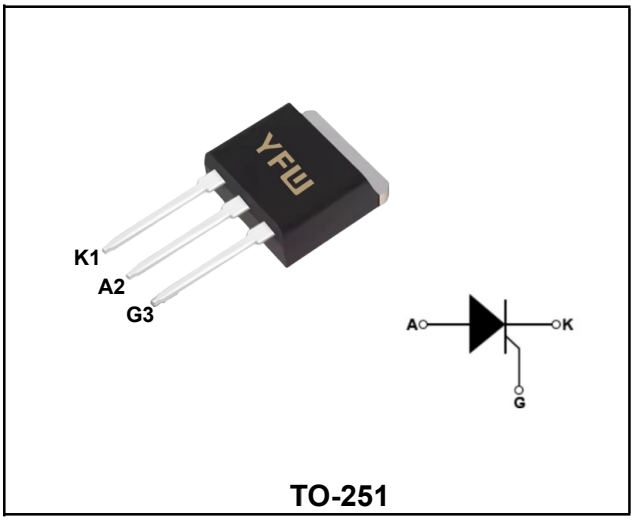
4A Sensitive Gate SCRs

Product Summary

Symbol	Value	Unit
$I_{T(RMS)}$	4	A
V_{DRM} V_{RRM}	200/400/600/800	V
V_{TM}	1.8	V



TO-251

GENERAL DESCRIPTION

PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers,small motor controls,gate drivers for larger thyristors,and sensing and detection circuits.

FEATURES

- Blocking voltage to 800V
- On-state current rating of 4.0A RMS
- Sensitive gate allows triggering by micro controllers and other logic circuits
- Glass-passivated surface for reliability and uniformity

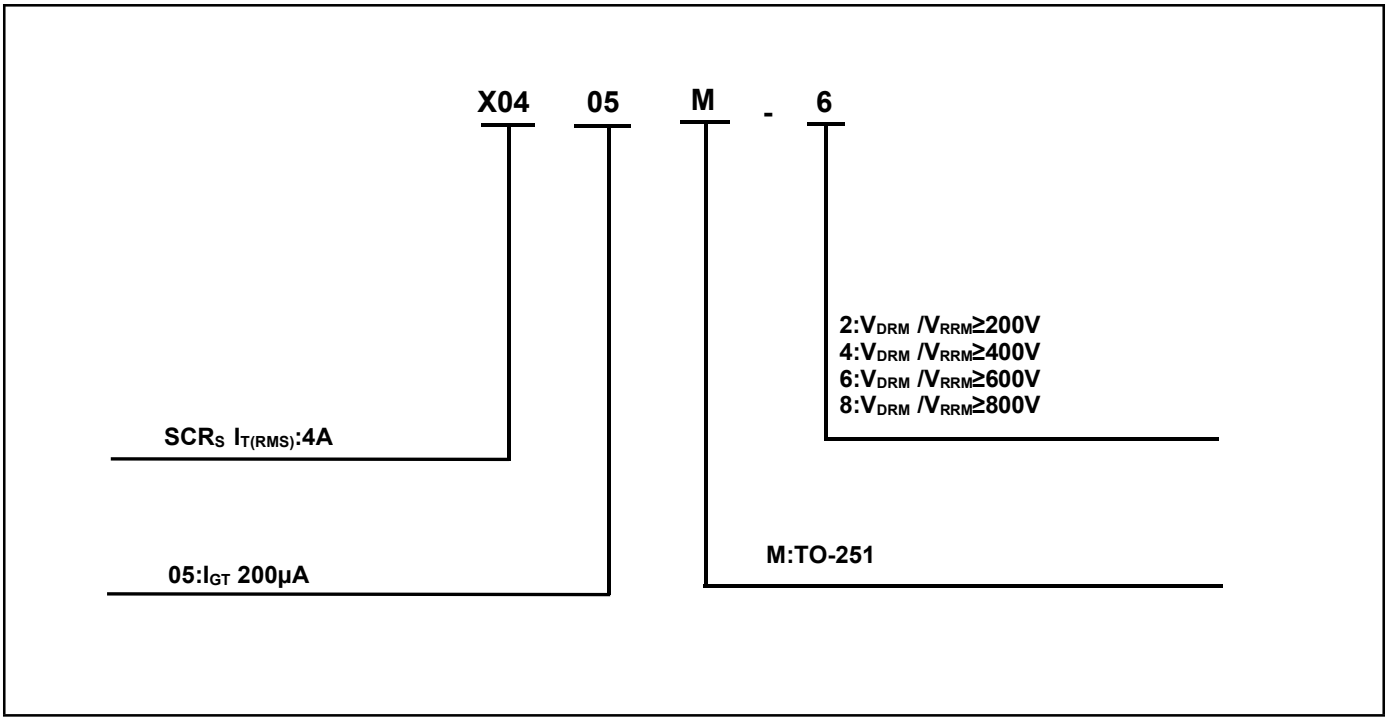
Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Repetitive peak off-state voltage	V_{DRM}	200/400/600/800	V
Repetitive peak reverse voltage	V_{RRM}	200/400/600/800	V
Average on-State current Half SineWave Tj=-20~110℃	$I_{T(AV)}$	2.5	A
RMS on-state current	$I_{T(RMS)}$	4	A
Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	40	A
I^2t value for fusing	I^2t	16	A^2S
Critical rate of rise of on-state current (I_G =2 I_{GT}) tr≤100ns	dI_T/dt	50	A/μs
Peak gate current	I_{GM}	4	A
Average gate power dissipation	$P_{G(AV)}$	0.5	W
Junction Temperature	T_J	-40~+125	°C
Storage Temperature	T_{STG}	-40 ~+150	°C

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

Parameter	Symbol	Test Condition		Value			Unit
				Min	Typ	Max	
Gate trigger current	I_{GT}	V_D=12V,R_L=100Ω		-	-	200	μA
Gate trigger voltage	V_{GT}	V_D=12V,R_L=100Ω		-	-	1.5	V
Non-triggering gate voltage	V_{GD}	T_j=125℃		0.2	-	-	V
Holding current	I_H	I_T=0.5A		-	-	200	μA
Latching current	I_L	I_G=1mA, R_{GK}=1kΩ,		-	-	6	mA
Threshold voltag	V_{th}	T_j = 110 °C		-	-	0.95	V
Dynamic resistance	R_d	T_j = 125 °C		-	-	36.8	mΩ
STATIC CHARACTERISTICS							
On-state Voltage	V_{TM}	I_{TM}=8A， T_j=25℃		-	-	1.8	V
Repetitive Peak Off-State Current	I_{DRM}	V_D=V_{DRM}= V_{RRM}	T_j=25℃	-	-	5	μA
Repetitive Peak Reverse Current	I_{RRM}		T_j=125℃	-	-	1	mA
THERMAL RESISTANCES							
Ihermal resistance	$R_{th\ (j-c)}$	Junction to case			Max	1.25	℃/W

Ordering Information



Typical Characteristics

FIG.1: Maximum power dissipation versus RMS on-state current

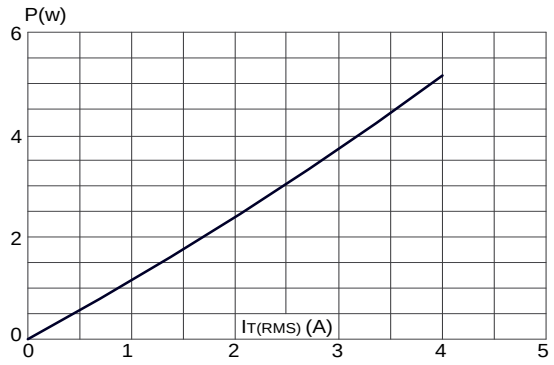


FIG.2: RMS on-state current versus case temperature

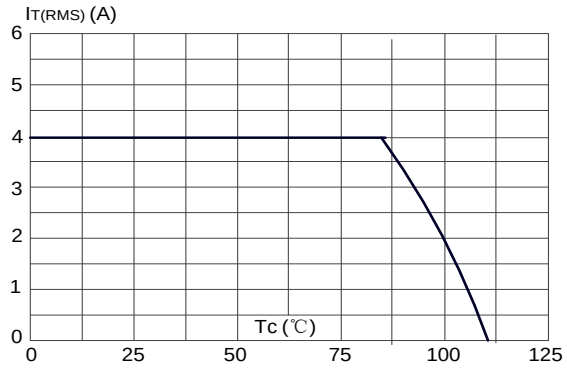


FIG.3: Surge peak on-state current versus number of cycles

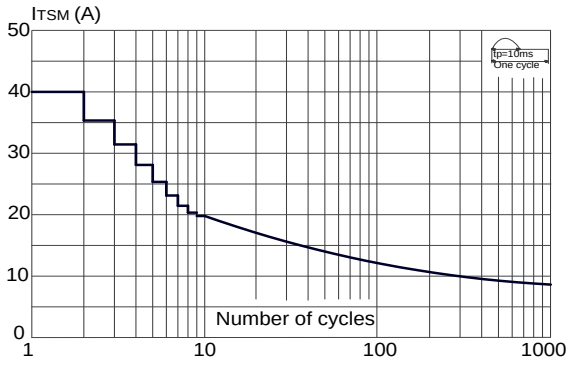


FIG.4: On-state characteristics (maximum values)

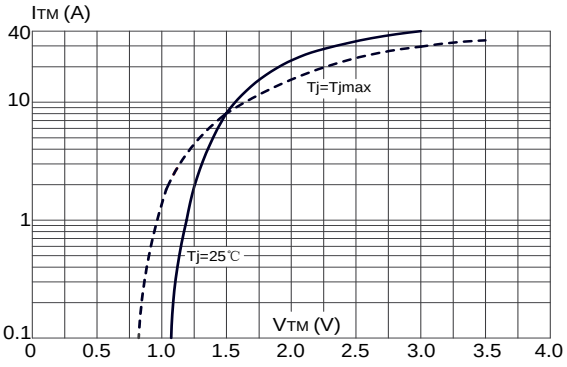


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms, and corresponging value of I^2t (dI/dt < 100A/μs)

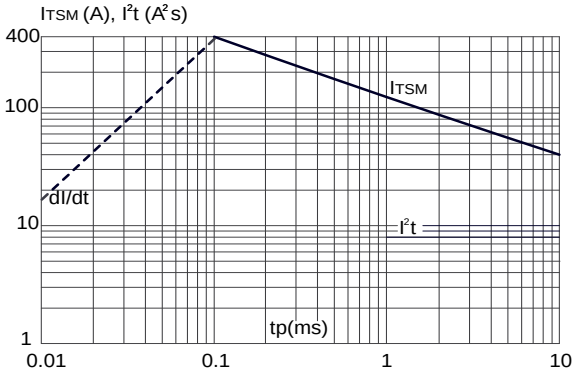
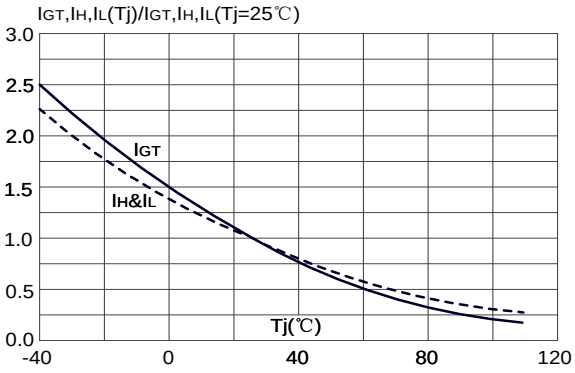
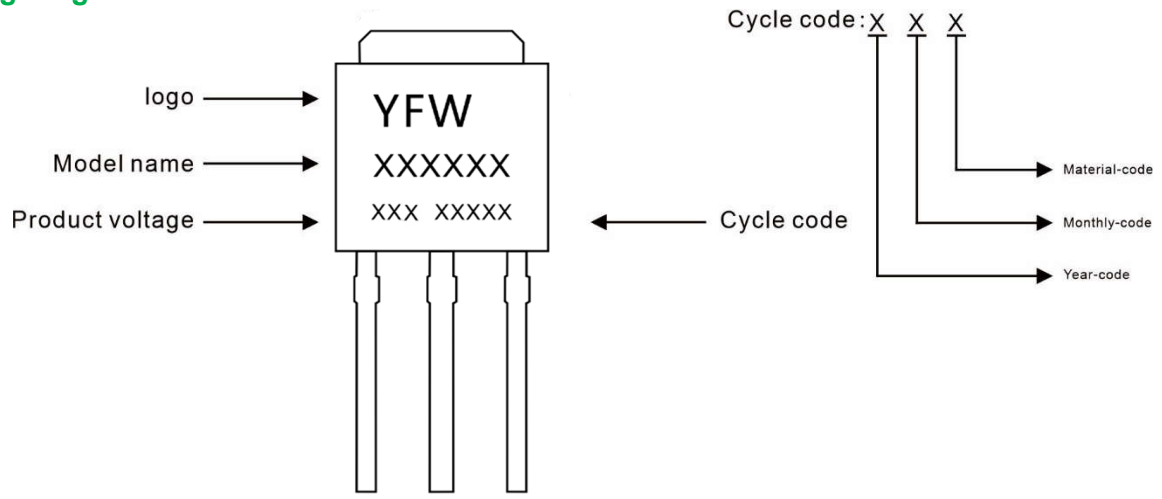


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Marking Diagram

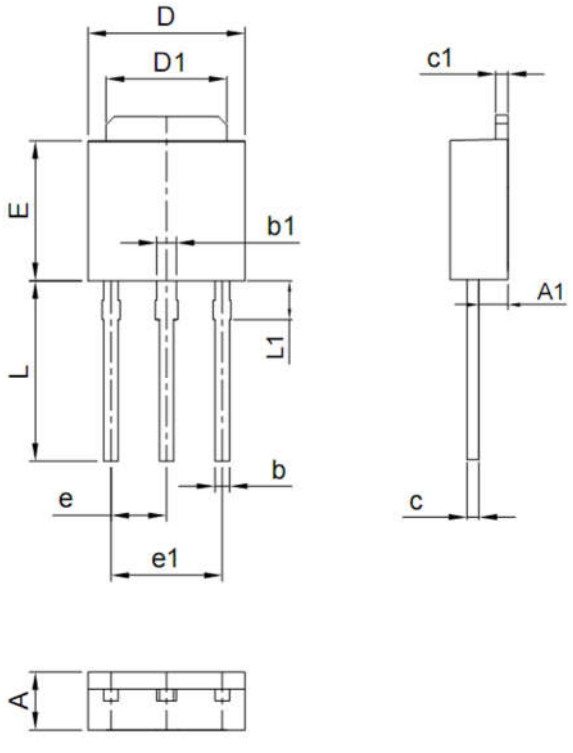


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
X0405M-X	TO-251	0.0134oz(0.380g)	75pcs/tube	30000pcs/box15000pcs/Carton

Package Dimensions

TO-251



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	1.00	1.20	0.039	0.055
A2	0.9	1.1	0.035	0.043
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.20	6.70	0.244	0.264
D1	5.10	5.50	0.201	0.217
E	5.50	6.00	0.217	0.236
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	7.80	8.50	0.307	0.334
L1	1.40	1.70	0.055	0.063

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