

SB4040S 40A SCRs

FEATURES

• High thermal conductivity for more

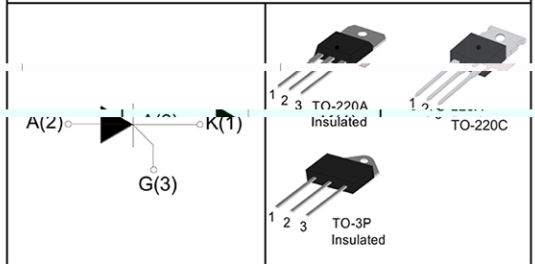
- High voltage capacity
- Very high current surge capability

APPLICATIONS

- Line rectifying 50/60 Hz
- Softstart AC motor control
- DC Motor control
- Power converter
- AC power control
- Lighting and temperature control

Parameters Summary

V_{DRM}/V_{RRM}: 1200V/1600V I_{T(RMS)}: 40A I_{AV}: 25A



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T _{stg}	-40 ~ 150	°C
Operating junction temperature range	T _j	-40 ~ 125	°C
Repetitive peak off-state voltage	V _{DRM}	1200/1600	V
Repetitive peak reverse voltage	V _{RRM}	1200/1600	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
Non repetitive surge peak on-state current	I _{TSM}	4200	A
RMS on-state current (180° conduction angle)	I _{T(RMS)}	40	A
Average on-state current (180° conduction angle)	I _{T(AV)}	25	A
I ² t value for fusing (tp=10ms)	I ² t	880	A ² S
Critical rate of rise of on-state current (I = 2×I _{GT} , tr ≤ 100 ns)	di/dt	150	A/μS
Peak gate current	I _{GM}	4	A
Peak gate power	PGM	5	W

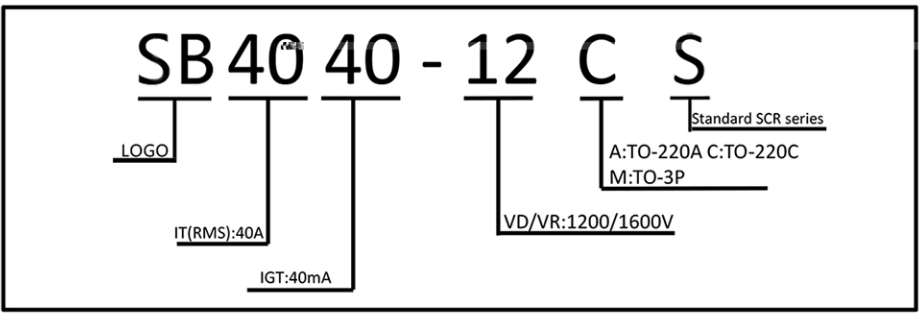
Thermal Resistances

Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case (DC)	1.2	°C/W
	TO-220A	1.2	
	TO-220C	0.8	
	TO-3P	0.7	

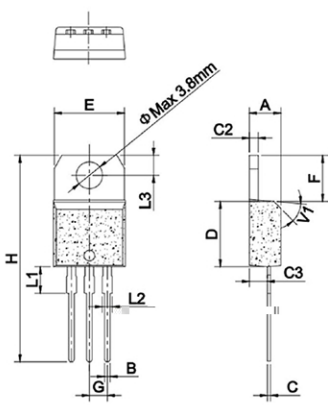
Symbol **Parameter**
 V_{DM} ITM = 60A tp=380µs
 I_{DRM}
 I_{SM}

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V_{DM}	ITM = 60A tp=380µs
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Ordering Information Scheme

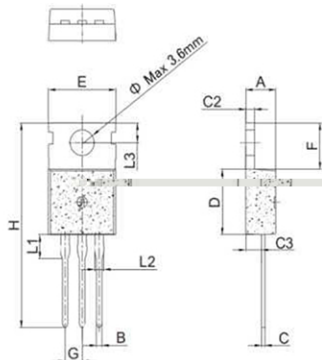


TO-220A Package Mechanical Data



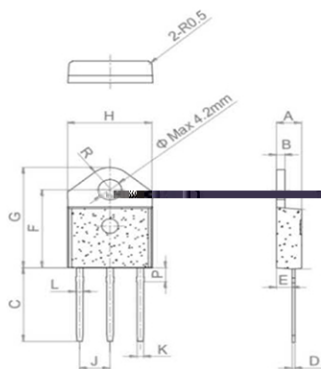
Dimension	Min.	Max.
A	4.40	0.173
B	0.45	0.129
C	1.30	0.007
D	2.70	0.102
E	6.90	0.000
F	9.30	0.000
G	6.30	0.022
H	10.00	0.000
L1	1.20	0.000
L2	1.14	0.000
L3	0.50	0.000

TO-220C Package Mechanical Data



Ref.	Dimensions					
	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	1.30		1.48	0.051		0.059
C3	2.20		2.60	0.087		0.102
E	9.90		10.3	0.390		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
e		3.6		0.142		

TO-3P Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	1.40		1.60	0.055		0.062
C	15.48		15.88	0.609		0.625
C2	0.50		0.70	0.019		0.027
C3	2.70		2.90	0.106		0.114
D	15.32		16.32	0.603		0.642
E	20.27		20.67	0.798		0.815
F	15.15		15.35	0.596		0.604
G		5.45		0.214		0.216
H	1.10		1.30	0.043		0.051
L1	1.15		1.35	0.045		0.053
L2	2.68		3.08	0.105		0.121
L3		4.20		0.165		
e	4.40		4.60	0.173		0.181

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

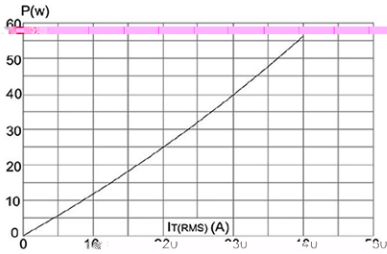


FIG.2: on-state current versus case temperature.

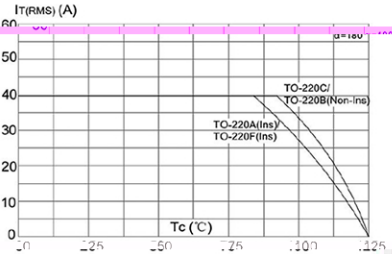


FIG.3: Surge peak on-state current versus number of cycles

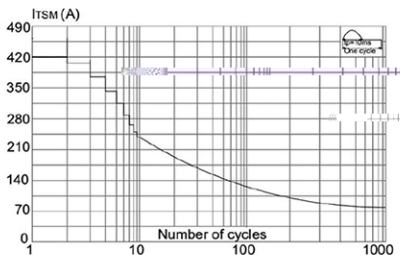


FIG.4: On-state characteristics (maximum values)

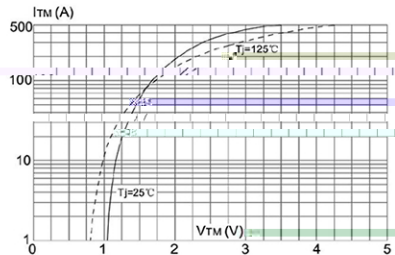


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $tp < 10ms$, and corresponding value of $I_2 t (di/dt < 50A/\mu s)$

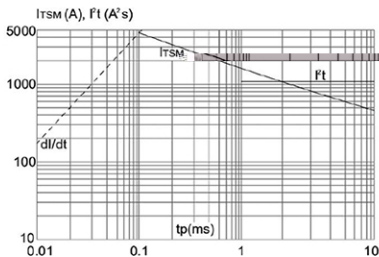


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature

