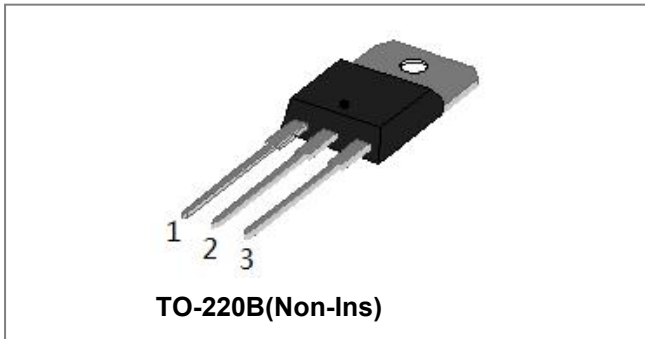


SCT640/840 Series 40A SCRs



Circuit Diagram



Description

With high ability to withstand the shock loading of large current, SCT640/840 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_{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}	-	600/800	V
Repetitive peak reverse voltage($T_j=25^{\circ}\text{C}$)	V_{RRM}	-	600/800	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-220B(Non-Ins)($T_c=85^{\circ}\text{C}$)	40	A
Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	-	460	A
I^2t value for fusing (tp=10ms)	I^2t	-	1060	A^2s
Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$)	di/dt	-	50	$\text{A}/\mu\text{s}$
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($T_j=25^\circ\text{C}$ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	$V_D=12\text{V } R_L=33\Omega$	-	15	35	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	$I_G=1.2I_{GT}$	-	-	90	mA
I_H	$I_T=500\text{mA}$	-	-	75	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ\text{C}$	200	-	-	V/ μs

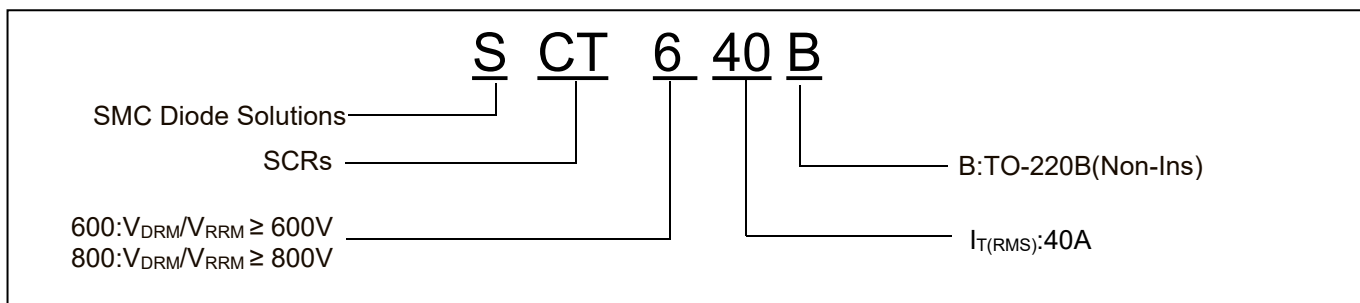
Static Characteristics

Symbol	Condition	Max.	Units
V_{TM}	$I_T=80\text{A } t_p=380\mu\text{s}, T_j=25^\circ\text{C}$	1.55	V
I_{DRM}	$V_D=V_{DRM} V_R=V_{RRM}, T_j=25^\circ\text{C}$	10	μA
I_{RRM}	$V_D=V_{DRM} V_R=V_{RRM}, T_j=125^\circ\text{C}$	4	mA

Thermal Resistances

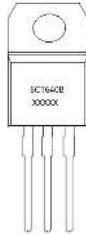
Symbol	Condition		Value	Units
$R_{th(j-c)}$	Junction to case(AC)	TO-220B(Non-Ins)	0.78	$^\circ\text{C/W}$

Ordering Information



Device	Package	Shipping
SCTX40B	TO-220B(Non-Ins)	50pcs/ Tube

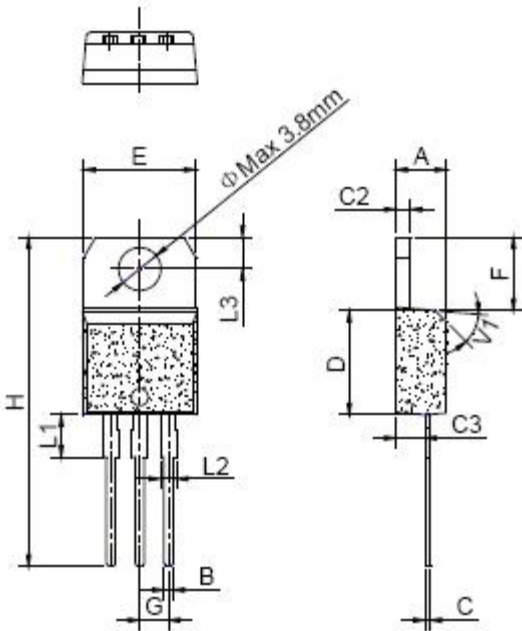
Marking Diagram



Where XXXXX is YYWWL

SCT640B = 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°	

Ratings and Characteristics Curves

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

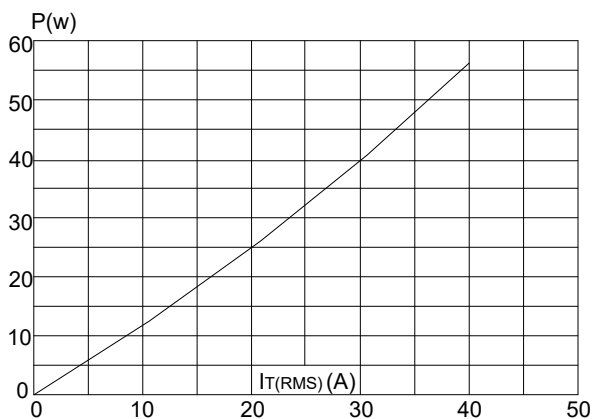


FIG.2: RMS on-state current versus case temperature

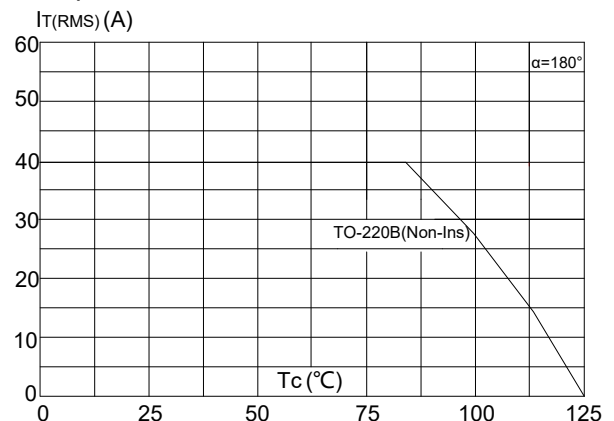


FIG.3: Surge peak on-state current versus number of cycles

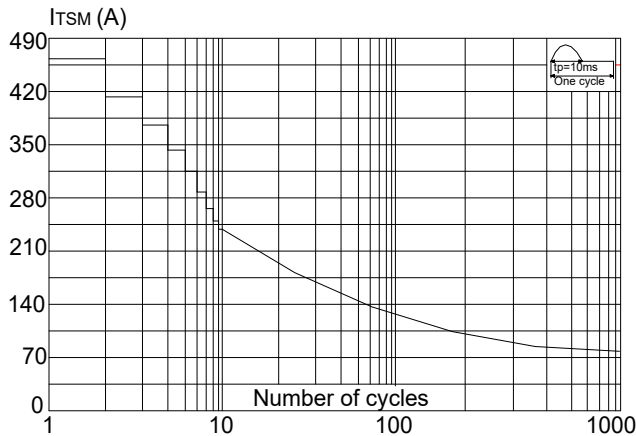


FIG.4: On-state characteristics (maximum values)

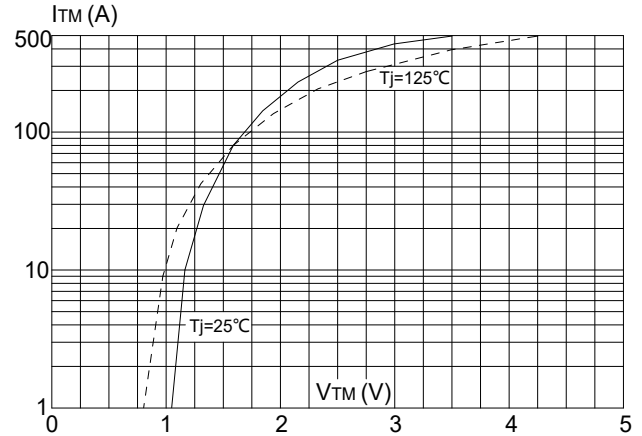


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

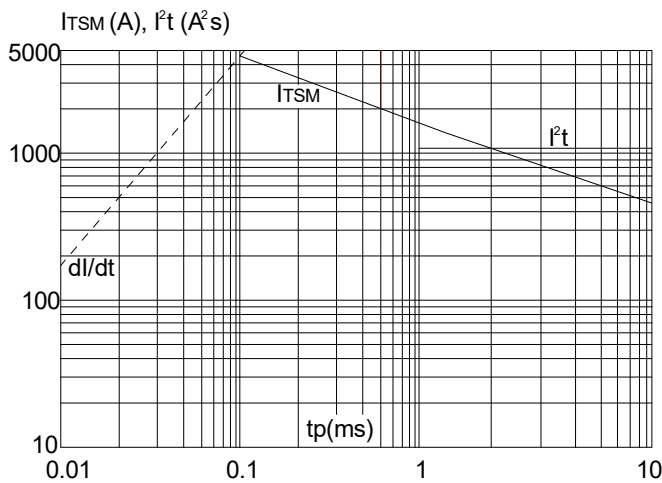
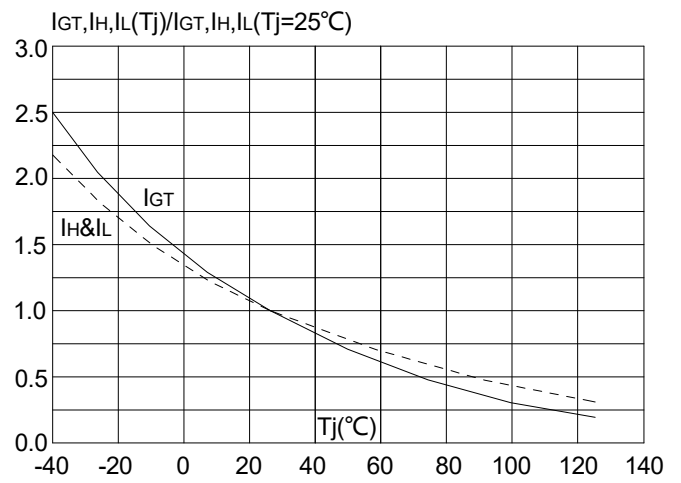


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





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