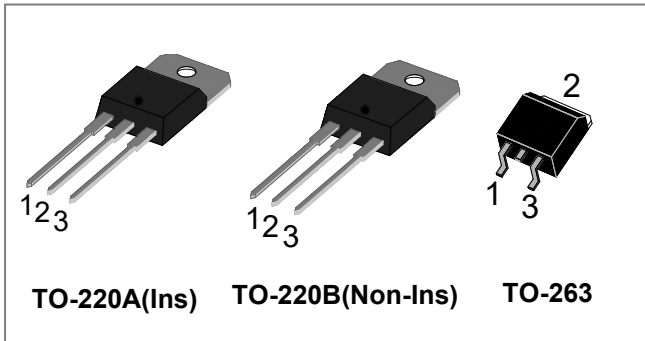
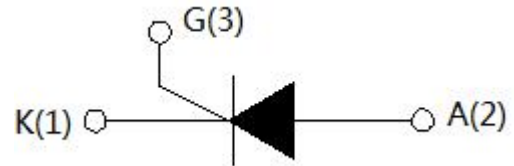


## SCT1225 Series 25A SCRs



### Circuit Diagram



### Description

With high ability to withstand the shock loading of large current, SCT1225 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.

From all three terminals to external heatsink, SCT1225A provides a rated insulation voltage of 2500 VRMS.

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Storage junction temperature range	$T_{stg}$	-	-40-150	°C
Operating junction temperature range	$T_j$	-	-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 surge 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-220A(Ins)( $T_c=85^\circ\text{C}$ )	25	A
		TO-220B(Non-Ins)( $T_c=100^\circ\text{C}$ )		
		TO-263( $T_c=105^\circ\text{C}$ )		
Non repetitive surge peak on-state current ( $t_p=10\text{ms}$ )	$I_{TSM}$	-	300	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )	$I^2t$	-	450	$\text{A}^2\text{s}$
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	$I_{GM}$	-	4	A
Average gate power dissipation	$P_{G(AV)}$	-	2	W
Peak gate power	$P_{GM}$	-	5	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	-	-	40	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>	-	-	140	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	1000	-	-	V/μs

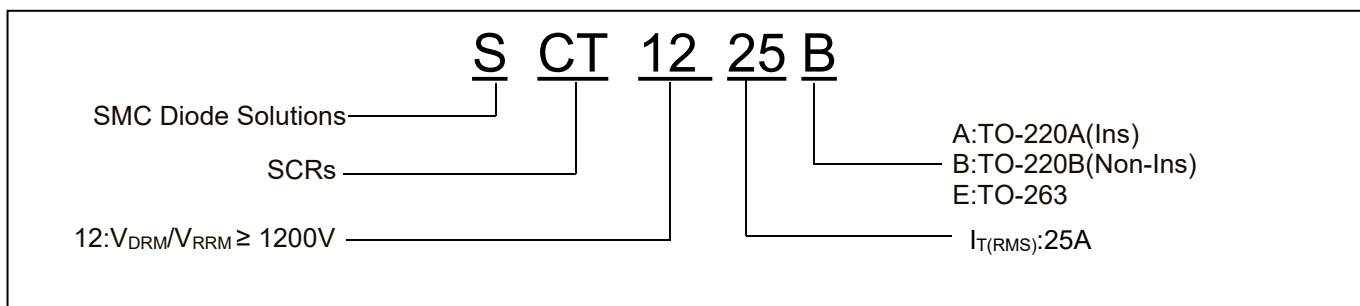
**Static Characteristics**

Symbol	Condition	Max.	Units
V <sub>TM</sub>	I <sub>T</sub> =50A 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	4	mA

**Thermal Resistances**

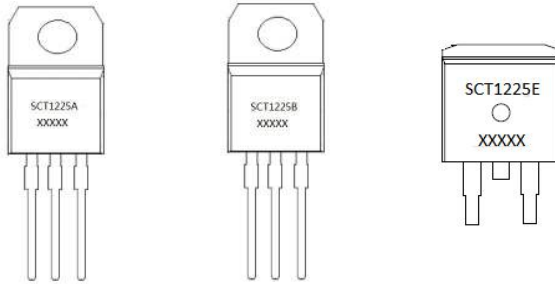
Symbol	Condition	Value	Units
R <sub>th(j-c)</sub>	Junction to case(AC)	TO-220A(Ins)	1.4
		TO-220B(Non-Ins)	0.85
		TO-263	0.75

**Ordering Information**



Device	Package	Shipping
SCT1225A	TO-220A(Ins)	50pcs/ Tube
SCT1225B	TO-220B(Non-Ins)	50pcs/ Tube
SCT1225E	TO-263	800pcs/ Tape

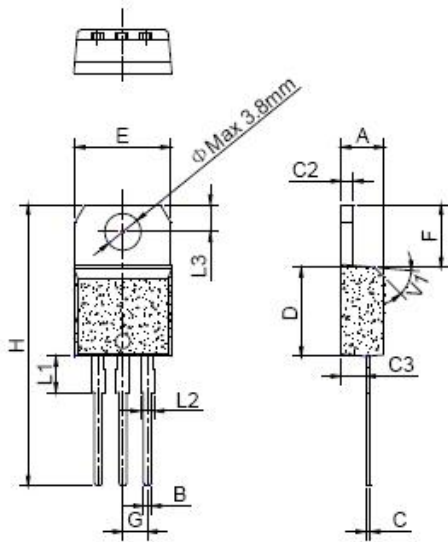
## Marking Diagram



Where XXXXX is YYWWL

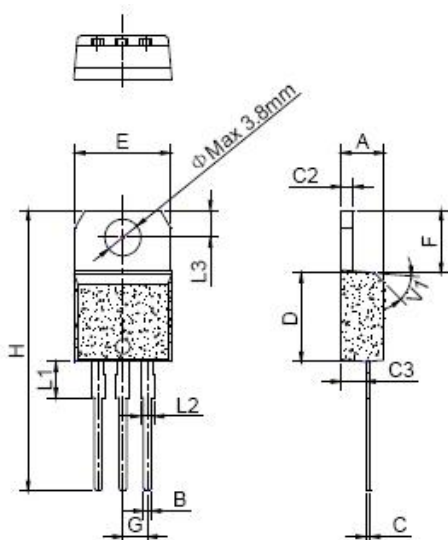
SCT1225A = Part name  
YY = Year  
WW = Week  
L = Lot Number

## Mechanical Dimensions TO-220A(Ins)



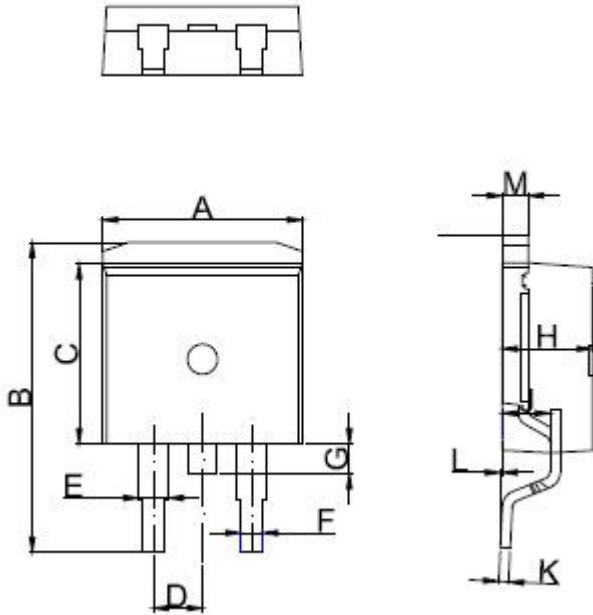
SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

## Mechanical Dimensions TO-220B(Non-Ins)



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.75			0.148	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

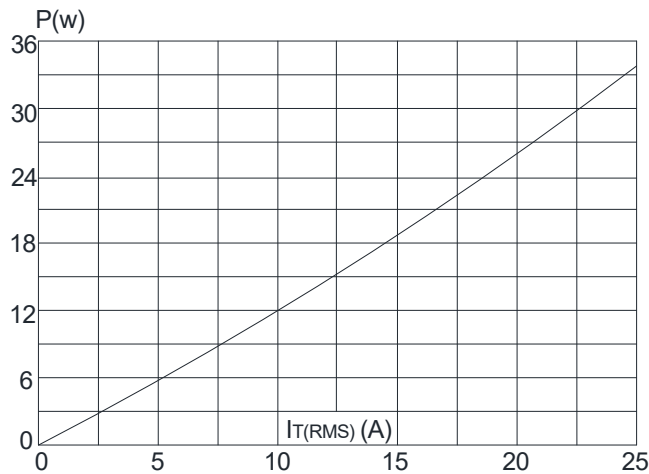
## Mechanical Dimensions TO-263



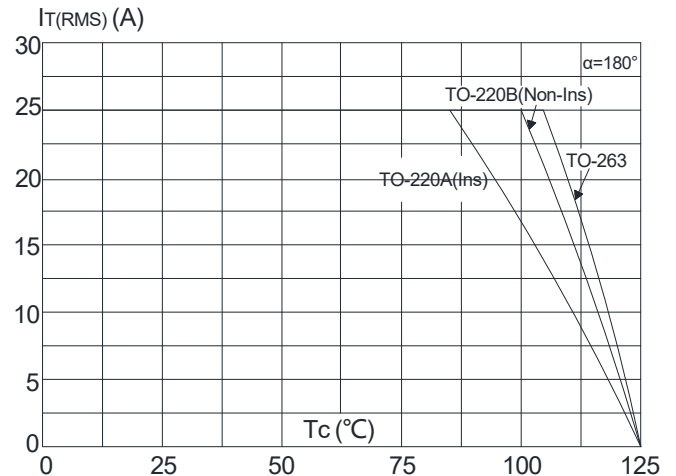
SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.7		15.80	0.579		0.622
C	9.4		9.6	0.370		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053

## Ratings and Characteristics Curves

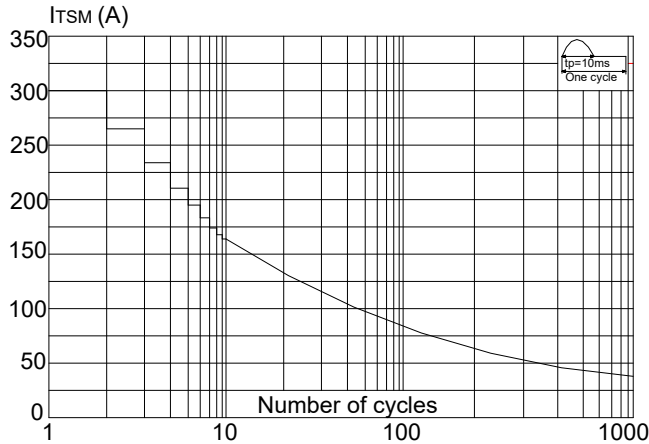
**FIG.1:** Maximum power dissipation versus RMS on-state current



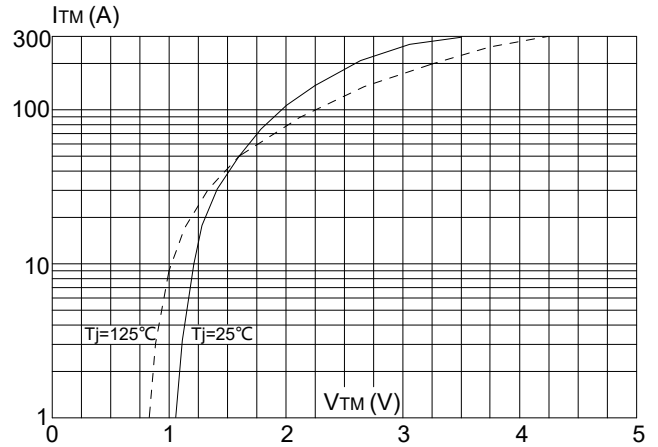
**FIG.2:** RMS on-state current versus case temperature



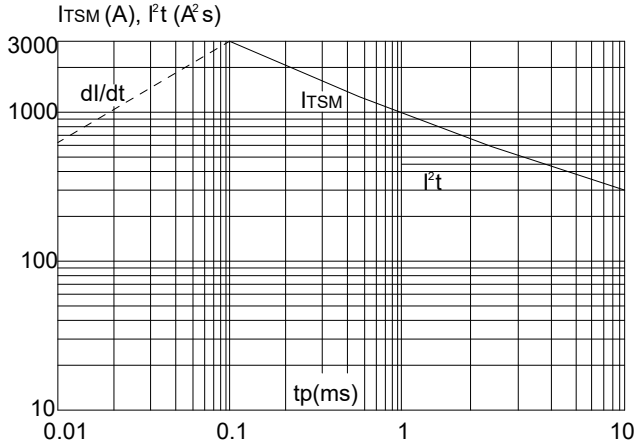
**FIG.3:** Surge peak on-state current versus number of cycles



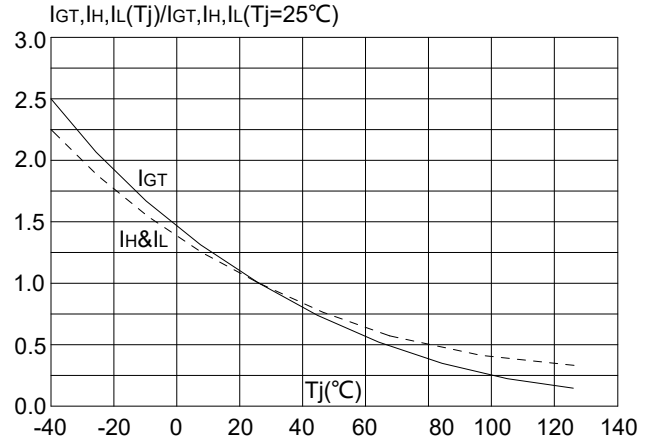
**FIG.4:** On-state characteristics (maximum values)



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



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



**Technical Data**  
**Data Sheet N2038, Rev.-**



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