

SCR

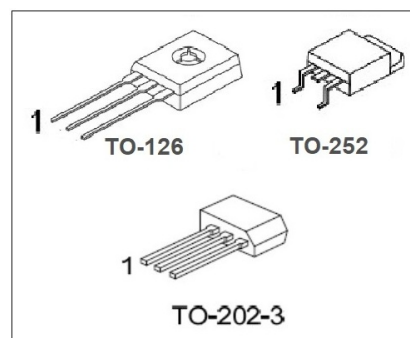
X0405

DESCRIPTION

Thanks to highly sensitive triggering levels, The X0405 SCR is suitable for all applications where the available gate current is limited, such as capacitive discharge ignitions, motor control in kitchen aids, overvoltage crowbar protection in low power supplies..

FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
I_{TSM}	30	A
V_{DRM}/V_{RRM}	400/600/800	V
I_{GT}	10-50	μA



Package	Pin assignment		
	1	2	3
TO-252	K	A	G
TO-202	K	A	G
TO-126	K	A	G

SYMBOL



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE		UNIT
Repetitive Peak Off-State Voltages	V_{DRM}, V_{RRM}	X0405D	400	V
		X0405M	600	
		X0405N	800	
RMS on-State Current	$I_{T(RMS)}$	4		A
Non-Repetitive Peak On-State Current	I_{TSM}	30		A
Peak gate current	I_{GM}	1.0		A
Peak Gate Power	P_{GM}	1		W
Peak Reverse Gate Voltage	V_{RGM}	5		V
Operating junction temperature	T_J	-40~+125		°C
Storage Temperature	T_{STG}	-40~+150		°C

ELECTRICAL CHARACTERISTICS (T_J=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Peak Repetitive Forward or Reverse Blocking Current	I _{DRM} I _{RRM}	V _{AK} = Rated V _{DRM} or V _{RRM} ;			5	uA
Gate Trigger Current	I _{GT}	V _D =12V, R _L =100Ω	10		50	uA
Gate Trigger Voltage	V _{GT}	V _D =12V, R _L =100Ω		0.65	0.8	V
Peak Forward On-State Voltage	V _{TM}	I _T = 4A			1.7	V
Latch Current	I _L	I _G =1.2I _{GT}			6	mA
Holding Current	I _H	I _T =50mA			5	mA
Gate Non-Trigger Voltage	V _{GD}	V _D = V _{DRM} 12V	0.2			v
Critical Rate of Rise of Off-State Voltage	dV/dt	V _D =67%V _{DRM} , R _{GK} =1kΩ,	10			V/μs

ELECTRICAL CHARACTERISTIC CURVE

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

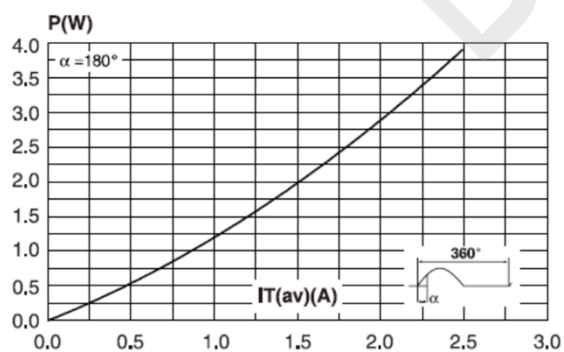


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

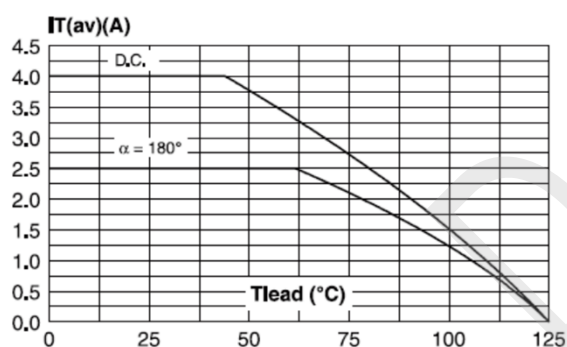


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

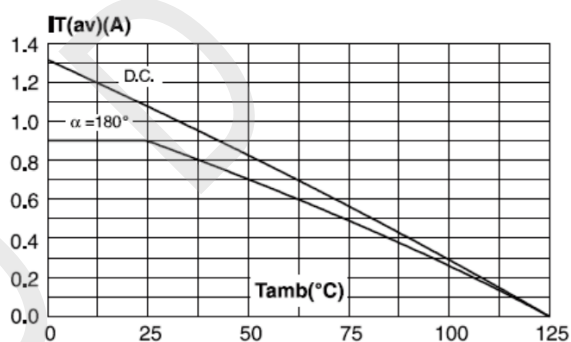


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

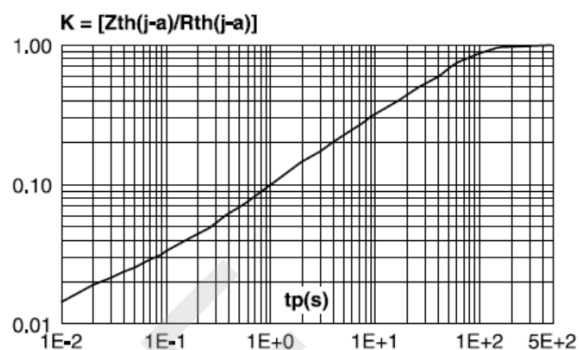


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

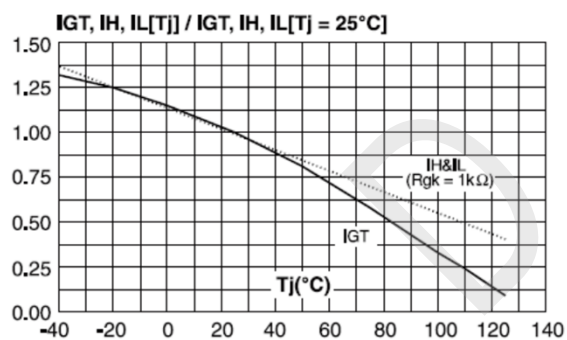
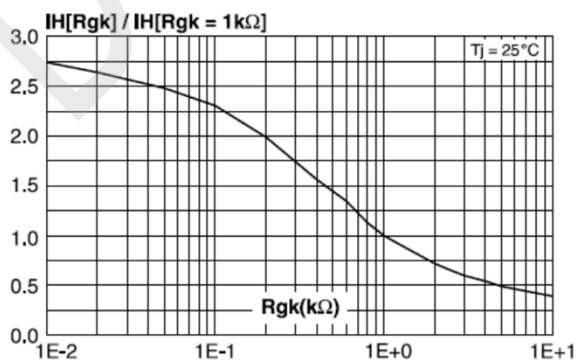


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).



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

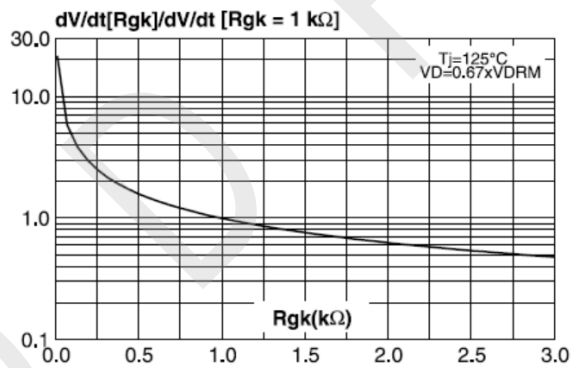


Fig. 8: Surge peak on-state current versus number of cycles.

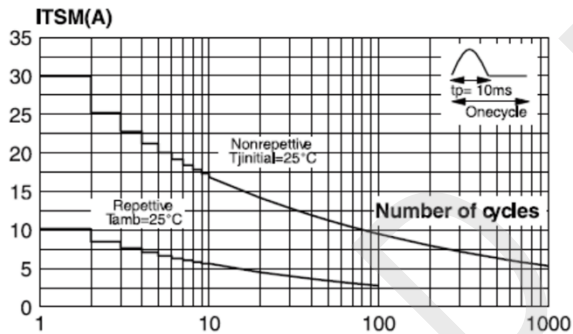


Fig. 10: On-state characteristics (maximum values).

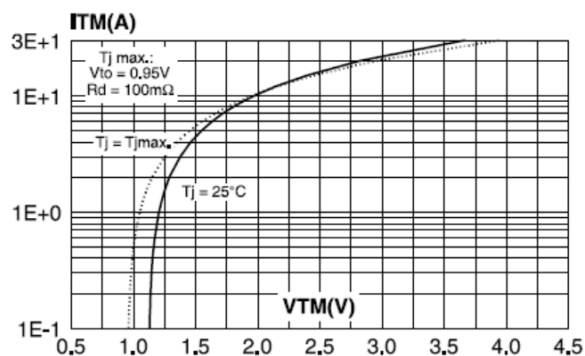


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).

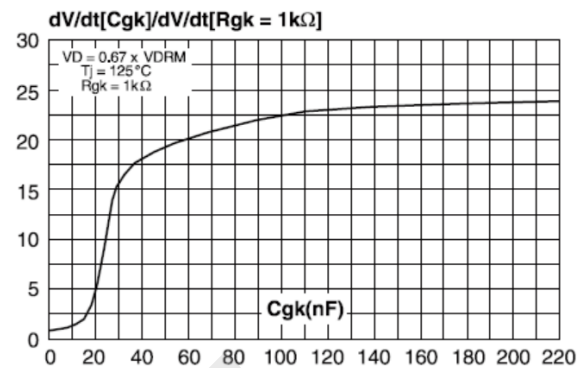


Fig. 9: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding value of I^2t .

