

**SS54BF THRU SS520BF**  
SCHOTTKY BARRIER RECTIFIERS



**VOLTAGE:** 40~200 Volts

**CURRENT:** 5.0 Amperes

**SMBF**

**Marking and Polarity**

**FEATURES**

- Low Forward Voltage Drop for high efficiency
- Low leakage current for high reliability
- High forward surge capability for high reliability

**MECHANICAL DATA**

- **Terminals:** Plated Leads Solderable per MIL-STD-202, Method 208
- **Mounting Position:** Any
- **Lead Free:** Lead Free Finish, RoHS Compliant
- **Weight:** App. 0.066 grams (0.0023 ounce)

**TYPICAL APPLICATIONS**

- For use in high frequency inverters ,  
DC/DC converters, LED driver etc. applications



Remark:

- ①. NH=niuhang trademark
- ②. FF=Product line, According to actual changes;  
YWW=Periodic code, According to actual changes;
- ③. SS5xxBF=Modle, xxx=4,45,6,8,10,15,20
- ④. White band denotes cathode

**Maximum Ratings(Ratings at 25°C ambient temperature unless otherwise specified )**

Parameter	Symbol	SS54 BF	SS545 BF	SS56 BF	SS58 BF	SS510 BF	SS515 BF	SS520 BF	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	40	45	60	80	100	150	200	V
Maximum RMS voltage	$V_{RMS}$	28	32	42	56	70	105	140	V
Maximum DC blocking voltage	$V_{DC}$	40	45	60	80	100	150	200	V
Maximum average forward rectified current(see fig.1)	$I_{F(AV)}$	5.0							A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	$I_{FSM}$	100							A
Current Squared Time Per Diode( $t < 8.3ms$ )	$I^2t$	41.50							A <sup>2</sup> sec

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

Parameter	Test Conditions		Symbol	SS54 BF	SS545 BF	SS56 BF	SS58 BF	SS510 BF	SS515 BF	SS520 BF	Unit
Maximum Forward Voltage(Note 1)	Ta=25°C	IF= 5.0 A	$V_F$	0.55	0.70	0.80	0.90				V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (Note 1)	Ta=25°C	VR= $V_{RRM}$	$I_{RRM}$	100	80	50	10				uA
	Ta=125°C	VR= 80%* $V_{RRM}$		10	8	5	3				mA
Typical junction capacitance	4V,1MHz		$C_J$	250	200	150	100				pF

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

Parameter	Symbol	SS54 BF	SS545 BF	SS56 BF	SS58 BF	SS510 BF	SS515 BF	SS520 BF	Unit	
Operating junction and Storage temperature range	$T_J$	-55 to 125			-55 to 150		-55 to 175			°C
Storage temperature range	$T_{STG}$	-55 to 125			-55 to 150		-55 to 175			
Typical thermal resistance (Note 2)	$R_{\theta JA}$	60							°C/W	
	$R_{\theta JC}$	20								

**Note:** 1.Pulse width < 300 uS, Duty cycle < 2%

2.Mounted on P.C.B. with 0.3" x 0.3" (7.62 mm x 7.62 mm) copper pad areas

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RATING AND CHARACTERISTIC CURVES

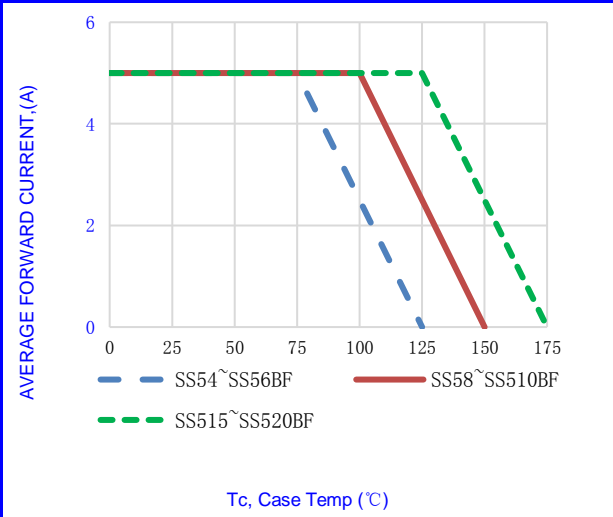


Fig.1-FORWARD CURRENT DERATING CURVE

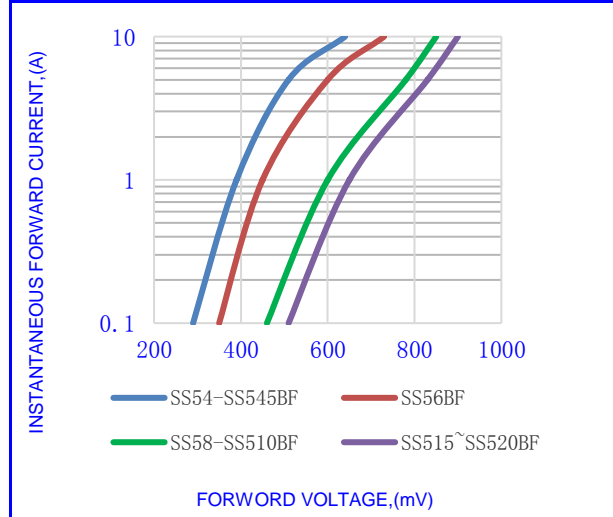


Fig.2- TYPICAL INSTANTANEOUS FORWARD

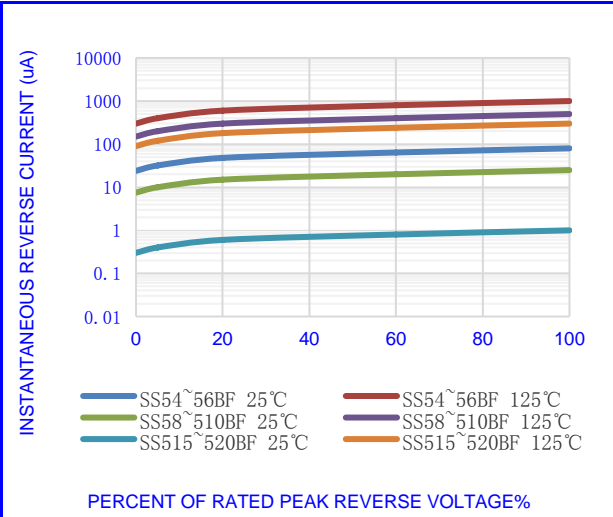


Fig.3- TYPICAL REVERSE CHARACTERISTICS

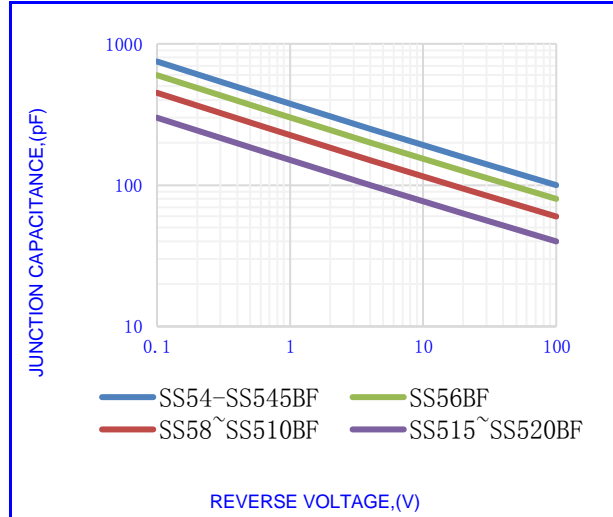


Fig.4-TYPICAL JUNCTION CAPACITANCE

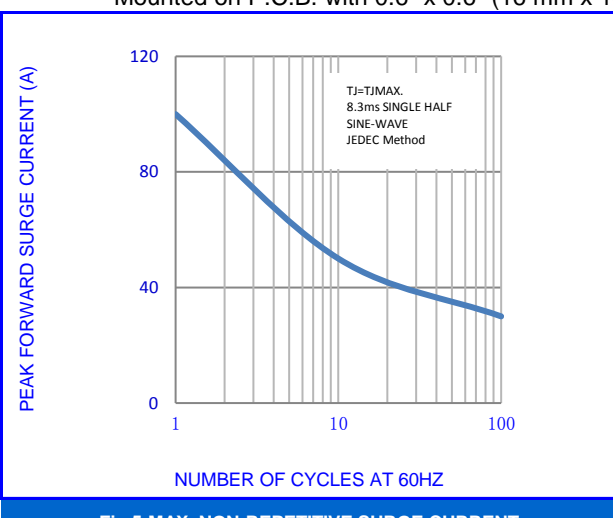


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

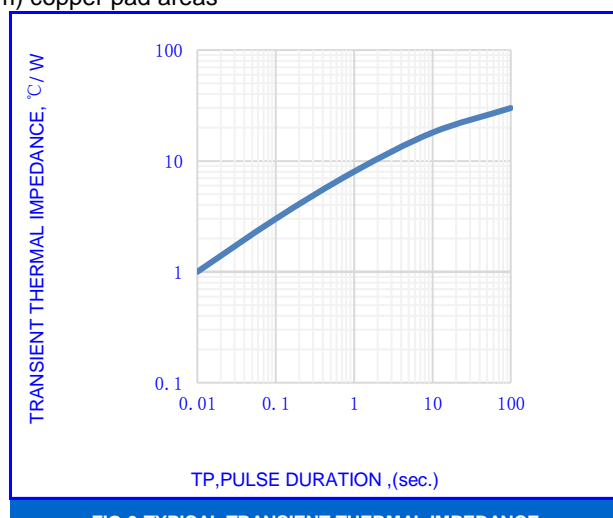


Fig.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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PACKING INFORMATION				SMBF																																																																														
Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size LxWxH(mm)	Quantity (pcs/Inner Box)	Carton Size LxWxH(mm)	Quantity (pcs/carton)																																																																												
Tape Reel	Φ330	5000	340x340x45	10000	360x360x470	100000																																																																												

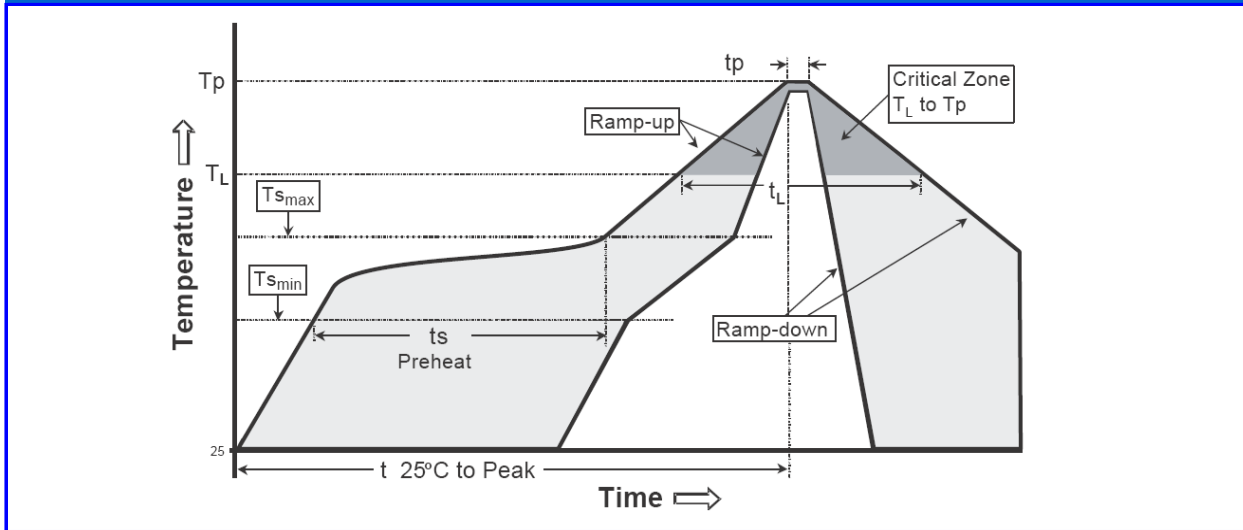
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**Recommended wave soldering condition**

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 (Tsmmax 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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