

SS54A THRU SS520A  
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. 0.063 grams ( 0.0022 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. SS5xxA=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	SS54A	SS545A	SS56A	SS58A	SS510A	SS515A	SS520A	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)	$I_{FSM}$	125							A
Current Squared Time Per Diode(t<8.3ms)	$i^2t$	64.84							A <sup>2</sup> sec

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

Parameter	Test Conditions		Symbol	SS54A	SS545A	SS56A	SS58A	SS510A	SS515A	SS520A	Unit
	Ta=25°C	IF= 5.0 A									
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	SS54A	SS545A	SS56A	SS58A	SS510A	SS515A	SS520A	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)	$R_{\theta JA}$	55					°C/W		
	$R_{\theta JC}$	25							

- 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

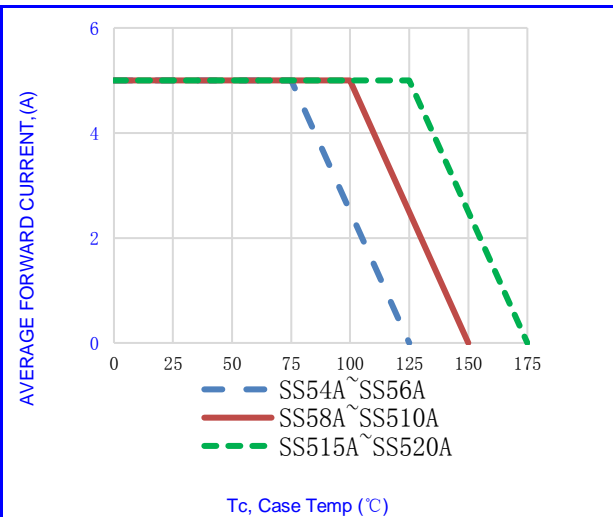


Fig.1-FORWARD CURRENT DERATING CURVE

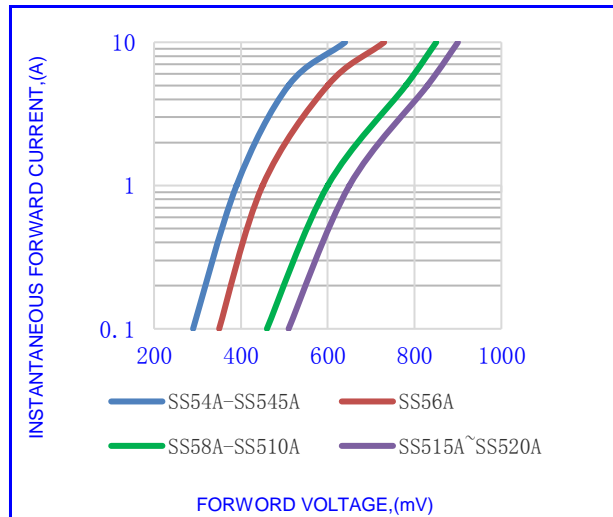


Fig.2- TYPICAL INSTANTANEOUS FORWARD

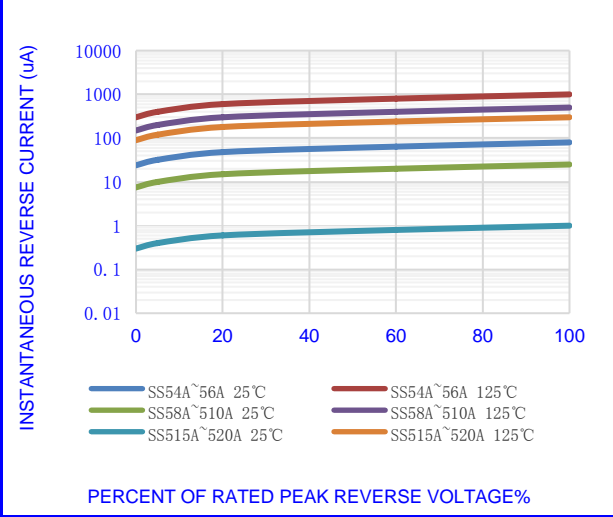


Fig.3- TYPICAL REVERSE CHARACTERISTICS

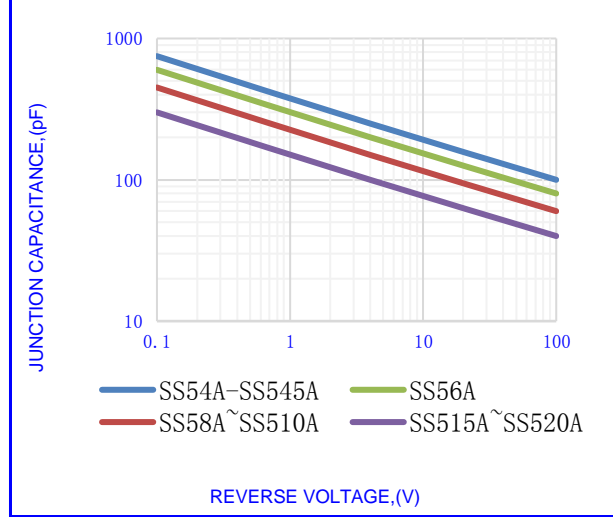


Fig.4-TYPICAL JUNCTION CAPACITANCE

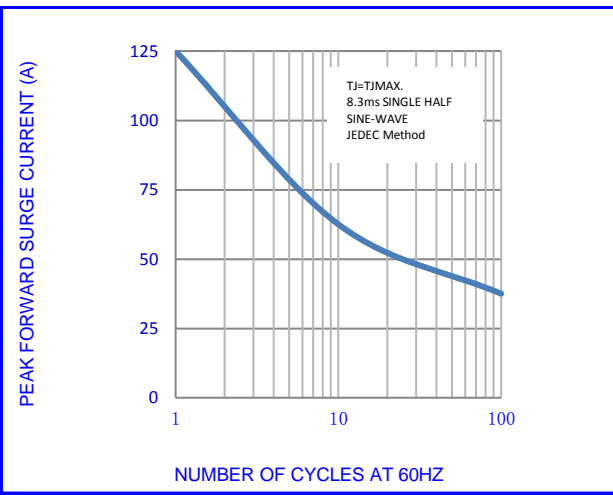


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

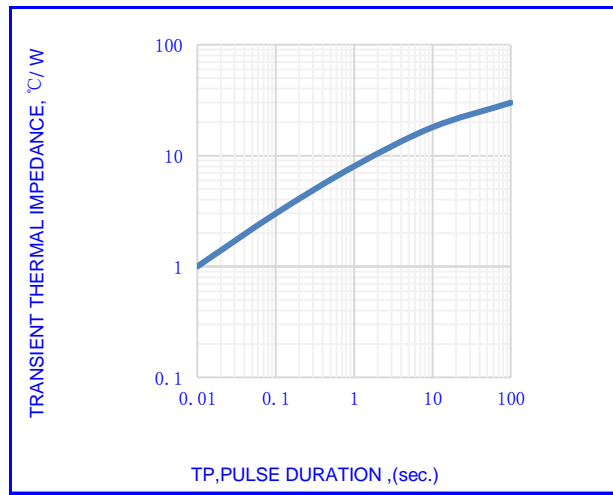


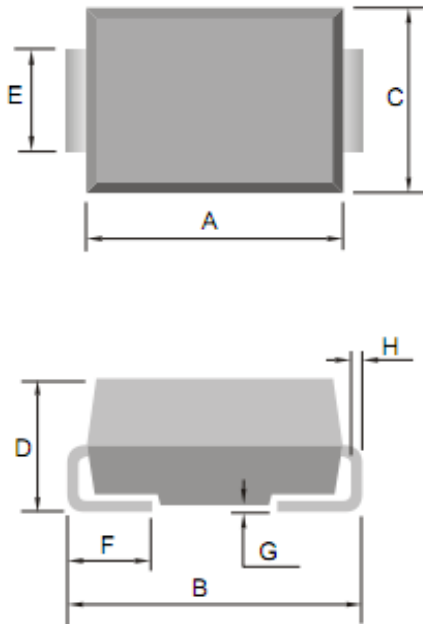
FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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**OUTLINE DRAWINGS**

**DO-214AA(SMB)**

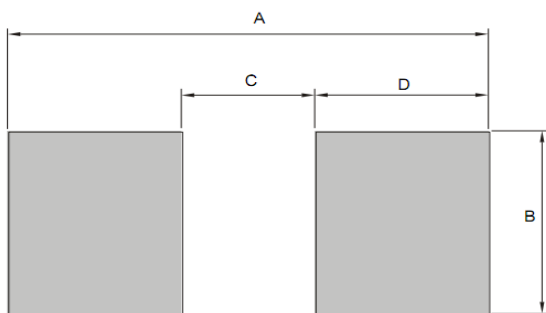


**OUTLINE DIMENSIONS**

DIM	MILLIMETERS			INCHES		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.000	-	4.600	0.181	-	0.157
B	4.700	-	5.280	0.185	-	0.208
C	2.400	-	2.800	0.094	-	0.110
D	1.900	-	2.400	0.075	-	0.094
E	1.300	-	1.500	0.051	-	0.059
F	0.760	-	1.520	0.030	-	0.060
G	0.100	-	0.250	0.004	-	0.010
H	0.150	-	0.305	0.006	-	0.012

**RECOMMENDED LAYOUT DRAWINGS**

**DO-214AA(SMB)**



**RECOMMENDED MOUNTING PAD DIMENSIONS**

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	5.800	-	-	0.228	-
B	-	2.060	-	-	0.081	-
C	-	1.660	-	-	0.065	-
D	-	2.070	-	-	0.082	-

**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	5000	340x340x45	10000	360x360x470	100000

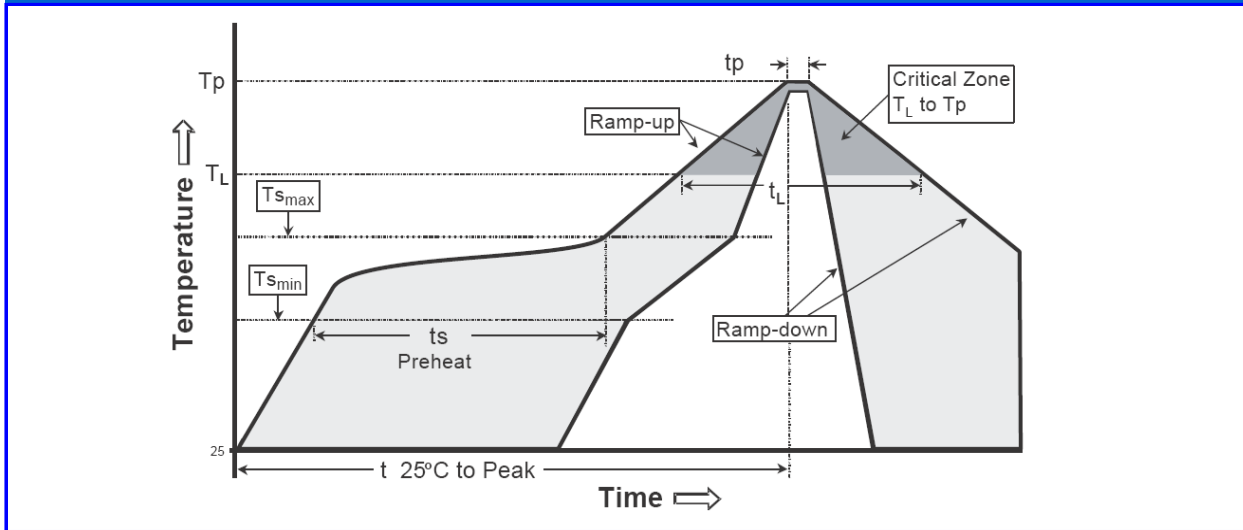
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**Recommended wave soldering condition**

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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