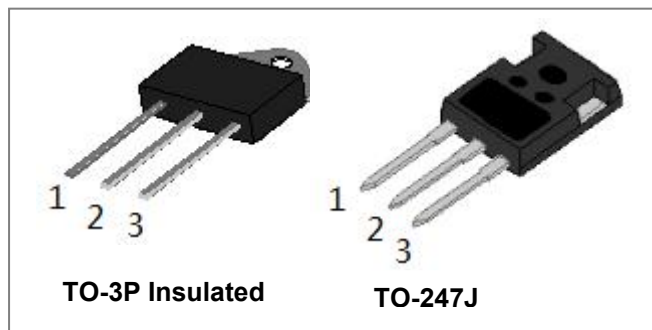
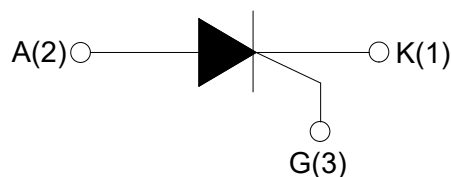


SCT1255Z/SJ 55A SCRs



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 ($t_p=10\text{ms}$)	I_{TSM}	-	520	A
I^2t value for fusing ($t_p=10\text{ms}$)	I^2t	-	1350	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	-	150	$\text{A}/\mu\text{s}$
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($T_j=25^{\circ}\text{C}$ 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}		-	-	1.5	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	$I_T=500\text{mA}$	-	-	120	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$	800	-	-	V/ μs

Static Characteristics

Symbol	Condition	Max.	Units
V_{TM}	$I_{TM}=80\text{A}$ $t_p=380\mu\text{s}$, $T_j=25^{\circ}\text{C}$	1.6	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$, $T_j=25^{\circ}\text{C}$	10	μA
I_{RRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$, $T_j=125^{\circ}\text{C}$	6	mA

Thermal Resistances

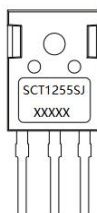
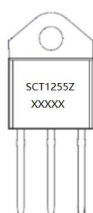
Symbol	Condition		Value	Units
$R_{th(j-c)}$	Junction to case(AC)	TO-3P Ins	0.65	$^{\circ}\text{C/W}$
		TO-247J	0.6	

Ordering Information

S CT 12 55 Z		
SMC Diode Solutions		Z:TO-3P Ins
SCRs		SJ:TO-247J
12: $V_{DRM}/V_{RRM} \geq 1200\text{V}$		$I_{T(RMS)}:55\text{A}$

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

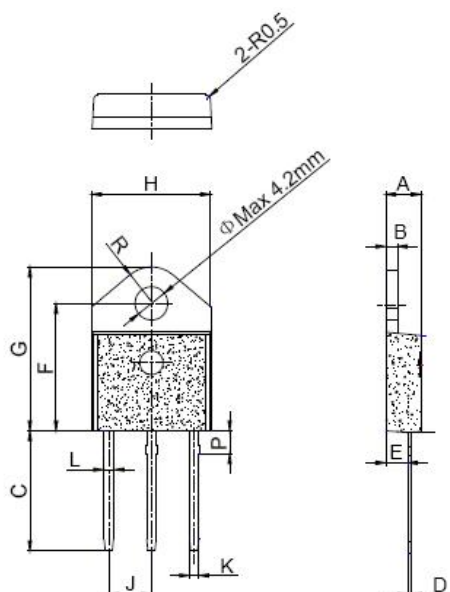
Marking Diagram



Where XXXXX is YYWWL

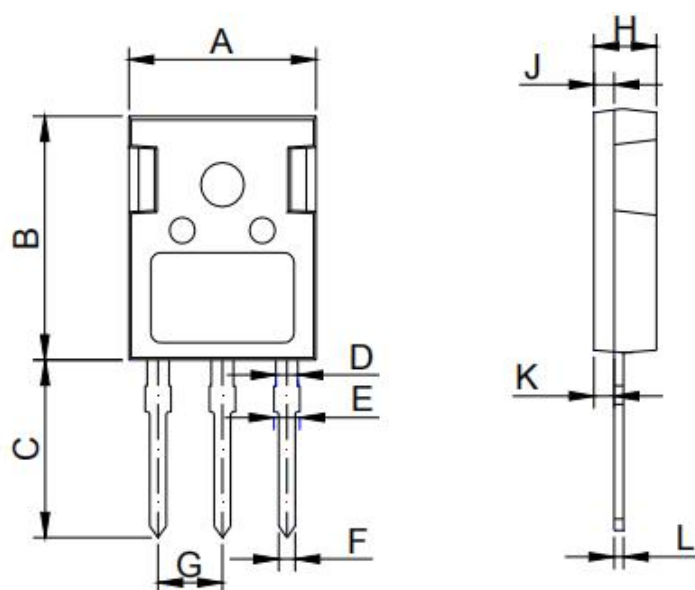
SCT1255Z = Part name
SCT1255SJ = Part name
YY = Year
WW = Week
L = Lot Number

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

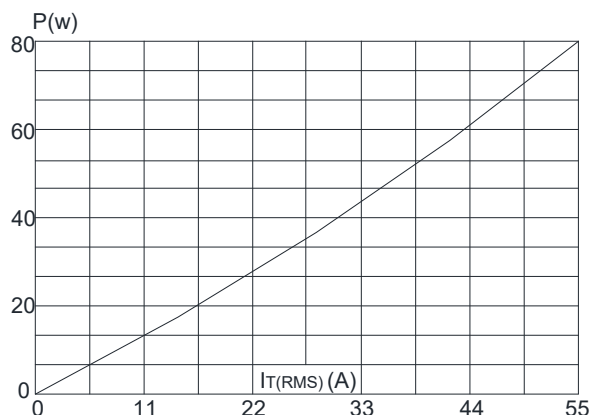


FIG.2: RMS on-state current versus case temperature

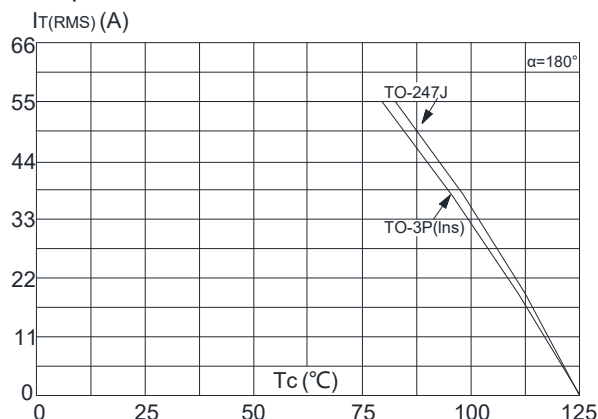


FIG.3: Surge peak on-state current versus number of cycles

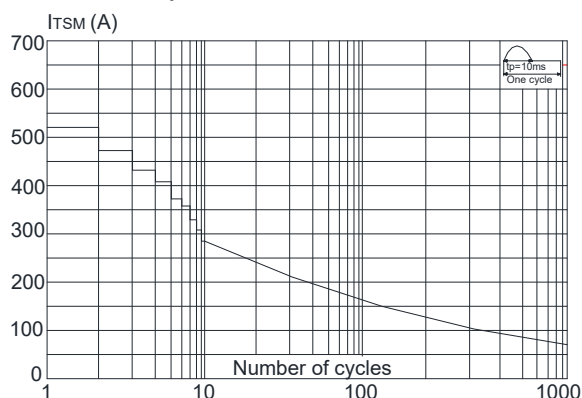


FIG.4: On-state characteristics (maximum values)

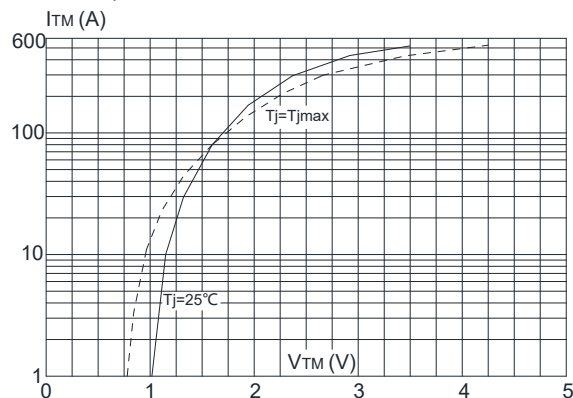


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 150\text{A}/\mu\text{s}$)

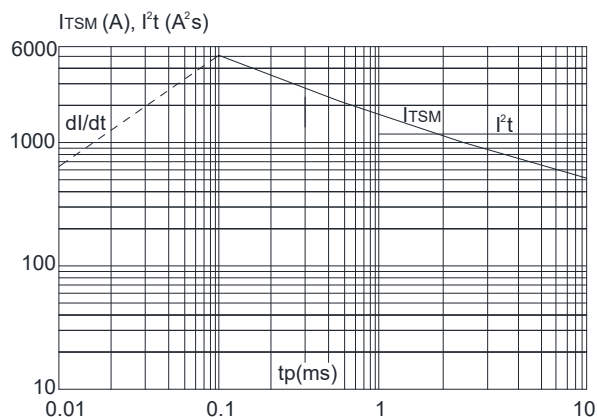
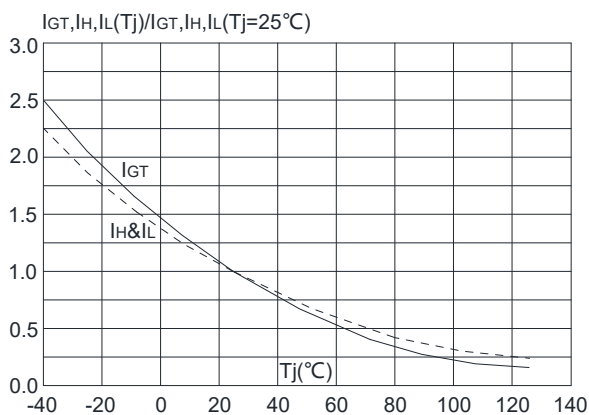


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Technical Data
Data Sheet N2144, Rev.-



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