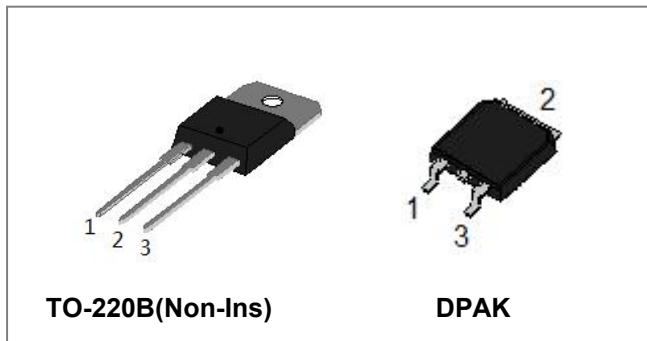
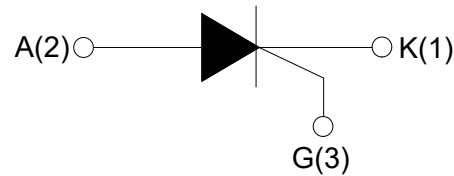


SCT612/812 Series 12A SCRs



Circuit Diagram



Description

With high ability to withstand the shock loading of large current, SCTx12 series of silicon controlled rectifiers 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 to +125	°C
Operating junction temperature range	T_{stg}	-	-40 to +150	°C
Repetitive peak off-state voltage	V_{DRM}	-	600/800	V
Repetitive peak reverse voltage	V_{RRM}	-	600/800	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-220B(Non-Ins)($T_c=110^{\circ}C$)	12	A
		DPAK($T_c=105^{\circ}C$)		
Non repetitive surge peak on-state current ($t_p=10ms$)	I_{TSM}	-	140	A
I^2t value for fusing ($t_p=10ms$)	I^2t	-	98	A ² s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	-	50	A/ μs
Peak gate current	I_{GM}	-	4	A
Average gate power dissipation	$P_{G(AV)}$	-	1	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	-	-	15	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}	-	-	60	mA
I _H	I _T =500mA	-	-	50	mA
dV/dt	V _D =2/3V _{DRM} Gate Open T _j =125°C	200	-	-	V/μs

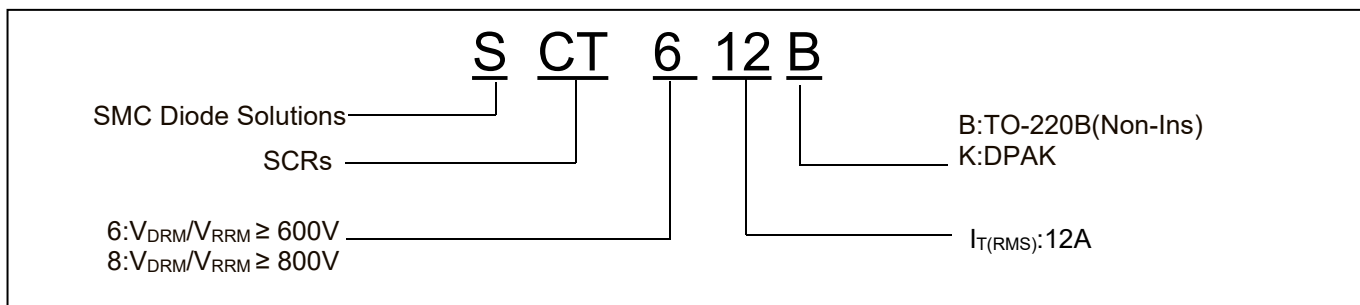
Static Characteristics

Symbol	Condition	Max.	Units
V _{TM}	I _T =24A t _p =380μs, T _j =25°C	1.55	V
I _{DRM}	V _D =V _{DRM} V _R =V _{RRM} , T _j =25°C	5	μA
I _{RRM}	V _D =V _{DRM} V _R =V _{RRM} , T _j =125°C	2	mA

Thermal Resistances

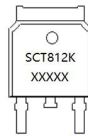
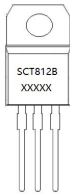
Symbol	Condition	Value	Units
R _{th(j-c)}	Junction to case(AC)	TO-220B(Non-Ins)	1.3
		DPAK	1.8

Ordering Information



Device	Package	Shipping
SCT612B/SCT812B	TO-220B(Non-Ins)	50pcs/ Tube
SCT812K	DPAK	2500pcs/ Reel
SCT812KTR	DPAK	2500pcs/ Reel

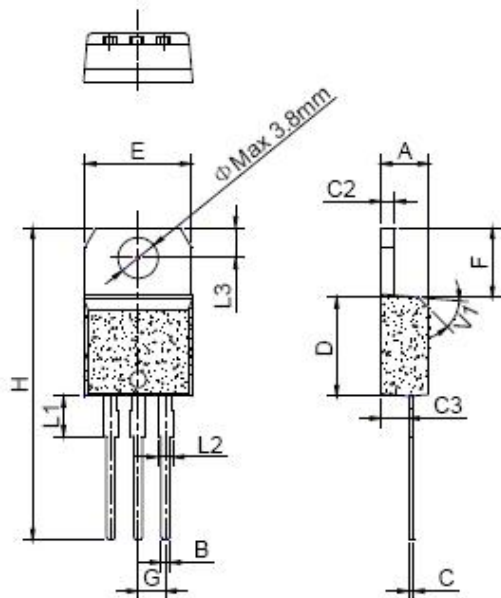
Marking Diagram



Where XXXXX is YYWWL

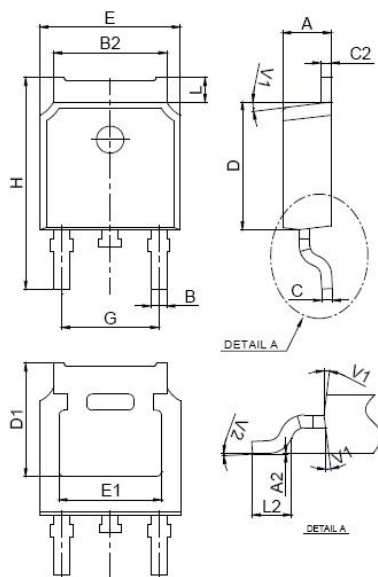
SCT812B = Part name
SCT812K = Part name
YY = Year
WW = Week
L = Lot Number

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 DPAK



SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1	7°			7°		
V2	0°		6°	0°		6°

Ratings and Characteristics Curves

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

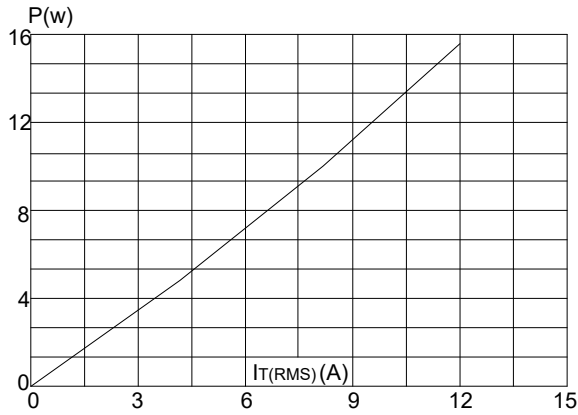


FIG.3: Surge peak on-state current versus number of cycles

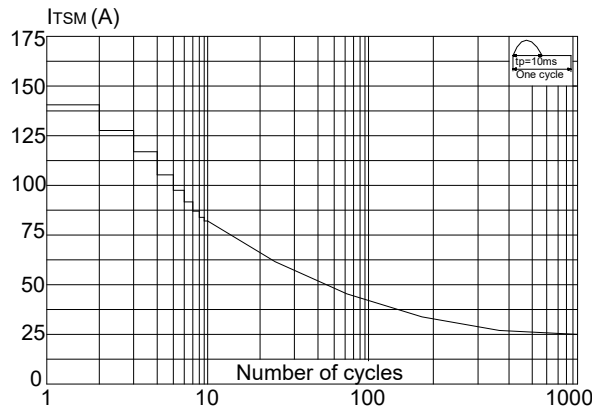


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of $\int i^2 t$ ($di/dt < 50\text{A}/\mu\text{s}$)

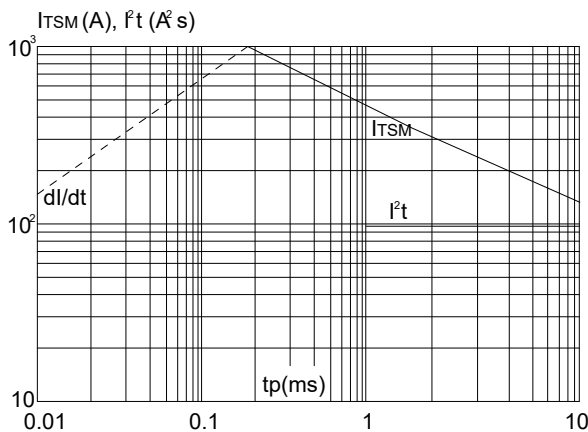


FIG.2: RMS on-state current versus case temperature

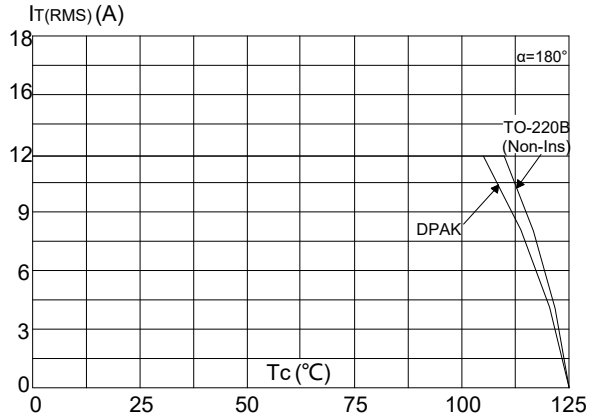


FIG.4: On-state characteristics (maximum values)

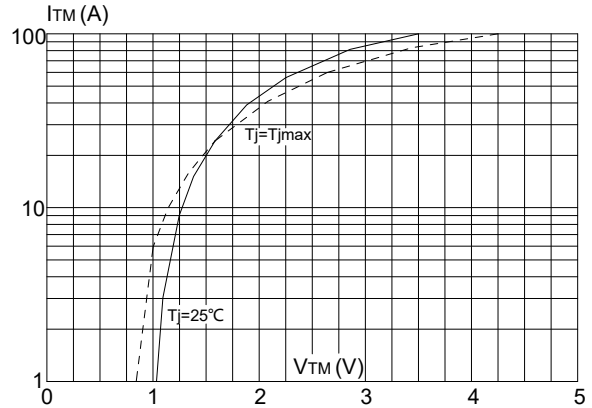
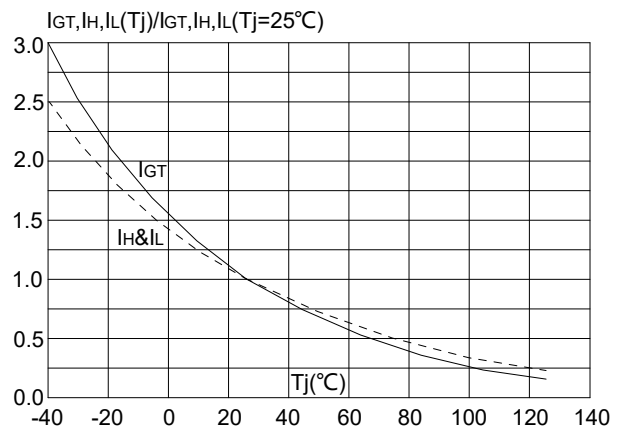


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Technical Data
Data Sheet N2037, Rev.-



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