

## X02xxxA

### 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

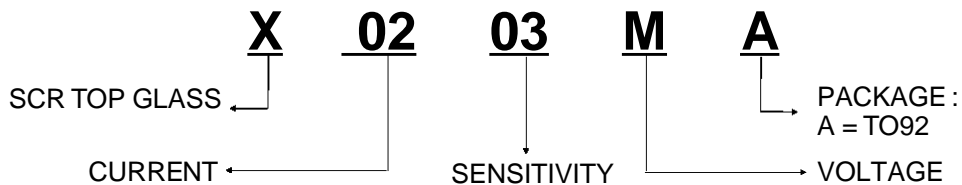
### GATE CHARACTERISTICS (maximum values)

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

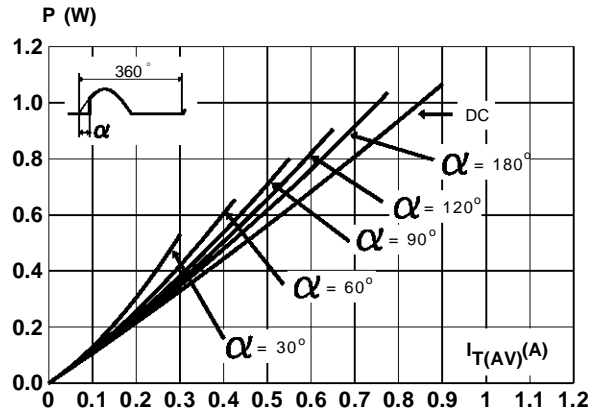
### ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity			Unit
				02	03	05	
I <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =140Ω	T <sub>j</sub> = 25°C	MIN		20	20	μA
			MAX	200	200	50	
V <sub>GT</sub>	V <sub>D</sub> =12V (DC) R <sub>L</sub> =140Ω	T <sub>j</sub> = 25°C	MAX	0.8			V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3kΩ R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 125°C	MIN	0.1			V
V <sub>RGM</sub>	I <sub>RG</sub> = 10μA	T <sub>j</sub> = 25°C	MIN	8			V
tgd	V <sub>D</sub> =V <sub>DRM</sub> I <sub>TM</sub> = 3 x I <sub>T(AV)</sub> dI <sub>G</sub> /dt = 0.1A/μs I <sub>G</sub> = 10mA	T <sub>j</sub> = 25°C	TYP	0.5			μs
I <sub>H</sub>	I <sub>T</sub> = 50mA R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 25°C	MAX	5			mA
I <sub>L</sub>	I <sub>G</sub> =1mA R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 25°C	MAX	6			mA
V <sub>TM</sub>	I <sub>TM</sub> = 2.5A t <sub>p</sub> = 380μs	T <sub>j</sub> = 25°C	MAX	1.45			V
I <sub>DRM</sub> I <sub>RDM</sub>	V <sub>D</sub> = V <sub>DRM</sub> R <sub>GK</sub> = 1 KΩ V <sub>R</sub> = V <sub>RDM</sub>	T <sub>j</sub> = 25°C	MAX	5			μA
		T <sub>j</sub> = 110°C	MAX	200			μA
dV/dt	V <sub>D</sub> =67%V <sub>DRM</sub> R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 110°C	TYP	15	20	15	V/μs
tq	I <sub>TM</sub> = 3 x I <sub>T(AV)</sub> V <sub>R</sub> =35V dI/dt=10A/μs t <sub>p</sub> =100μs dV/dt=2V/μs V <sub>D</sub> = 67%V <sub>DRM</sub> R <sub>GK</sub> = 1 KΩ	T <sub>j</sub> = 110°C	MAX	100			μs

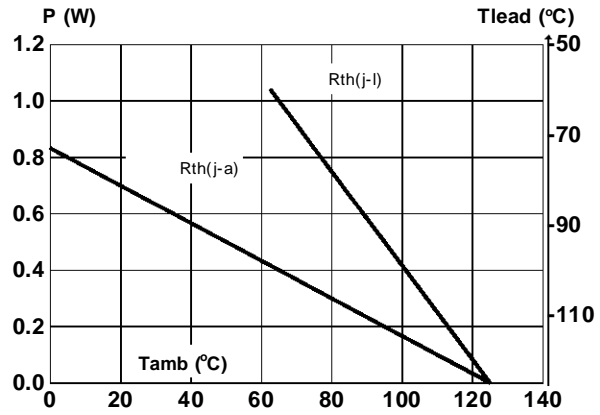
### ORDERING INFORMATION



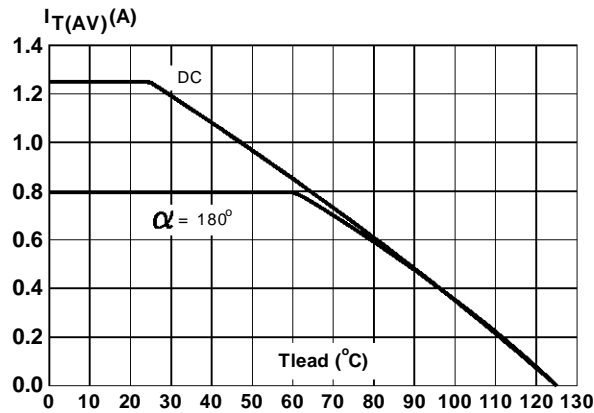
**Fig.1 :** Maximum average power dissipation versus average on-state current.



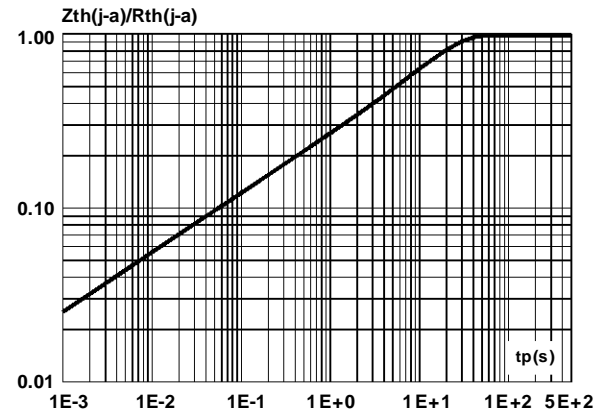
**Fig.2 :** Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tlead).



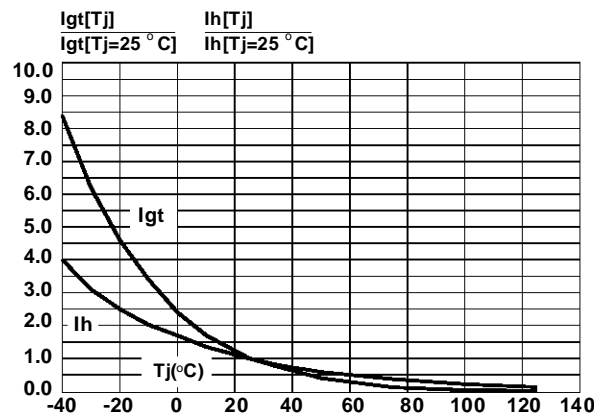
**Fig.3 :** Average on-state current versus lead temperature.



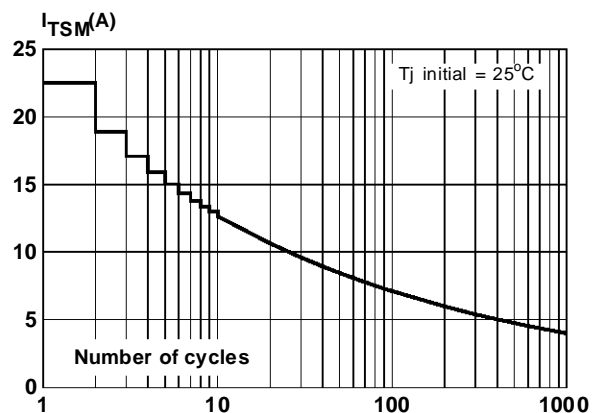
**Fig.4 :** Relative variation of thermal impedance junction to ambient versus pulse duration.



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

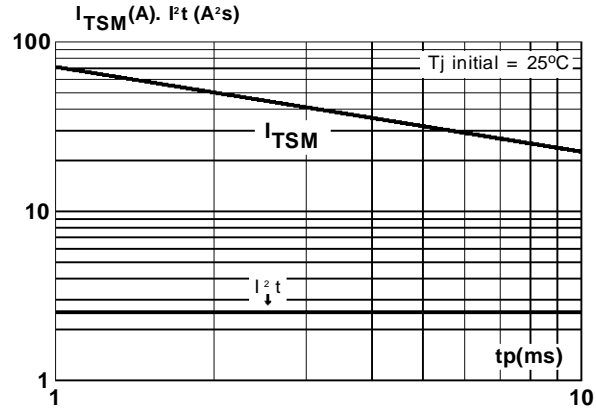


**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.

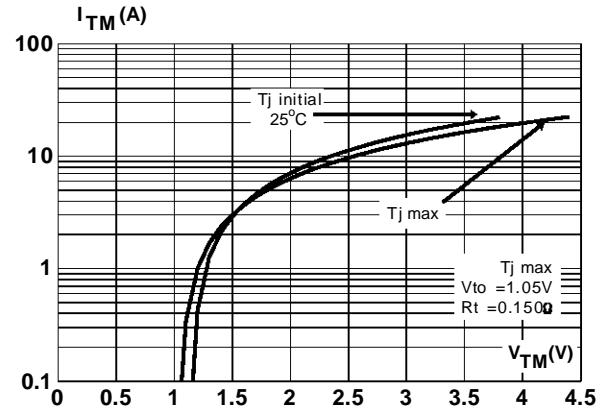


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**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t_p \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



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



**PACKAGE MECHANICAL DATA**  
TO92 (Plastic)

REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A	1.35			0.053		
B			4.7			0.185
C	2.54			0.100		
D		4.4	4.8		0.173	0.189
E		12.7			0.500	
F			3.7			0.146
a			0.45			0.017

Marking : Type number  
Weight : 0.2 g

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