

# SB220 THRU SB2200

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深圳FMS Kinter 131 6803 0058

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# SB220 THRU SB2200

## 2.0A Axial Leaded Schottky Barrier Rectifiers-20V-200V

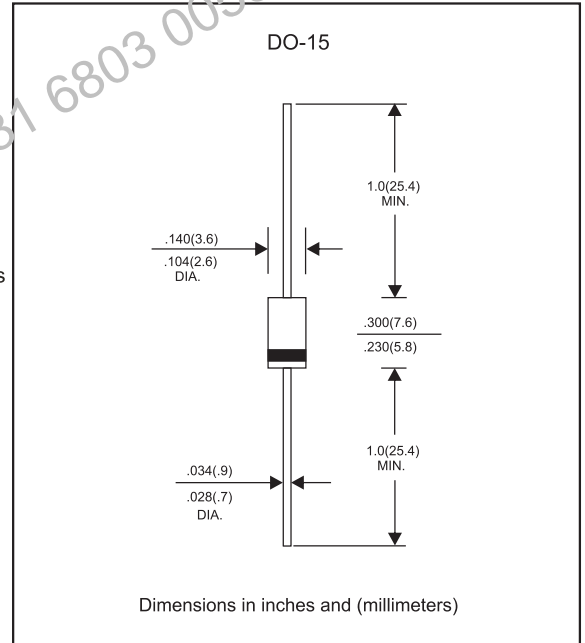
### Features

- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- High current capability ,Low forward voltage drop
- High surge capability
- For use in low voltage ,high frequency inverters, free wheeling ,and polarity protection applications
- High temperature soldering guaranteed:260°C/10 seconds at terminals
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free parts, ex. SB220-H.

### Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, DO-15
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- Polarity: Color band denotes cathode end
- Mounting Position : Any
- Weight : Approximated 0.40 gram

### Package outline



### Maximum ratings and Electrical Characteristics (AT T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.1	I <sub>O</sub>			2.0	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	I <sub>FSM</sub>			50	A
Reverse current	V <sub>R</sub> = V <sub>RRM</sub> T <sub>J</sub> = 25°C	I <sub>R</sub>			0.5	mA
	V <sub>R</sub> = V <sub>RRM</sub> T <sub>J</sub> = 100°C				10	
Thermal resistance	Junction to ambient Note 1	R <sub>θJA</sub>		35		°C/W
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	C <sub>J</sub>		170		pF
Storage temperature		T <sub>STG</sub>	-65		+175	°C

Note 1: Thermal resistance from junction to lead, and/or to ambient P. C. B. mounted with 0.375" (9.5mm) lead length with 1.5 X1.5"(38X38mm)copper pads

SYMBOLS	V <sub>RRM</sub> <sup>*1</sup> (V)	V <sub>RMS</sub> <sup>*2</sup> (V)	V <sub>R</sub> <sup>*3</sup> (V)	V <sub>F</sub> <sup>*4</sup> (V)	Operating temperature T <sub>J</sub> , (°C)
SB220	20	14	20	0.55	-55 to +125
SB230	30	21	30		
SB240	40	28	40		
SB250	50	35	50	0.70	-55 to +150
SB260	60	42	60		
SB280	80	56	80	0.85	
SB2100	100	70	100		
SB2150	150	105	150	0.90	
SB2200	200	140	200		

\*1 Repetitive peak reverse voltage

\*2 RMS voltage

\*3 Continuous reverse voltage

\*4 Maximum forward voltage@I<sub>F</sub>=2.0A

## Rating and characteristic curves (SB220 THRU SB2200)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

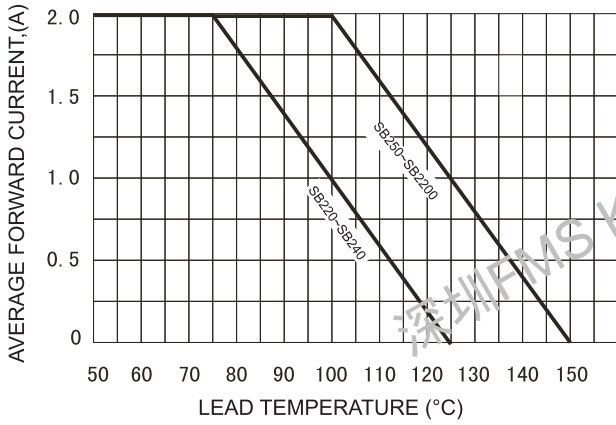


FIG.2-TYPICAL FORWARD CHARACTERISTICS

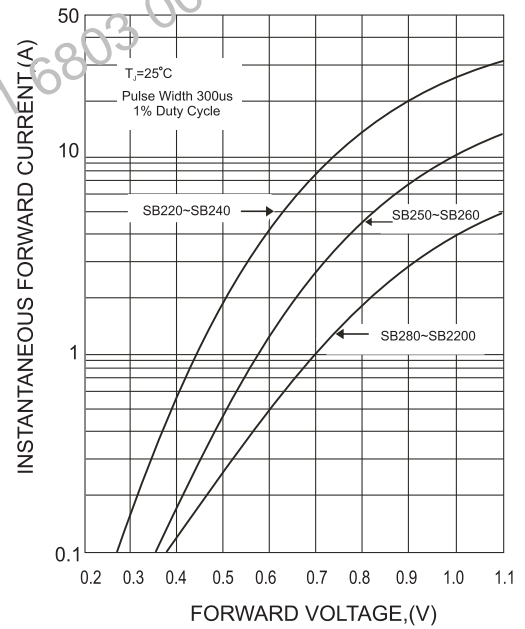


FIG.3-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

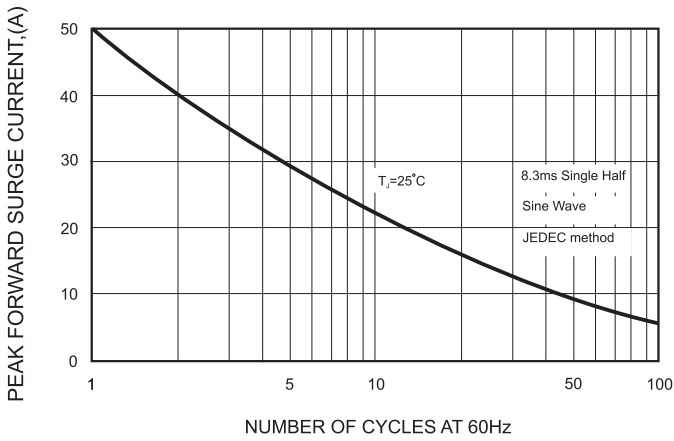


FIG.5 - TYPICAL REVERSE CHARACTERISTICS

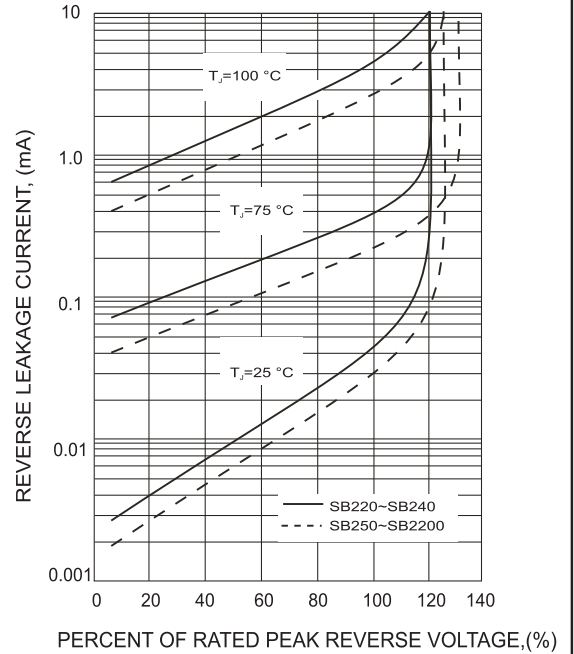
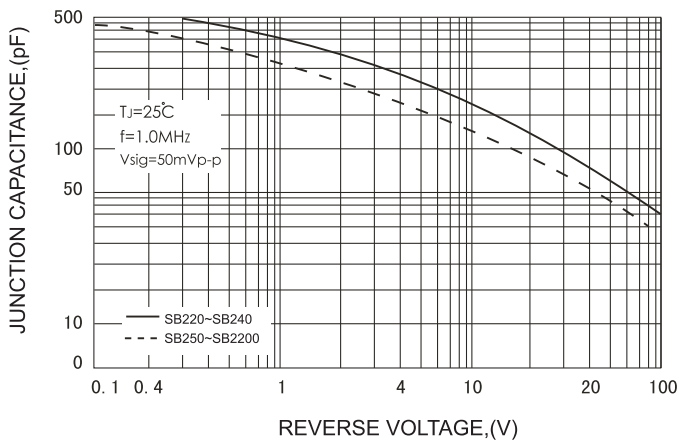




FIG.4-TYPICAL JUNCTION CAPACITANCE



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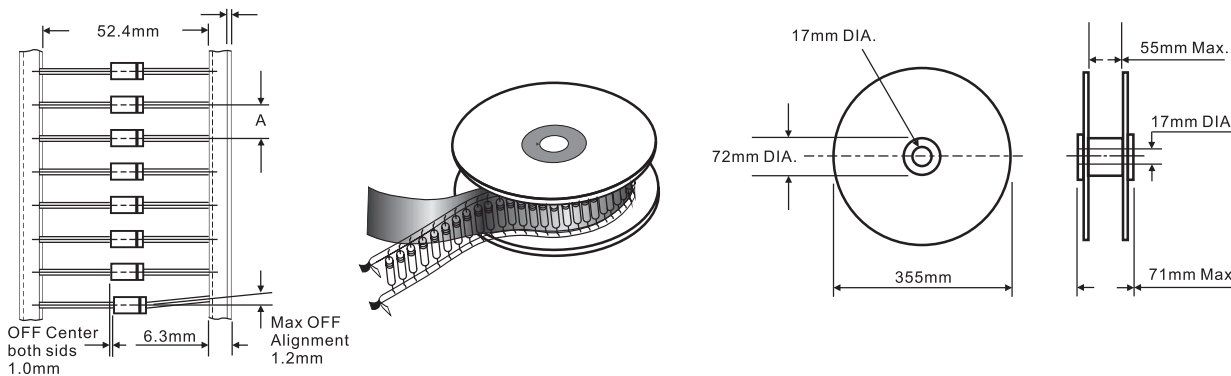
## Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

## Marking

Type number	Marking code
SB220	SB220
SB230	SB230
SB240	SB240
SB250	SB250
SB260	SB260
SB280	SB280
SB2100	SB2100
SB2150	SB2150
SB2200	SB2200

## Taping & bulk specifications for AXIAL devices



### REEL PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / REEL)	COMPONENT SPACING "A" in FIG. A	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-15	4,000	5 mm	360 * 340 * 370	16,000	9.9

### AMMO PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / BOX)	INNER BOX SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-15	3,000	260 * 83 * 160	440 * 270 * 340	30,000	14.3

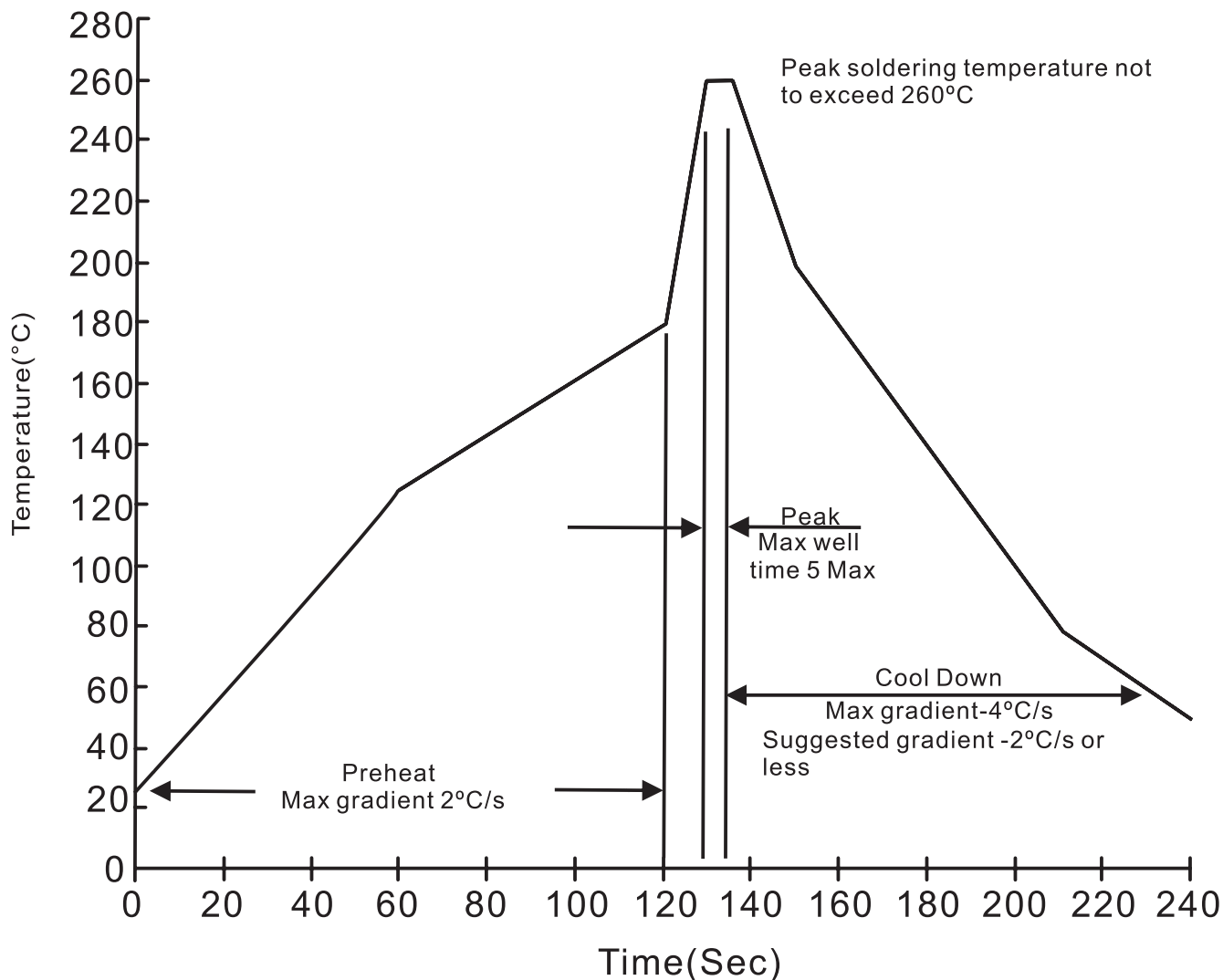
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BULK PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / BOX)	INNER BOX SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-15	500	194 * 84 * 20	465 * 220 * 260	25,000	12.9

Suggested thermal profiles for soldering processes

1. Lead free temperature profile wave-soldering



**SB220 THRU SB2200****High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260\pm 5^\circ\text{C}$ for $10\pm 2\text{sec}$ . immerse body into solder $1/16''\pm 1/32''$	MIL-STD-750D METHOD-2031
2. Solderability	at $245\pm 5^\circ\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. Pull Test	1.0kg in axial lead direction for 10 sec. $I_F = I_O$	MIL-STD-750D METHOD-2036
4. Bend Lead	1.0kg weight applied to each lead bending arc $90^\circ\pm 5^\circ$ for 3 times.	MIL-STD-750D METHOD-2036
5. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 125^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
6. Forward Operation Life	Rated average rectifier current at $T_A = 25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
7. Intermittent Operation Life	$T_A = 25^\circ\text{C}$ , $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min, on and off for 500 cycles.	MIL-STD-750D METHOD-1036
8. Pressure Cooker	$15P_{SIG}$ at $T_A = 121^\circ\text{C}$ for 4 hrs.	JESD22-A102
9. Temperature Cycling	$-55^\circ\text{C}$ to $+125^\circ\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
10. Thermal Shock	$0^\circ\text{C}$ for 5 min. rise to $100^\circ\text{C}$ for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
11. Forward Surge	8.3ms single half sine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
12. Humidity	at $T_A = 85^\circ\text{C}$ , RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
13. High Temperature Storage Life	at $175^\circ\text{C}$ for 1000 hrs.	MIL-STD-750D METHOD-1031