

SS54 THRU SS520  
SCHOTTKY BARRIER RECTIFIERS



<b>VOLTAGE:</b> 40~200 Volts	<b>CURRENT:</b> 5.0 Amperes	DO-214AA(SMB)	Marking and Polarity
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**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. 0.095 grams (0.0034 ounce)

**TYPICAL APPLICATIONS**

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

**Remark:**

- NH=niuhang trademark
- FF=Product line, According to actual changes;  
YWW=Periodic code, According to actual changes;
- SS5xx=Modle, xxx=4,45,6,8,10,15,20
- White band denotes cathode

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

Parameter	Symbol	SS54	SS545	SS56	SS58	SS510	SS515	SS520	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)	$I_{FSM}$	120							A
Current Squared Time Per Diode(t<8.3ms)	$I^2t$	59.76							A <sup>2</sup> sec

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

Parameter	Test Conditions		Symbol	SS54	SS545	SS56	SS58	SS510	SS515	SS520	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	SS545	SS56	SS58	SS510	SS515	SS520	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

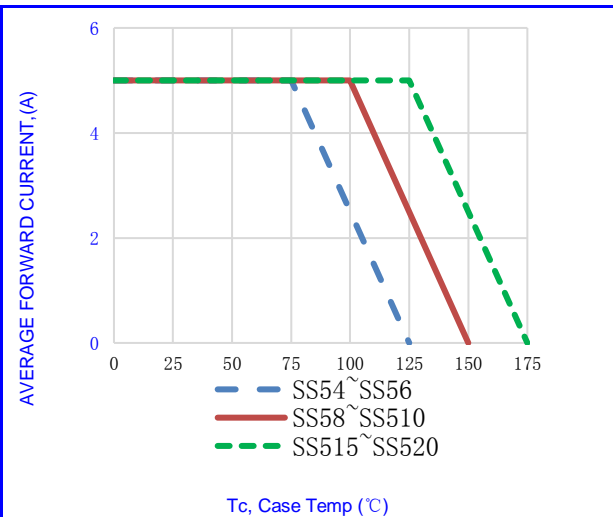


Fig.1-FORWARD CURRENT DERATING CURVE

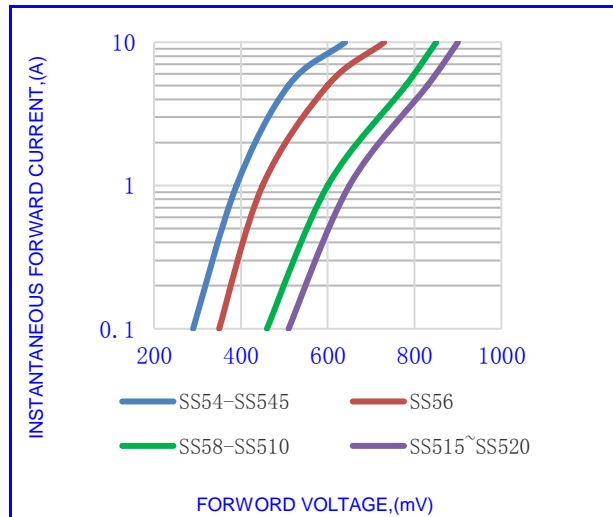


Fig.2- TYPICAL INSTANTANEOUS FORWARD

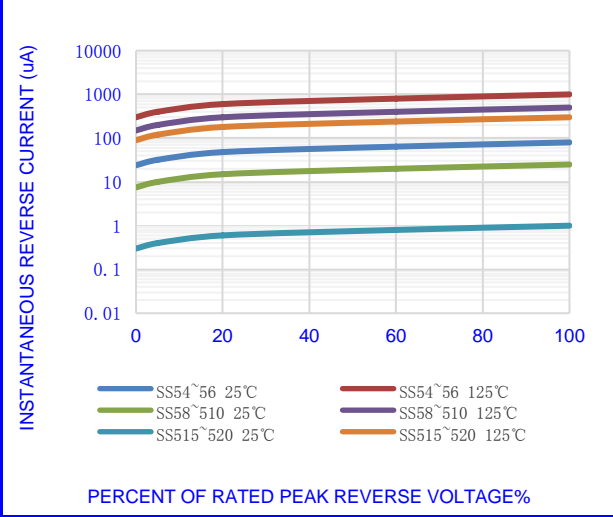


Fig.3- TYPICAL REVERSE CHARACTERISTICS

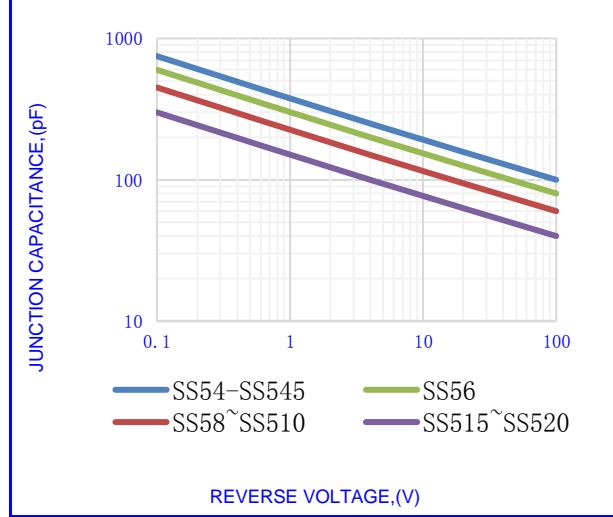


Fig.4-TYPICAL JUNCTION CAPACITANCE

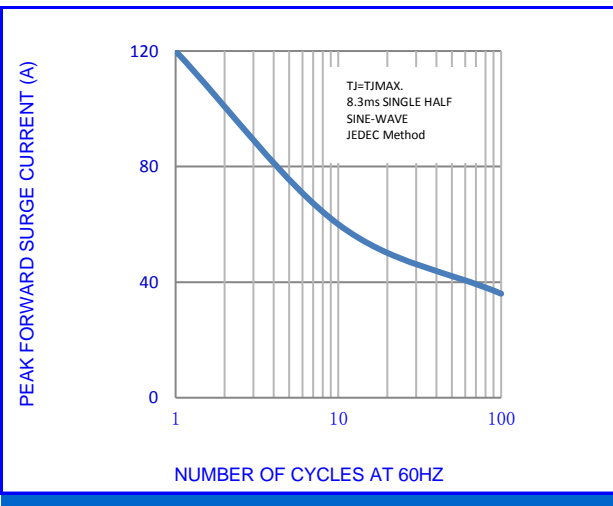


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

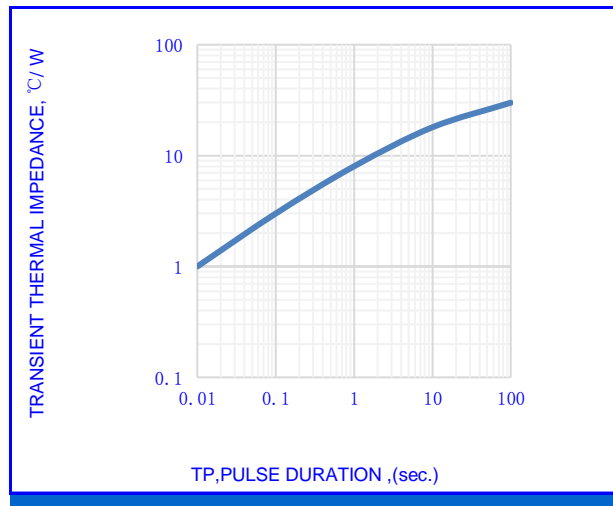


FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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OUTLINE DRAWINGS				DO-214AA(SMB)			
				<b>OUTLINE DIMENSIONS</b>			
				<b>MILLIMETERS</b>		<b>INCHES</b>	
		<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>	<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>
A		4.060	-	4.700	0.160	-	0.185
B		5.080	-	5.590	0.200	-	0.220
C		3.300	-	3.940	0.130	-	0.155
D		2.130	-	2.440	0.083	-	0.096
E		1.910	-	2.110	0.075	-	0.083
F		0.760	-	1.270	0.030	-	0.050
G		0.051	-	0.203	0.002	-	0.008
H		0.152	-	0.305	0.006	-	0.012
RECOMMENDED LAYOUT DRAWINGS				DO-214AA(SMB)			
				<b>RECOMMENDED MOUNTING PAD DIMENSIONS</b>			
				<b>Millimeters</b>		<b>Inches</b>	
		<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>	<b>Min.</b>	<b>Typ.</b>	<b>Max.</b>
A		-	6.340	-	-	0.250	-
B		-	2.720	-	-	0.107	-
C		-	1.760	-	-	0.069	-
D		-	2.290	-	-	0.090	-
PACKING INFORMATION				DO-214AA(SMB)			
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	3000	340x340x45	6000	360x360x470	60000	

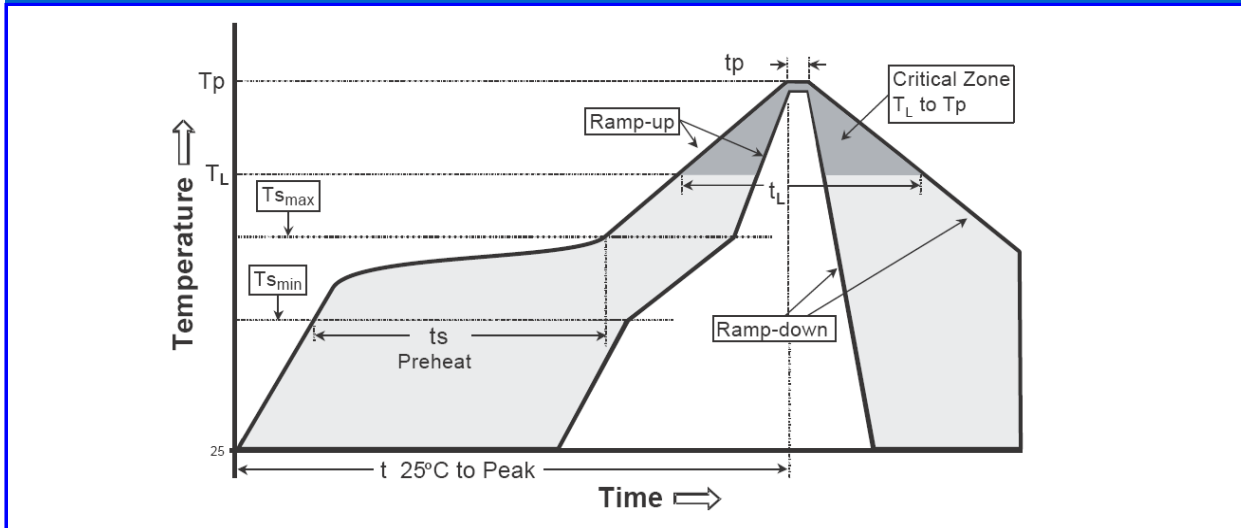
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**Recommended wave soldering condition**

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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