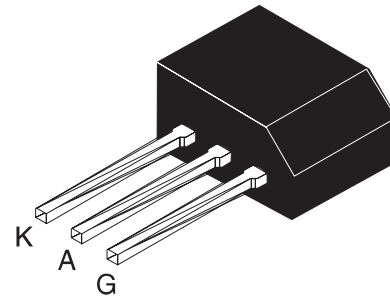
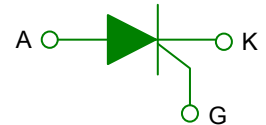


**DESCRIPTION**

Thanks to highly sensitive triggering levels, the X04 SCR series 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.....



K: Cathode 阴极  
A: Anode 阳极  
G: Gate 控制极



Symbol	Value	Unit
$I_{T(RMS)}$	4	A
$V_{DRM}/V_{RRM}$	600~800	V
$I_{GT}$	50~200	$\mu A$

**Product Model Reference & Naming**

4A High Sensitive SCRs

4A 高灵敏度 单向可控硅	封装标识	产品型号列表		触发电流 $I_{GT}$
		M: 600V	N: 800V	
TO202-3	F	X0402MF	X0402NF	$02 \leq 200 \mu A$
		X0405MF	X0405NF	$05 \leq 50 \mu A$

说明

- 1、大电流机种(特殊品种)其电流值可客户要求定制, 批量交期6~8周
- 2、常规电压以600V规格出货, 高压规格机种(特殊品种)600V以上者, 批量交期6~8周
- 3、触发电流可细分至多个规格: 1~5、5~10、10~30、30~60、50~100、50~200、100~200, 单位  $\mu A$

**ABSOLUTE RATINGS (Limiting Values)**

SYMBOL	Parameter & Test Conditions	Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_C=60^\circ C$	4
		$T_{amb}=25^\circ C$	1.35
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_C=60^\circ C$	2.5
		$T_{amb}=25^\circ C$	0.9
$I_{TSM}$	Nonrepetitive surge peak on-state current ( $T_J=25^\circ C$ )	$t_p=8.3ms$	33
		$t_p=10ms$	30
$I_{GM}$	Peak gate current ( $t_p=20\mu s$ )	$T_J=125^\circ C$	1.2
$I^2t$	$I^2t$ Value for fusing ( $t_p=10ms$ )	$T_J=25^\circ C$	4.5
$V_{DRM}$ $V_{RRM}$	Peak Repetitive Off-State Voltage ( $T_J=40\sim 125^\circ C$ , Sine Wave, 50~60Hz; Gate Open)	见型号列表	M: 600 N: 800
$P_{G(AV)}$	Average gate power dissipation	$T_J=125^\circ C$	0.2
$T_J$	Operating Junction Temperature Range		-40 ~ +125
$T_{stg}$	Storage junction temperature range		-40 ~ +150

■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C Unless Otherwise Noted)

SYMBOL	Parameter & Test Conditions		X0402	X0405	Unit
I <sub>GT</sub>	V <sub>D</sub> =12V, R <sub>L</sub> =40Ω, T <sub>J</sub> =25°C	Min.	--	20	μA
		Max.	200	50	
I <sub>H</sub>	Holding Current (I <sub>T</sub> =50mA, R <sub>GK</sub> =1KΩ)		Max.	5	mA
I <sub>L</sub>	I <sub>G</sub> =1mA, R <sub>GK</sub> =1KΩ		Min.	6	
V <sub>GT</sub>	V <sub>D</sub> =12V, R <sub>L</sub> =140Ω, T <sub>J</sub> =25°C		Max.	0.8	V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> , R <sub>L</sub> =3.3KΩ, R <sub>GK</sub> =1KΩ		Min.	0.1	
V <sub>RG</sub>	I <sub>RG</sub> =10μA		Min.	8	
V <sub>TM</sub>	I <sub>TM</sub> =8A, tp=380μs, Peak @ T <sub>J</sub> =25°C		Max.	1.8	
dv/dt	V <sub>D</sub> =67% V <sub>DRM</sub> , R <sub>GK</sub> =1KΩ, T <sub>J</sub> =110°C		Min.	10	V/μs
di/dt	Critical rate of rise of on-state current I <sub>G</sub> =2×I <sub>GT</sub> , tr≤100ns, F=60HZ, T <sub>J</sub> =125°C		Max.	50	A/μs
I <sub>DRM</sub> I <sub>RSM</sub>	V <sub>DRM</sub> =V <sub>RSM</sub> , R <sub>GK</sub> =1KΩ	T <sub>J</sub> =25°C	Max.	5	μA
		T <sub>J</sub> =125°C	Max.	1	mA
R <sub>d</sub>	Dynamic Resistance (T <sub>J</sub> =125°C)		Max.	100	mΩ

■ THERMAL RESISTANCES

R <sub>th(j-c)</sub>	Thermal Resistance-Junction-to-Case	Max.	15	15	°C/W
R <sub>th(j-a)</sub>	Thermal Resistance-Junction-to-Ambient	Max.	100	100	

Electrical characteristics & Typical characteristics

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

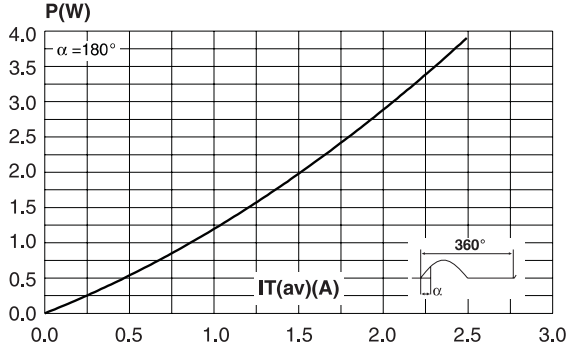


Fig-2: Average and D.C.on-state current versus lead temperature.

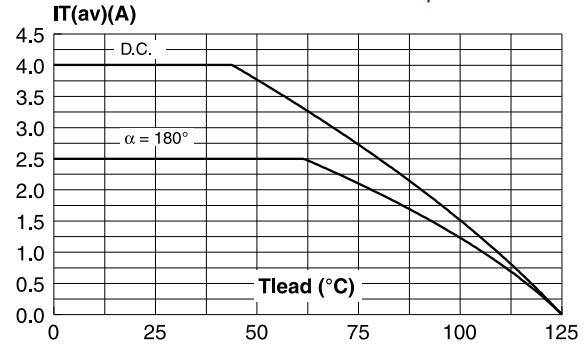


Fig-3: Surge peak on-state current versus number of cycles.

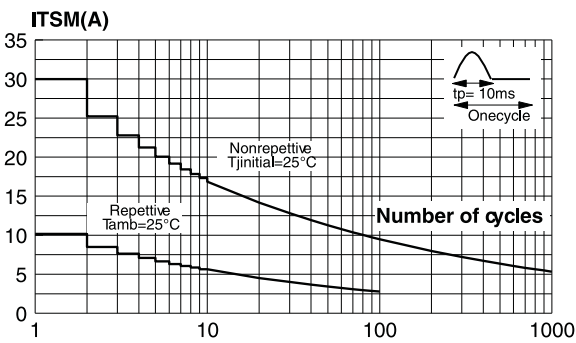


Fig-4: Relative variation of thermal impedance junction to ambient versus pulse duration.

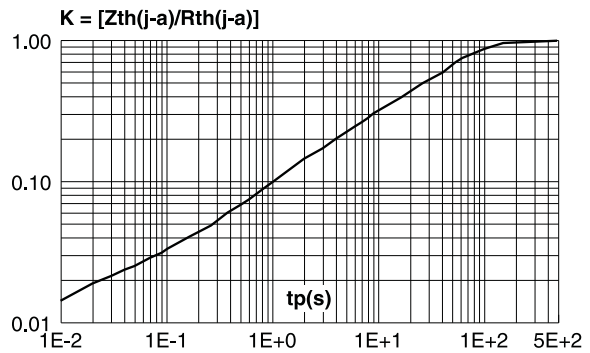


Fig-5: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

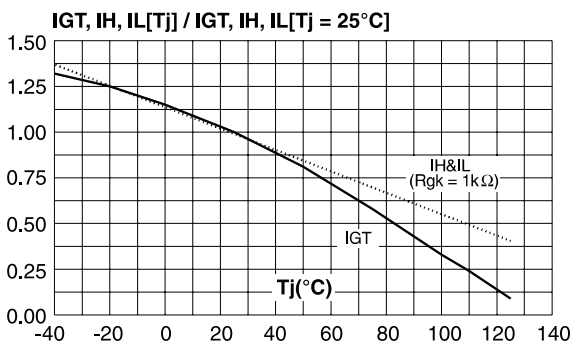
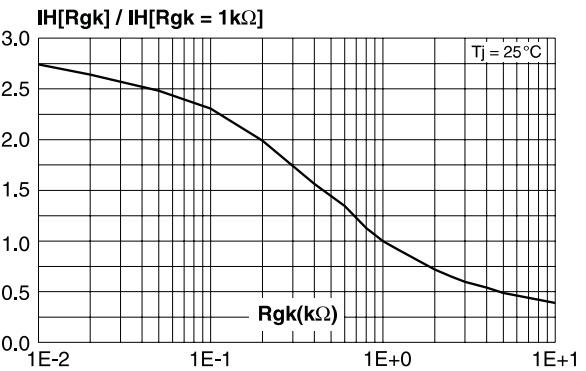
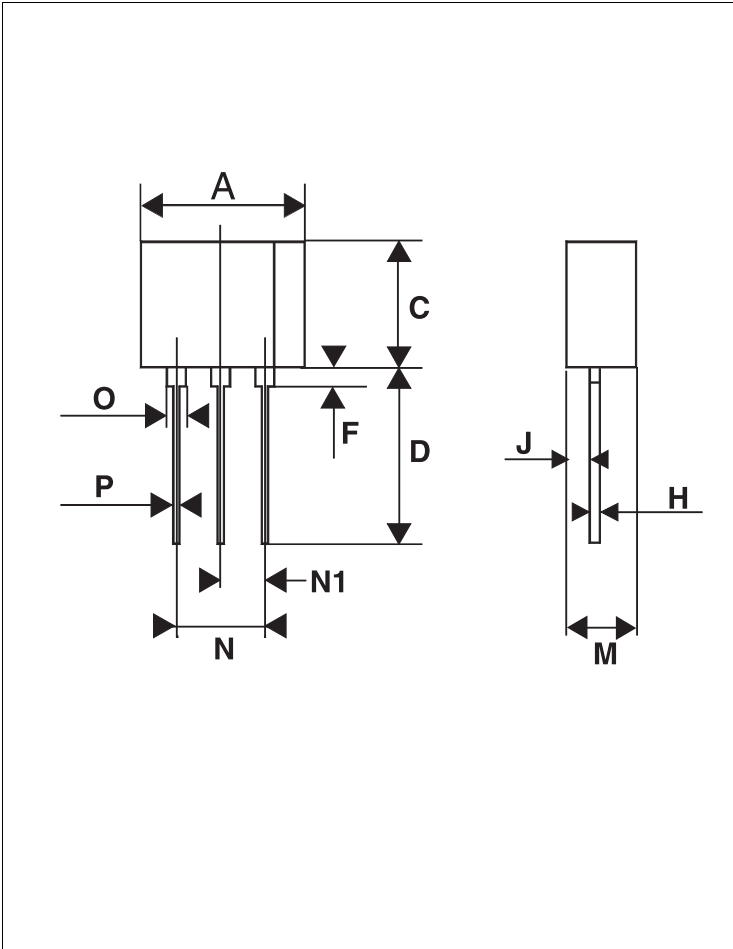


Fig-6: Relative variation of holding current versus gate-cathode resistance (typical values).



PACKAG EMECHANICAL DATA TO202-3 封装尺寸 (毫米与英寸单位对照)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A		10.1		0.398
C	7.3		0.287	
D	10.5		0.413	
F		1.50		0.059
H	0.51		0.020	
J	1.50		0.059	
M	4.50		0.177	
N		5.30		0.209
N1	2.54		0.100	
O		1.40		0.055
P		0.70		0.028

■ Packaging Specifications 包装规格

TO202-3	塑料袋装, 每包500只, 每盒5000只, 每箱50000只
	500Pcs/Bag, 5000Pcs/BOX (5Kpcs), 50000Pcs/Cartons (50Kpcs)

Manufacturers version information

2006-09-01, KKG™ Product Data-1.0

2010-09-01, KKG™ Product Data-1.1

2014-09-01, KKG™ Product Data-1.2



经中华人民共和国工商行政管理总局商标局批准

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