

## SB5560S 55A SCR's

### FEATURES

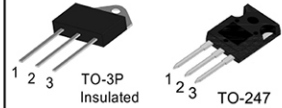
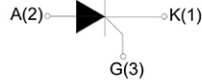
- High thermal cycling performance
- High voltage capacity
- Very high current surge capability

### APPLICATIONS

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

### Parameters Summary

VD/VR:1200/1600V IT(RMS):55A IGT :60mA



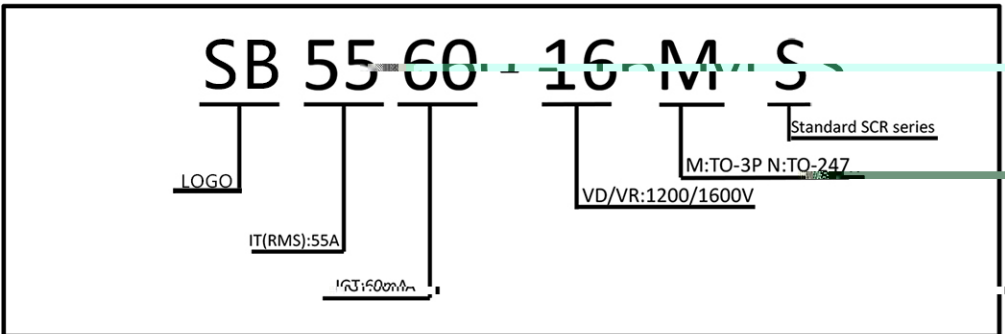
ABSOLUTE MAXIMUM RATINGS			
Parameter	Symbol	value	Unit
Storage junction temperature range	Tstg	-40~150	°C
Operating junction temperature range	Tj	-40~125	°C
Repetitive peak off-state voltage (T=25°C)	V <sub>DRM</sub>	1200/1600	V
Repetitive peak reverse current (Tj=25°C)	I <sub>RRM</sub>	100/100/800	µA
Non repetitive surge peak Off-state voltage	V <sub>DSM</sub>	V <sub>DRM</sub> +100	V
Non repetitive peak reverse voltage	V <sub>BSM</sub>	V <sub>DRM</sub> +100	V
RMS on-state current	TO-3PIns.(TC=80°C)	I <sub>T(RMS)</sub>	55
	TO-247(TC=85°C)		
Non repetitive surge peak on-state current	I <sub>TSM</sub>	550	A
Average on-state current (180° conduction angle)	I <sub>T(AV)</sub>	35	A
I <sup>2</sup> t value for fusing (tp=10ms)	I <sup>2</sup> t	1500	A <sup>2</sup> S
Critical rate of rise of on-state current (I=2×IGT, tr ≤ 100 ns)	di/dt	150	A/µS
Peak gate current	I <sub>GM</sub>	5	A
Average gate power dissipation	P <sub>G(AV)</sub>	2	W

Thermal Resistances			
Symbol	Parameter	Value	Unit
Rth(j-c)	Junction to case (DC)	TO-3P	0.65
		TO-247	0.60

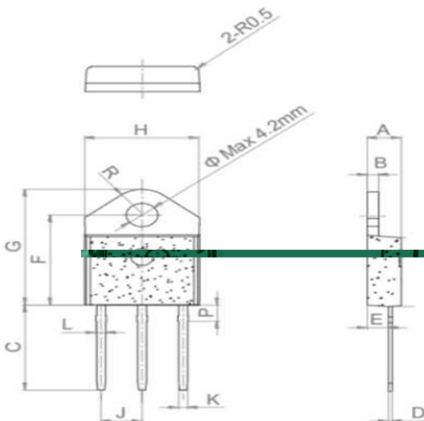
ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)				
Symbol	Test Condition		Value	Unit
$I_{GT}$	$V=12V R=140\Omega$	MAX.	60	mA
$V_{GS}$		MAX.	1.3	V
$V_{GD}$	$V_D=V_{DRM} T_J=125^\circ C$	MIN.	0.2	V
$I_L$	$I_G=1.2I_{GT}$	MAX.	250	mA
$I_H$	$I_T=50mA$	MAX.	200	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_J=125^\circ C$	MIN.	1000	V/ $\mu s$

STATIC CHARACTERISTICS				
Symbol	Parameter		Value(MAX.)	Unit
$V_{TM}$	$I_{TM}=80A t_p=380\mu s$	$T_J=25^\circ C$	1.8	V
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_J=25^\circ C$	20	$\mu A$
$I_{RRM}$		$T_J=125^\circ C$	8	mA

### Ordering information Scheme

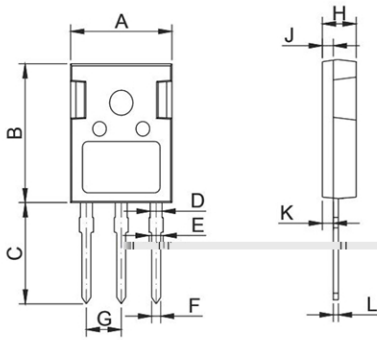


### TO-3P Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40	4.60	4.80	0.173	0.181	0.191
B	1.40		1.60	0.055		0.062
C	15.48		15.88	0.609		0.625
D	0.50		0.76	0.019		0.027
E	2.70		2.90	0.106		0.114
F	15.92		16.32	0.626		0.642
G	20.27		20.67	0.798		0.813
H	15.15		15.35	0.590		0.604
J		5.45			0.214	0.216
K	1.10		1.30	0.043		0.051
L	1.15		1.35	0.045		0.053
P	2.68		3.08	0.105		0.121
R		4.20			0.165	

## TO-247 Package Mechanical Data



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.622	0.634
B	20.80	21.00	22.20	0.819	0.827	0.874
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.09	0.071	0.079	0.083
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G		5.44			0.214	
H	4.30	5.00	5.20	0.169	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031

FIG.1 Maximum power dissipation versus on-state current

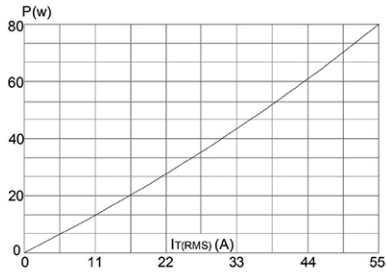


FIG.2: on-state current  $I_T$  versus case temperature  $T_c$

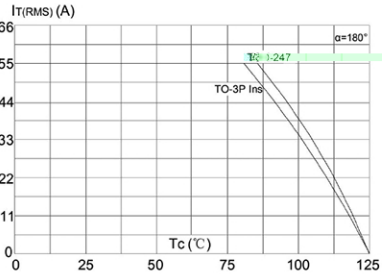


FIG.3: Surge peak on-state current versus number of cycles

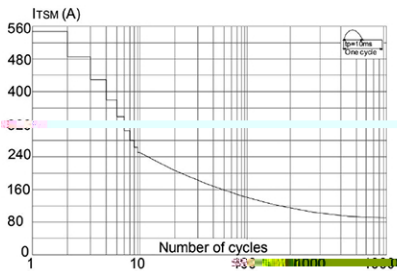


FIG.4: On-state characteristics (maximum values)

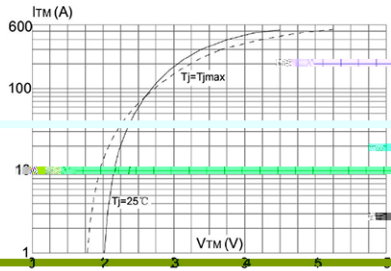


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $1/2 t$

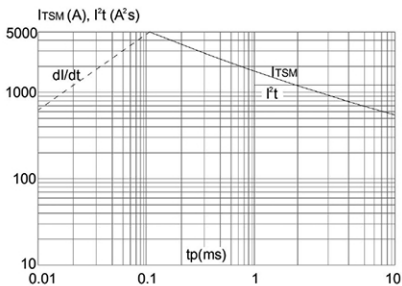


FIG.6: Relative variations of gate trigger current, latching current and holding current versus junction temperature

