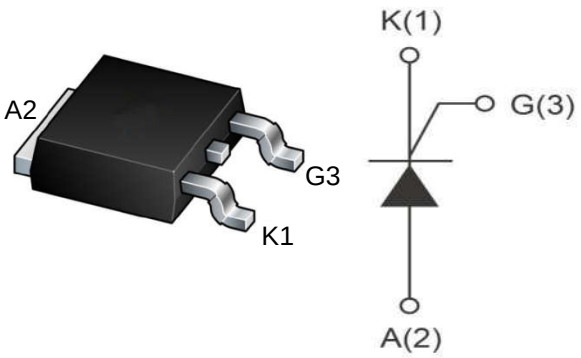
4.0A Sensitive Gate SCRs

Product Summary

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

Circuit diagram



TO-252

Features

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.

Order Information

Part Number	Package	Marking	Delivery Form	Delivery Quantity
X0405D	TO-252	X0405 600 XXXX	12" T&R	2500PCS/Tape

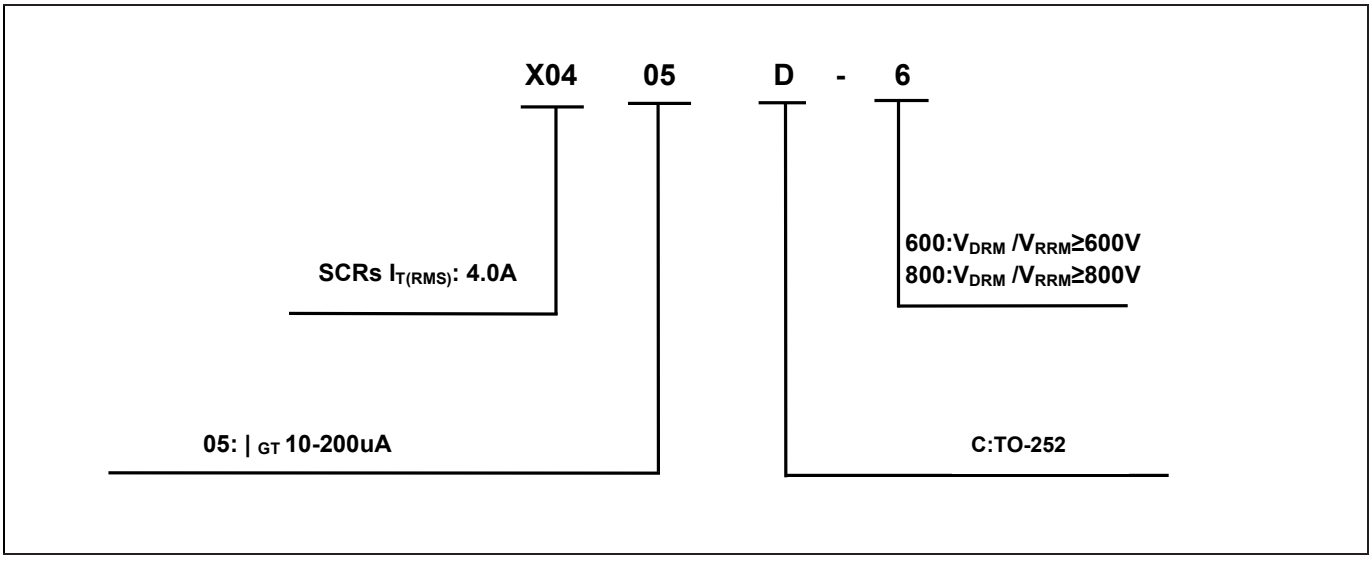
Absolute maximum ratings (Ta=25°C unless otherwise noted)

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 x 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	°C
Storage Temperature	T_{STG}	-40 ~+150	°C

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 Tj=110℃		0.2	-	V
latching current	I_L	I_G=1mA R_{GK}=1kΩ Tj =25℃		-	6	mA
Holding current	I_H	I_T=50mA R_{GK}=1kΩ Tj =25"℃		-	5	mA
Critical-rate of rise of commutation voltage	dV_D/dt	V_D=2/3V_{DRM} R_{GK}=1kΩ Tj=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°C	-	5	μA
Repetitive Peak Reverse Current	I_{RRM}		T_j=110°C	-	0.15	mA
THERMAL RESISTANCES						
Thermal resistance	Rth(j-c)	Junction to case（AC）		TYP.	7.2	°C/W
	Rth(j-a)	Junction to ambient		TYP.	100	°C/W

Ordering Information



Typical Characteristics

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

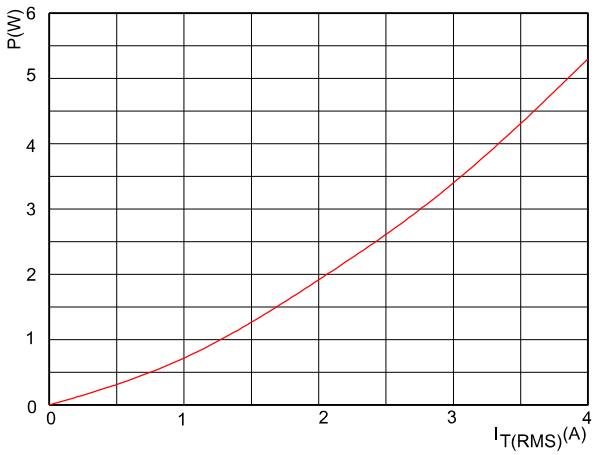


FIG.2: RMS on-state current versus case temperature (full cycle)

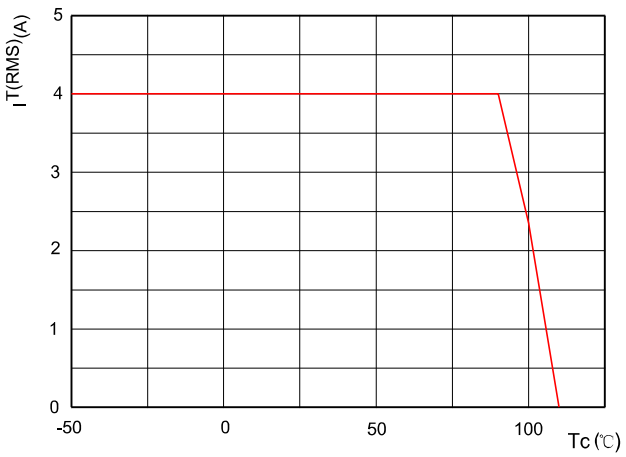


FIG.3: Surge peak on-state current versus number of cycles

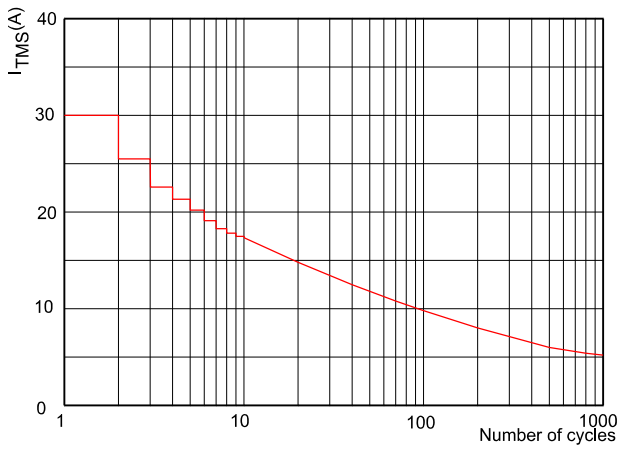


FIG.4: On-state characteristics (maximum values)

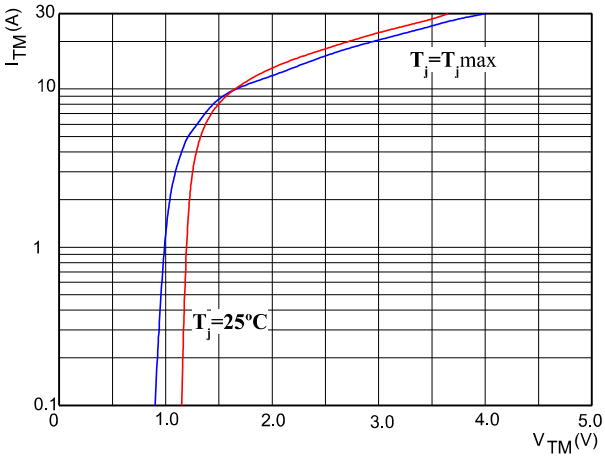


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10ms

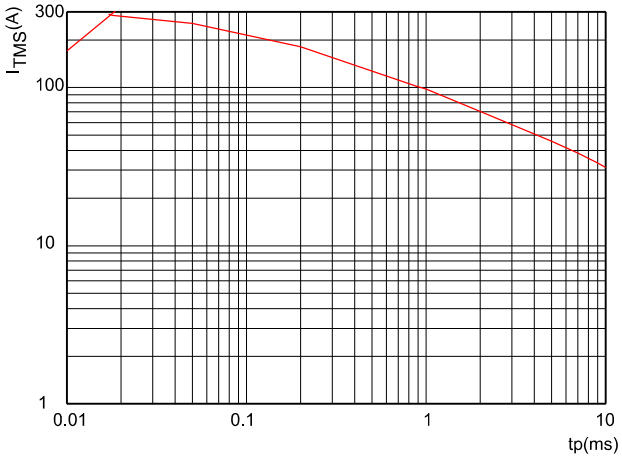
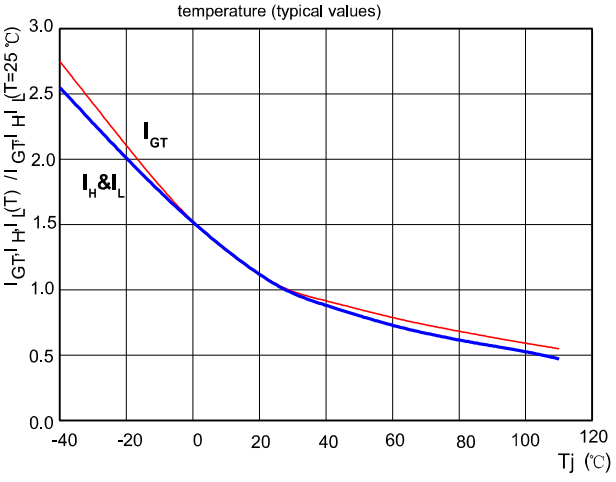
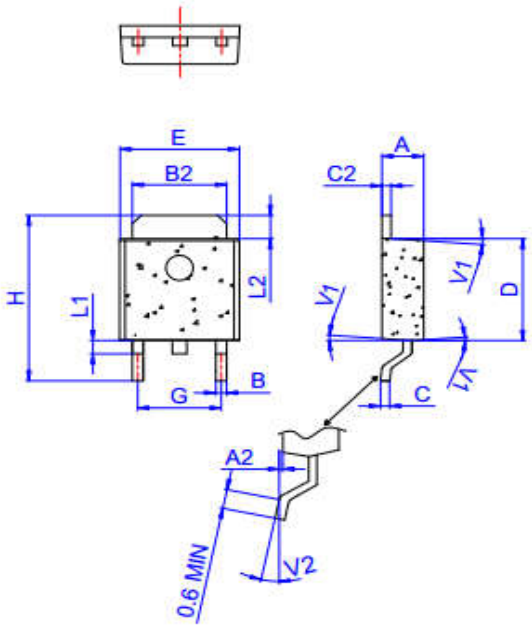


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



Package Information

TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.85	0.019		0.034
D	5.30		6.20	0.208		0.244
E	6.40		6.70	0.252		0.264
G	4.40		4.70	0.173		0.185
H	9.35		10.6	0.368		0.417
L1	1.30		1.70	0.051		0.067
L2	1.37		1.50	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°