

SS54BF THRU SS520BF
Schottky Barrier Rectifiers

Voltage: 40~200 Volts

Current: 5 Amperes

Package: SMBF

Features

- NH'S Plane Schottky Barrier Chip Technology
- Low Forward Voltage Drop For High Efficiency
- Low Power Loss For High Reliability
- High Frequency Switching Speed

Mechanical Data

- **Case:** Molded With UL-94 Class V-0 Recognized, RoHS-Compliant
- **Polarity:** Look At The Diagram And Polarity On The Right
- **Terminals:** Tin Plated Leads, Solderable Per J-STD-002 And JESD22-B102

Typical Applications

- Switch Mode Power Supplies (SMPS)
- Fast Chargers
- LED Driver And Monitor Lighting
- Automotive Electronics And Charging Posts

Diagram:

Polarity:


Single Phase, Half Wave, 60Hz, Resistive Or Inductive Load. For Capacitive Load, Derate Current By 20%

Maximum Ratings (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	SS 54BF	SS 545BF	SS 56BF	SS 58BF	SS 510BF	SS 515BF	SS 520BF	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		$I_{F(AV)}$	5							A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	120							A
Current Squared Time	$t < 8.3ms$	I^2t	59.8							A ² sec

Electrical Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	SS 54BF	SS 545BF	SS 56BF	SS 58BF	SS 510BF	SS 515BF	SS 520BF	Unit
Maximum Instantaneous Forward Voltage	$I_F = 5.0 A$	V_F	0.55		0.70	0.85		0.90		V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C, $V_R = V_{RRM}$ Ta=110°C, $V_R = V_{RRM} * 80\%$	I_{RRM}	100		80	50		10		uA
			10		8	5		3		mA
Typical Junction Capacitance	4 V, 1MHz	C_J	270		230	170		90		pF

Thermal Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	SS 54BF	SS 545BF	SS 56BF	SS 58BF	SS 510BF	SS 515BF	SS 520BF	Unit	
Operating Junction Temperature Range		T _J	-55~125			-55~150		-55~175		℃	
Storage Temperature Range		T _{STD}	-55~125			-55~150		-55~175			
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25℃	R _{θJA}	53.0								℃/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	R _{θJC}	13.0								

Notes: 1. Pulse Test: 300 Us Pulse Width, 1% Duty Cycle

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Typical Characteristics Curves

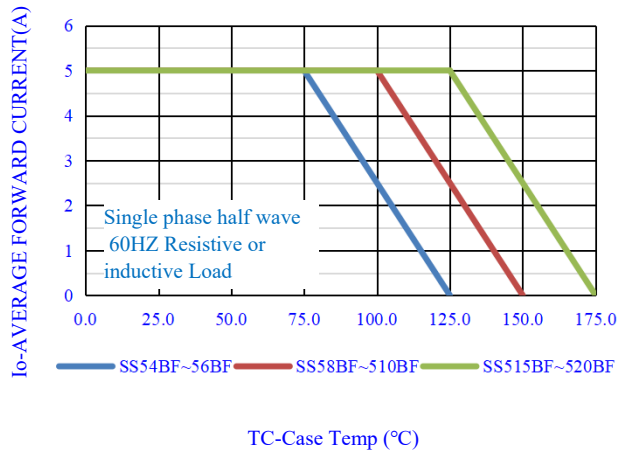


Fig.1-FORWARD CURRENT DERATING CURVE

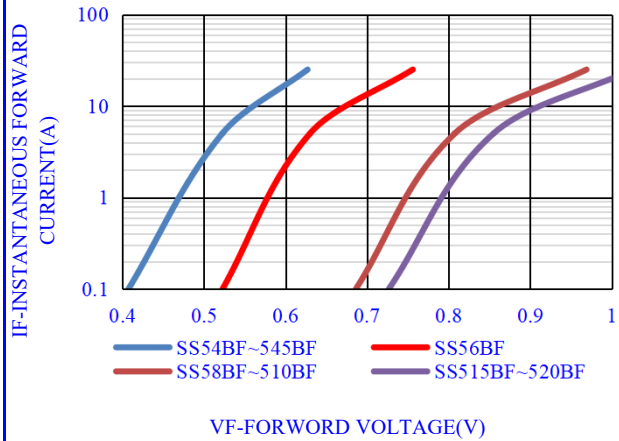


Fig.2- TYPICAL INSTANTANEOUS FORWARD

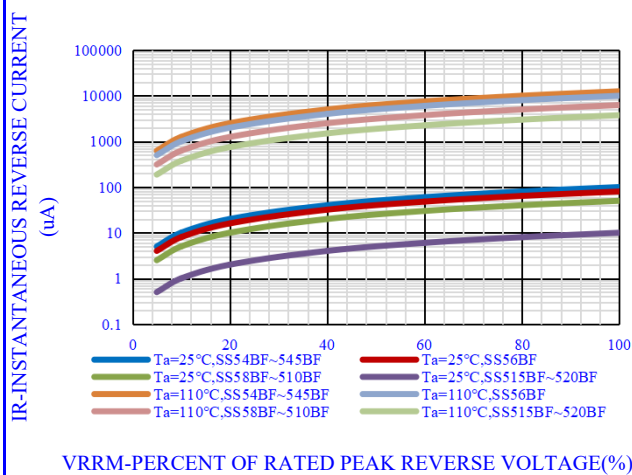


Fig.3- TYPICAL REVERSE CHARACTERISTICS

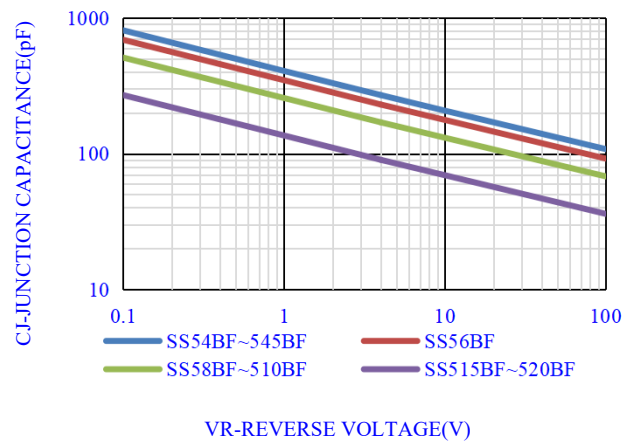


Fig.4- TYPICAL JUNCTION CAPACITANCE

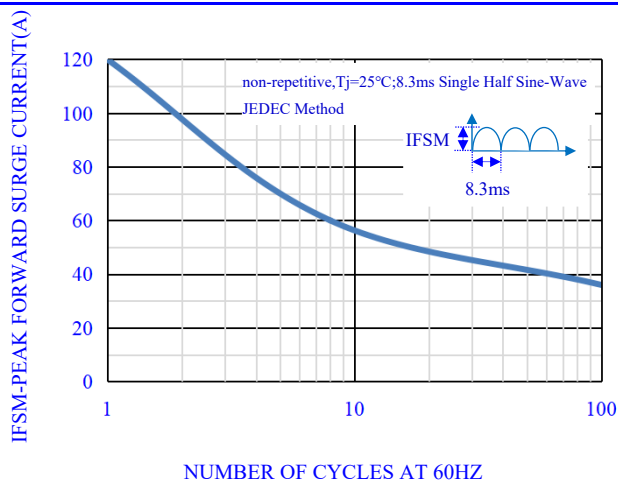
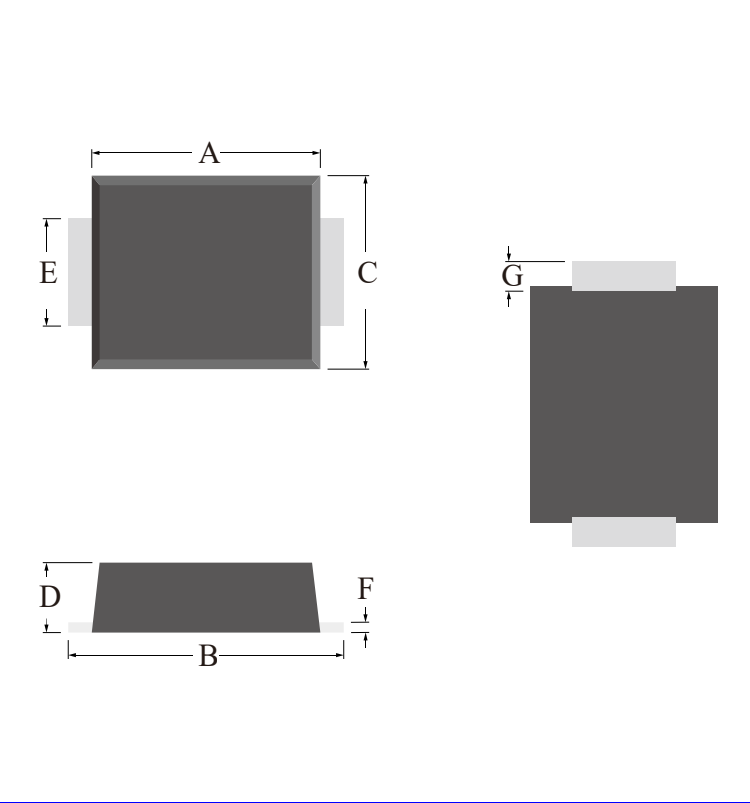


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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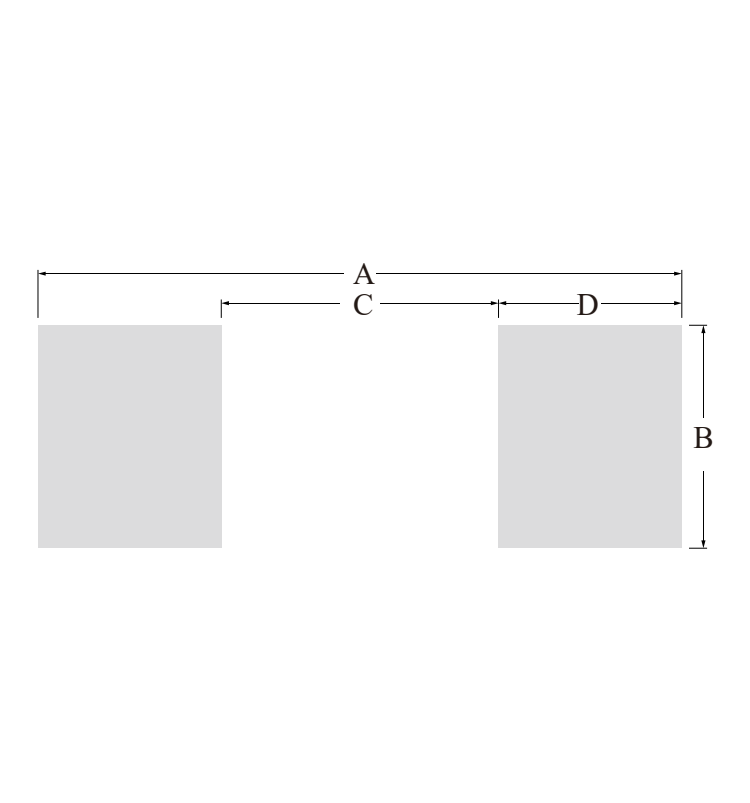
OUTLINE DRAWINGS



SMBF

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.10	-	4.70	0.1614	-	0.1850
B	5.10	-	5.50	0.2008	-	0.2165
C	3.40	-	3.80	0.1339	-	0.1496
D	1.05	-	1.55	0.0413	-	0.0610
E	1.80	-	2.20	0.0709	-	0.0866
F	0.13	-	0.25	0.0051	-	0.0098
G	0.55	-	1.45	0.0217	-	0.0571

RECOMMEDND LAYOUT DRAWINGS



SMBF

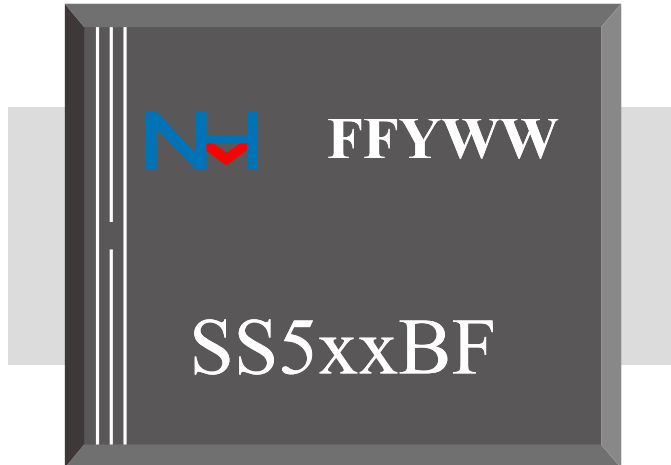
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	6.50	-	-	0.2559	-
B	-	2.20	-	-	0.0866	-
C	-	2.80	-	-	0.1102	-
D	-	1.85	-	-	0.0728	-

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MARKING



MARKING INSTRUCTION

NH=Niuhan Trademark

FF=Product Line Code,According To Actual Changes

YWW=Date Code,According To Actual Changes

=Internal Code,According To Actual Changes

SS5xxBF=Model,xx=4,45,6,10,15,20

White band denotes cathode

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SMBF	P1	0.066	13" Reel	3000	6000	48000
SMBF	P2	0.066	13" Reel	3000	6000	60000

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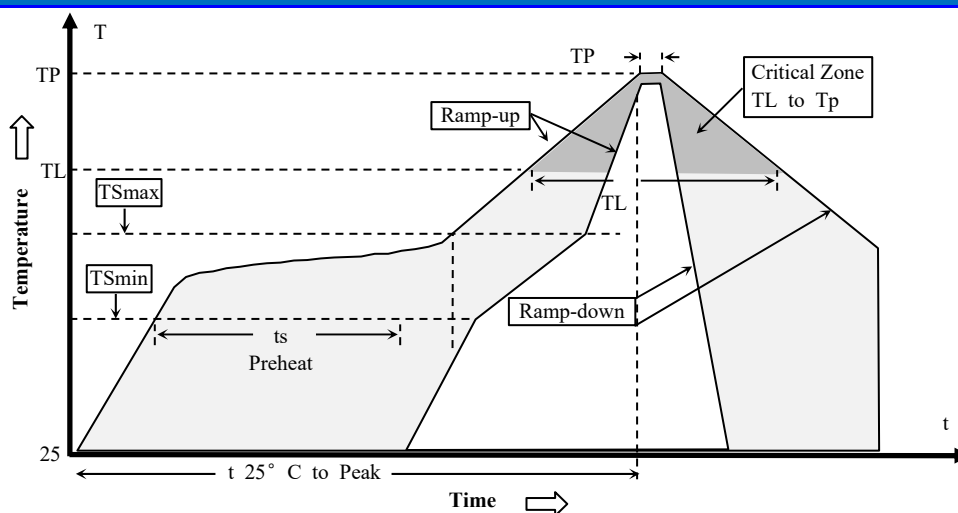
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Recommended wave soldering condition

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 (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(T _S min) -Temperature Max(T _S max) -Time(t _s min to t _s max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T _P)	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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