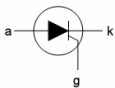
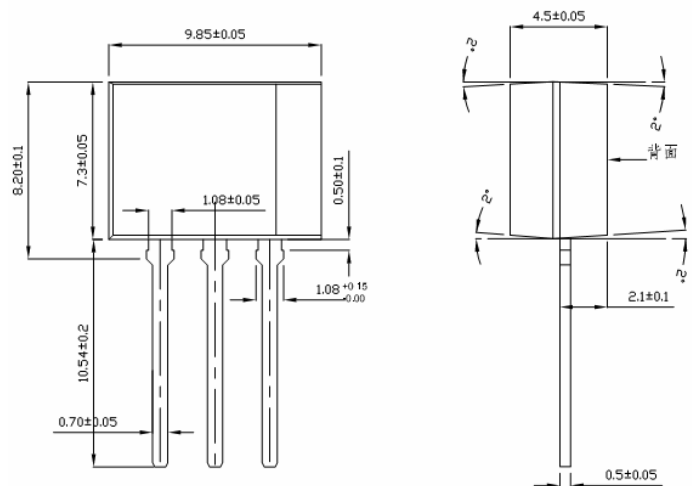


# X0405

## Thyristors



## DRAWING



1、Cathode 2、anode 3、gate

## Mechanical Data

- \* TO-202B Package
- \* Glass passivated thyristors in a plastic envelope, Intended for use in applications requiring high Bidirectional blocking voltage capability and high Thermal cycling performance. Typical applications Include motor control , industrial and domestic lighting, heating and static switching.

## Absolute Ratings (Limiting values)

SYMBOL	PARAMETER			Value	UNIT	
$I_{T(RMS)}$	RMS on-state current (180°C conduction angel)			$T_I=60^\circ C$	4	A
				$T_{amb}=25^\circ C$	1.35	
$I_{T(AV)}$	Average on-state current(180°C conduction angel)			$T_I=60^\circ C$	2.5	A
				$T_{amb}=25^\circ C$	0.9	
$I_{TSM}$	Non repetitive surge peak on-state current		$t_p=8.3ms$	$T_j=25^\circ C$	33	A
			$t_p=10ms$		30	
$I_t$	$I_t$ Value for fusing	$t_p=10ms$	$T_j=25^\circ C$	4.5	$A^2S$	
$Di/Dt$	Critical rate of rise of on-state current $I_g=2XI_{GT, TR \leq 100ns}$	$F=60HZ$	$T_j=125^\circ C$	50	A/us	
$I_{GM}$	Peak gate current	$t_p=20us$	$T_j=125^\circ C$	1.2	A	
$P_g(AV)$	Average gate power dissipation			$T_j=125^\circ C$	0.2	W
$T_{stg}$	Storage junction temperature range			-40to+150		
$T_j$	Operating junction temperature range			-40to+125		$^\circ C$

Electrical Characteristics (T<sub>j</sub>=25°C, unless otherwise specified)

SYMBOL	Test Conditions		Spec		Unit
IGT			MIN	20	uA
			MAX	50	uA
VGT	VD=12V RL=140Ω		MAX	0.8	V
VGD	VD=VDRM RL=3.3KΩ RGK=1KΩ	TJ=125°C	MIN	0.1	V
VRG	IRG=10uA		MIN	8	V
I <sub>h</sub>	I <sub>t</sub> =50mA RGK=1KΩ		MAX	5	mA
IL	IG=1mA RGK=1KΩ		MIN	6	mA
DV/DT	VD=67%VDRM RGK=1KΩ	TJ=110°C	MIN	15	V/us
V <sub>TM</sub>	ITM=8A tp=380us	TJ=25°C	MAX	1.8	V
V <sub>to</sub>	Threshold voltage	TJ=125°C	MAX	0.95	V
R <sub>d</sub>	Dynamic resistance	TJ=125°C	MAX	100	mΩ
IDRM	VDRM=VRRM RGK=1KΩ	TJ=25°C	MAX	5	uA
IRRM		TJ=125°C		1	mA

Thermal Resistances

SYMBOL	PARAMETER	Value	Unit
R <sub>th(j-l)</sub>	Junction to leads(DC)	15	°C/W
R <sub>th(j-a)</sub>	Junction to ambient(DC)	100	

X0405

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

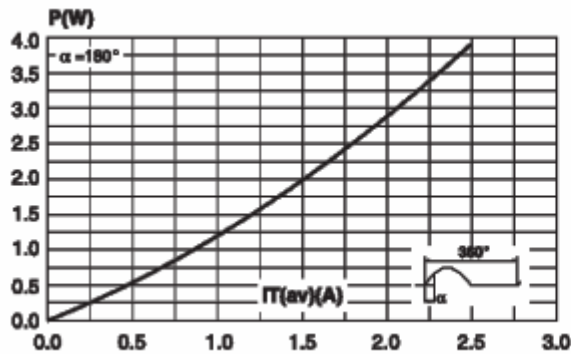


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

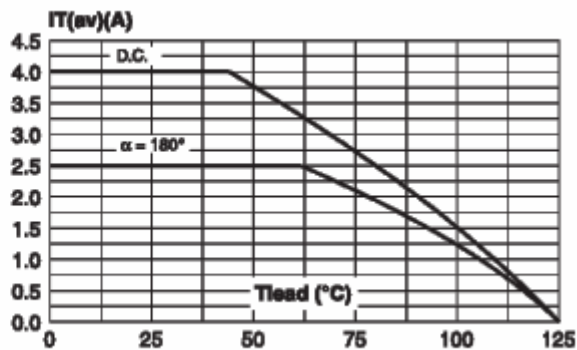


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

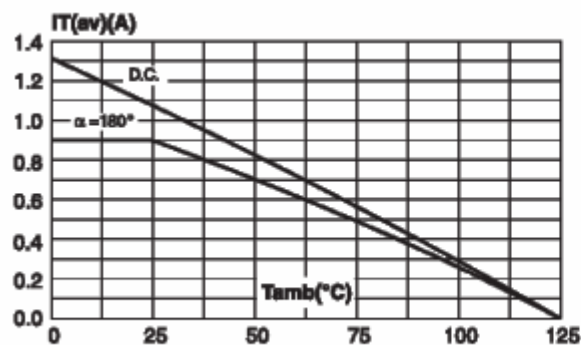


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

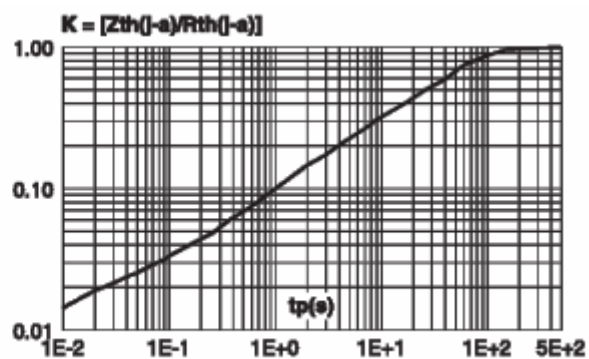


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

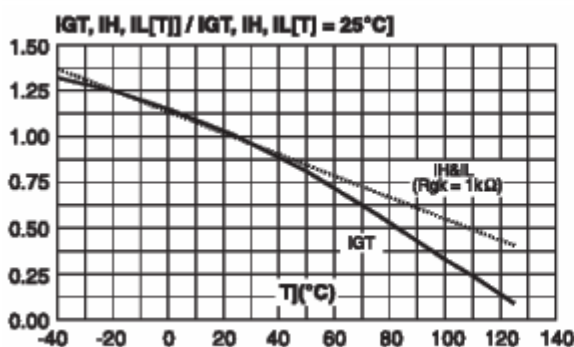


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

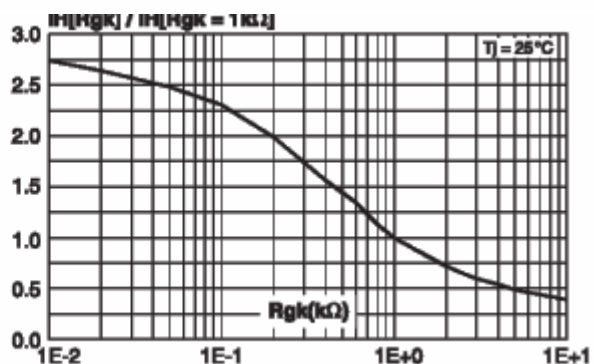


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

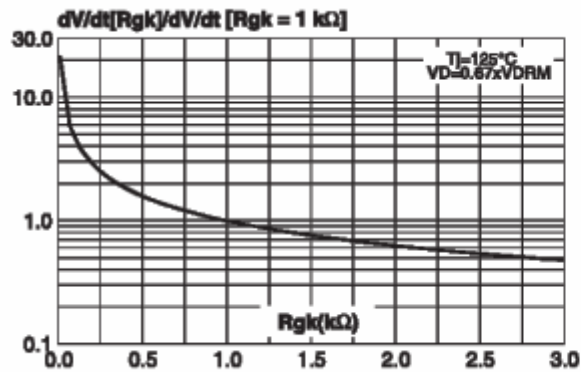


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

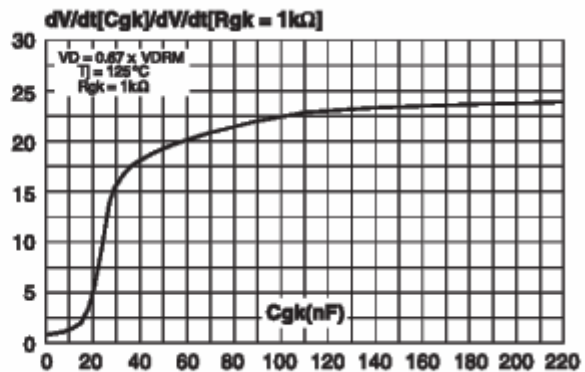


Fig. 8: Surge peak on-state current versus number of cycles.

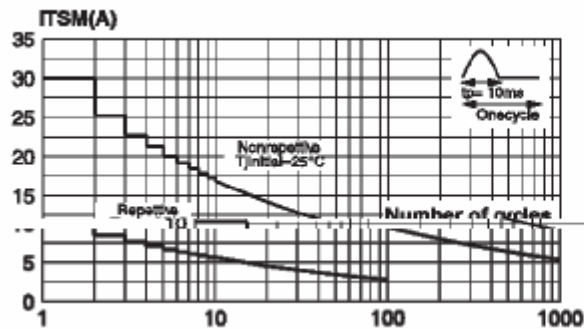


Fig. 9: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $tp < 10$  ms, and corresponding value of  $I t$ .

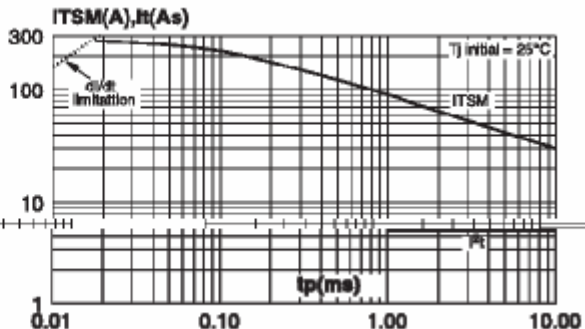


Fig. 10: On-state characteristics (maximum values).

