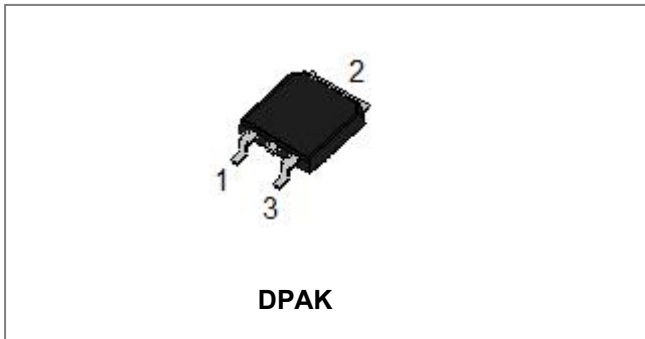
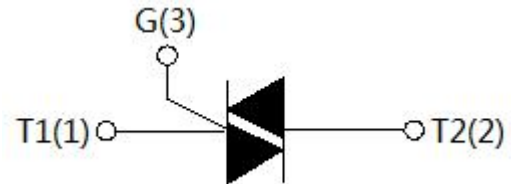


SX040K Sensitive gate SCRs



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°C)	4	A
Non repetitive surge peak on-state current (tp=10ms)	I_{TSM}	-	30	A
I ² t value for fusing (tp=10ms)	I^2t	-	4.5	A ² s
Critical rate of rise of on-state current	dI/dt	-	50	A/μs
Peak gate current (tp=20μs, T _J =110°C)	I_{GM}	-	1.2	A
Peak gate power (tp=20μs, T _J =110°C)	P_{GM}	-	2	W
Average gate power dissipation(T _J =110°C)	$P_{G(AV)}$	-	0.2	W

Electrical Characteristics(T_J=25°C unless otherwise specified)

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

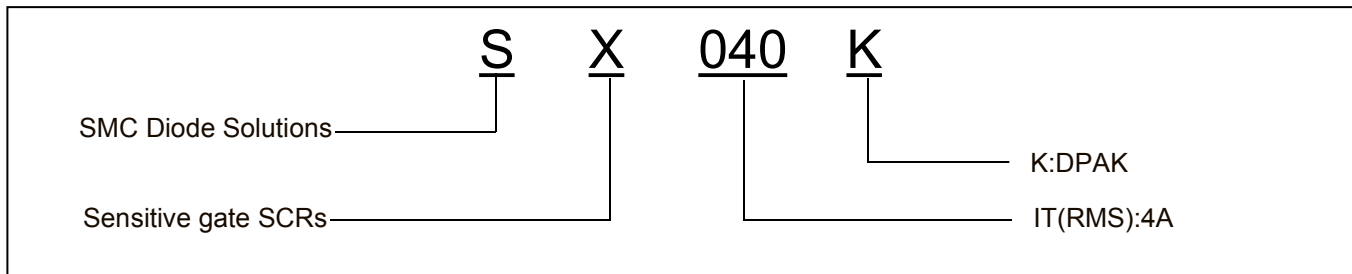
Static Characteristics

Symbol	Condition	Max.	Units
V_{TM}	$I_{TM}=8A$ $t_p=380\mu s$, $T_j=25^\circ C$	1.5	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$, $T_j=25^\circ C$	5	μA
I_{RRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$, $T_j=110^\circ C$	100	μA

Thermal Resistances

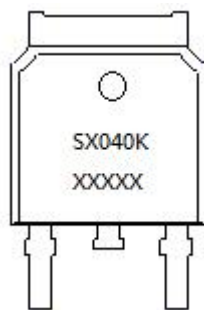
Symbol	Condition	Value	Units
$R_{th(j-c)}$	Junction to case DPAK	6.5	$^\circ C/W$

Ordering Information



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

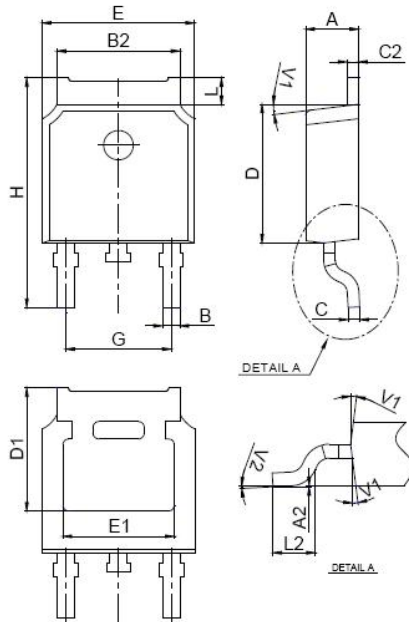
Marking Diagram



Where XXXXX is YYWWL

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

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

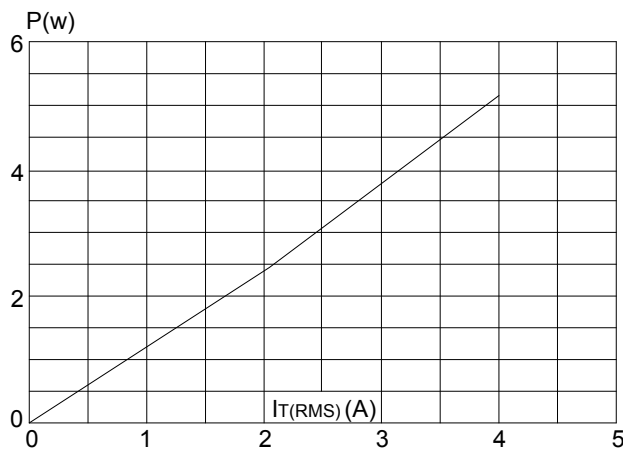


FIG.2: RMS on-state current versus case temperature

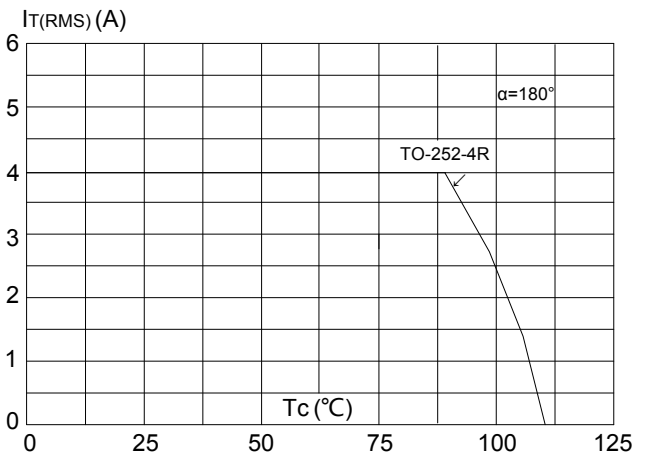


FIG.3: Surge peak on-state current versus number of cycles

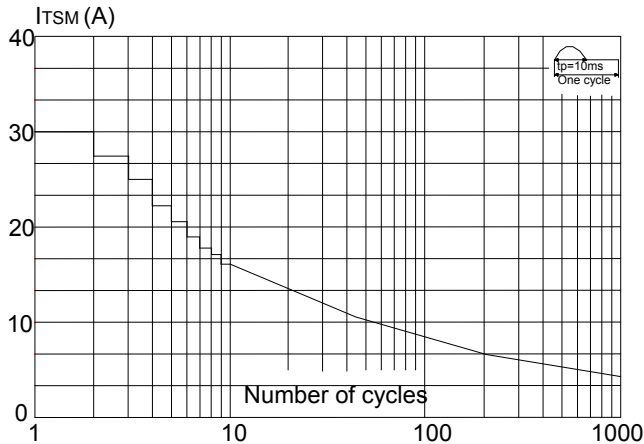


FIG.4: On-state characteristics (maximum values)

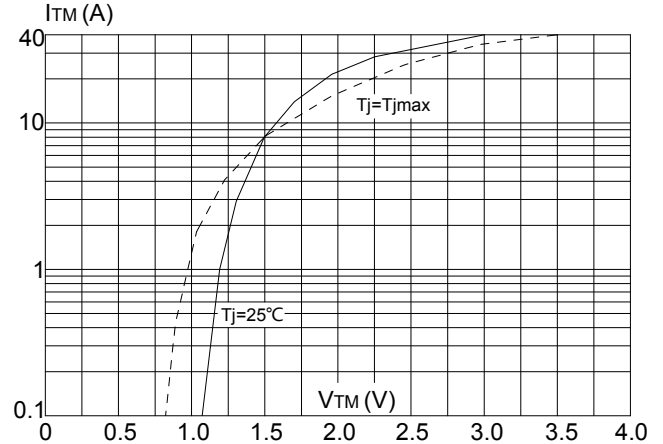


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t ($di/dt < 50\text{A}/\mu\text{s}$)

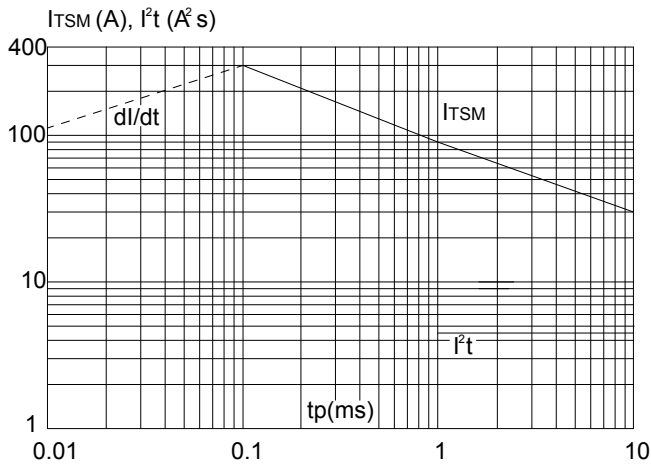
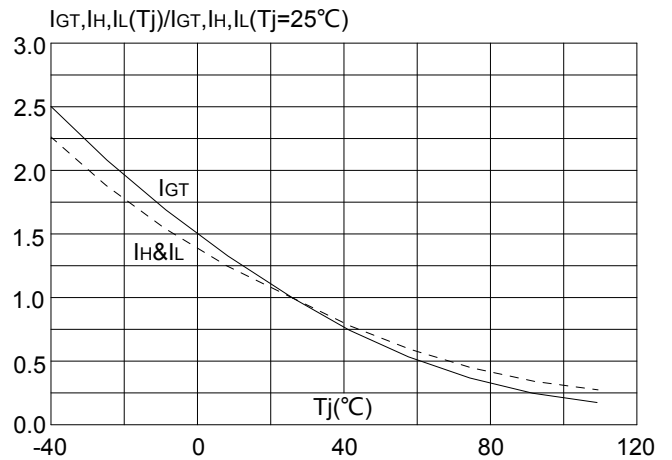


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature





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