

SB120 THRU SB1200
SCHOTTKY RECTIFIERS



VOLTAGE: 20-200 Volts

CURRENT: 1.0 Amperes

DO-41 Marking and Polarity

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- High current capability ,ultra low forward voltage drop
- High surge capability
- High temperature soldering guaranteed:260°C/10 seconds at terminals
- Component in accordance to RoHS 2011/65/EU

MECHANICAL DATA

- Case: JEDEC DO-41 molded plastic body
- Terminals: Plated axial leads, solderable per MIL-STD-750,method 2026
- Polarity: color band denotes cathode end
- Mounting Position: Any
- Weight: 0.32 grams

TYPICAL APPLICATIONS

- For use in low voltage ,high frequency inverters ,DC/DC converters, free wheeling ,and polarity protection applications

Remark:

- ①. SB1xxx=Model,xxx=20,30,40,50,60,80,100,150,200
- ②. NH=niu hang trademark
- ③. FF=Internal control code,According to actual changes
- ④. White band denotes cathode

Maximum Ratings and Electrical Characteristics(Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	SB	SB	SB	SB	SB	SB	SB	SB	SB	Unit
		120	130	140	150	160	180	1100	1150	1200	
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	80	100	150	200	V
Maximum RMS voltage	V_{RMS}	14	21	28	35	42	56	70	105	140	V
Maximum DC blocking voltage	V_{DC}	20	30	40	50	60	80	100	150	200	V
Maximum average forward rectified current(see fig.1)	$I_{F(AV)}$	1.0									A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	I_{FSM}	35									A

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

Parameter	Symbol	SB	SB	SB	SB	SB	SB	SB	SB	SB	Unit	
		120	130	140	150	160	180	1100	1150	1200		
Maximum instantaneous forward voltage (Note 1) @ 1.0 A	V_F	0.55			0.70		0.85		0.90		V	
Maximum instantaneous reverse current at rated DC blocking voltage (Note 1)	I_{RRM}	200				50		20		uA		
		10				5		2		mA		
Typical junction capacitance (Note 2)	C_J	110									pF	
Operating junction and Storage temperature range	T_J	-65 to +125						-65 to +150				°C
Storage temperature range	T_{STG}	-65 to +150										

Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	SB	SB	SB	SB	SB	SB	SB	SB	SB	Unit
		120	130	140	150	160	180	1100	1150	1200	
Typical thermal resistance (Note 3)	$R_{\theta JA}$	50									°C/W
	$R_{\theta JL}$	18									

- Note:**
- 1.Pulse width < 300 uS, Duty cycle < 2%
 - 2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.
 - 3.Thermal resistance from junction to lead vertical P.C.B. mounted , 0.375"(9.5mm)lead length,Polymide PCB, 2 oz Copper.
 - 4.Cathode pad dimensions 18.8x14.4mm , Anode pad dimensions- (5.6x14.4mm)

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RATING AND CHARACTERISTIC CURVES

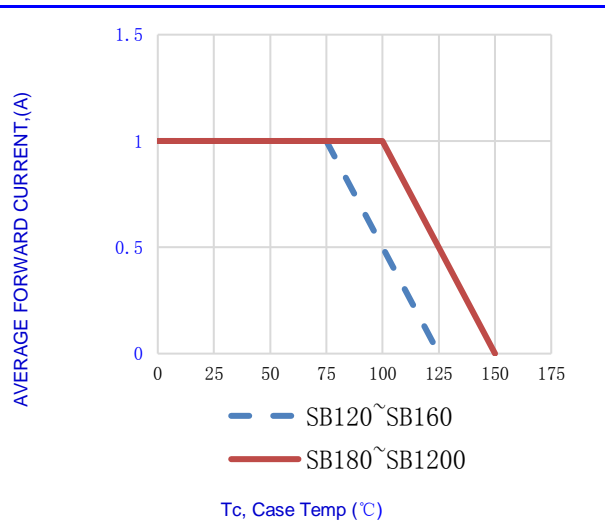


Fig.1- FORWARD CURRENT DERATING CURVE

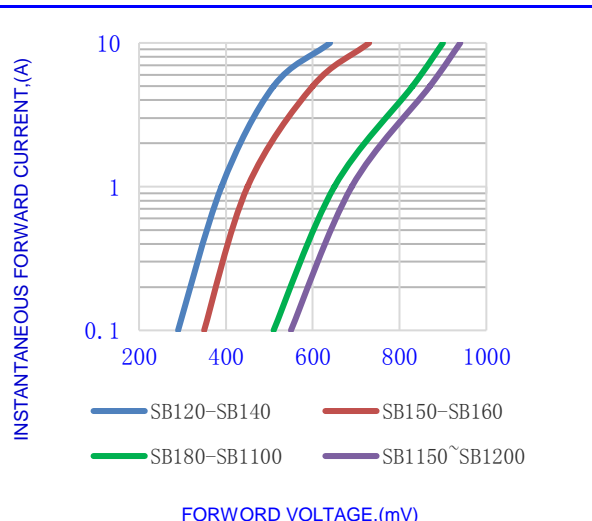


Fig.2- TYPICAL INSTANTANEOUS FORWARD

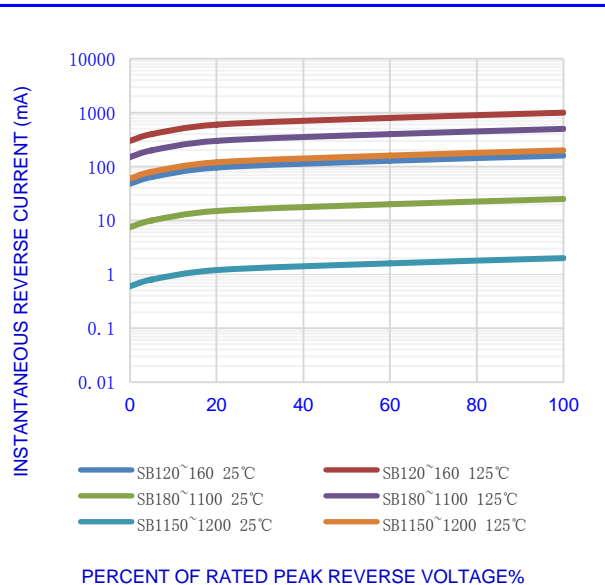


Fig.3- TYPICAL REVERSE CHARACTERISTICS

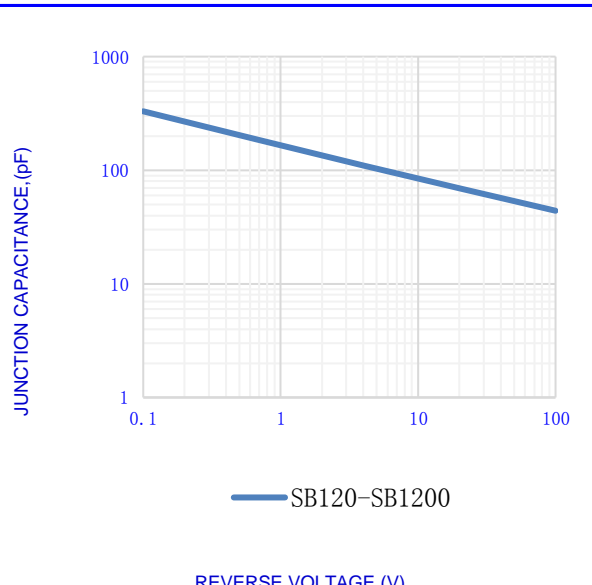


Fig.4- TYPICAL JUNCTION CAPACITANCE

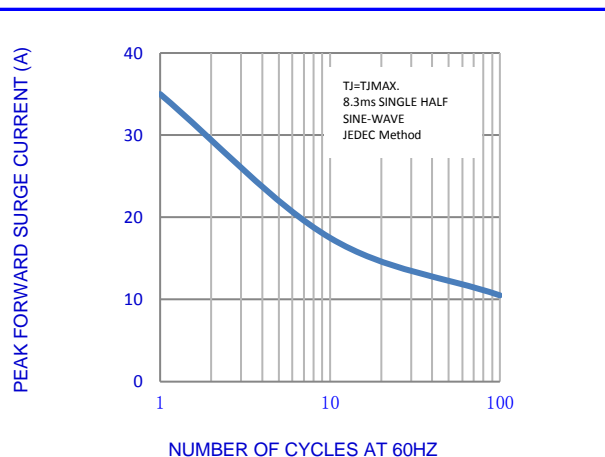


Fig.5- MAX. NON-REPETITIVE SURGE CURRENT

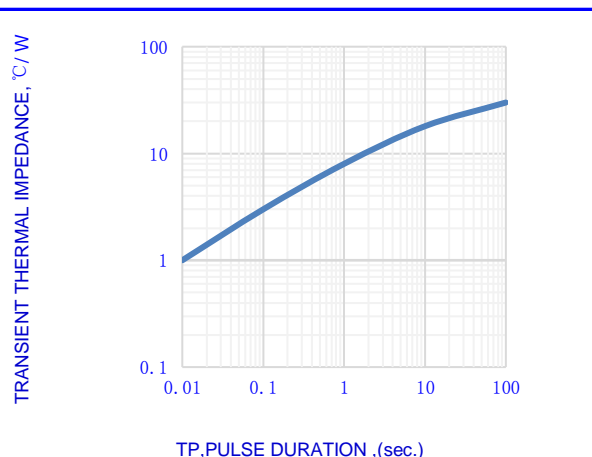


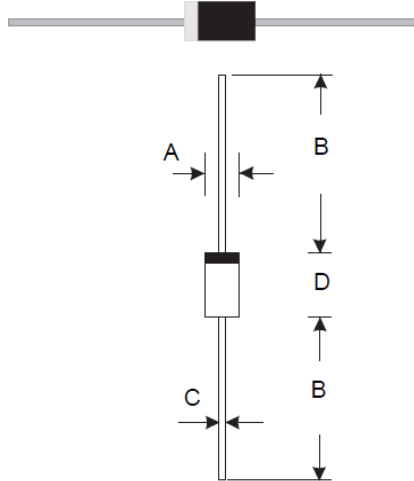
FIG.6- TYPICAL TRANSIENT THERMAL IMPEDANCE

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OUTLINE DRAWINGS

DO-41



OUTLINE DIMENSIONS						
DIM	MILLIMETERS			INCHES		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.0	-	2.8	0.079	-	0.110
B	25.1	-	-	0.988	-	-
C	0.6	-	0.9	0.024	-	0.035
D	4.2	-	5.2	0.165	-	0.205

Packing Information

Package	Pack	Box Size LxWxH(mm)	Quantity (pcs/box)	Carton Size LxWxH(mm)	Quantity (pcs/carton)
DO-41	B/G	250*75*140	5000	420*280*310	50000

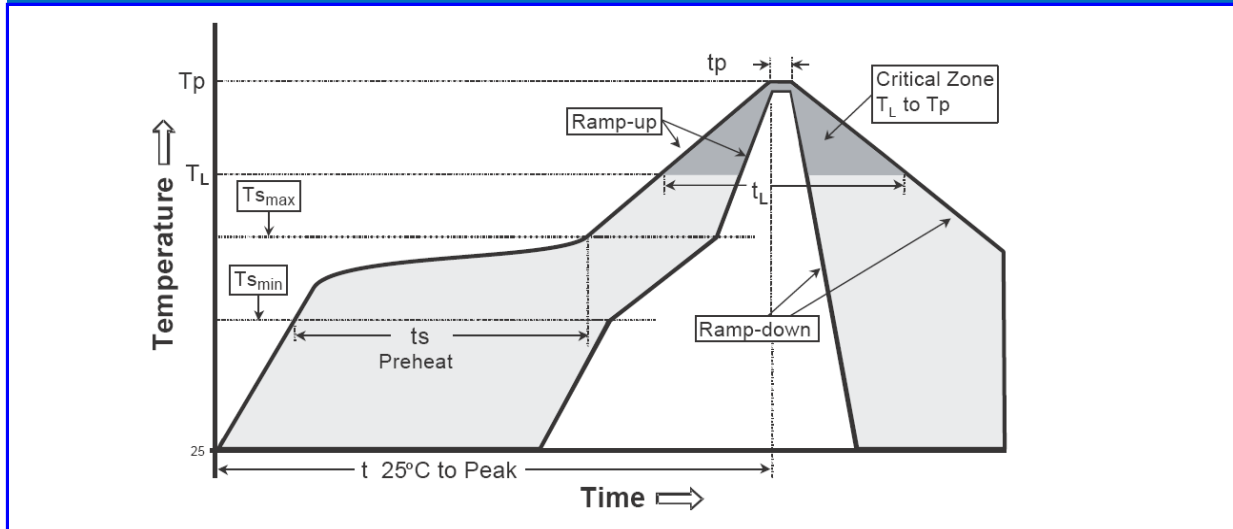
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.



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