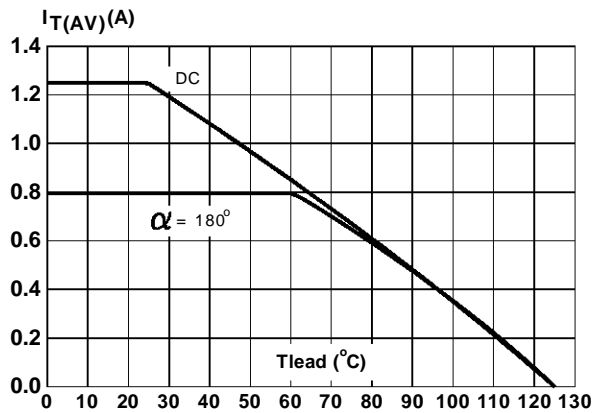


Fig.4 : Relative variation of thermal impedance junction to ambient versus pulse duration.

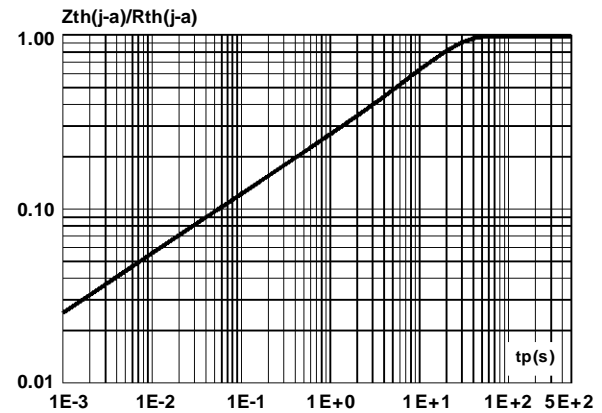


Fig.5 : Relative variation of gate trigger current and holding current versus junction temperature.

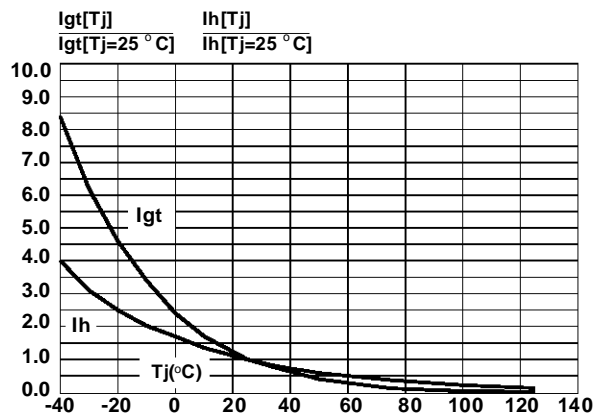
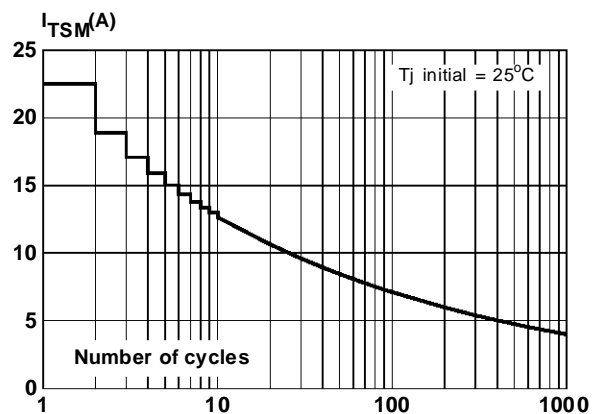


Fig.6 : Non repetitive surge peak on-state current versus number of cycles.



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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 .

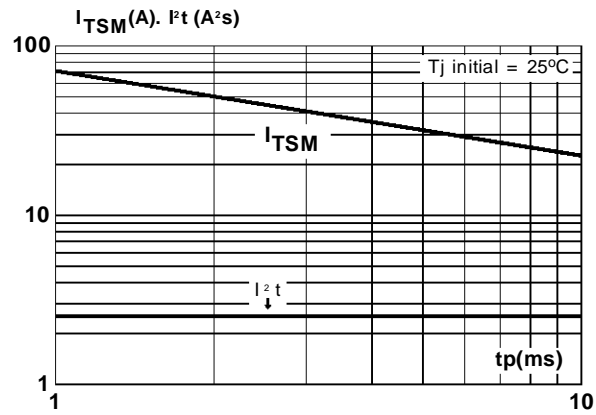
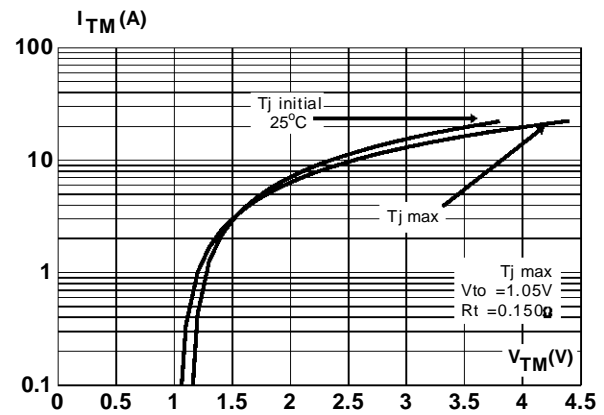
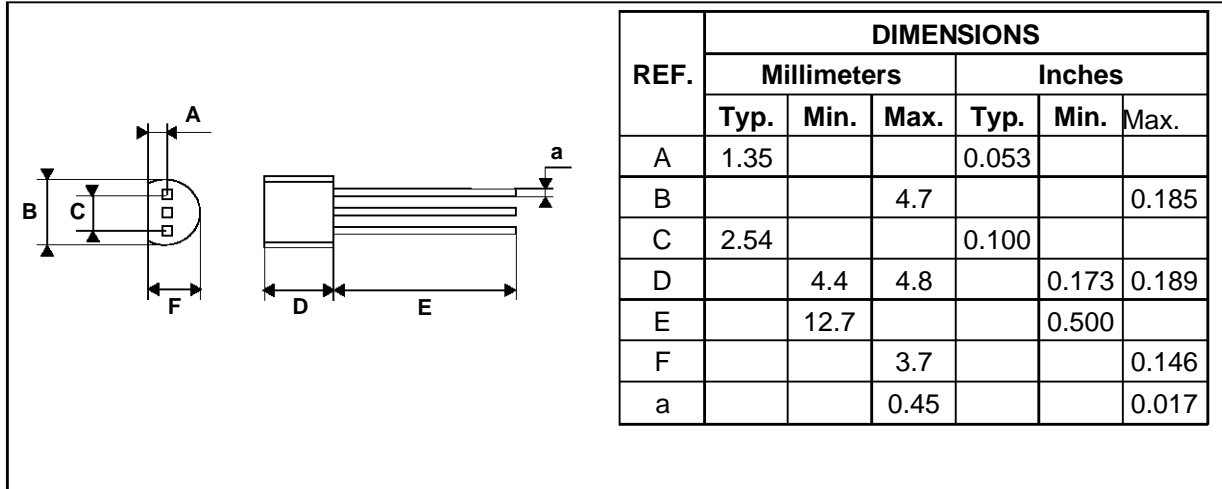


Fig.8 : On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO92 (Plastic)



Marking : Type number

Weight : 0.2 g

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