

SS12F THRU SS120F  
SCHOTTKY BARRIER RECTIFIERS



VOLTAGE: 20~200 Volts

CURRENT: 1.0 Amperes

SMAF

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. 0.026 grams (0.0009 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. SS1xxF=Module, xxx=2,4,6,8,10,15,20
- ④. White band denotes cathode

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

Parameter	Symbol	SS12 F	SS14 F	SS16 F	SS18 F	SS110 F	SS115 F	SS120 F	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	40	60	80	100	150	200	V
Maximum RMS voltage	$V_{RMS}$	14	28	42	56	70	105	140	V
Maximum DC blocking voltage	$V_{DC}$	20	40	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)	$I_{FSM}$	30							A
Current Squared Time Per Diode(t<8.3ms)	$I^2t$	3.74							A <sup>2</sup> sec

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

Parameter	Test Conditions		Symbol	SS12 F	SS14 F	SS16 F	SS18 F	SS110 F	SS115 F	SS120 F	Unit
Maximum Forward Voltage(Note 1)	Ta=25°C	IF= 1.0 A	$V_F$	0.55		0.70	0.85		0.95		V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (Note 1)	Ta=25°C	VR= $V_{RRM}$	$I_{RRM}$	200			50		20		uA
	Ta=125°C	VR= 80%* $V_{RRM}$		20			10		5		mA
Typical junction capacitance	4V,1MHz		$C_J$	500			400			pF	

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

Parameter	Symbol	SS12 F	SS14 F	SS16 F	SS18 F	SS110 F	SS115 F	SS120 F	Unit	
Operating junction and Storage temperature range	$T_J$	-55 to 150								°C
Storage temperature range	$T_{STG}$	-55 to 150								
Typical thermal resistance (Note 2)	$R_{\theta JA}$	95								°C/W
	$R_{\theta JC}$	35								

**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**

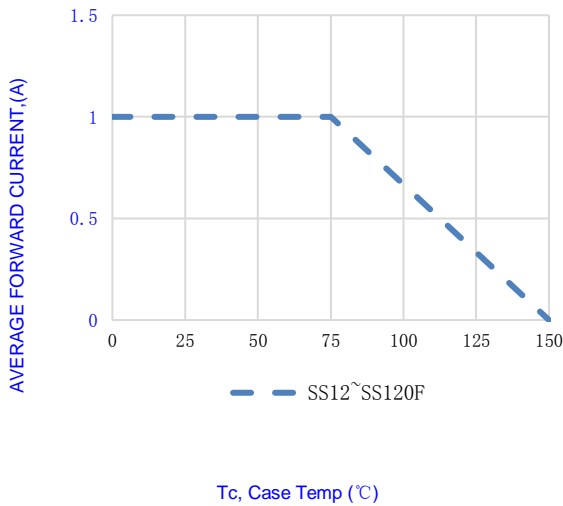


Fig.1-FORWARD CURRENT DERATING CURVE

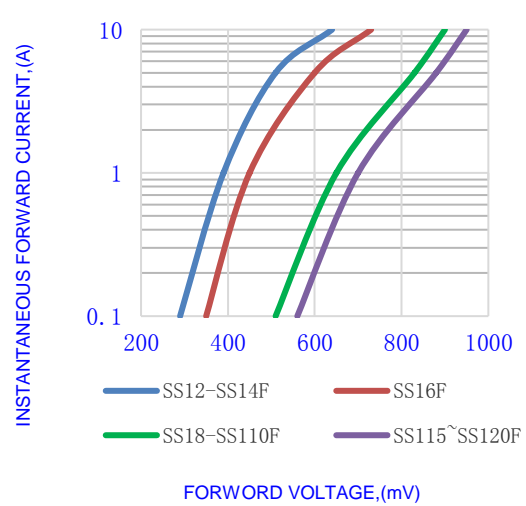


Fig.2- TYPICAL INSTANTANEOUS FORWARD

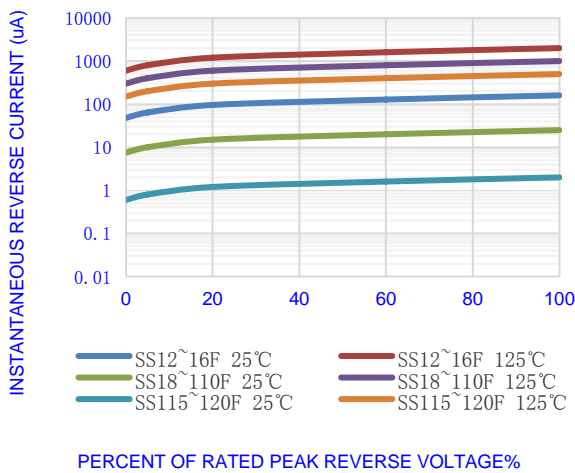


Fig.3- TYPICAL REVERSE CHARACTERISTICS

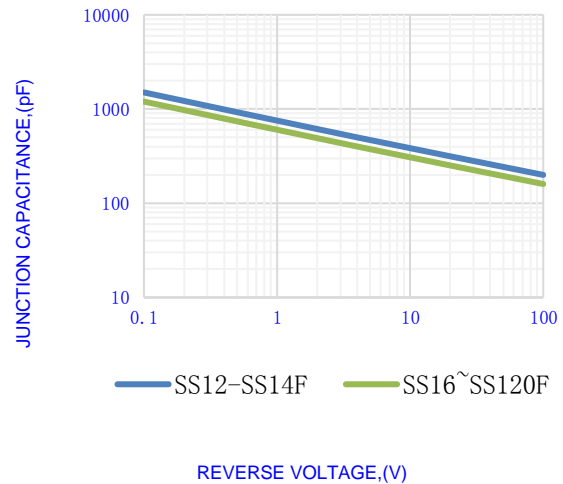


Fig.4-TYPICAL JUNCTION CAPACITANCE

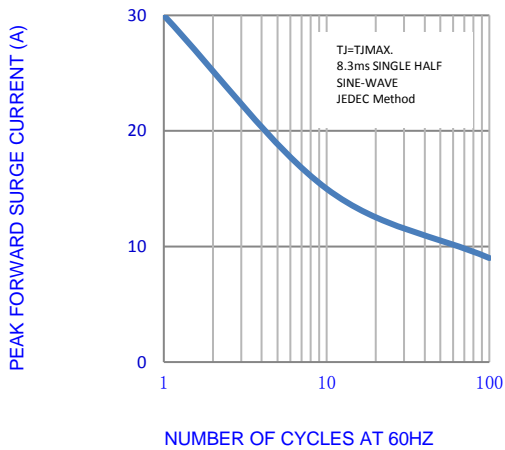


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

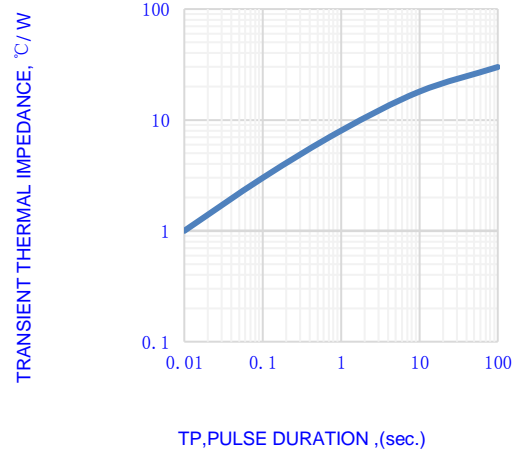


FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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OUTLINE DRAWINGS				SMAF		
				<b>OUTLINE DIMENSIONS</b>		
				DIM	MILLIMETERS	
Min.	Typ.	Max.	Min.		Typ.	Max.
A	3.200	-	3.800	0.126	-	0.150
B	4.400	-	5.300	0.173	-	0.209
C	2.300	-	2.700	0.091	-	0.106
D	0.950	-	1.200	0.037	-	0.047
E	1.300	-	1.600	0.051	-	0.063
F	0.080	-	0.170	0.003	-	0.007
G	0.500	-	1.200	0.020	-	0.047

RECOMMENDED LAYOUT DRAWINGS				SMAF		
				<b>RECOMMENDED MOUNTING PAD DIMENSIONS</b>		
				Dim.	Millimeters	
Min.	Typ.	Max.	Min.		Typ.	Max.
A	-	5.300	-	-	0.20866	-
B	-	2.060	-	-	0.081	-
C	-	1.660	-	-	0.065	-
D	-	2.070	-	-	0.082	-

PACKING INFORMATION				SMAF		
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

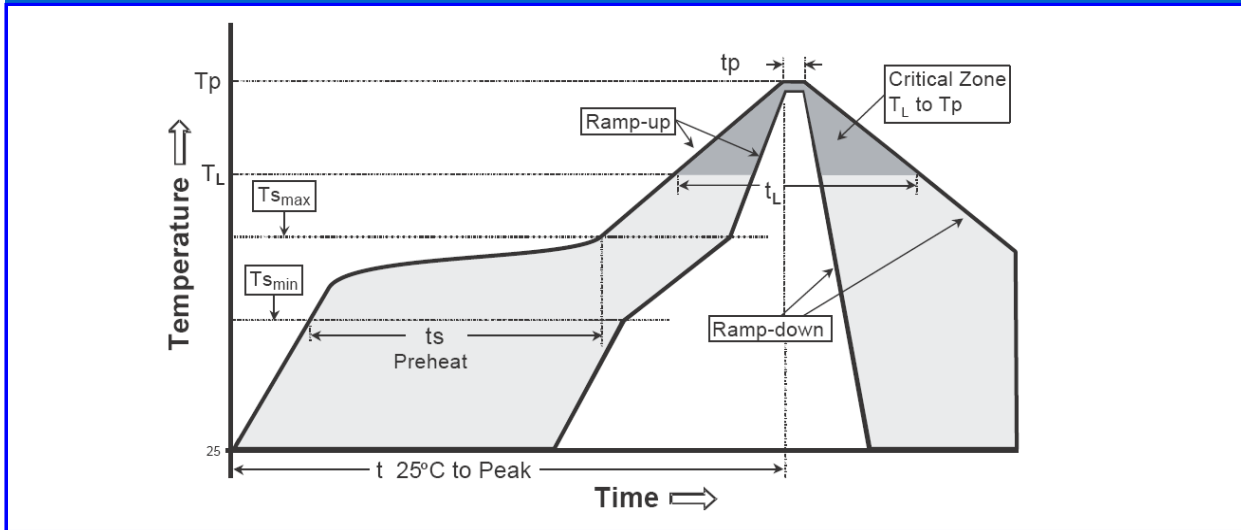
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**Recommended wave soldering condition**

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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