

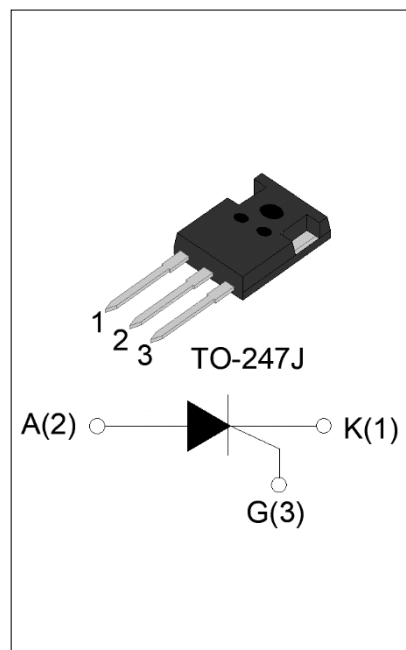


### DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT1240SJ SCR provides high  $dV/dt$  rate with strong resistance to electromagnetic interference. It is especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc. Package TO-247J is RoHS compliant.

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	40	A
$V_{DRM}/V_{RRM}$	1200	V
$I_{GT}$	$\leq 45$	mA



### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	$T_{stg}$	-40-150	$^{\circ}C$
Operating junction temperature range	$T_j$	-40-125	$^{\circ}C$
Repetitive peak off-state voltage ( $T_j=25^{\circ}C$ )	$V_{DRM}$	1200	V
Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )	$V_{RRM}$	1200	V
Average on-state current ( $T_c \leq 78^{\circ}C$ )	$I_{T(AV)}$	25	A
RMS on-state current ( $T_c \leq 78^{\circ}C$ )	$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current ( $t_p=10ms, T_j=25^{\circ}C$ )	$I_{TSM}$	500	A
Non repetitive surge peak on-state current ( $t_p=8.3ms, T_j=25^{\circ}C$ )		540	
$I^2t$ value for fusing ( $t_p=10ms, T_j=25^{\circ}C$ )	$I^2t$	1250	$A^2s$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}, f=100Hz, T_j=125^{\circ}C$ )	$di/dt$	200	$A/\mu s$
Peak gate current ( $t_p=20\mu s, T_j=125^{\circ}C$ )	$I_{GM}$	10	A
Average gate power dissipation ( $T_j=125^{\circ}C$ )	$P_{G(AV)}$	1	W

Peak gate power	$P_{GM}$	20	W
Peak pulse voltage ( $T_j=25^\circ\text{C}$ ; non-repetitive, off-state; FIG.7)	$V_{pp}$	0.7	kV

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^\circ\text{C}$  unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	-	-	45	mA
$V_{GT}$		-	-	1	V
$V_{GD}$	$V_D=V_{DRM} T_j=125^\circ\text{C } R_L=3.3\text{K}\Omega$	0.2	-	-	V
$I_L$	$I_G=1.2I_{GT}$	-	-	120	mA
$I_H$	$I_T=500\text{mA}$	-	-	100	mA
dV/dt	$V_D=800\text{V}$ Gate Open $T_j=125^\circ\text{C}$	1500	-	-	V/ $\mu\text{s}$
$t_{on}$	$I_G=50\text{mA } I_A=500\text{mA } I_R=50\text{mA}$ $T_j=25^\circ\text{C}$	-	5	-	$\mu\text{s}$
$t_{off}$		-	100	-	

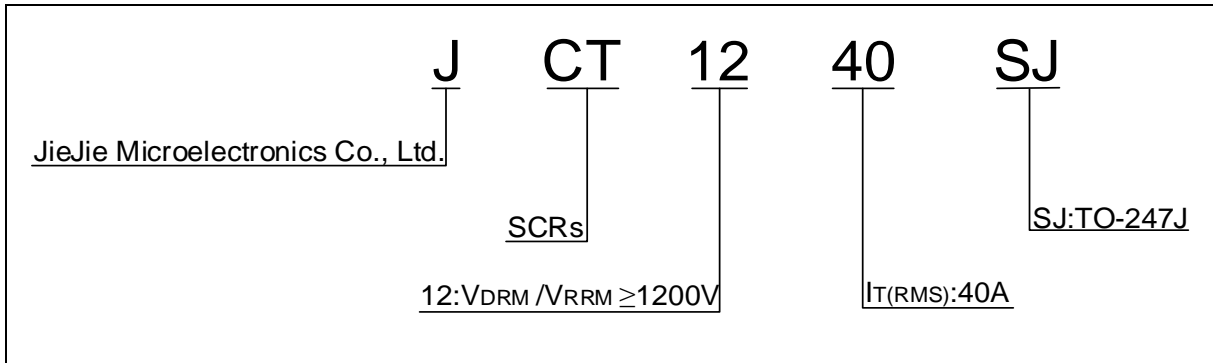
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=80\text{A } t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.7	V
$V_{TO}$	Threshold voltage	$T_j=125^\circ\text{C}$	0.69	V
$R_D$	Dynamic resistance	$T_j=125^\circ\text{C}$	21	m $\Omega$
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	10	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	5	mA

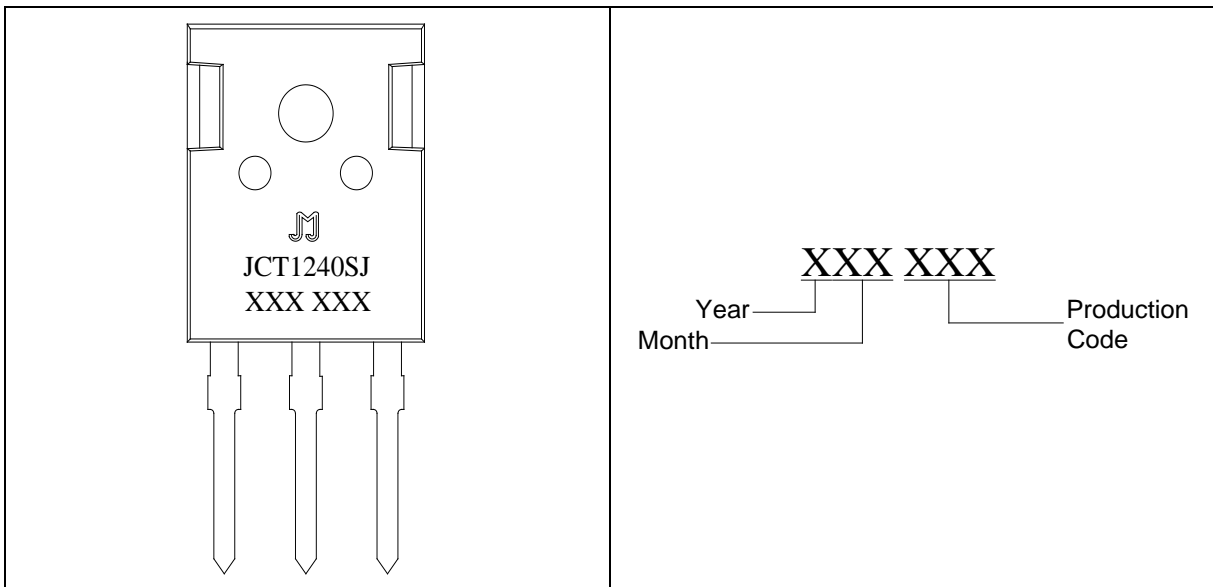
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case(DC)	0.8	$^\circ\text{C/W}$
$R_{th(j-a)}$	junction to ambient (DC)	45	$^\circ\text{C/W}$

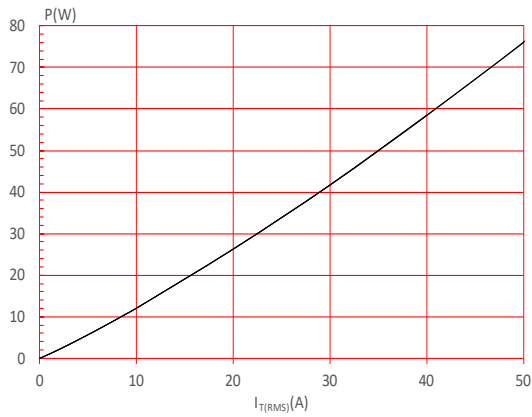
**ORDERING INFORMATION**



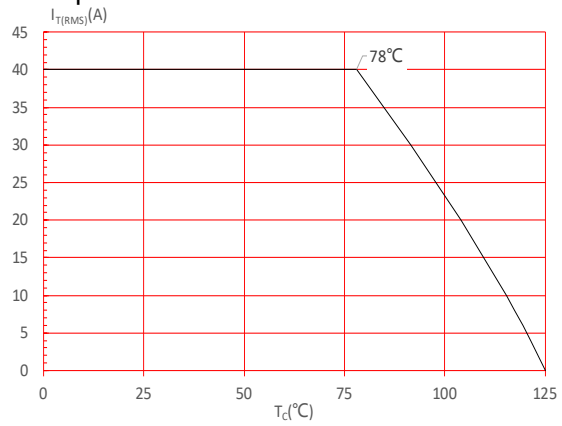
**MARKING**



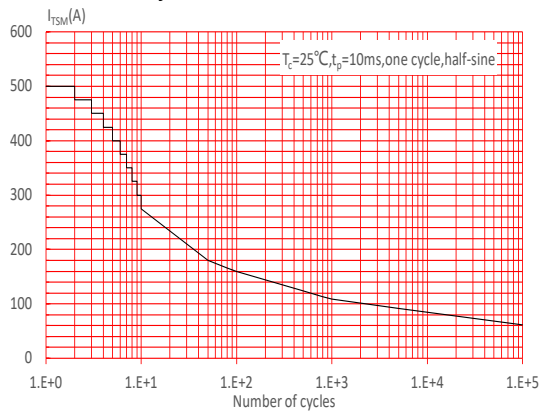
**FIG.1:** Maximum power dissipation versus RMS on-state current



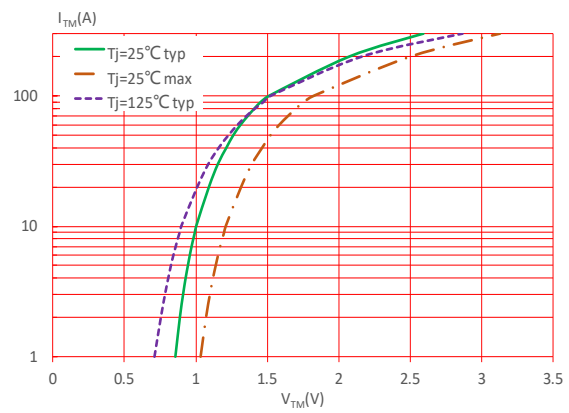
**FIG.2:** RMS on-state current versus case temperature



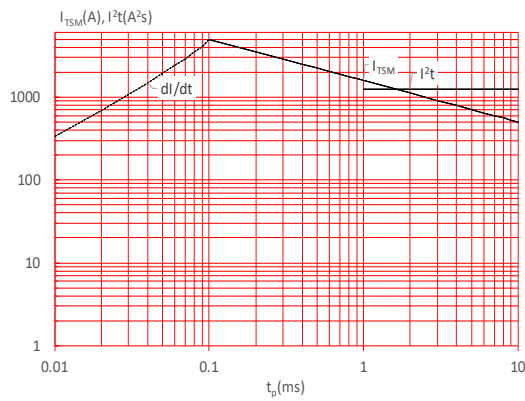
**FIG.3:** Surge peak on-state current versus number of cycles



**FIG.4:** On-state characteristics



**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 200\text{A}/\mu\text{s}$ )



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

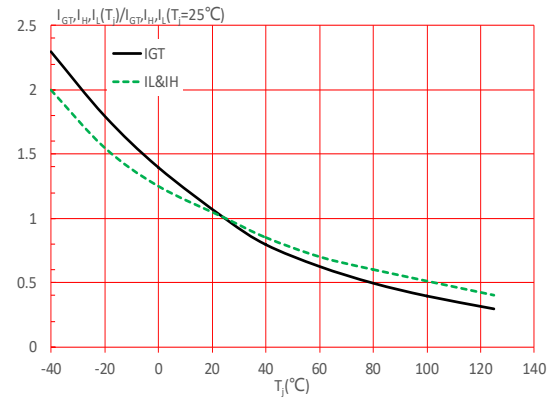
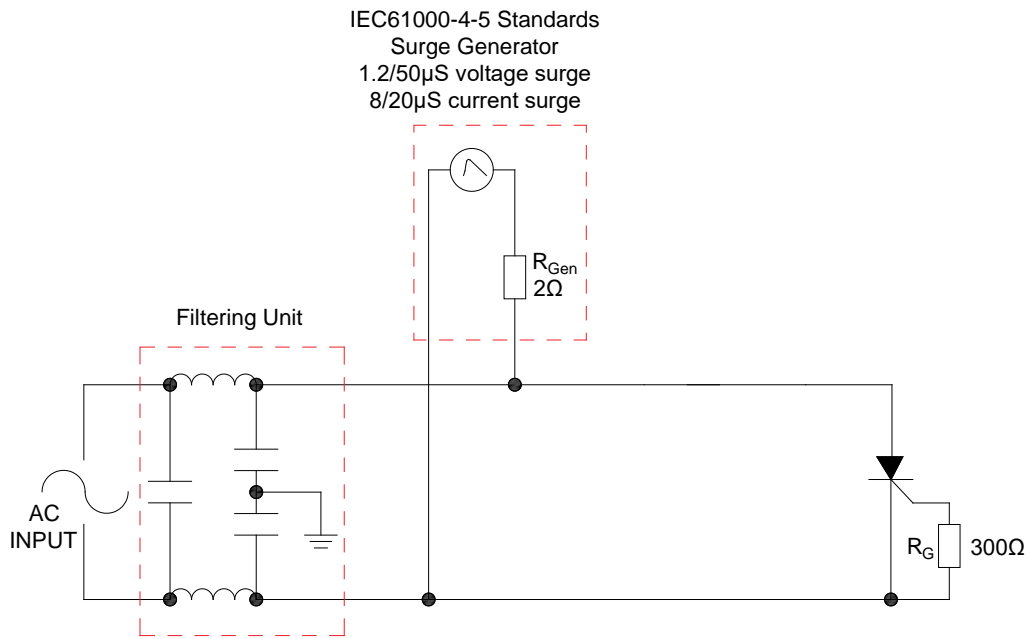


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



## LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Power Discretes in Through-hole Packages” released by JieJie Microelectronics

**ORDERING INFORMATION**


Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT1240SJ	1200	45	TO-247J	30	Tube

**Document Revision History**

Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update
Jan.8, 2025	A.2.0	Update Package



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