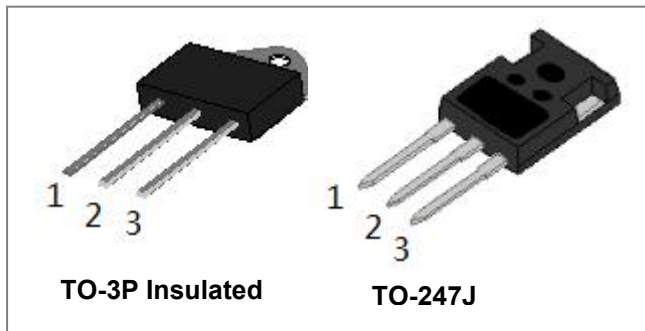
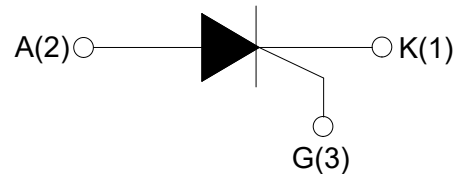


## SCT1255Z/SJ 55A SCRs



### Circuit Diagram



### Description

With high ability to withstand the shock loading of large current, SCT1255 SCRs provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Storage junction temperature range	$T_J$	-	-40-150	°C
Operating junction temperature range	$T_{stg}$	-	-40-125	°C
Repetitive peak off-state voltage( $T_J=25^\circ\text{C}$ )	$V_{DRM}$	-	1200	V
Repetitive peak reverse voltage( $T_J=25^\circ\text{C}$ )	$V_{RRM}$	-	1200	V
Non repetitive peak off-state voltage	$V_{DSM}$	-	$V_{DRM} + 100$	V
Non repetitive peak reverse voltage	$V_{RSM}$	-	$V_{RRM} + 100$	V
RMS on-state current	$I_{(TRMS)}$	TO-3P Ins ( $T_C=80^\circ\text{C}$ ) TO-247J( $T_C=83^\circ\text{C}$ )	55	A
Non repetitive surge peak on-state current (tp=10ms)	$I_{TSM}$	-	520	A
$I^2t$ value for fusing (tp=10ms)	$I^2t$	-	1350	A <sup>2</sup> s
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	dI/dt	-	150	A/μs
Peak gate current	$I_{GM}$	-	5	A
Average gate power dissipation	$P_{G(AV)}$	-	1	W
Peak gate power	$P_{GM}$	-	10	W

### Electrical Characteristics (T<sub>j</sub>=25°C unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I <sub>GT</sub>	V <sub>D</sub> =12V R <sub>L</sub> =33Ω	-	-	50	mA
V <sub>GT</sub>		-	-	1.5	V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> T <sub>j</sub> =125°C R <sub>L</sub> =3.3KΩ	0.2	-	-	V
I <sub>L</sub>	I <sub>G</sub> =1.2I <sub>GT</sub>	-	-	150	mA
I <sub>H</sub>	I <sub>T</sub> =500mA	-	-	120	mA
dV/dt	V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open T <sub>j</sub> =125°C	800	-	-	V/μs

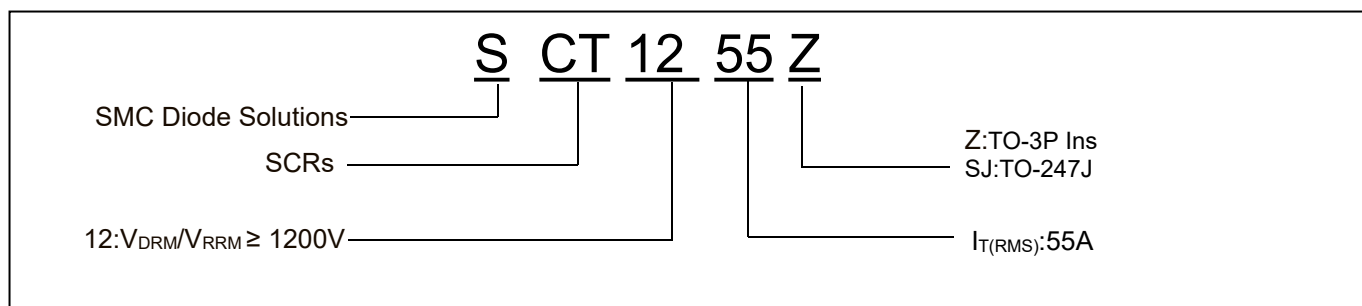
### Static Characteristics

Symbol	Condition	Max.	Units
V <sub>TM</sub>	I <sub>TM</sub> =80A t <sub>p</sub> =380μs, T <sub>j</sub> =25°C	1.6	V
I <sub>DRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub> , T <sub>j</sub> =25°C	10	μA
I <sub>RRM</sub>	V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub> , T <sub>j</sub> =125°C	6	mA

### Thermal Resistances

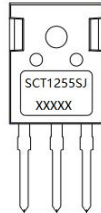
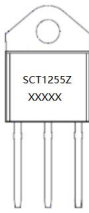
Symbol	Condition	Value	Units
R <sub>th(j-c)</sub>	Junction to case(AC)	TO-3P Ins	0.65
		TO-247J	0.6

### Ordering Information



Device	Package	Shipping
SCT1255Z	TO-3P Ins	30pcs/ Tube
SCT1255SJ	TO-247J	30pcs/ Tube

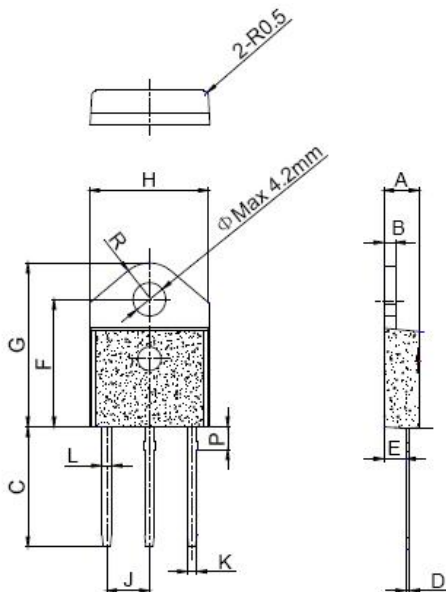
**Marking Diagram**



Where XXXXX is YYWWL

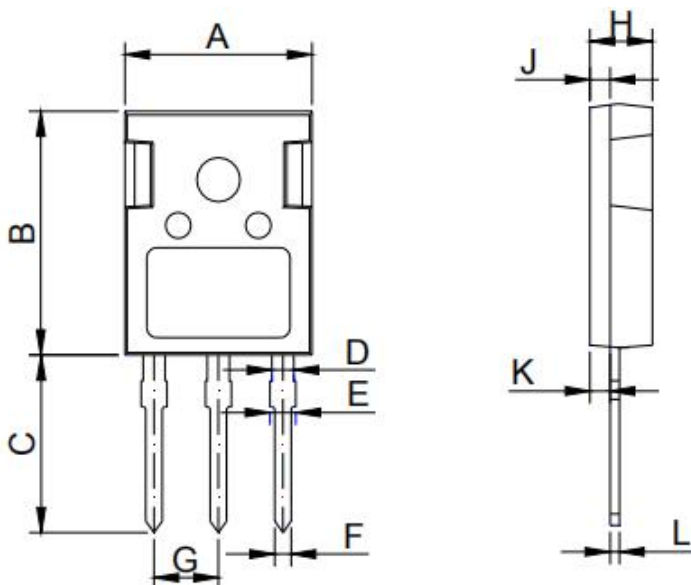
SCT1255Z = Part name  
SCT1255SJ = Part name  
YY = Year  
WW = Week  
L = Lot Number

**Mechanical Dimensions TO-3P(Ins)**



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.50		0.70	0.020		0.028
E	2.70		2.90	0.106		0.114
F	15.80		16.50	0.622		0.650
G	20.40		21.10	0.803		0.831
H	15.10		15.50	0.594		0.610
J	5.40		5.65	0.213		0.222
K	1.10		1.40	0.043		0.055
L	1.35		1.50	0.053		0.059
P	2.80		3.00	0.110		0.118
R		4.35			0.171	

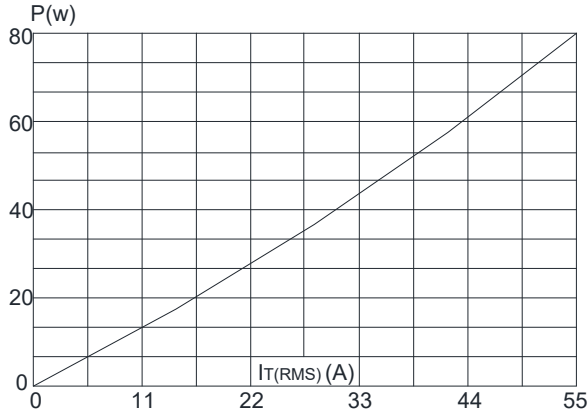
**Mechanical Dimensions TO-247J**



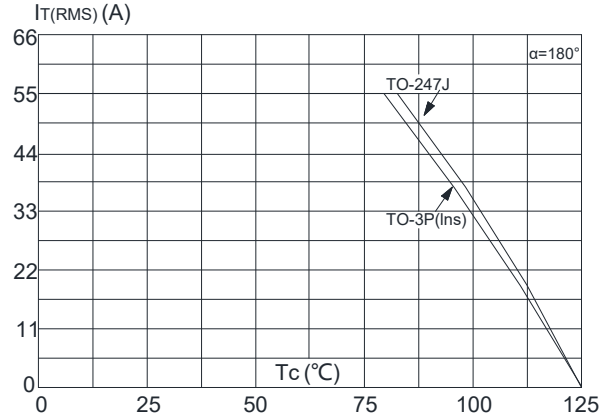
SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.828	0.874
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031

**Ratings and Characteristics Curves**

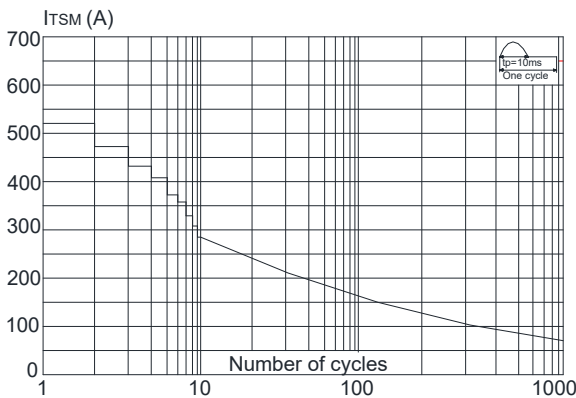
**FIG.1:** Maximum power dissipation versus RMS on-state current



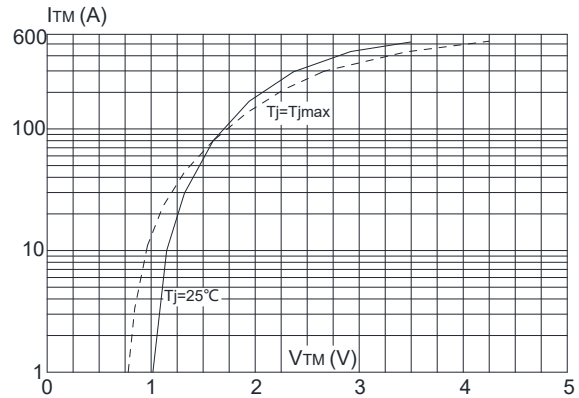
**FIG.2:** RMS on-state current versus case temperature



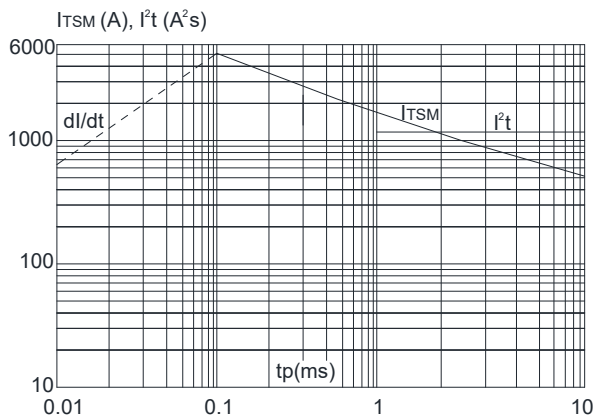
**FIG.3:** Surge peak on-state current versus number of cycles



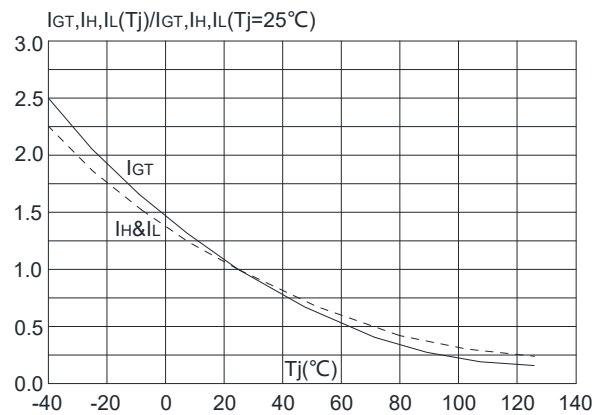
**FIG.4:** On-state characteristics (maximum values)



**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 150\text{A}/\mu\text{s}$ )



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





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