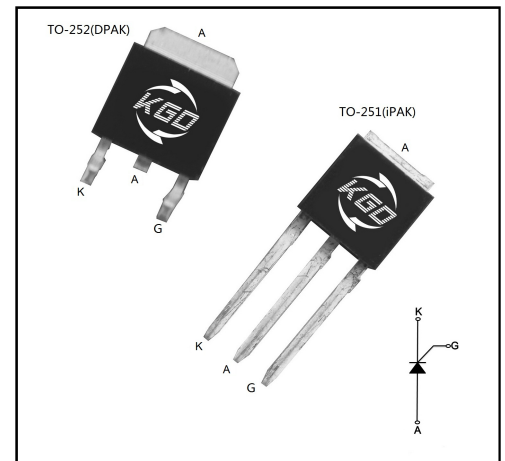


**Description:**

Highly sensitive triggering levels, the X0405 Series SCRs 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:**

Blocking voltage to 600V  
 On-state RMS current to 4A  
 Non-repetitive peak on-state current to 30A

**Absolute Maximum Ratings**


Symbol	Parameter	Conditions	Value	Unit
$V_{DRM}$	Repetitive peak off-state voltage	$T_J=25^\circ\text{C}$	600	V
$V_{RRM}$	Repetitive peak Reverse voltage	$T_J=25^\circ\text{C}$	600	V
$I_{T(RMS)}$	RMS on-state current (180° conduction half sine wave)	$T_c=77^\circ\text{C}$	4	A
$I_{T(av)}$	Average on-state current (180° conduction half sine wave)	$T_c=77^\circ\text{C}$	2.5	A
$I_{TSM}$	Non-repetitive surge peak On-state current( $T_J=25^\circ\text{C}$ )	$t_p=10\text{ms}$	30	A
		$t_p=8.3\text{ms}$	33	
$I^2t$	$I^2t$ Value for fusing	$t_p=10\text{ms}$	4.5	$\text{A}^2\text{S}$
$I_{GM}$	Peak gate current	$t_p=20\mu\text{s}, T_J=110^\circ\text{C}$	1.2	A
$P_{G(AV)}$	Average gate power dissipation		0.2	W
$T_{STG}$	Storage temperature		-40 150	$^\circ\text{C}$
$T_J$	Junction temperature		-40 110	$^\circ\text{C}$

**Electrical Characteristics**

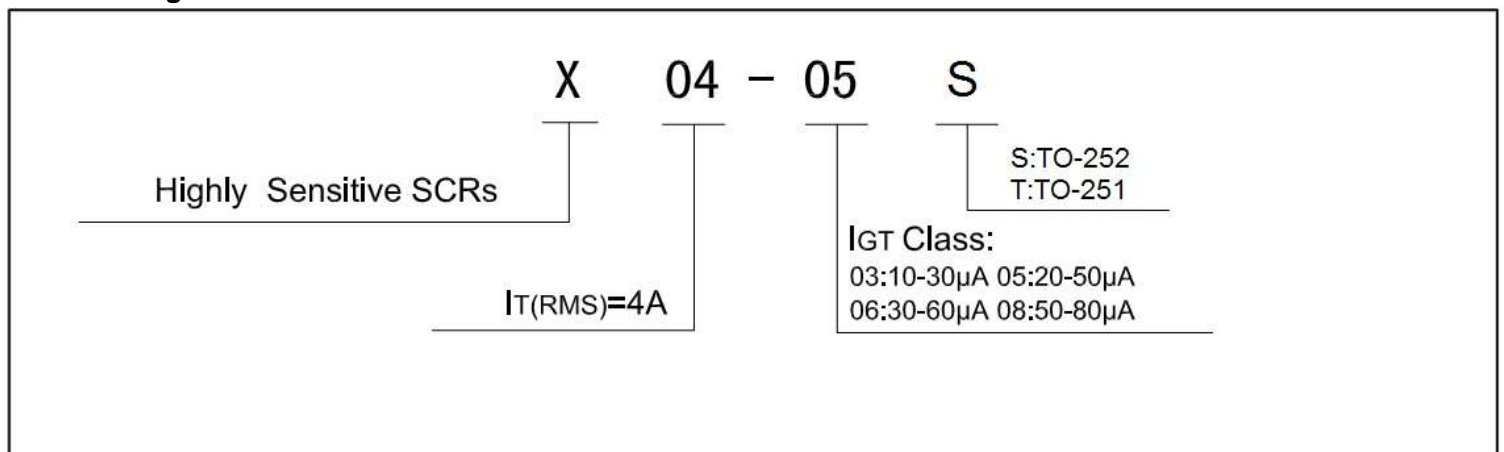
Symbol	Conditions	Value			Unit
		MIN	TYP	MAX	
$I_{GT}$	$V_D=6V, R_L=100\Omega$	/	40	200	$\mu A$
$V_{GT}$		/	0.6	0.8	V
$V_{GD}$	$V_D=V_{DRM}, R_L=3.3K\Omega, R_{GK}=1K\Omega, T_J=110^\circ C$	0.2	/	/	V
$I_L$	$I_G=1mA, R_{GK}=1K\Omega$	/	/	6	mA
$I_H$	$I_T=50mA, R_{GK}=1K\Omega$	/	/	5	mA
$dv/dt$	$V_{DM}=67\%V_{DRM}, R_{GK}=1K\Omega, T_J=110^\circ C$	10	/	/	$V/\mu s$

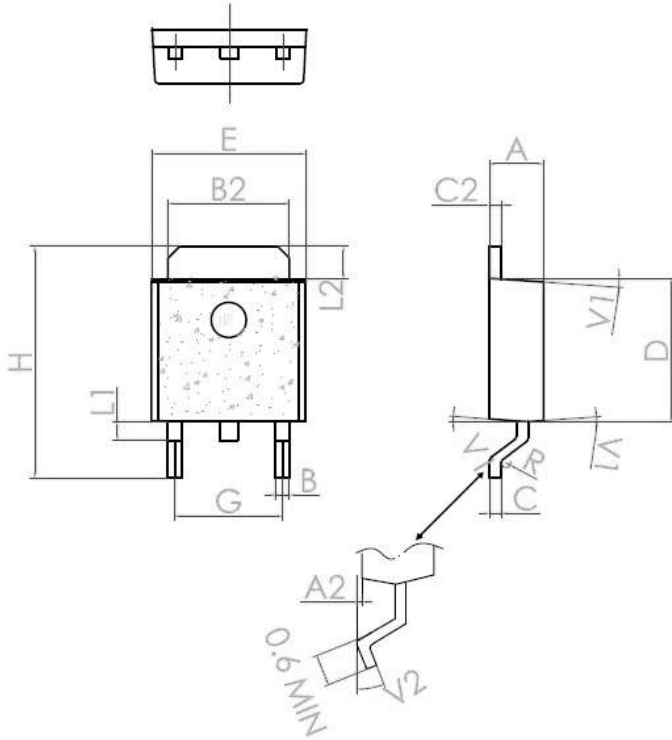
**Electrical Characteristics**

Symbol	Parameter	Numerical	Unit
$V_{TM}$	$I_T=1A, t_p=380\mu s$ $T_J=25^\circ C$	1.8	V
$I_{DRM}$	$V_D=V_{DRM}, V_R=V_{RRM}$ $T_J=25^\circ C$	5	$\mu A$
$I_{RRM}$	$T_J=125^\circ C$	0.1	mA

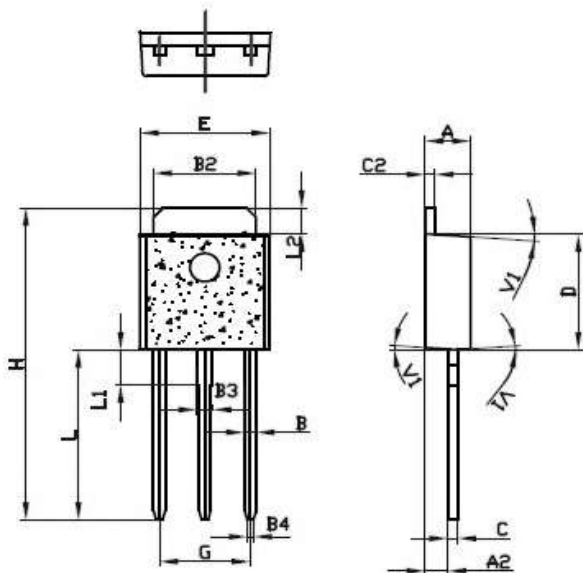
**Thermal Characteristics**

Symbol	Parameter	Numerical(MAX)	Unit
$R_{th(j-c)}$	Junction to case(AC)	3.7	$^\circ C/W$
$R_{th(j-a)}$	Junction to ambient(AC)	55	$^\circ C/W$
$T_L$	Lead Solder Temperature(<1/16" from case, 10 secs max)	260	$^\circ C$

**Ordering Information**


**Package Outline Dimensions**
**TO-252 / DPAK**


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.021		0.026
B2	5.2		5.4	0.204		0.212
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.6	0.251		0.259
G	4.40		4.60	0.173		0.181
H	9.35		10.1	0.368		0.397
L1		0.8			0.031	
L2	1.37		1.5	0.054		0.059
V1		4°			4°	
V2	0°		8°	0°		8°

**TO-251(iPAK)**


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.095
A2	0.9		1.1	0.035		0.043
B	0.55		0.65	0.021		0.026
B2	5.1		5.4	0.200		0.212
B3	0.76		0.85	0.030		0.033
B4		0.32			0.013	
C	0.45		0.62	0.017		0.024
C2	0.48		0.62	0.019		0.024
D	6		6.2	0.236		0.244
E	6.4		6.7	0.252		0.264
G	4.4		4.7	0.173		0.185
H	16.0		16.7	0.630		0.658
L	8.9		9.4	0.350		0.370
L1	1.8		1.9	0.071		0.075
L2	1.37		1.5	0.054		0.059
V1		4°			4°	

**X0405S,X0405T Series**

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

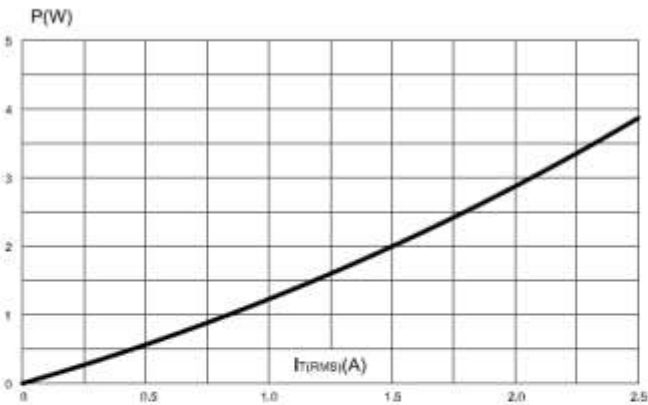


FIG.2: Average on-state current versus case temperature(full cycle)

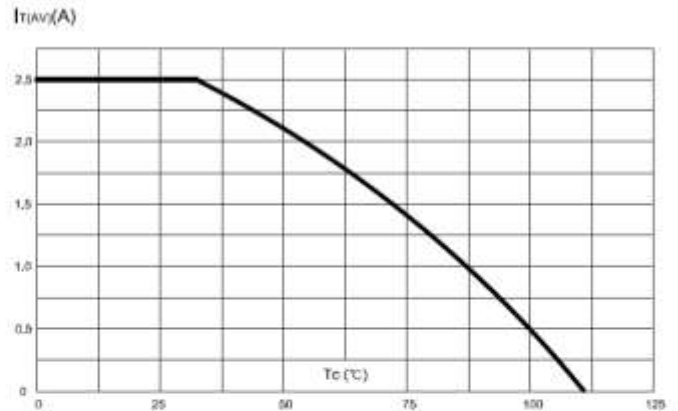


FIG.3: On-state characteristics (maximum values)

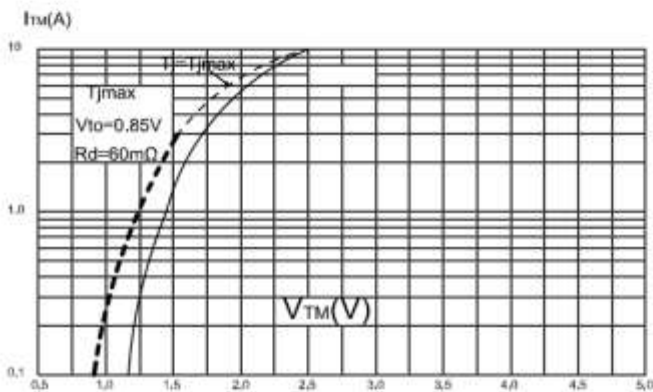


FIG.4: Surge peak on-state current versus number of cycles.

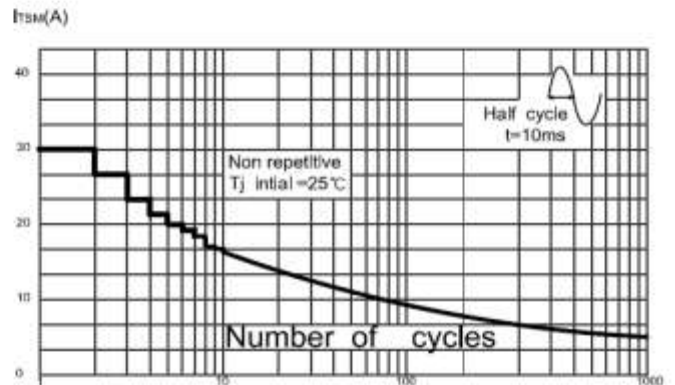


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ .

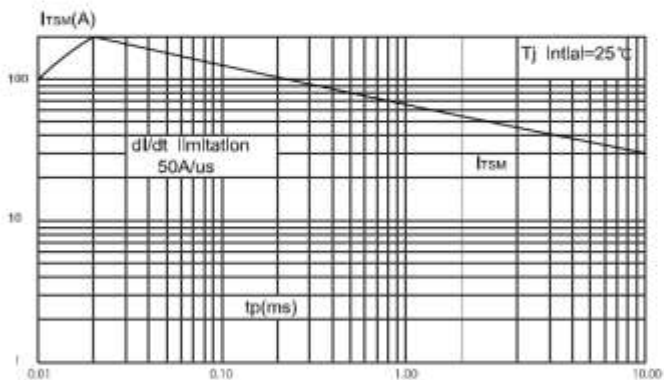


FIG.6: Relative variation of gate trigger current, holding current and latching current versus junction temperature(typical values).

