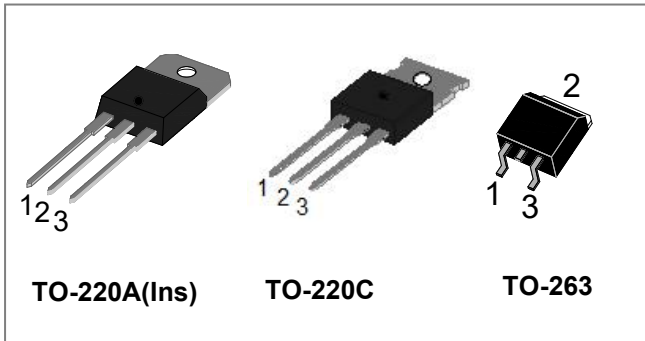
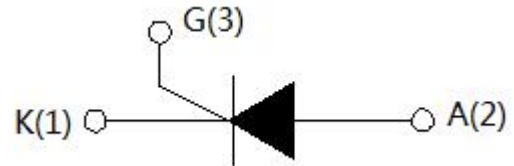


SCT1225 Series 25A SCRs



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-220C($T_c=100^\circ\text{C}$)		
		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	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}	-	4	A
Average gate power dissipation	$P_{G(AV)}$	-	2	W
Peak gate power	P_{GM}	-	5	W

Electrical Characteristics (T_j=25°C unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I _{GT}	V _D =12V R _L =33Ω	-	-	40	mA
V _{GT}		-	-	1.5	V
V _{GD}	V _D =V _{DRM} T _j =125°C R _L =3.3KΩ	0.2	-	-	V
I _L	I _G =1.2I _{GT}	-	-	140	mA
I _H	I _T =500mA	-	-	120	mA
dV/dt	V _D =2/3V _{DRM} Gate Open T _j =125°C	1000	-	-	V/μs

Static Characteristics

Symbol	Condition	Max.	Units
V _{TM}	I _T =50A tp=380μs, T _j =25°C	1.6	V
I _{DRM}	V _D =V _{DRM} V _R =V _{RRM} , T _j =25°C	10	μA
I _{RRM}	V _D =V _{DRM} V _R =V _{RRM} , T _j =125°C	4	mA

Thermal Resistances

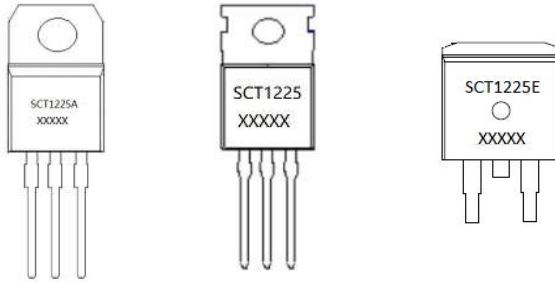
Symbol	Condition		Value	Units
R _{th(j-c)}	Junction to case(AC)	TO-220A(Ins)	1.4	°C/W
		TO-220C	0.85	°C/W
		TO-263	1.2	°C/W
R _{th(j-a)}	Junction to ambient	TO-263	45	°C/W

Ordering Information

<p>S CT 12 25 C</p> <p>SMC Diode Solutions ————</p> <p>SCRs ————</p> <p>12:V_{DRM}/V_{RRM} ≥ 1200V ————</p>	<p>A:TO-220A(Ins) C:TO-220C E:TO-263 I_{T(RMS)}:25A</p>
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Device	Package	Shipping
SCT1225A	TO-220A(Ins)	50pcs/ Tube
SCT1225C	TO-220C	50pcs/ Tube
SCT1225E	TO-263	800pcs/ Reel

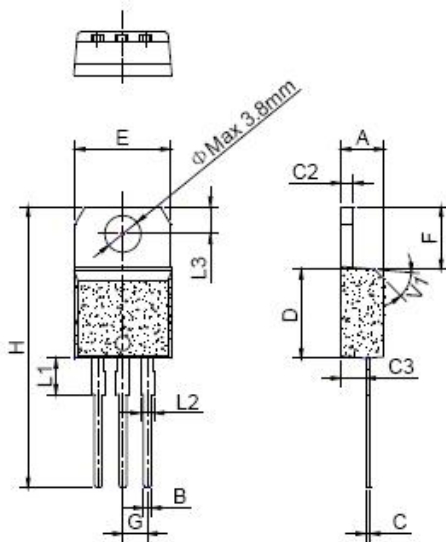
Marking Diagram



Where XXXXX is YYWWL

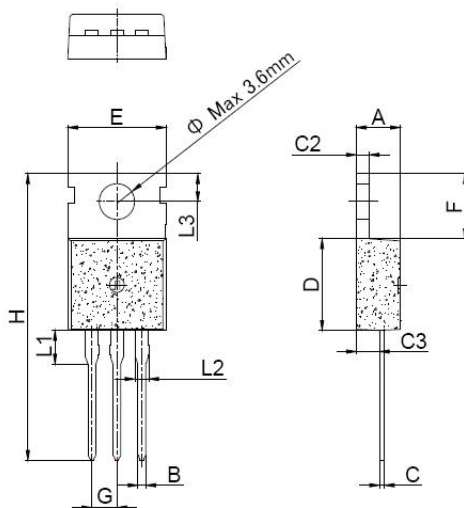
SCT1225A = Part name
YY = Year
WW = Week
L = Lot Number

Mechanical Dimensions TO-220A(Ins)



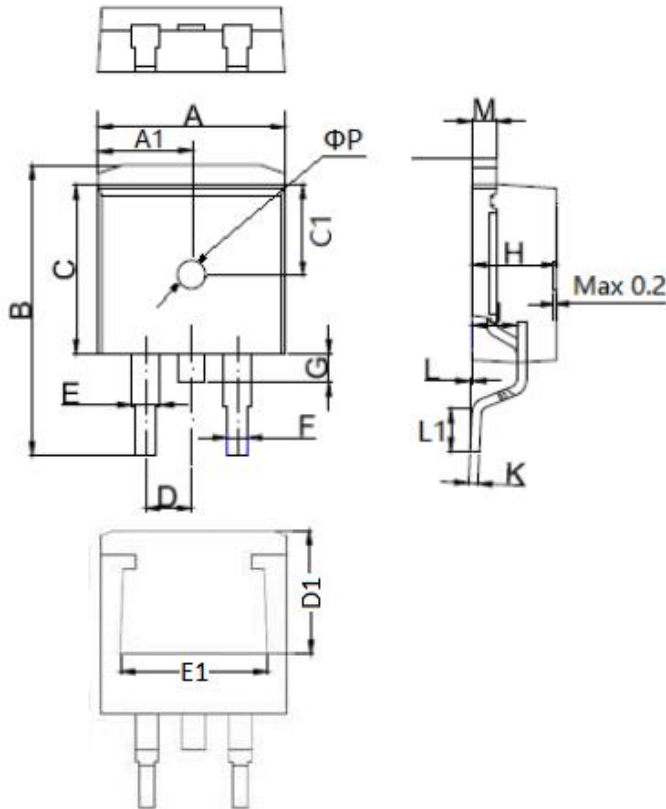
SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.55		6.95	0.258		0.274
G		2.54			0.1	
H	28.0		29.8	1.102		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-220C



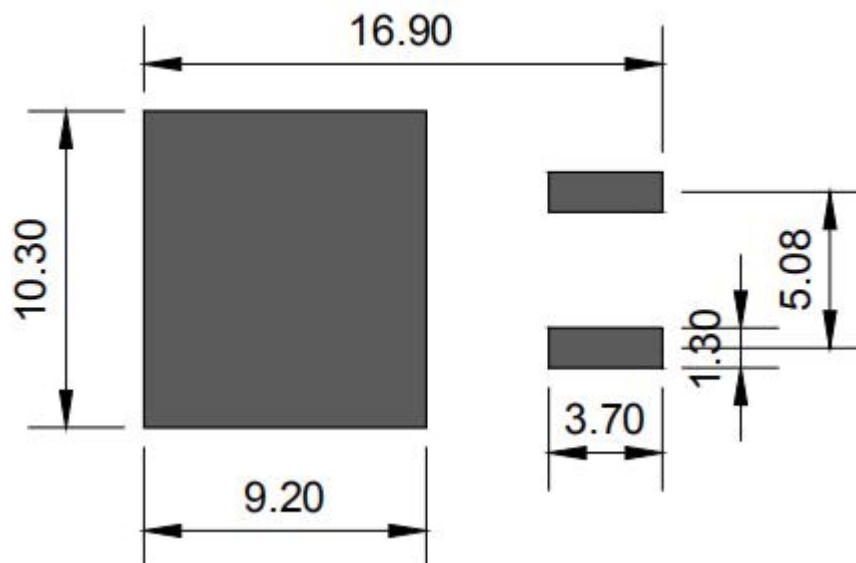
SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.23		1.32	0.048		0.052
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.39		0.406
F	6.30		6.90	0.248		0.272
G		2.54			0.1	
H	28.0		29.8	1.102		1.173
L1		3.39			0.133	
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
φ		3.6			0.142	

Mechanical Dimensions TO-263



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
A1	4.95		5.10	0.195		0.201
B	14.70		15.80	0.579		0.622
C	9.40		9.60	0.370		0.378
C1	4.70		4.80	0.185		0.189
D		2.54			0.100	
D1	7.20					
E	1.20		1.40	0.047		0.055
E1	7.60					
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
L1	2.24		2.84	0.088		0.112
ΦP	1.00		1.50	0.039		0.059
M	1.25		1.35	0.049		0.053

Foot Print TO-263 (dimensions in mm)



Ratings and Characteristics Curves

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

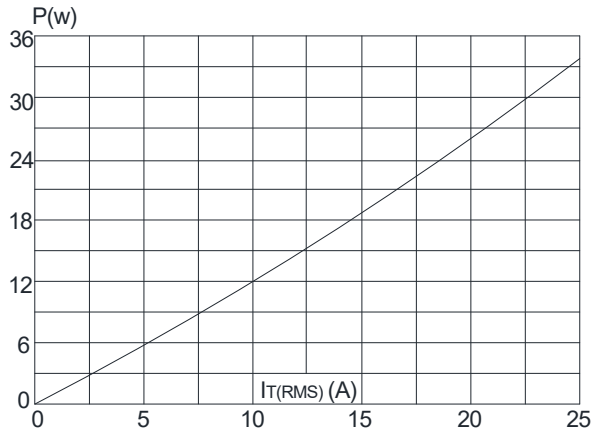


FIG.2: RMS on-state current versus case temperature

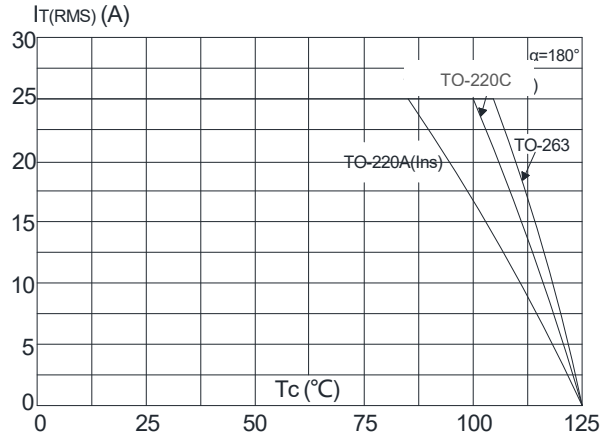


FIG.3: Surge peak on-state current versus number of cycles

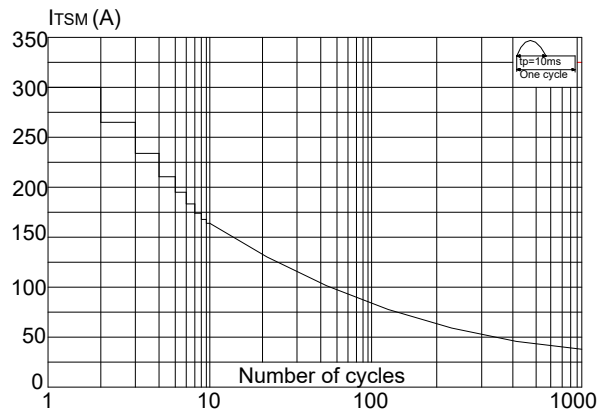


FIG.4: On-state characteristics (maximum values)

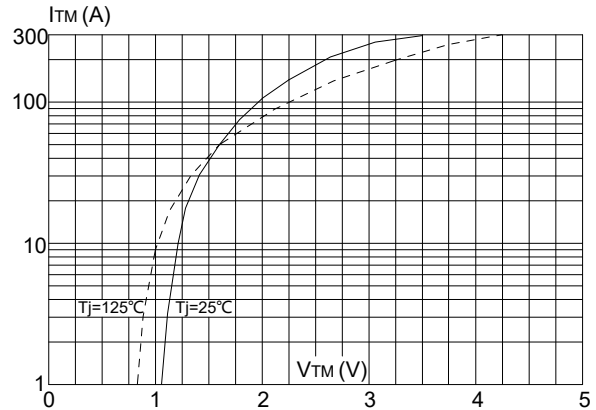


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of $\int I dt$ ($dI/dt < 150A/\mu s$)

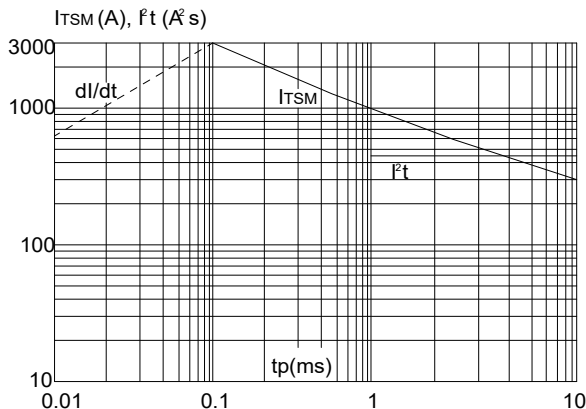
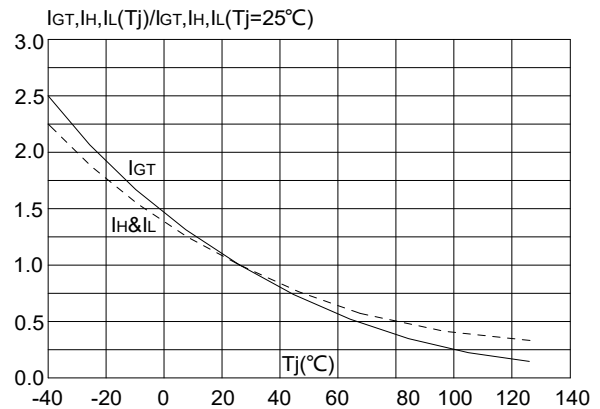


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Technical Data
Data Sheet N2038, Rev.C



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