

SS54L

LOW VF SCHOTTKY RECTIFIERS



VOLTAGE: 40 Volts

CURRENT: 5.0 Amperes

SMAF

Marking and Polarity

FEATURES

- Super 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 (0.0022 ounce)

TYPICAL APPLICATIONS

- For use in charger ,high frequency inverters ,DC/DC converters



Remark:

- ①. NH=niuhang trademark;
- ②. FF=Product line code,According to actual changes  
YWW=Data code,According to actual changes
- ③. SS54L=Modle.

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

Parameter	Symbol	SS54L	Unit
Maximum repetitive peak reverse voltage	$V_{RRM}$	45	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)	$I_{FSM}$	80	A
Peak repetitive reverse current	$I_{RRM}$	60	uA

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

Parameter	Test Conditions		Symbol	SS54L			Unit
				Min.	Typ.	Max.	
Instaneous forward voltage per diode (note1)	$T_A=25^{\circ}C$	$I_F= 5.0 A$	$V_F$	--	0.43	0.50	V
	$T_A=125^{\circ}C$			--	0.40	0.45	
Reverse current per diode (note2)	$T_A=25^{\circ}C$	$V_R= 45 V$	$I_R$	--	35	60	uA
	$T_A=100^{\circ}C$	$V_R= 36 V$		--	1	5	mA
Typical junction capacitance	4V,1MHz		$C_J$	--	450		pF

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

Parameter	Symbol	SS54L	Unit
Operating junction	$T_J$	-55 to 150	°C
Storage temperature range	$T_{STD}$	-55 to 150	
Typical thermal resistance (note3)	$R_{\theta JA}$	55	°C/W
	$R_{\theta JC}$	15	

- Notes:**
- 1.Pulse width < 300 uS, Duty cycle < 2%
  - 2.Mounted on P.C.B. with 0.2" x 0.2" (5.08 mm x 5.08 mm) copper pad areas

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RATING AND CHARACTERISTIC CURVES

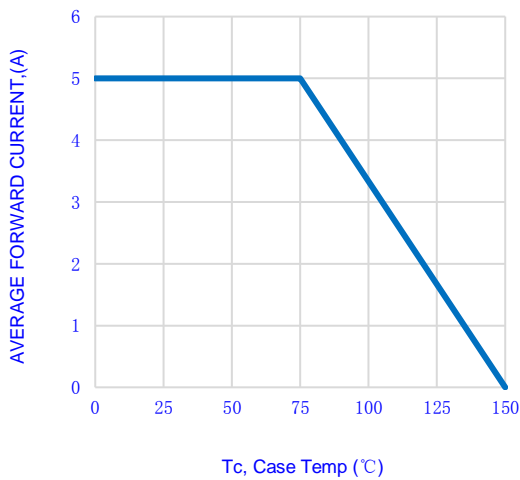


Fig.1-FORWARD CURRENT DERATING CURVE

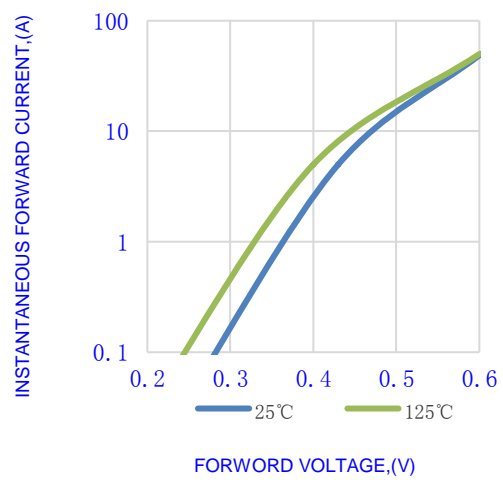


Fig.2- TYPICAL INSTANTANEOUS FORWARD

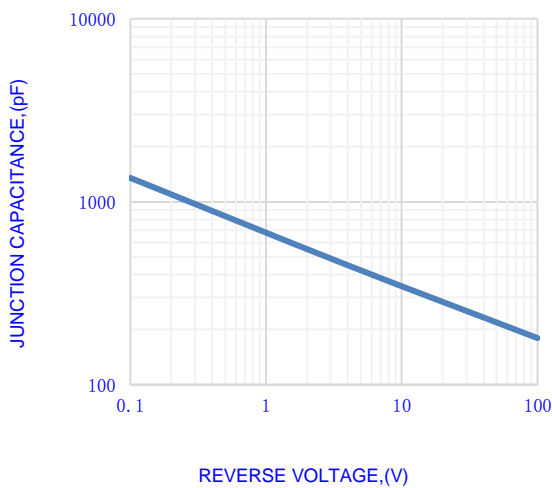


Fig.3- TYPICAL JUNCTION CAPACITANCE

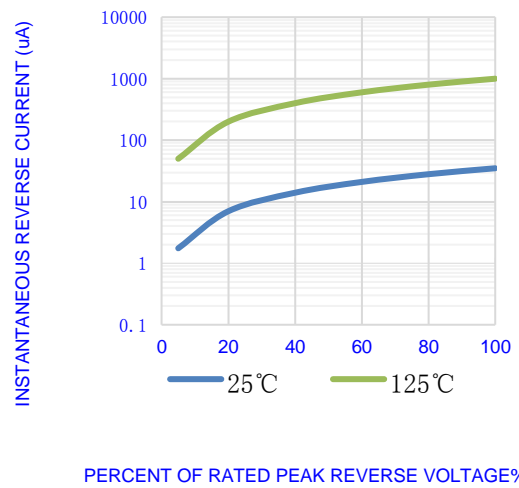


Fig.4- TYPICAL REVERSE CHARACTERISTICS

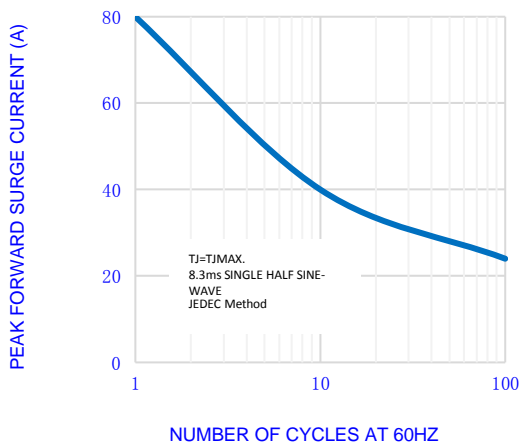


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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OUTLINE DRAWINGS				SMAF					
				<b>OUTLINE DIMENSIONS</b>					
				Dim.	Millimeters			Inches	
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			Inches	
Min.	Typ.	Max.	Min.		Typ.	Max.			
A	-	5.300	-	-	0.2087	-			
B	-	2.060	-	-	0.0810	-			
C	-	1.660	-	-	0.0650	-			
D	-	2.070	-	-	0.0820	-			

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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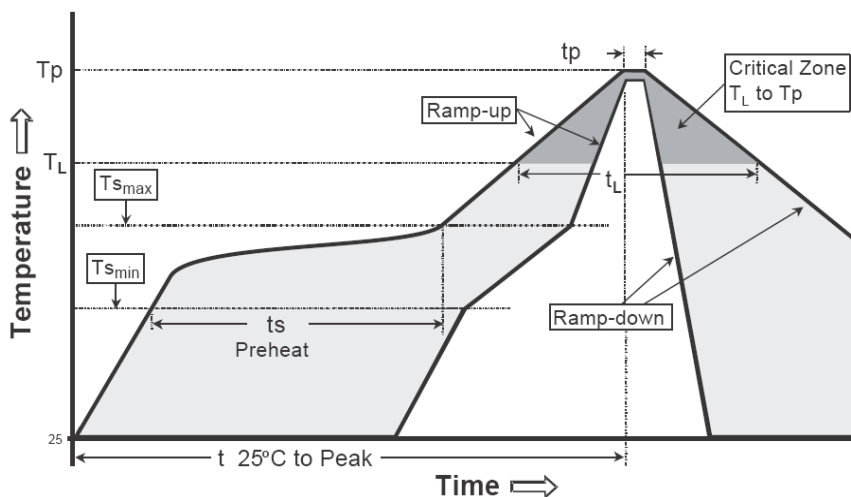
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**Recommended wave soldering condition**

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 <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.	3°C/second max.
Preheat -Temperature Min(T <sub>smin</sub> ) -Temperature Max(T <sub>smax</sub> ) -Time(t <sub>smin</sub> to t <sub>smax</sub> )	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T <sub>L</sub> ) - Time (t <sub>L</sub> )	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T <sub>P</sub> )	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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