

S3A THRU S3M

SURFACE MOUNT GENERAL PURPOSE RECTIFIERS



VOLTAGE: 50~1000 Volts	CURRENT: 3.0 Amperes	SMB(DO-214AA)	Marking and Polarity
FEATURES <ul style="list-style-type: none"> ■ Glass passivated chip junction ■ Low Forward Voltage Drop for high efficiency ■ Low leakage current for high reliability ■ High forward surge capability for high reliability 			
MECHANICAL DATA <ul style="list-style-type: none"> ■ 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 <ul style="list-style-type: none"> ■ For use in high frequency inverters ,AC/DC converters, DC/DC converters,LED driver etc. applications 			
		Remark: <ol style="list-style-type: none"> ①. NH=niuhang trademark ②. FF=Product line,According to actual changes; YWW=Periodic code,According to actual changes; ③. S3x=Modle,x=A,B,D,G,J,K,M ④. White band denotes cathode 	

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

Parameter	Symbol	S3A	S3B	S3D	S3G	S3J	S3K	S3M	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum average forward rectified current(see fig.1)	$I_{F(AV)}$	3.0							A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)(see fig.5)	I_{FSM}	100							A
Current Squared Time Per Diode($t < 8.3ms$)	I^2t	41.50							A ² sec

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

Parameter	Test Conditions		Symbol	S3A	S3B	S3D	S3G	S3J	S3K	S3M	Unit
	$T_A=25^\circ C$	$T_A=125^\circ C$									
Maximum instantaneous forward voltage (see fig.2) (Note 1)	$I_F=3.0 A$		V_F	1.10							V
	$I_F=3.0 A$			1.05							
Maximum instantaneous reversecurrent at rated DC blockingvoltage (see fig.3)(Note 1)	$V_R=V_{RRM}$		I_R	5							μA
	$V_R=80\%*V_{RRM}$			200							
Typical junction capacitance(see fig.4)	4V,1MHz		C_J	40			30			pF	

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

Parameter	Symbol	S3A	S3B	S3D	S3G	S3J	S3K	S3M	Unit	
Operating junction	T_J	-55 to 150								°C
Storage temperature range	T_{STG}	-55 to 150								
Typical thermal resistance (Note 2)	$R_{\theta JA}$	55							°C/W	
	$R_{\theta JC}$	17								

Note: 1.Pulse width < 300 uS, Duty cycle < 2%
2.P. C. B mounted with 0.3*0.3"(7.62 x 7.62 mm) copper Pad Areas

S3A THRU S3M

SURFACE MOUNT GENERAL PURPOSE RECTIFIERS



RATING AND CHARACTERISTIC CURVES

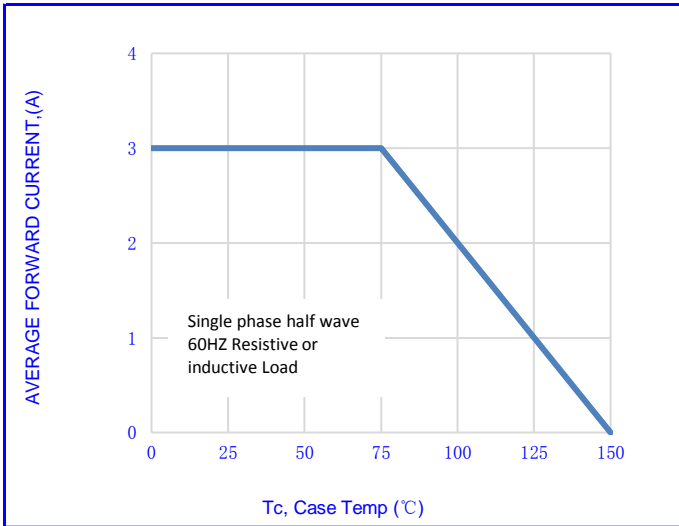


Fig.1- FORWARD CURRENT DERATING CURVE

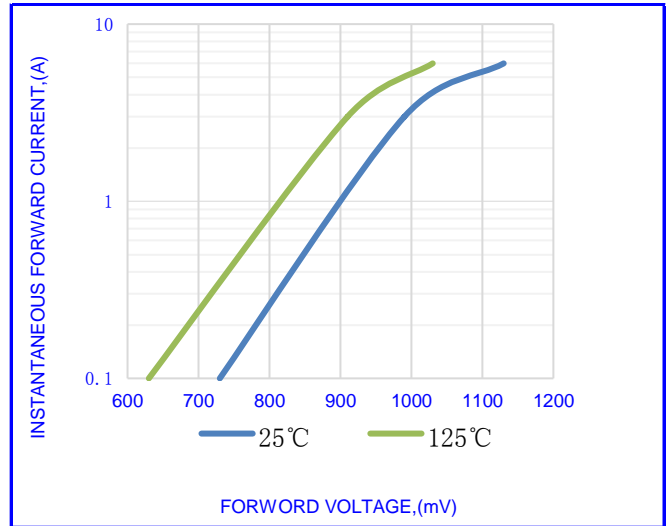


Fig.2-TYPICAL INSTANTANEOUS FORWARD

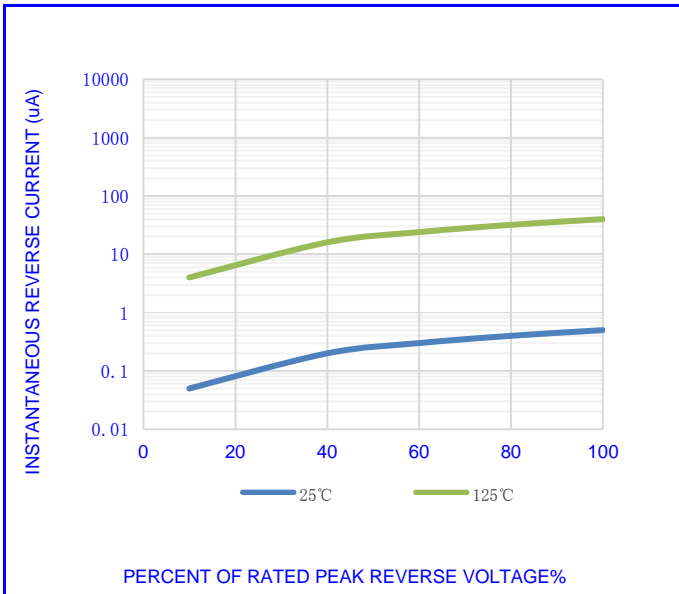


Fig.3-TYPICAL REVERSE CHARACTERISTICS

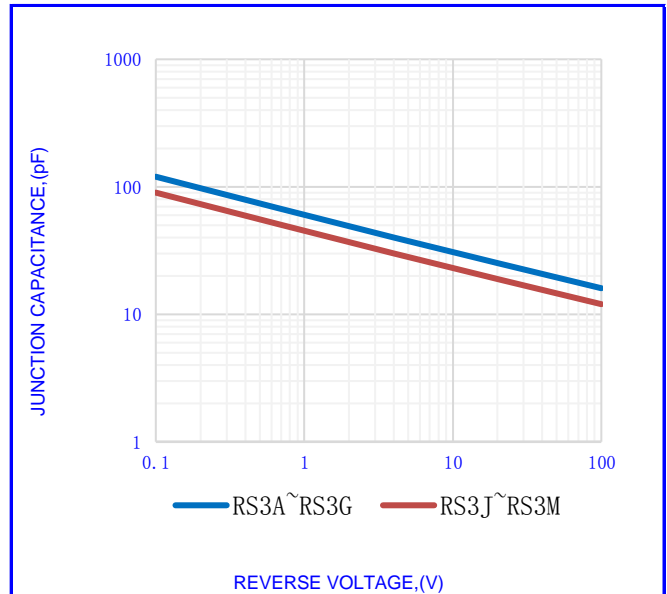


Fig.4- TYPICAL JUNCTION CAPACITANCE

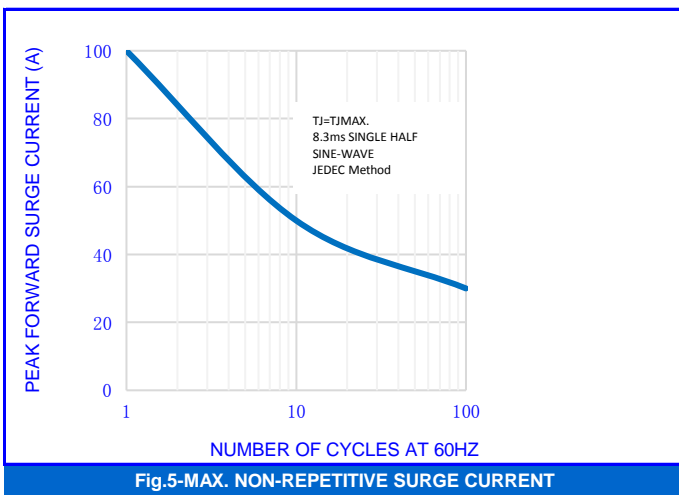


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

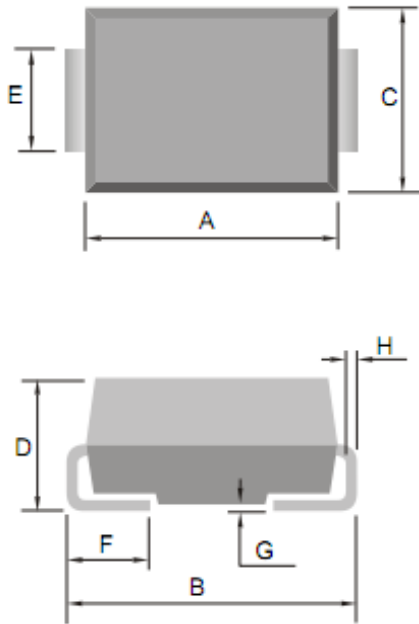
S3A THRU S3M

SURFACE MOUNT GENERAL PURPOSE RECTIFIERS



OUTLINE DRAWINGS

SMB(DO-214AA)

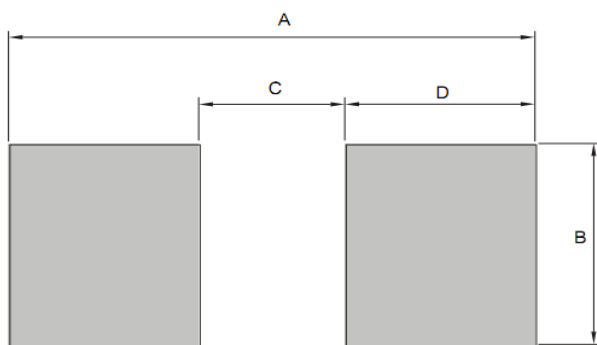


OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
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

MOUNTING PAD LAYOUT

SMB(DO-214AA)



OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	6.340	-	-	0.250	-
B	-	2.720	-	-	0.107	-
C	-	1.760	-	-	0.069	-
D	-	2.290	-	-	0.090	-

PACKING INFORMATION

SMB(DO-214AA)

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

S3A THRU S3M

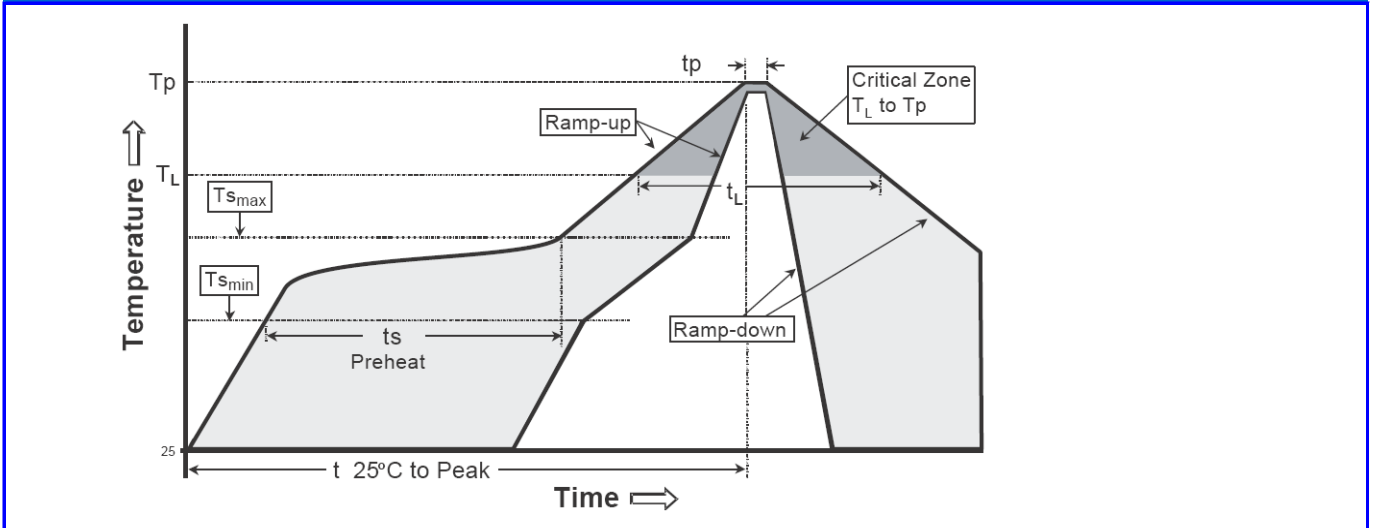
SURFACE MOUNT GENERAL PURPOSE RECTIFIERS



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 _{Smin}) -Temperature Max(T _{Smax}) -Time(t _{smin} to t _{smax})	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.

S3A THRU S3M

SURFACE MOUNT GENERAL PURPOSE RECTIFIERS



Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from niuhang Electronics co., LTD
- Niuhan Electronics co., LTD. reserves the rights to make changes of the content herein the document anytime without notification.
- Niuhan Electronics co., LTD. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Niuhan Electronics co., LTD. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Niuhan Electronics co., LTD. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Niuhan Electronics co., LTD. for any damages resulting from such improper use or sale.
- When the appearance of the product and chip size does not change, in order to product the customer quality, change the internal structure and the production process Niuhan can not notify