

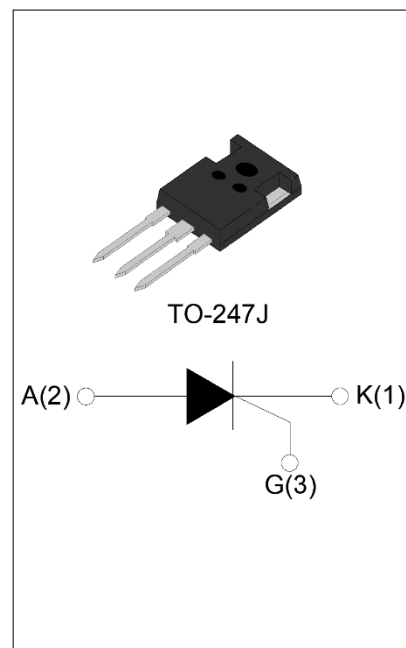


DESCRIPTION:

With high ability to withstand the shock loading of large current, JCT1640SJ 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}	1600	V
I_{GT}	≤ 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}	1600	V
Repetitive peak reverse voltage ($T_j=25^{\circ}C$)	V_{RRM}	1600	V
Average on-state current ($T_c \leq 68^{\circ}C$)	$I_{T(AV)}$	25	A
RMS on-state current ($T_c \leq 68^{\circ}C$)	$I_{T(RMS)}$	40	A
Non repetitive surge peak on-state current ($t_p=10ms$, $T_j=25^{\circ}C$)	I_{TSM}	400	A
Non repetitive surge peak on-state current ($t_p=8.3ms$, $T_j=25^{\circ}C$)		430	
I^2t value for fusing ($t_p=10ms$, $T_j=25^{\circ}C$)	I^2t	800	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}	1.2	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	$I_G=1.2I_{GT}$	-	-	150	mA
I_H	$I_T=500\text{mA}$	-	-	130	mA
dV/dt	$V_D=1070\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$	1500	-	-	V/ μs
t_{on}	$I_G=100\text{mA}$ $I_A=1\text{A}$ $I_R=100\text{mA}$ $T_j=25^{\circ}\text{C}$	-	7	-	μs
t_{off}		-	120	-	

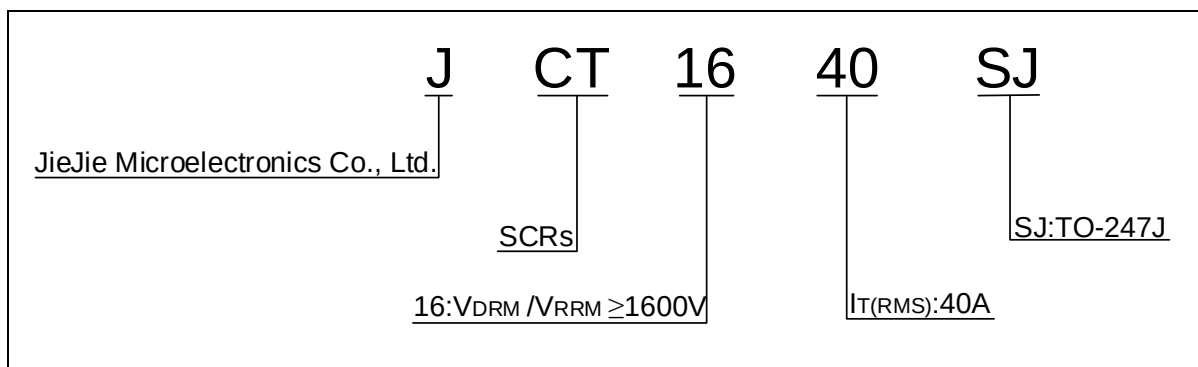
STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX.)	Unit
V_{TM}	$I_{TM}=80\text{A}$ $t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.8	V
V_{TO}	Threshold voltage	$T_j=125^{\circ}\text{C}$	0.78	V
R_D	Dynamic resistance	$T_j=125^{\circ}\text{C}$	13	$\text{m}\Omega$
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	10	μA
I_{RRM}		$T_j=125^{\circ}\text{C}$	5	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	1	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (DC)	50	$^{\circ}\text{C}/\text{W}$

ORDERING INFORMATION



MARKING

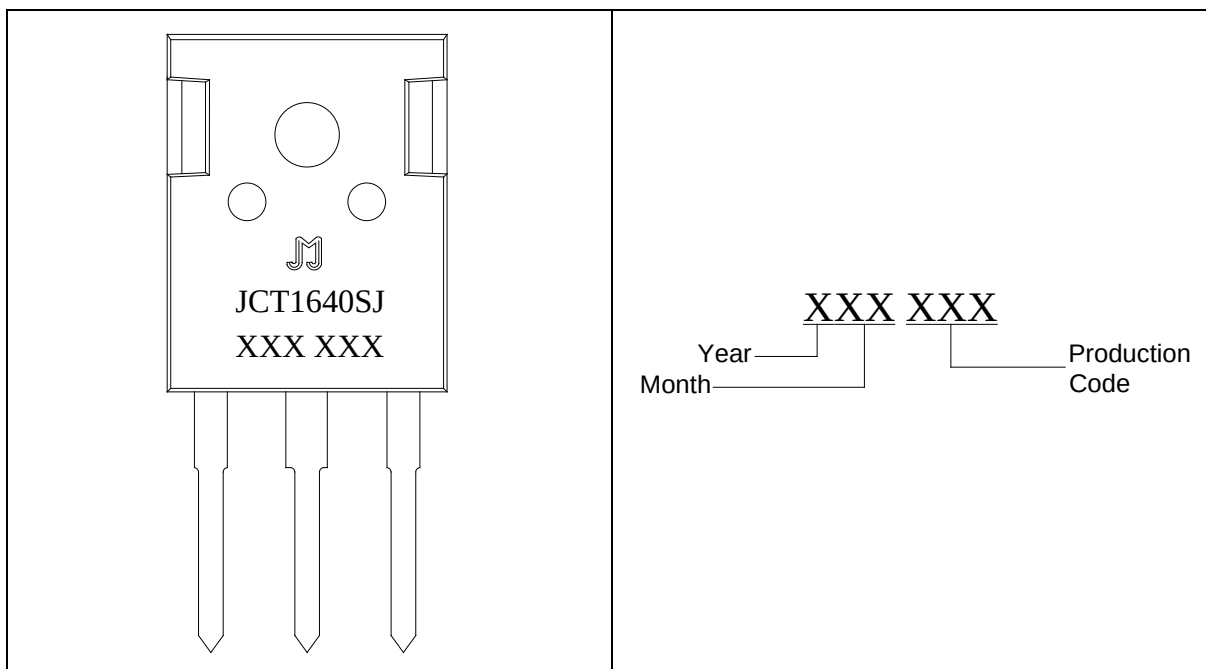


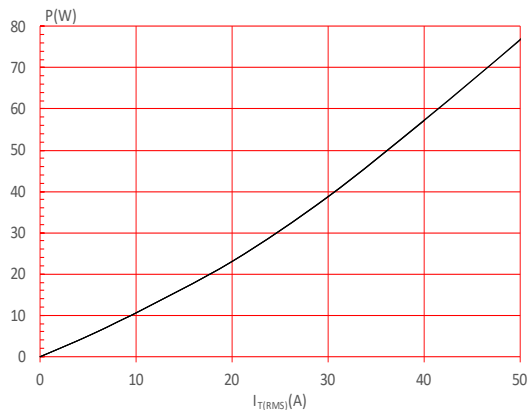
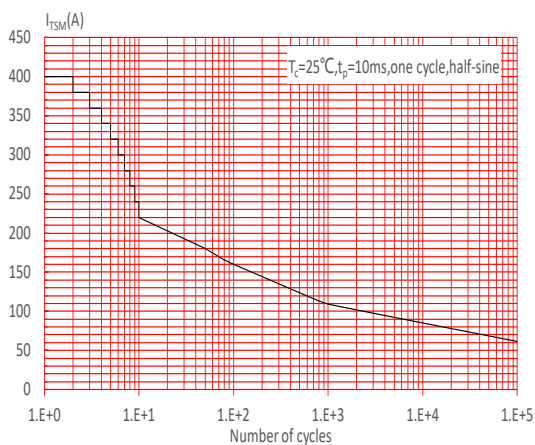
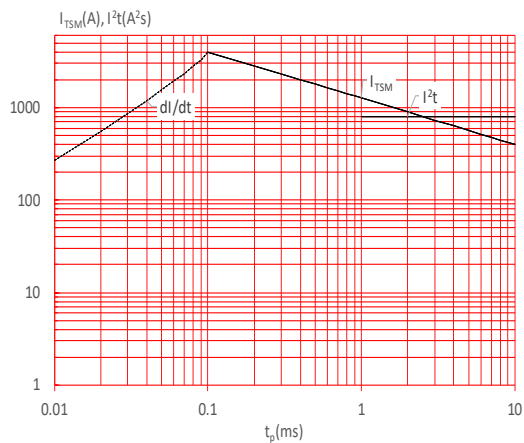
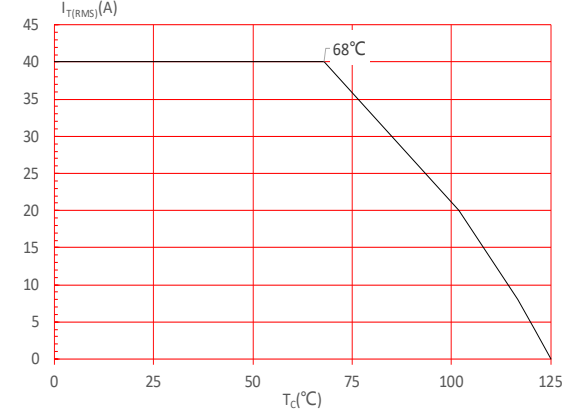
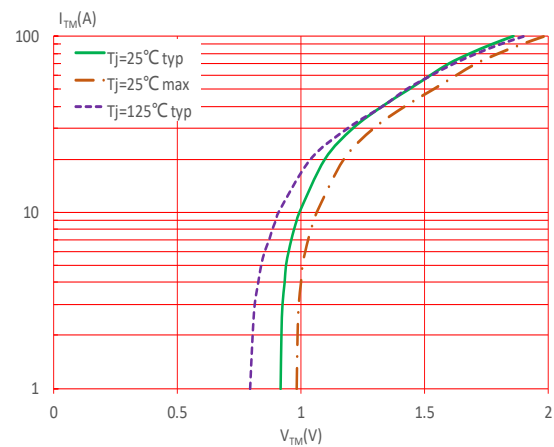
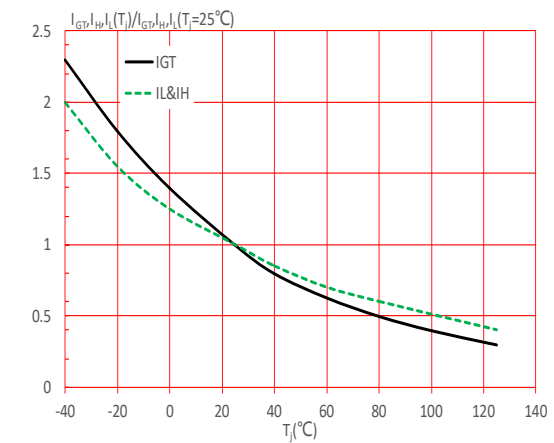
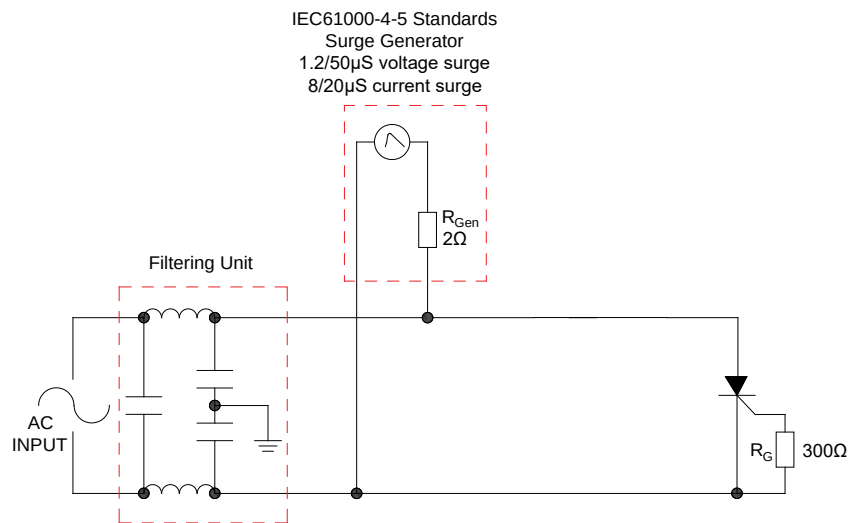
FIG.1: Maximum power dissipation versus RMS on-state current**FIG.3:** Surge peak on-state current versus number of cycles**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($di/dt < 200A/\mu s$)**FIG.2:** RMS on-state current versus case temperature**FIG.4:** On-state characteristics**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 $V_{\text{DRM}}/V_{\text{RRM}}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT1640SJ	1600	45	TO-247J	30	Tube

Document Revision History

Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update
Jan.9, 2025	A.2.0	Update Package
Oct.16, 2025	A.2.1	Revise PACKAGE MECHANICAL DATA

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50		16.10	0.610		0.634
A1	1.15		1.55	0.045		0.061
B	20.80		21.20	0.819		0.835
B1	3.10		3.50	0.122		0.138
C	19.70		20.30	0.776		0.799
C1	15.50		16.10	0.610		0.634
C2	40.60		41.40	1.598		1.630
D	2.90		3.30	0.114		0.130
E	1.90		2.30	0.075		0.091
F	1.00		1.40	0.039		0.055
G		5.44			0.214	
G1	10.68		11.08	0.420		0.436
H	4.80		5.20	0.189		0.205
J	1.90		2.10	0.075		0.083
K	2.20		2.50	0.087		0.098
L	0.41		0.79	0.016		0.031
M	3.70		3.90	0.146		0.154
N	3.55		3.70	0.140		0.146
O	7.60		8.20	0.299		0.323
P	4.05		4.25	0.159		0.167
Q	5.85		6.45	0.230		0.254

Technical drawing of the antenna module showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 495.0 ± 0.5
- Distance from left edge to antenna connector: 145
- Distance from antenna connector to right edge: 70
- Distance from left edge to mounting holes: 11
- Distance from antenna connector to mounting holes: 483.0 $\pm$ 0.2
- Mounting hole diameter: $\phi 5$
- Antenna connector pins: 4
- Labels: ANTISTATIC, RoHS
- Mounting hole diameter (right): $\phi 3.00 \pm 0.05$

Side View Dimensions:

- Overall height: 45.5 ± 0.2
- Distance from top edge to mounting hole: 7.4 $\pm$ 0.2
- Distance from mounting hole to bottom edge: 22.3
- Distance from top edge to antenna connector: 0.7 $^{+0.1}_0$
- Distance from antenna connector to bottom edge: 2.85
- Distance from mounting hole to antenna connector: 16.4

PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-247J	TUBE	30	450	2,250

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