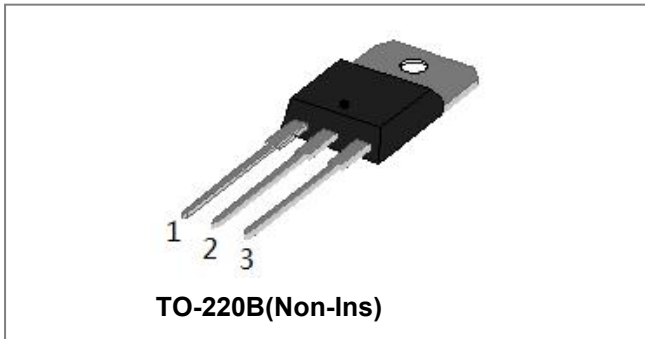


## SCT640/840 Series 40A SCRs



### 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 <sup>2</sup> s
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	di/dt	-	50	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/ $\mu\text{s}$

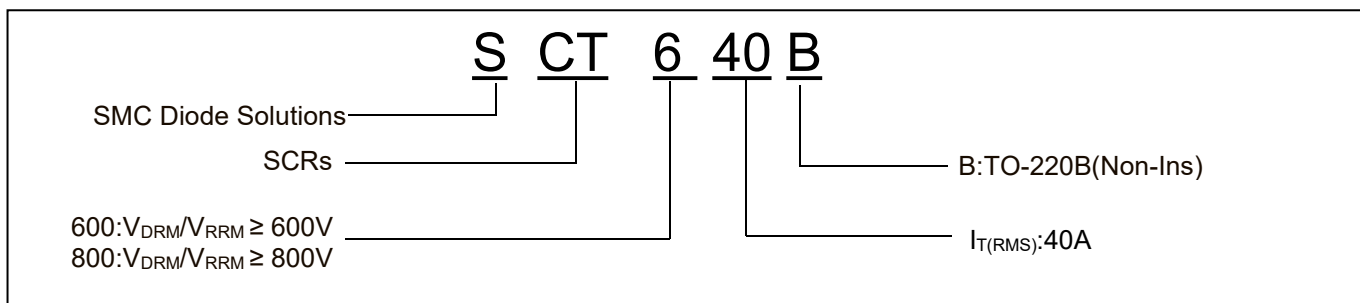
**Static Characteristics**

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	$\mu\text{A}$
$I_{RRM}$	$V_D=V_{DRM} V_R=V_{RRM}, T_j=125^\circ\text{C}$	4	mA

**Thermal Resistances**

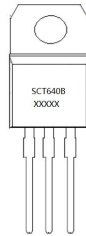
Symbol	Condition		Value	Units
$R_{th(j-c)}$	Junction to case(AC)	TO-220B(Non-Ins)	0.78	$^\circ\text{C/W}$

**Ordering Information**



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

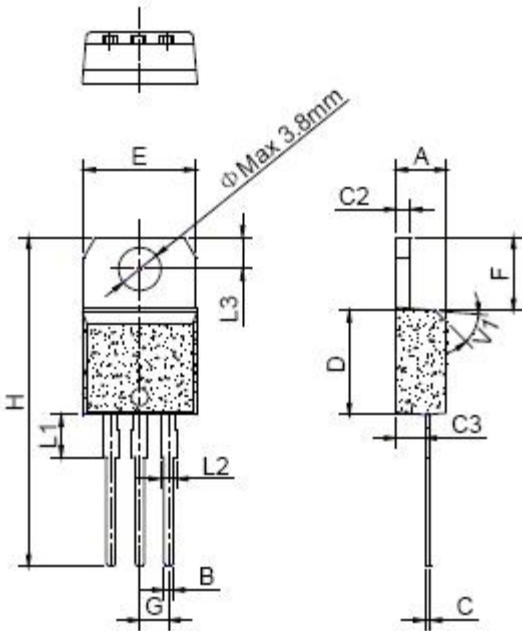
**Marking Diagram**



Where XXXXX is YYWWL

SCT640B = Part name  
YY = Year  
WW = Week  
L = Lot Number

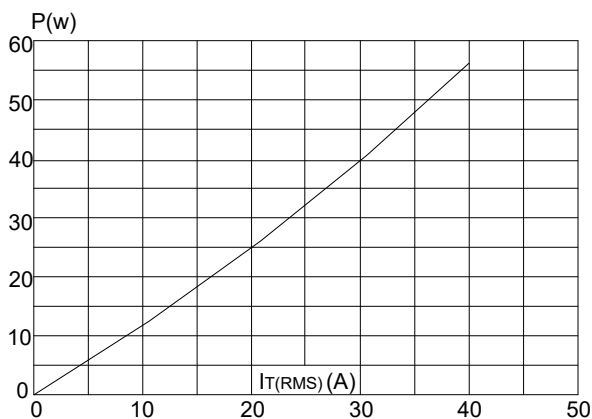
**Mechanical Dimensions TO-220B(Non-Ins)**



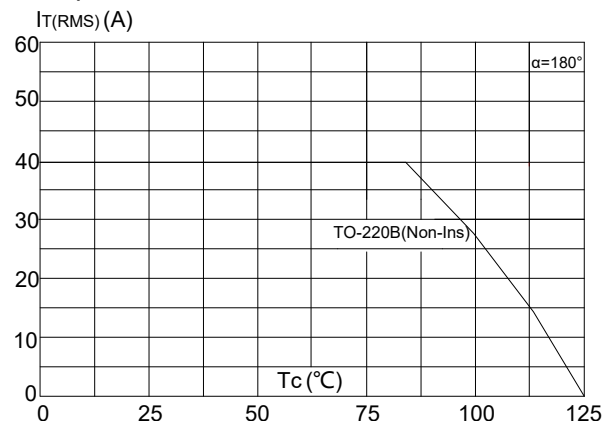
SYMBOL	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G		2.54			0.1	
H	28.0		29.8	1.102		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**

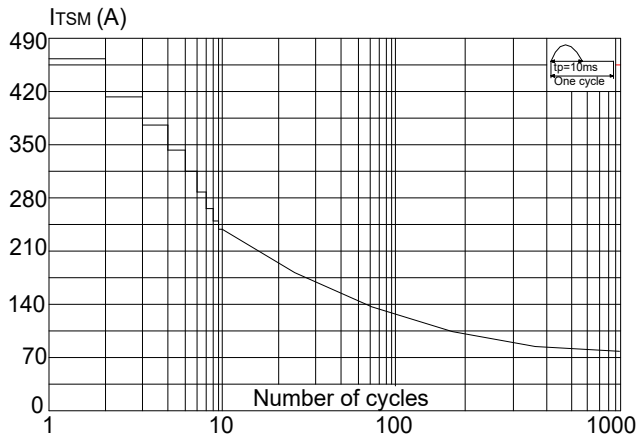
**FIG.1:** Maximum power dissipation versus RMS on-state current



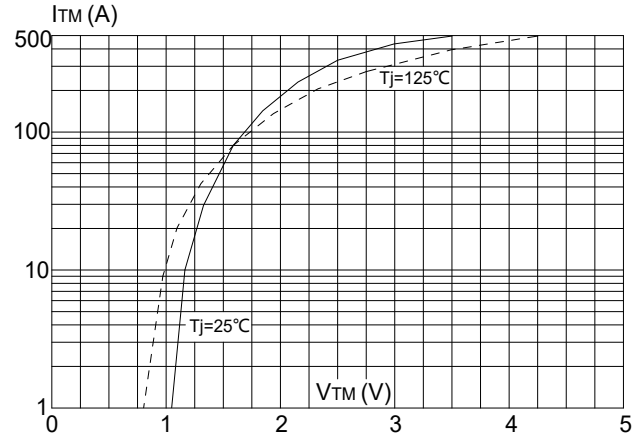
**FIG.2:** RMS on-state current versus case temperature



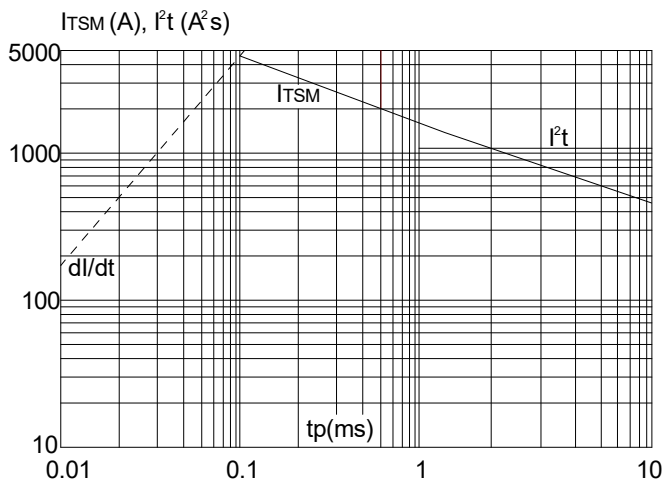
**FIG.3:** Surge peak on-state current versus number of cycles



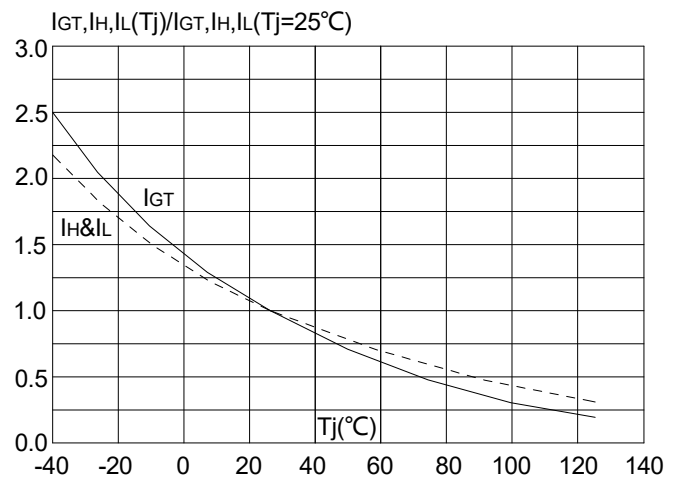
**FIG.4:** On-state characteristics (maximum values)



**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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