X0405C

4.0A Sensitive Gate SCRs

Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	4.0	A
V_{DRM} V_{RRM}	600 / 800	V
I_{GT}	200	μA

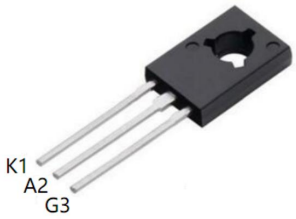
Feature

With high ability to withstand the shock loading of large current, Provide high dv/dt rate with strong resistance to electromagnetic interference.

Application

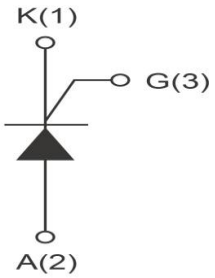
Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.

Package

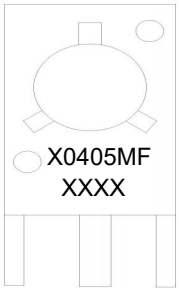


TO-126

Circuit diagram



Marking



Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	600 / 800	V
Repetitive peak reverse voltage	V_{RRM}	600 / 800	V
RMS on-state current	$I_{T(RMS)}$	4	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	30	A
I^2t value for fusing (tp=10ms)	I^2t	4.5	A^2s
Critical rate of rise of on-state current (I_G =2×I_{GT})	dI_T/dt	50	A/μs
Peak gate current	I_{GM}	1.2	A
Average gate power dissipation	$P_{G(AV)}$	0.2	W
Junction Temperature	T_J	-40 ~ +110	℃
Storage Temperature	T_{STG}	-40 ~ +150	℃

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition		Value		Unit
				Min	Max	
Gate trigger current	I_{GT}	V_D =12V R_L=140Ω T_j =25℃		10	200	μA
Gate trigger voltage	V_{GT}			-	0.8	V
Gate non-trigger voltage	V_{GD}	V_D =V_{DRM} R_{GK}=1kΩ T_j =110℃		0.2	-	V
latching current	I_L	I_G=1mA R_{GK}=1kΩ T_j =25℃		-	6	mA
Holding current	I_H	I_T=50mA R_{GK}=1kΩ T_j =25℃		-	5	mA
Critical-rate of rise of commutation voltage	dV_D/dt	V_D=2/3V_{DRM} R_{GK}=1kΩ T_j =110℃		10	-	V/μs
STATIC CHARACTERISTICS						
Forward "on" voltage	V_{TM}	I_{TM} =8A tp=380μs		-	1.55	V
Repetitive Peak Off-State Current	I_{DRM}	V_D =V_{DRM} V_R =V_{RRM}	T_j=25℃	-	5	μA
Repetitive Peak Reverse Current	I_{RRM}		T_j=110℃	-	0.15	mA
THERMAL RESISTANCES						
Thermal resistance	Rth(j-c)	Junction to case (AC)		TYP.	7.2	℃/W
	Rth(j-a)	Junction to ambient		TYP.	100	℃/W

Typical Characteristics

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

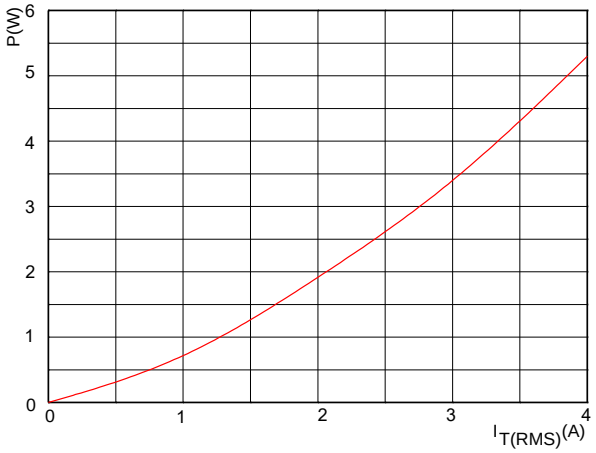


FIG.2: RMS on-state current versus case temperature (full cycle)

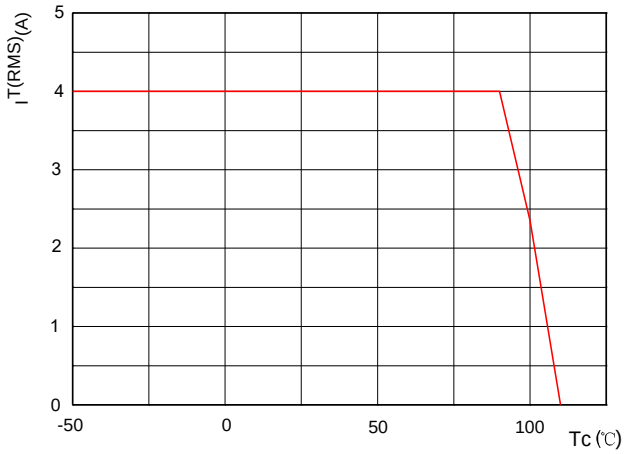


FIG.3: Surge peak on-state current versus number of cycles

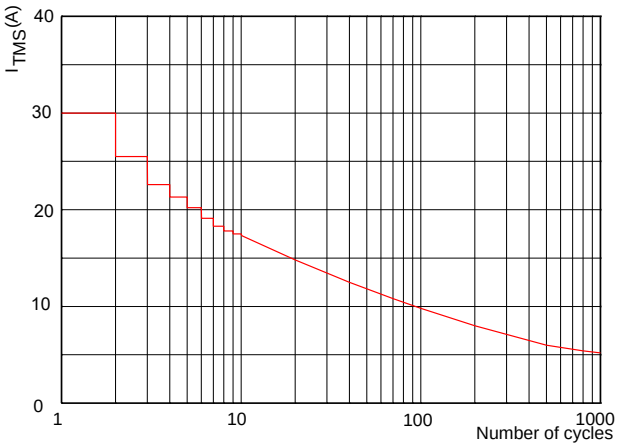


FIG.4: On-state characteristics (maximum values)

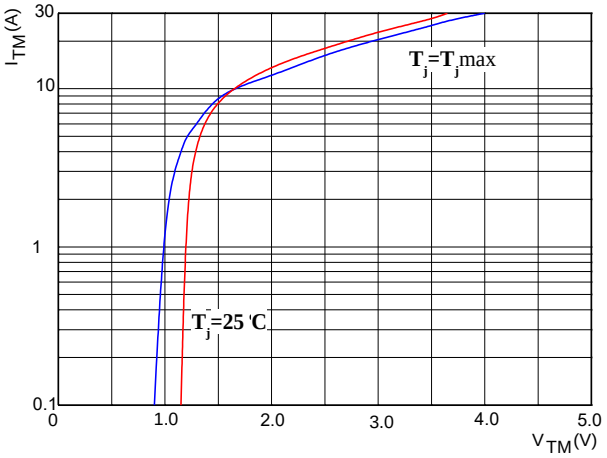


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms

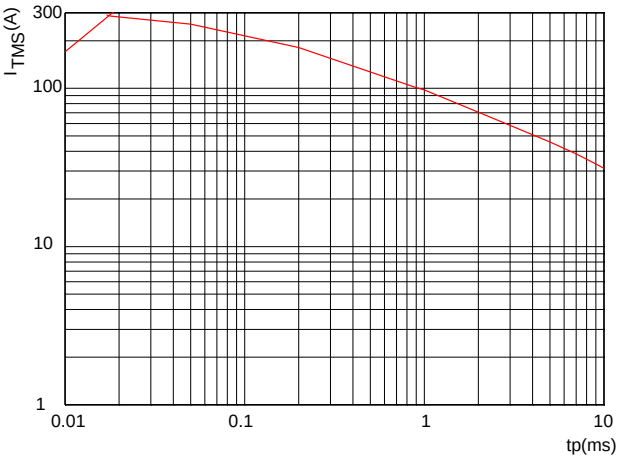
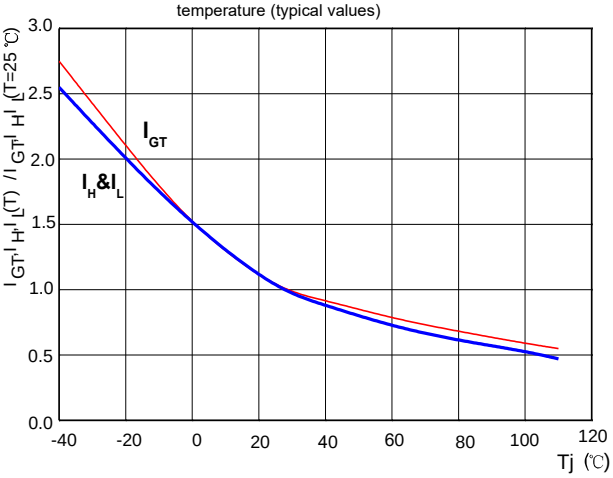
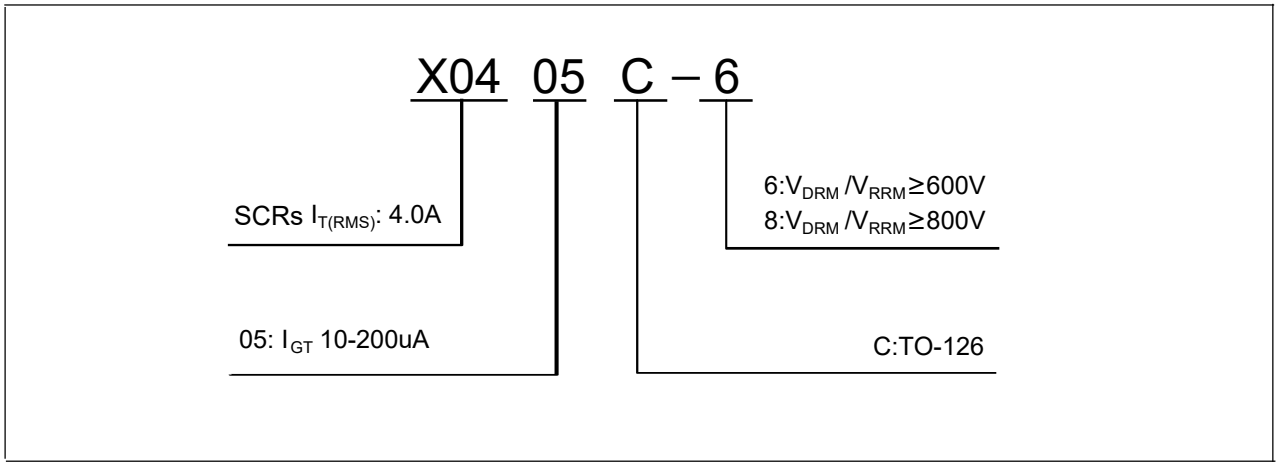


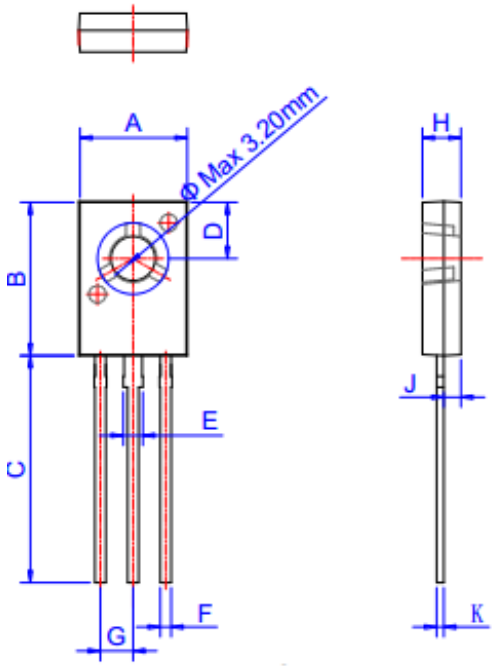
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Ordering Information



TO-126 Package Information



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.40		7.80	0.291		0.307
B	10.6		11.2	0.417		0.441
C	15.3		16.3	0.602		0.642
D	3.90		4.10	0.154		0.161
E	1.17		1.47	0.046		0.058
F	0.66		0.86	0.026		0.034
G		2.29			0.090	
H	2.50		2.90	0.098		0.114
J	1.10		1.50	0.043		0.059
K	0.45		0.60	0.018		0.024