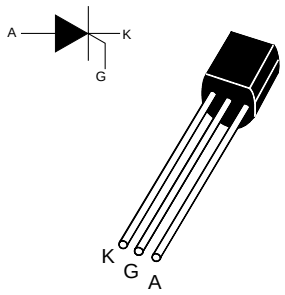
X00605MA

SENSITIVE GATE SCR

FEATURES

- $I_{T(RMS)}$ = 0.8A
- Sensitive gate : I_{GT} min = 30 µA
  : I_{GT}max = 60 µA
- V_{DRM}/V_{RRM} = 600 V
- Low holding current : I_H < 5 mA



TO-92
(Plastic)

DESCRIPTION

The X00605MA SCR uses a high performance glass passivated PNPN technology. This device is perfectly suited for applications requiring very low gate sensitivity such as sensors, detectors, pilot for larger thyristors, Ground Fault Interruptor (GFI), small motor control, relay drivers, etc...

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{DRM} V_{RRM}	Repetitive peak off-state voltage R_{GK} = 1KΩ	T_j = 125°C	600	V
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	Tl= 85°C	0.8	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	Tl= 85°C	0.5	A
I_{TSM}	Non repetitive surge peak on-state current (T_j initial = 25°C)	tp = 8.3 ms	10	A
		tp = 10 ms	9	
I^2t	I^2t Value for fusing	tp = 10 ms	0.5	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 temperature range Operating junction temperature range		- 40, + 150 - 40, + 125	°C
Tl	Maximum lead temperature for soldering during 10s at 2mm from case		260	°C

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	150	°C/W
Rth(j-l)	Junction to lead for DC	70	°C/W

GATE CHARACTERISTICS

$P_{G\ (AV)}$= 0.1W P_{GM} = 2W (tp = 20µs) I_{GM} = 1A (tp = 20µs)

ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Value	Unit
I_{GT}	V_D=12V (DC) R_L=140Ω	Tj= 25°C	MIN.	30	µA
			MAX.	60	
V_{GT}	V_D=12V (DC) R_L=140Ω	Tj= 25°C	MAX.	0.8	V
V_{GD}	V_D = V_{DRM} R_L = 33KΩ R_{GK} = 1 KΩ	Tj= 125°C	MIN.	0.2	V
V_{RG}	I_{RG} =10µA	Tj= 25°C	MIN.	5	V
I_H	I_T= 50mA R_{GK} = 1 KΩ	Tj= 25°C	MAX.	5	mA
I_L	I_G= 500µA R_{GK} = 1 KΩ	Tj= 25°C	MAX.	6	mA
V_{TM}	I_{TM}= 1A tp= 380µs	Tj= 25°C	MAX.	1.35	V
I_{DRM} I_{RRM}	V_D = V_{DRM} R_{GK} = 1 KΩ V_R = V_{RRM}	Tj= 25°C	MAX.	1	µA
		Tj= 125°C	MAX.	100	µA
dV/dt	V_D= 67%V_{DRM} R_{GK} = 1 KΩ	Tj= 125°C	MIN.	25	V/µs

ORDERING INFORMATION

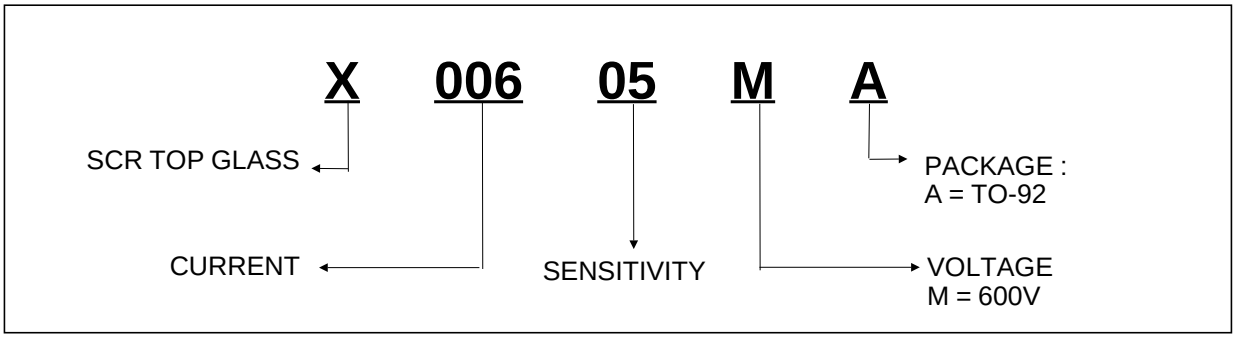


Fig. 1: Maximum average power dissipation versus average on-state current.

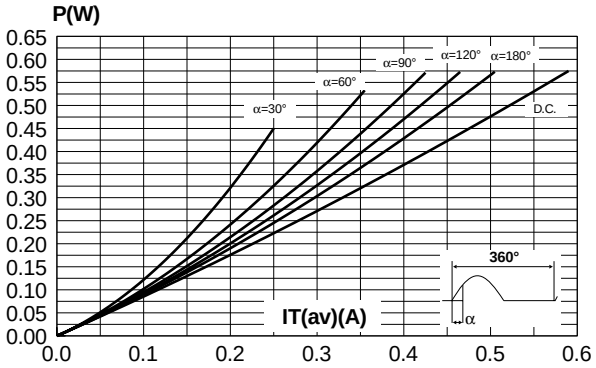


Fig. 2: Correlation between maximum average power dissipation and maximum allowable temperature (Tamb and Tlead).

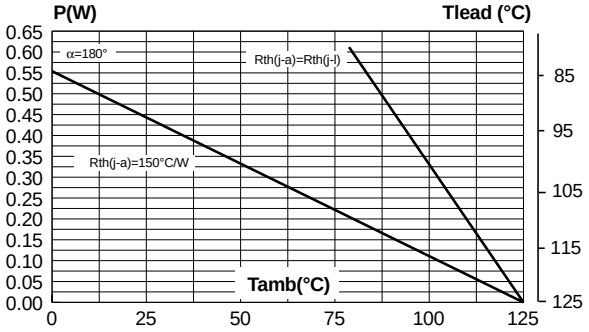


Fig. 3-1: Average and D.C on-state current versus lead temperature.

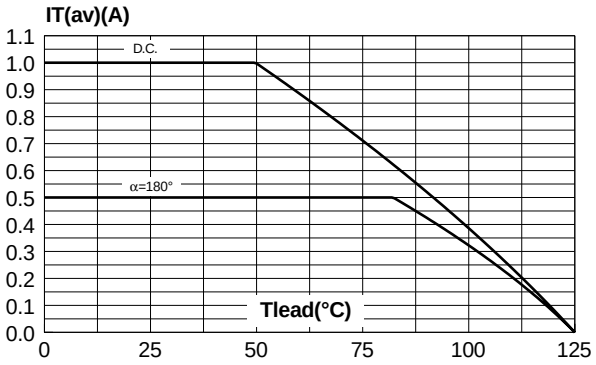


Fig. 3-2: Average and D.C on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

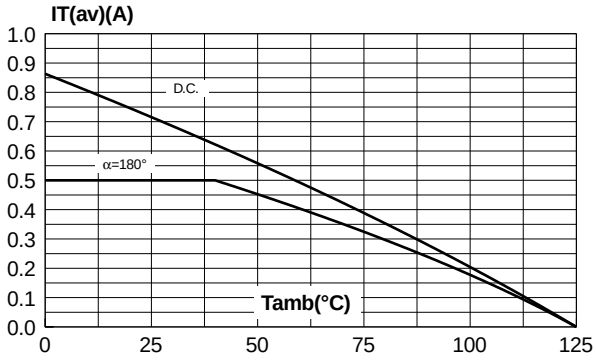


Fig. 4: Relative variation of thermal impedance junction to ambient versus pulse duration.

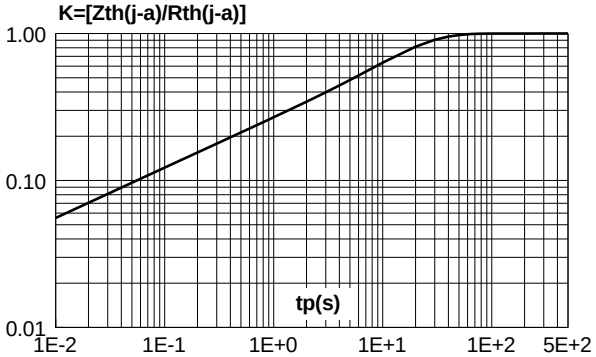


Fig. 5: Relative variation of gate trigger current and holding current versus junction temperature.

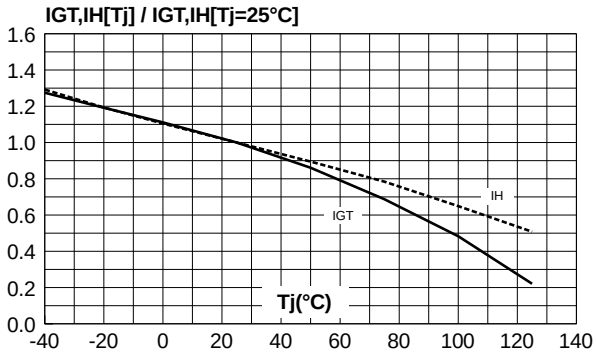


Fig. 6: Relative variation of holding current versus gate-cathode resistance (typical values).

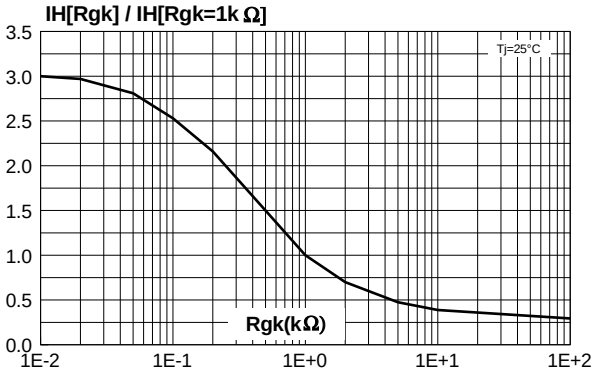


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

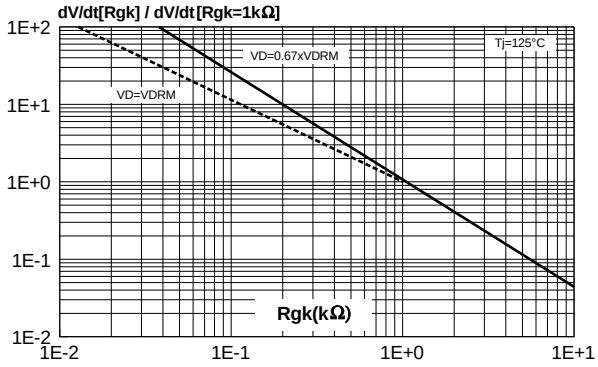


Fig. 8: Relative variation of dV/dt immunity versus additionnal gate-cathode capacitance (typical values).

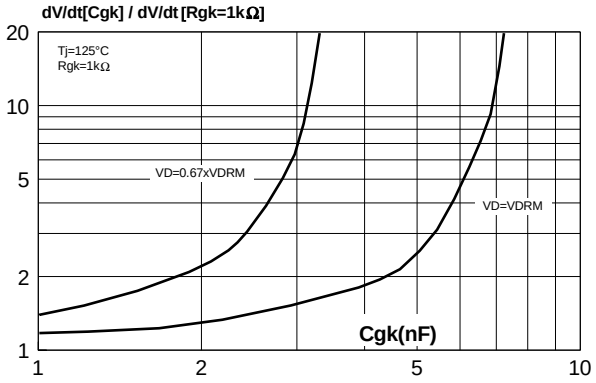


Fig. 9: Non repetitive surge peak on-state current versus number of cycles.

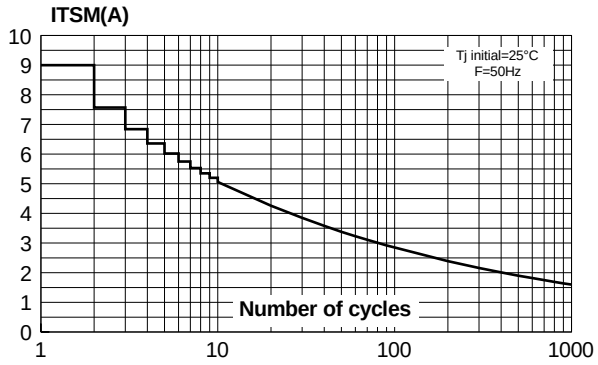


Fig. 10: Non repetitive surge peak on-state current for a sinusoidal pulse with width : tp ® 10ms, and corresponding value of I^2t.

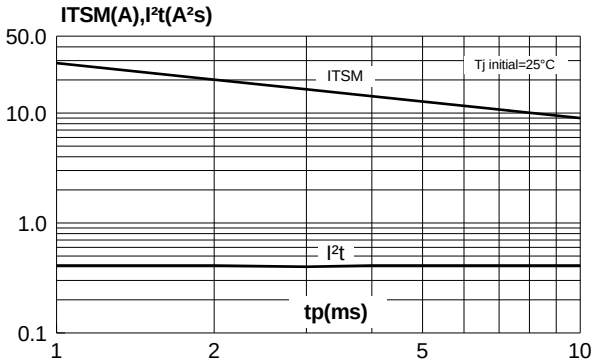
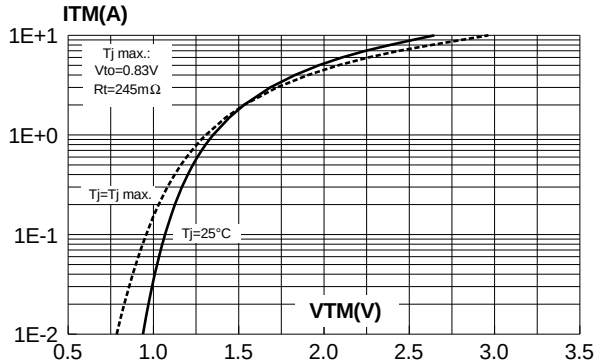
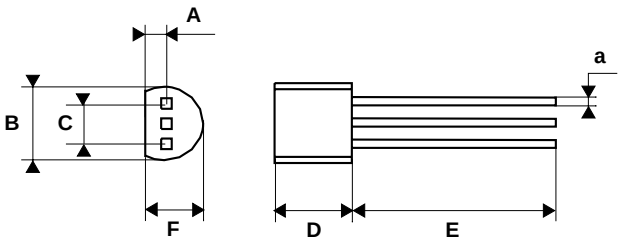


Fig. 11: On-state characteristics (maximum values).



PACKAGE MECHANICAL DATA

TO-92 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		1.35			0.053	
B			4.70			0.185
C		2.54			0.100	
D	4.40			0.173		
E	12.70			0.500		
F			3.70			0.146
a			0.45			0.017

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
X00605MA 1AA2	X0605MA	TO-92	0.2g.	2500	Bulk