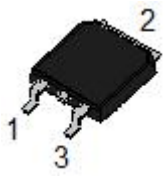
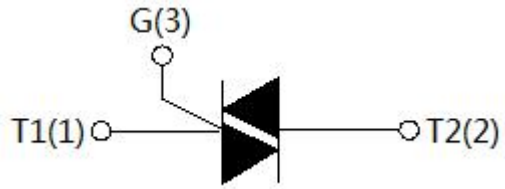
Technical Data
Data Sheet N2045, Rev.-

SX040K Sensitive gate SCRs



DPAK

Circuit Diagram



Description

The SX040K provide high dv/dt rate with strong resistance to electromagnetic interface. They are especially recommended for use on straight hair, igniter etc.

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Storage junction temperature range	T_J	-	-40 to +110	°C
Operating junction temperature range	T_{stg}	-	-40 to +150	°C
Repetitive peak off-state voltage	V_{DRM}	-	600	V
Repetitive peak reverse voltage	V_{RRM}	-	600	V
RMS on-state current	$I_{(TRMS)}$	DPAK(TC=90℃)	4	A
Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	-	30	A
I^2t value for fusing (tp=10ms)	I^2t	-	4.5	A^2s
Critical rate of rise of on-state current	dI/dt	-	50	A/μs
Peak gate current (tp=20μs, T_j=110℃)	I_{GM}	-	1.2	A
Peak gate power (tp=20μs, T_j=110℃)	P_{GM}	-	2	W
Average gate power dissipation(T_j=110℃)	$P_{G(AV)}$	-	0.2	W

Electrical Characteristics(Tj=25℃ unless otherwise specified)

Symbol	Condition	Min.	Typ.	Max.	Units
I_{GT}	V_D=12V R_L=33Ω	-	50	200	μA
V_{GT}		-	0.6	0.8	V
V_{GD}	V_D=V_{DRM} T_j=110℃	0.2	-	-	V
I_L	I_G=1.2 I_{GT}	-	-	6	mA
I_H	I_T=0.05A	-	-	5	mA
dV/dt	V_D=2/3V_{DRM} T_j=110℃ R_{GK}=1KΩ	10	-	-	V/μs

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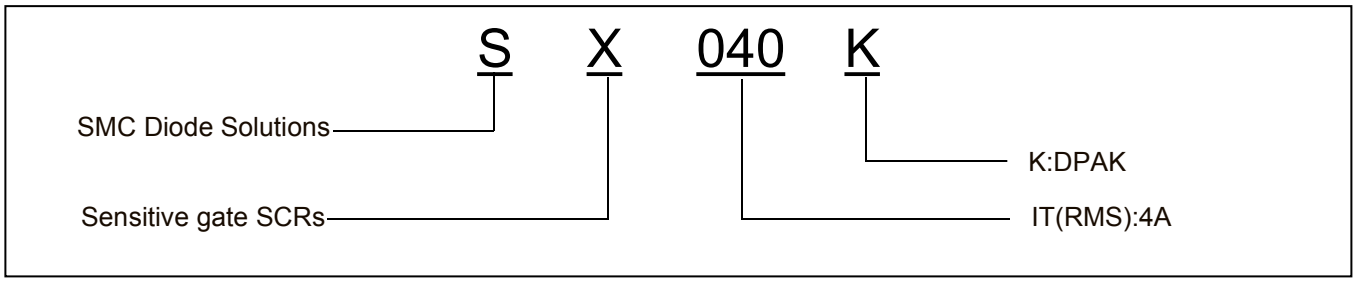
Static Characteristics

Symbol	Condition	Max.	Units
V_{TM}	I_{TM}=8A tp=380μs,Tj=25℃	1.5	V
I_{DRM}	V_D=V_{DRM} V_R=V_{RRM}, Tj=25℃	5	μA
I_{RRM}	V_D=V_{DRM} V_R=V_{RRM}, Tj=110℃	100	μA

Thermal Resistances

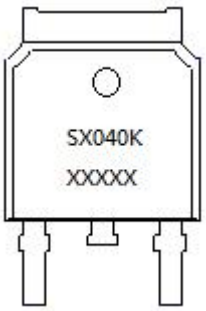
Symbol	Condition		Value	Units
Rth(j-c)	Junction to case	DPAK	6.5	℃/W

Ordering Information



Device	Package	Shipping
SX040K	DPAK	2500pcs/ reel
SX040KTR	DPAK	2500pcs/ reel

Marking Diagram



Where XXXXX is YYWWL

S = SMC
X = Sensitive gate SCRs
040 = Forward Current 4A)
K = Package type
YY = Year
WW = Week
L = Lot Number

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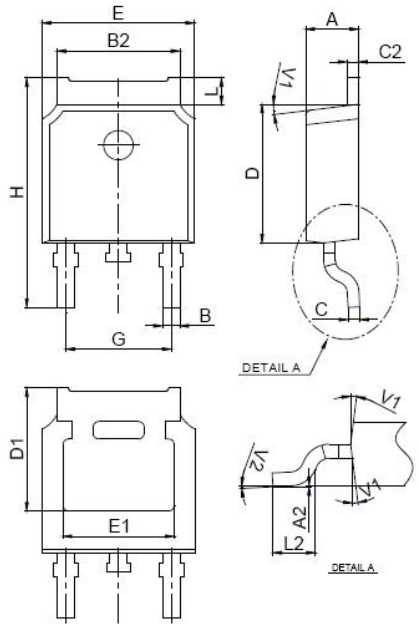
Mechanical Dimensions DPAK



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

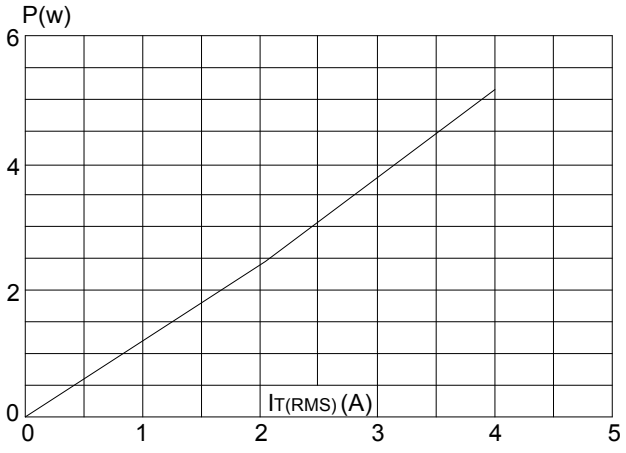


FIG.2: RMS on-state current versus case temperature

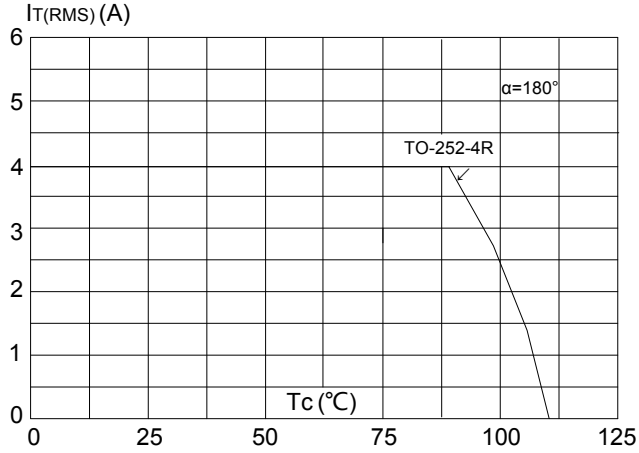


FIG.3: Surge peak on-state current versus number of cycles

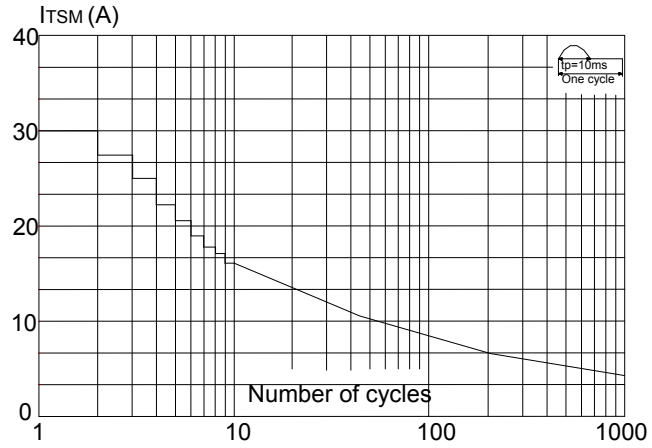


FIG.4: On-state characteristics (maximum values)

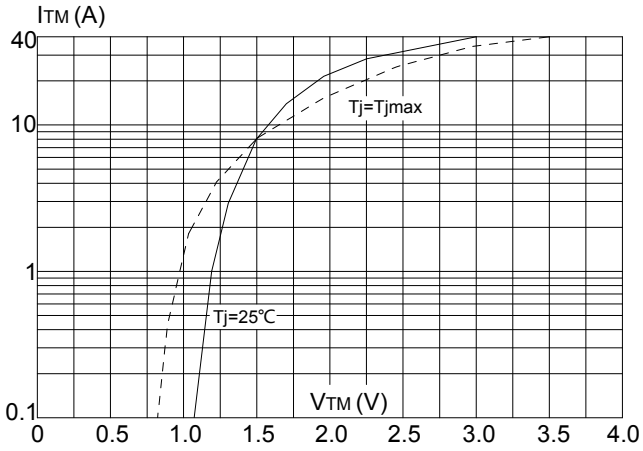


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponging value of I^2t (dI/dt < 50A/µs)

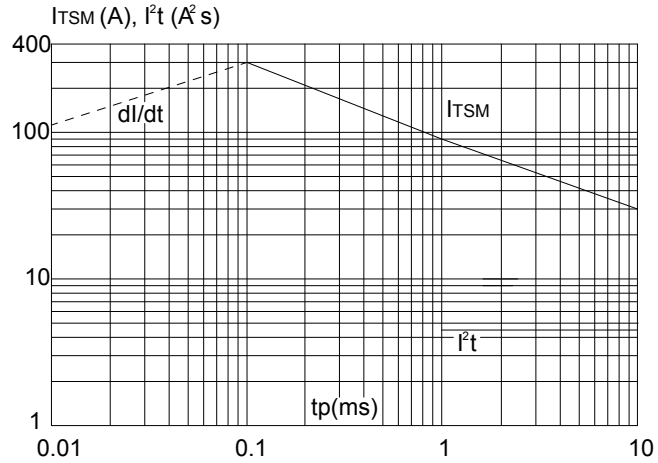
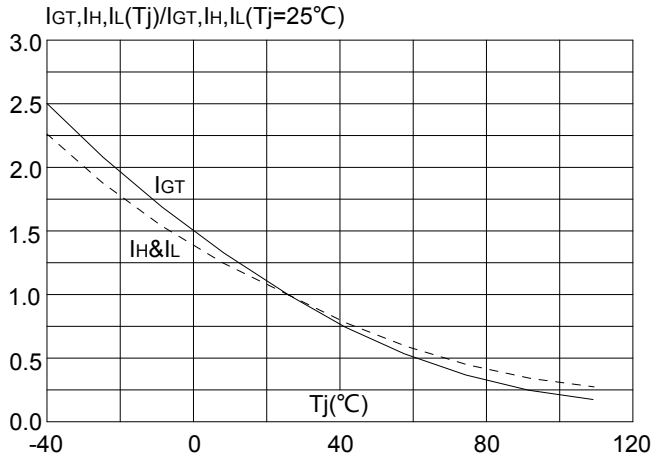


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



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