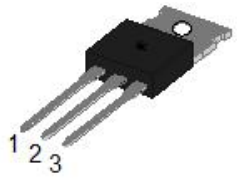
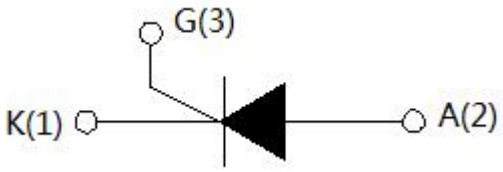
Technical Data
Data Sheet N2039, Rev.A

SCT640/840 Series 40A SCRs



TO-220C

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	℃
Operating junction temperature range	T_j	-	-40-125	℃
Repetitive peak off-state voltage(T_j=25℃)	V_{DRM}	-	600/800	V
Repetitive peak reverse voltage(T_j=25℃)	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-220C(T_C=85℃)	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×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

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Electrical Characteristics(Tj=25℃ unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
I_{GT}	V_D=12V R_L=33Ω	-	15	35	mA
V_{GT}		-	-	1.5	V
V_{GD}	V_D=V_{DRM} T_j=125℃ R_L=3.3KΩ	0.2	-	-	V
I_L	I_G=1.2I_{GT}	-	-	90	mA
I_H	I_T=500mA	-	-	75	mA
dV/dt	V_D=2/3V_{DRM} Gate Open T_j=125℃	200	-	-	V/μs

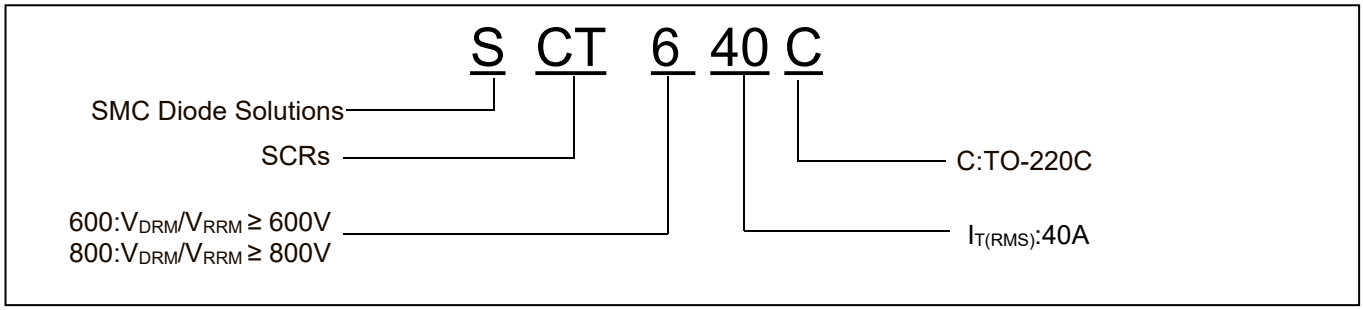
Static Characteristics

Symbol	Condition	Max.	Units
V_{TM}	I_T=80A tp=380μs,Tj=25℃	1.55	V
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}, Tj=25℃	10	μA
I_{RRM}	V_D=V_{DRM} V_R=V_{RRM}, Tj=125℃	4	mA

Thermal Resistances

Symbol	Condition		Value	Units
Rth(j-c)	Junction to case(AC)	TO-220C	0.78	℃/W

Ordering Information



Device	Package	Shipping
SCTX40C	TO-220C	50pcs/ Tube

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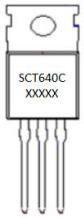
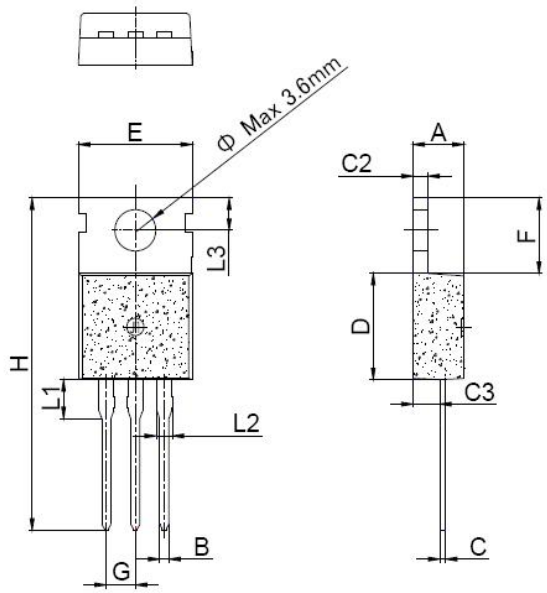
Marking Diagram



Where XXXXX is YYWWL

SCT640C	= Part name
YY	= Year
WW	= Week
L	= Lot Number

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	

Ratings and Characteristics Curves

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

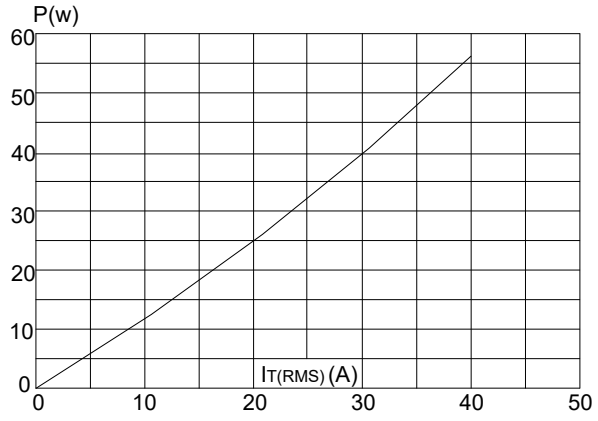


FIG.2: RMS on-state current versus case temperature

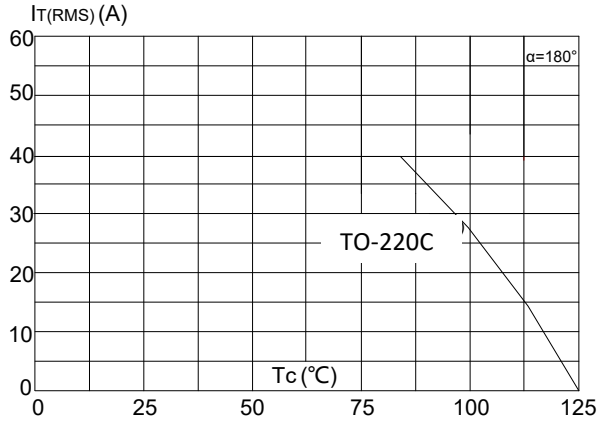


FIG.3: Surge peak on-state current versus number of cycles

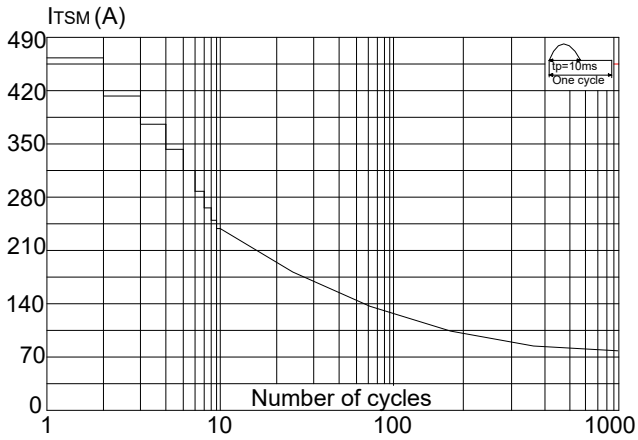


FIG.4: On-state characteristics (maximum values)

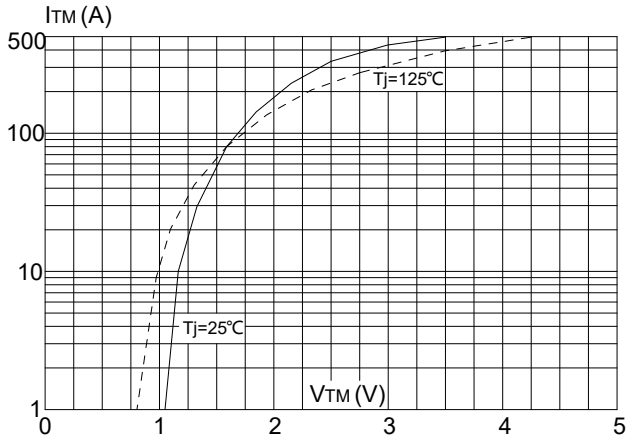


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t (dI/dt < 50A/μs)

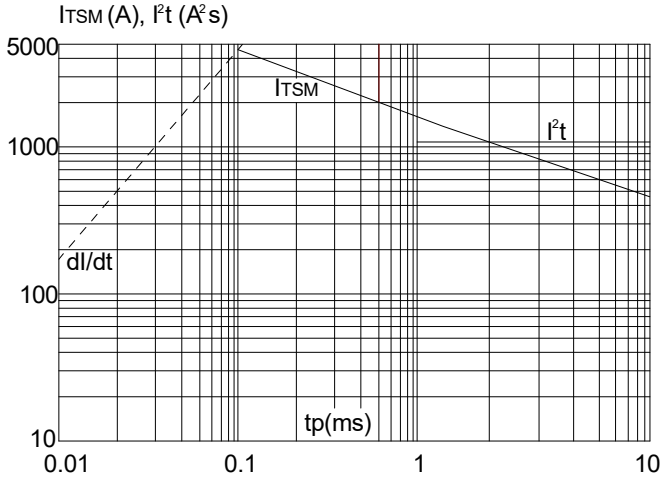
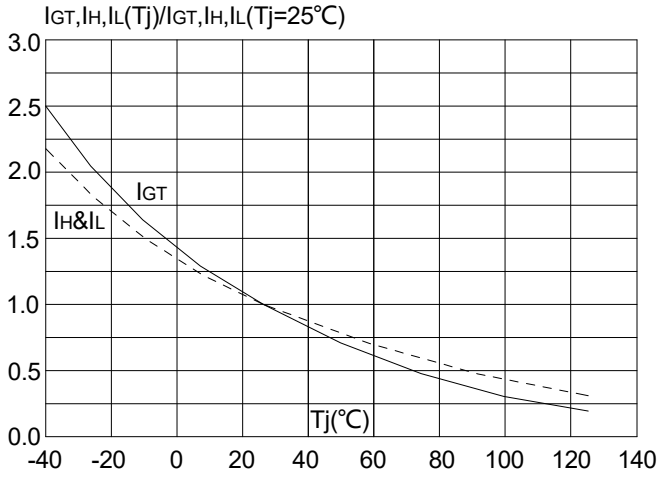


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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