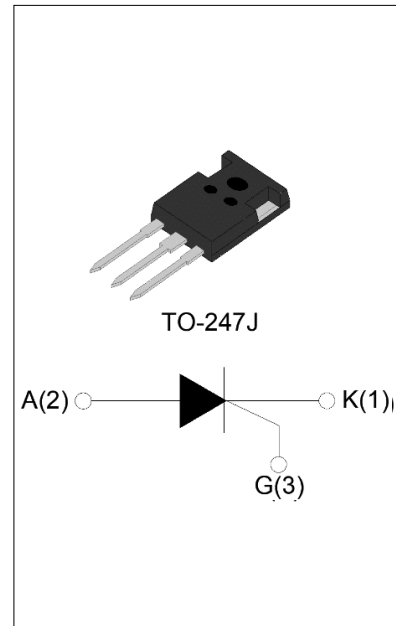


**DESCRIPTION:**

With high ability to withstand the shock loading of large current, SCT1255SJ 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, UPS. Package TO-247J is RoHS compliant.


**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	55	A
$V_{DRM}/V_{RRM}$	1200	V
$I_{GT}$	$\leq 50$	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 ( $T_c \leq 87^{\circ}C$ )	$I_{T(AV)}$	35	A
RMS on-state current ( $T_c \leq 87^{\circ}C$ )	$I_{T(RMS)}$	55	A
Non repetitive surge peak on-state current ( $t_p=10ms, T_j=25^{\circ}C$ )	$I_{TSM}$	700	A
Non repetitive surge peak on-state current ( $t_p=8.3ms, T_j=25^{\circ}C$ )		750	
$I^2t$ value for fusing ( $t_p=10ms, T_j=25^{\circ}C$ )	$I^2t$	2450	$A^2s$
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.	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	-	-	50	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 $T_j=125^\circ\text{C}$	1200	-	-	V/ $\mu\text{s}$
$t_{on}$	$I_G=50\text{mA } I_A=500\text{mA } I_R=50\text{mA}$ $T_j=25^\circ\text{C}$	-	4	-	$\mu\text{s}$
$t_{off}$		-	130	-	

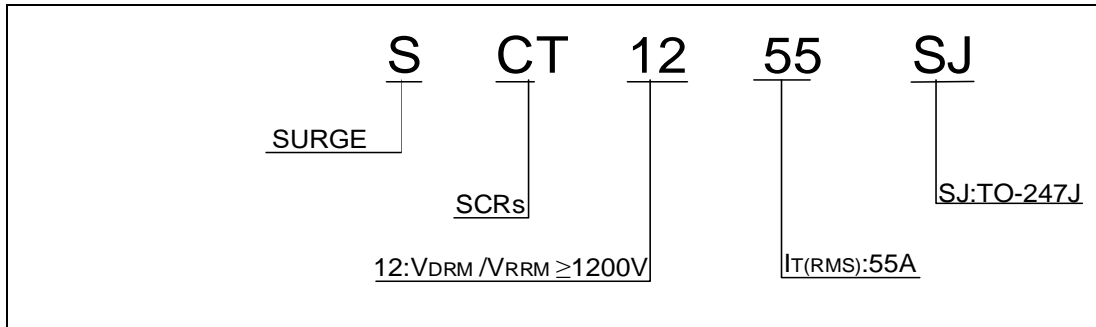
**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=80\text{A } t_p=380\mu\text{s}$	$T_j=25^\circ\text{C}$	1.5	V
$V_{TO}$	Threshold voltage	$T_j=125^\circ\text{C}$	0.76	V
$R_D$	Dynamic resistance	$T_j=125^\circ\text{C}$	8.5	m $\Omega$
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ\text{C}$	10	$\mu\text{A}$
$I_{RRM}$		$T_j=125^\circ\text{C}$	6	mA

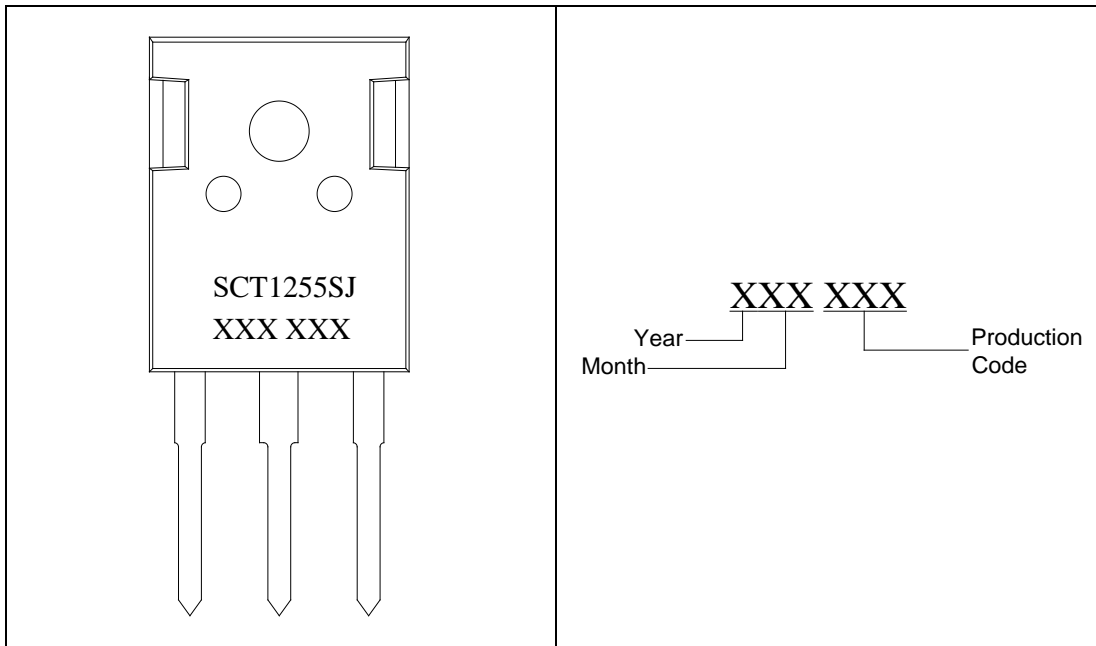
**THERMAL RESISTANCES**

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	junction to case (DC)	0.5	$^\circ\text{C}/\text{W}$
$R_{th(j-a)}$	junction to ambient (DC)	50	$^\circ\text{C}/\text{W}$

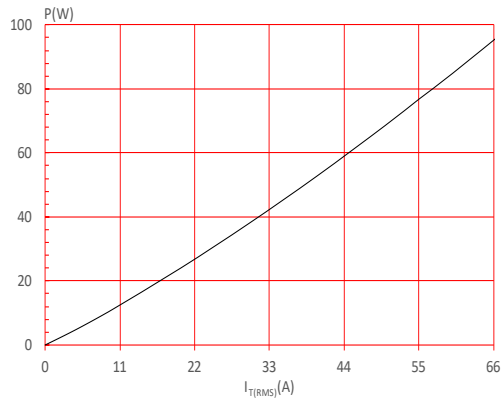
## ORDERING INFORMATION



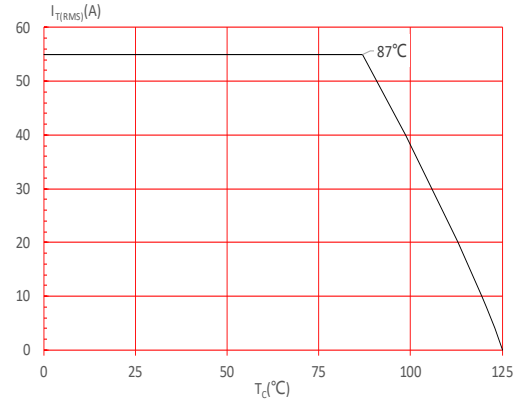
## MARKING



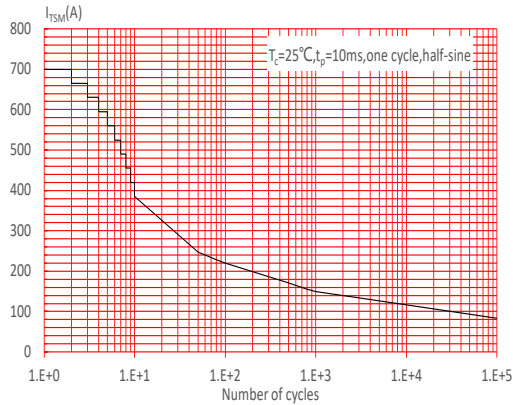
**FIG.1:** Maximum power dissipation versus RMS on-state current



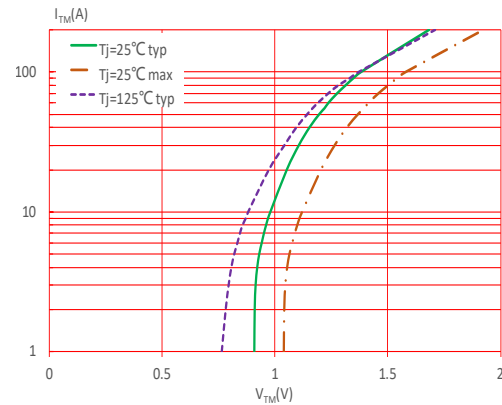
**FIG.2:** RMS on-state current versus case temperature



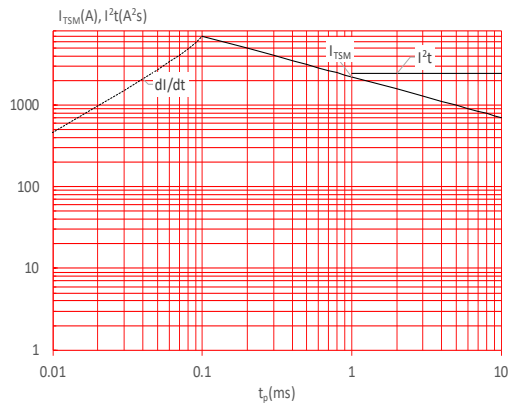
**FIG.3:** Surge peak on-state current versus number of cycles



**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

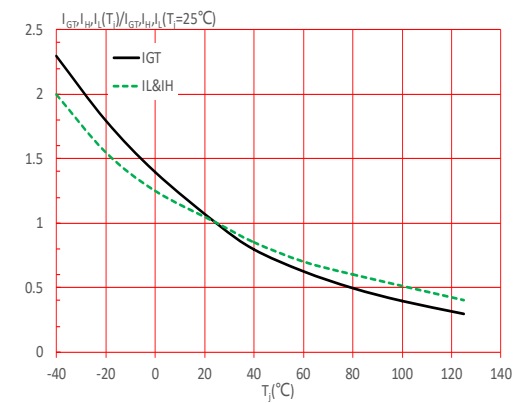
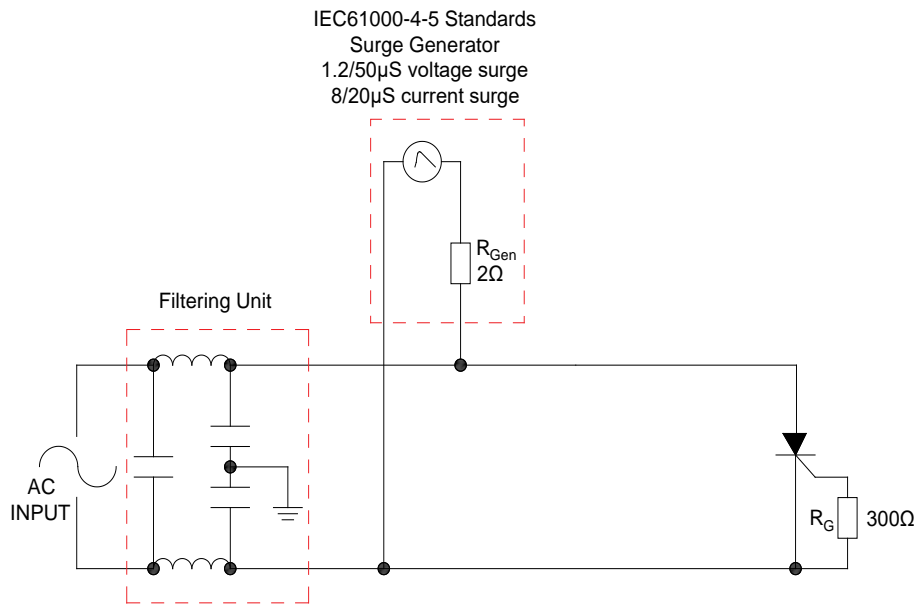


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



## LEAD FORMING AND SOLDERING

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

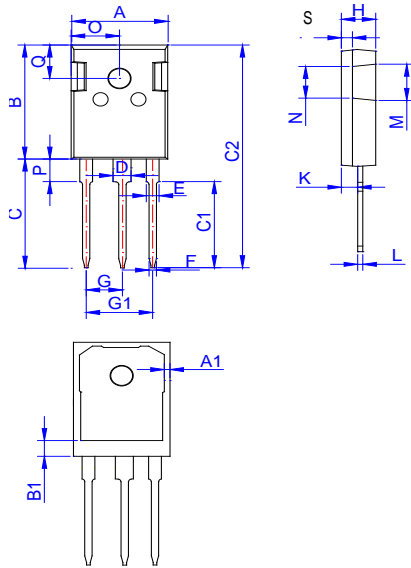
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
SCT1255SJ	1200	50	TO-247J	30	Tube

**Document Revision History**

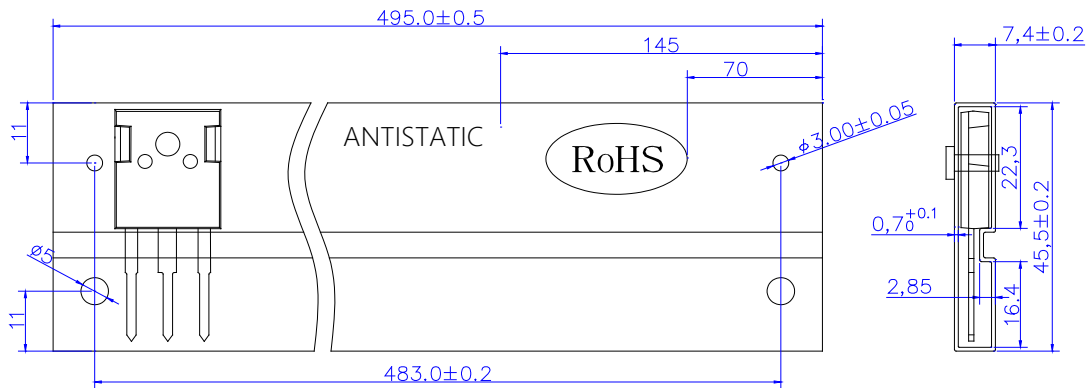
Date	Revision	Changes
Apr.13, 2023	A.1.0	Last update
Jan.8, 2025	A.2.0	Update Package
Oct.16, 2025	A.2.1	Revise PACKAGE MECHANICAL DATA

## 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
s	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

## DELIVERY MODE



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

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