Zibo Seno Electronic Engineering Co., Ltd.

淄博圣诺

X0405

4A SCRs

MAIN FEATURES:

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM}/V_{RRM}	600	V
I_{GT}	10 to 200	µA

DESCRIPTION

X0405 SCR is suitable for al lapplications where the available gate current is limited, such as capacitive discharge ignitions, motor control in kitchen aids, overvoltage crowbar protection in low power supplies...

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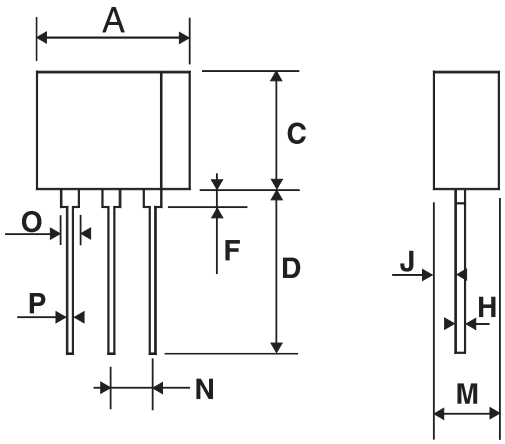
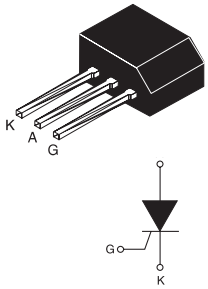


REF.	DIMENSIONS mm		
	Min.	Typ.	Max.
A		10.1	
C		7.7	
D		10.5	13.0
F		2.5	3.0
H		0.5	
J		1.55	
M		4.5	4.8
N		2.25	
O			1.4
P		0.7	0.9



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-statecurrent (180° conduction angle)		Tl=60°C	4	A
			Ta=25°C	1.35	
$IT_{(AV)}$	RMS on-statecurrent (180° conduction angle)		Tl=60°C	2.5	A
			Ta=25°C	0.9	
I_{TSM}	Non repetitive surge peak on-state current	tp = 8.3 ms	Tj = 25°C	33	A
		tp = 10 ms		30	
I^2t	I^2t Value for fusing	tp = 10 ms	Tj = 25°C	4.5	A^2S
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , tr ≤ 100ns	F = 60 Hz	Tj = 125°C	50	A/µs
I_{GM}	Peak gate current	tp = 20 µs	Tj = 125°C	1.2	A
$P_{G(AV)}$	Average gate power dissipation		Tj = 125°C	0.2	W
T_{stg} Tj	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	°C

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Test Conditions		X0405			Unit
			MIN.	TYP.	MAX.	
I_{GT}	V_D = 6 V R_L = 100 Ω R_{GK} = 1KΩ		10	45	200	μA
V_{GT}	V_D = 1 2 V R_L = 100 Ω R_{GK} = 1KΩ				0.8	V
V_{GD}	V_D = V_{DRM} R_L = 3.3 kΩ R_{GK} = 1 kΩ	Tj=125°C	0.1			V
V_{RG}	I_{RG} = 10 μA		8			V
I_H	I_T = 50mA R_{GK} = 1kΩ				5	mA
I_L	I_G = 1mA R_{GK} = 1kΩ		6			mA
dV/dt	V_D = 67% V_{DRM} R_{GK} = 1kΩ	Tj=110°C	15			V/us
V_{TM}	I_{TM} = 8 A tp = 380 μs				1.8	V
V_{t0}	Threshold voltage	Tj=25°C			0.95	V
R_d	Dynamic resistance	Tj=125°C			100	mΩ
I_{DRM}	V_{DRM} = V_{RRM} R_{GK} = 1 kΩ	Tj=25°C			5	uA
IRRM		Tj=125°C			1	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to leads (DC)	15	°C/W
$R_{th(j-a)}$	Junction to ambient (DC)	100	

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

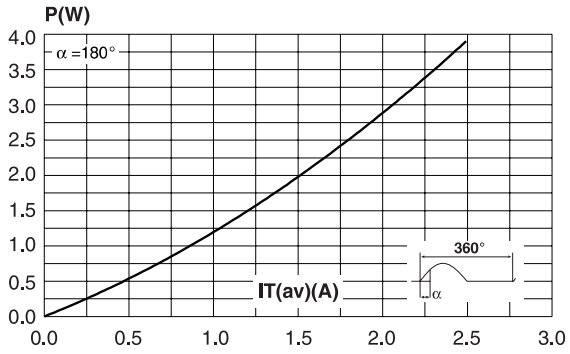


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

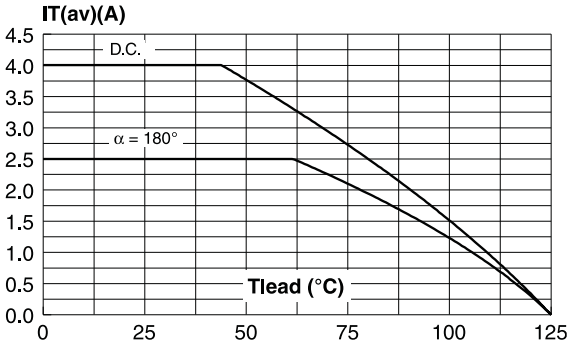


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

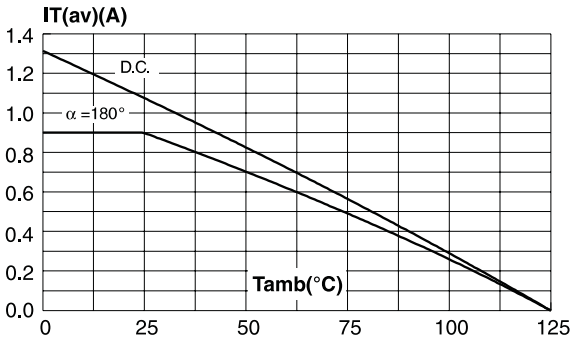


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

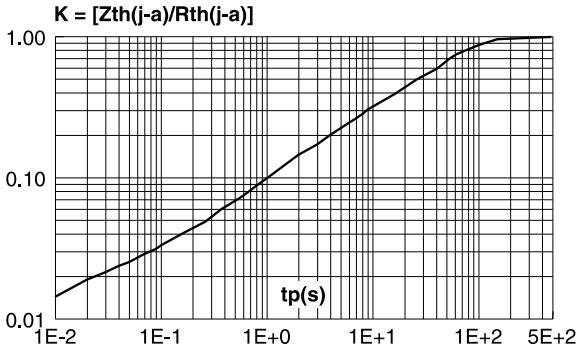


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

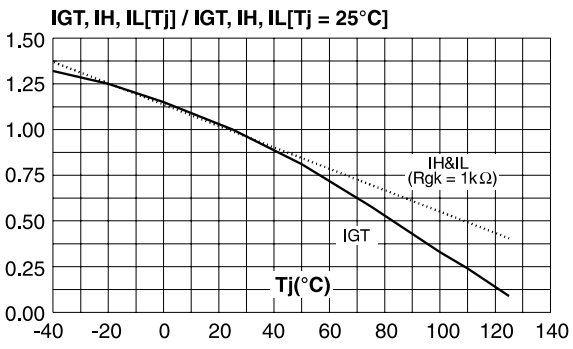


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

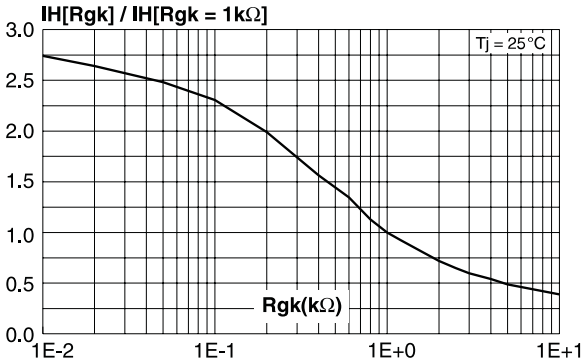


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

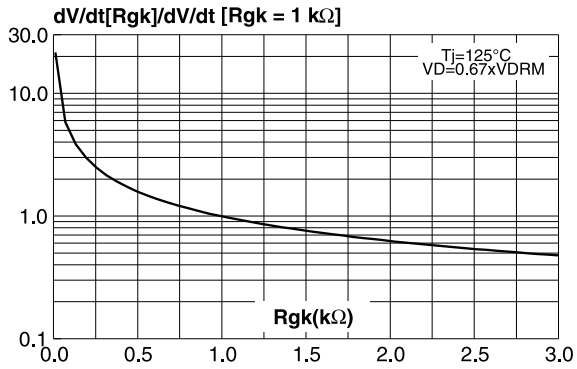


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

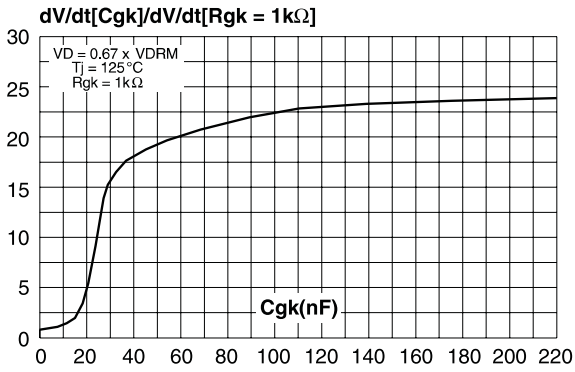


Fig. 8: Surge peak on-state current versus number of cycles.

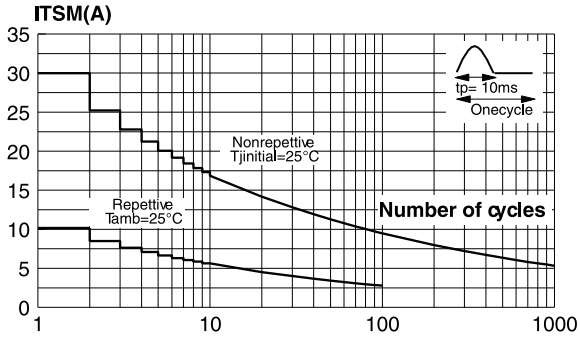


Fig. 9: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding value of I²t.

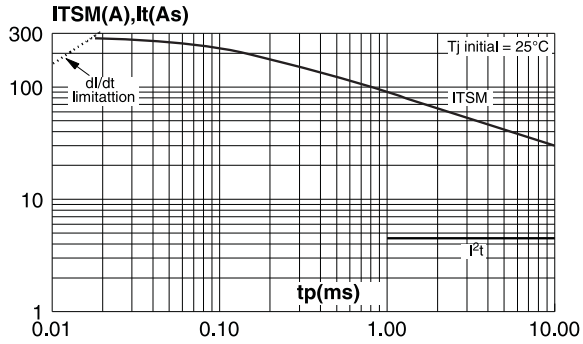


Fig. 10: On-state characteristics (maximum values).