

RS3ABF THRU RS3MBF

Fast Recovery Rectifiers



Voltage: 50~1000 Volts	Current: 3.0 Amperes	Package: SMBF
-------------------------------	-----------------------------	----------------------

Features

- NH'S Fast Recovery Rectifiers Chip Technology
- Low Switching Loss For High Efficiency
- Low Leakage Current For High Reliability
- Fast Switching Speed

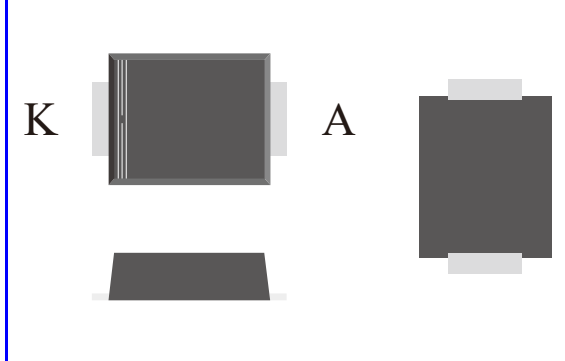
Mechanical Data

- **Case:** Molded With UL-94 ClassV-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

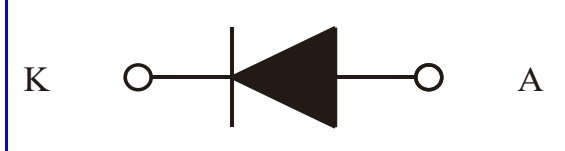
Typical Applications

- 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	RS	RS	RS	RS	RS	RS	RS	Unit
			3ABF	3BBF	3DBF	3GBF	3JBF	3KBF	3MBF	
Maximum Repetitive Peak Reverse Voltage		V _{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltag		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		I _{F(AV)}	3.0							A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I _{FSM}	100							A
Current Squared Time	t < 8.3ms	I ² t	41.5							A ² sec

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

Parameter	Test Conditions	Symbol	RS	RS	RS	RS	RS	RS	RS	Unit
			3ABF	3BBF	3DBF	3GBF	3JBF	3KBF	3MBF	
Maximum Instaneous Forward Voltage	I _F = 3.0 A	V _F	1.3							V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C ,V _R =VRRM Ta=125°C ,V _R =VRRM*80%	I _{RRM}	5 200							uA uA
Typical Junction Capacitance	4 V,1MHz	C _J	40			30		25		pF
Maximum Reverse Recovery Time	IF=0.5A, IR=1.0A, IRR=0.25A	T _{rr}	150			250		500		nS

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

Parameter	Test Conditions	Symbol	RS	RS	RS	RS	RS	RS	RS	Unit
			3ABF	3BBF	3DBF	3GBF	3JBF	3KBF	3MBF	
Operating Junction Temperature Range		T _J	-55~150							°C
Storage Temperature Range		T _{STD}	-55~150							
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25°C	R _{θJA}	53.0							°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	R _{θJC}	15.0							

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

RS3ABF THRU RS3MBF

Fast Recovery Rectifiers



Typical Characteristics Curves

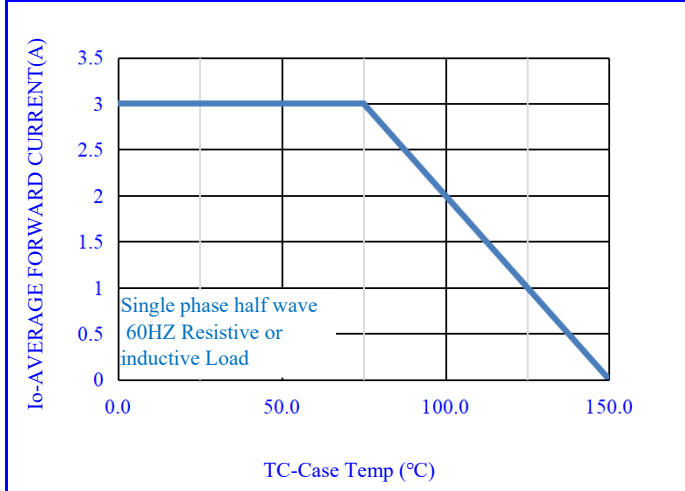


Fig.1-FORWARD CURRENT DERATING CURVE

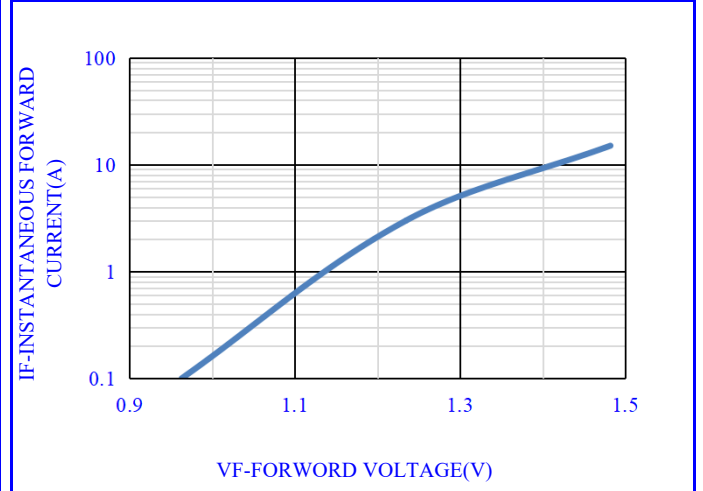


Fig.2- TYPICAL INSTANTANEOUS FORWARD

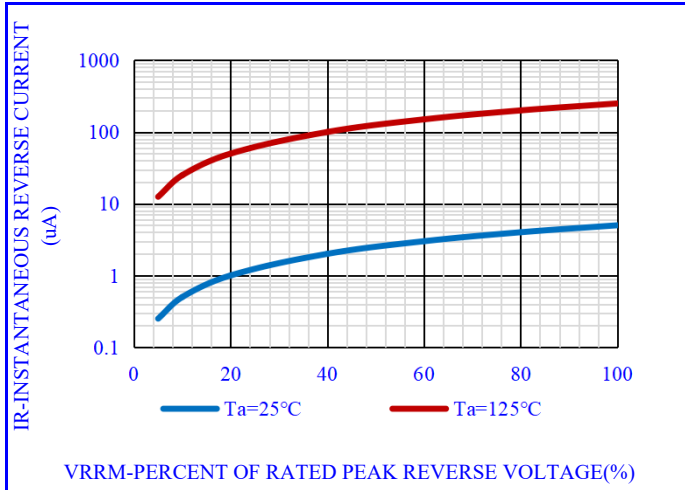


Fig.3- TYPICAL REVERSE CHARACTERISTICS

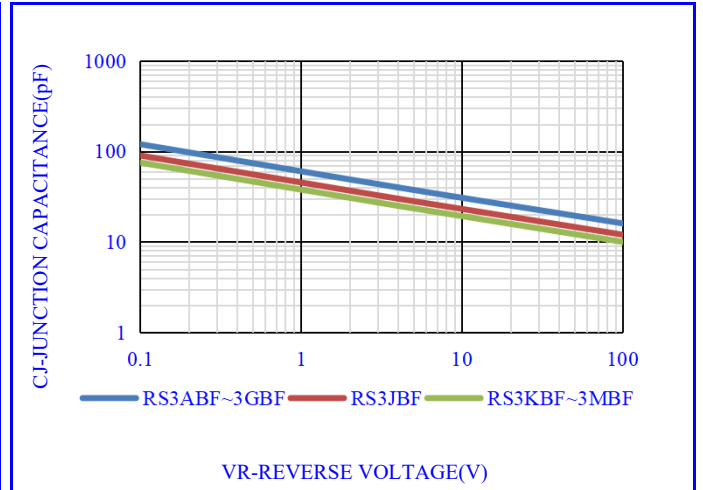


Fig.4- TYPICAL JUNCTION CAPACITANCE

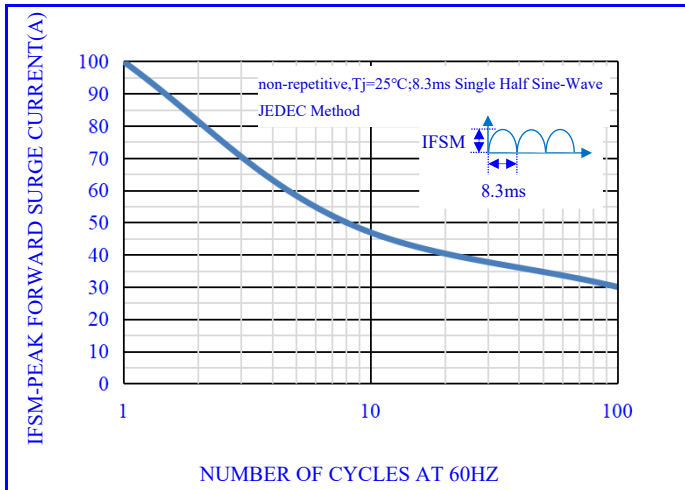


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

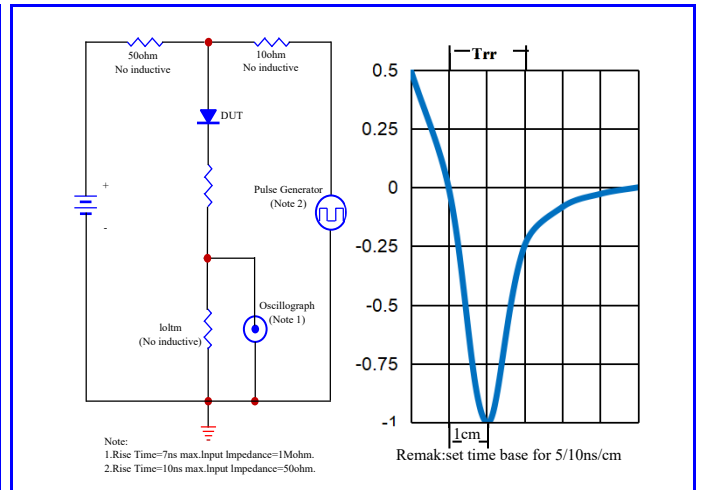


Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

RS3ABF THRU RS3MBF

Fast Recovery Rectifiers



OUTLINE DRAWINGS		SMBF				
		OUTLINE DIMENSIONS				
		Millimeters			Inches	
Dim.	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

RECOMMENDED LAYOUT DRAWINGS		SMBF				
		OUTLINE DIMENSIONS				
		Millimeters			Inches	
Dim.	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	-

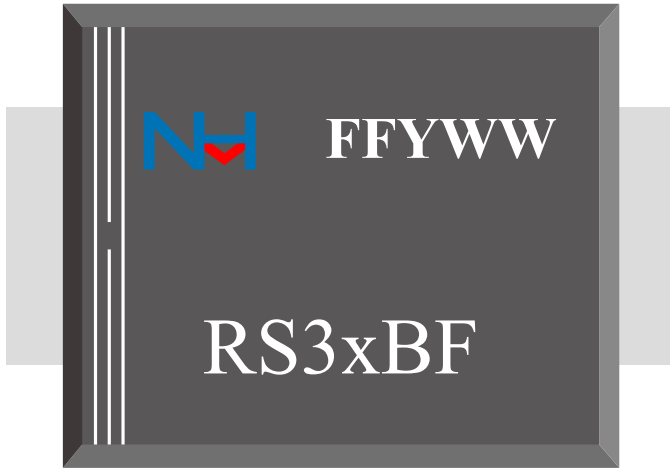
RS3ABF THRU RS3MBF

Fast Recovery Rectifiers



MARKING

MARKING INSTRUCTION



NH=Niuhan Trademark
 FF=Product Line Code,According To Actual Changes
 YWW=Date Code,According To Actual Changes
 RS3xBF=Model,x=A,B,D,G,J,K,M
 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

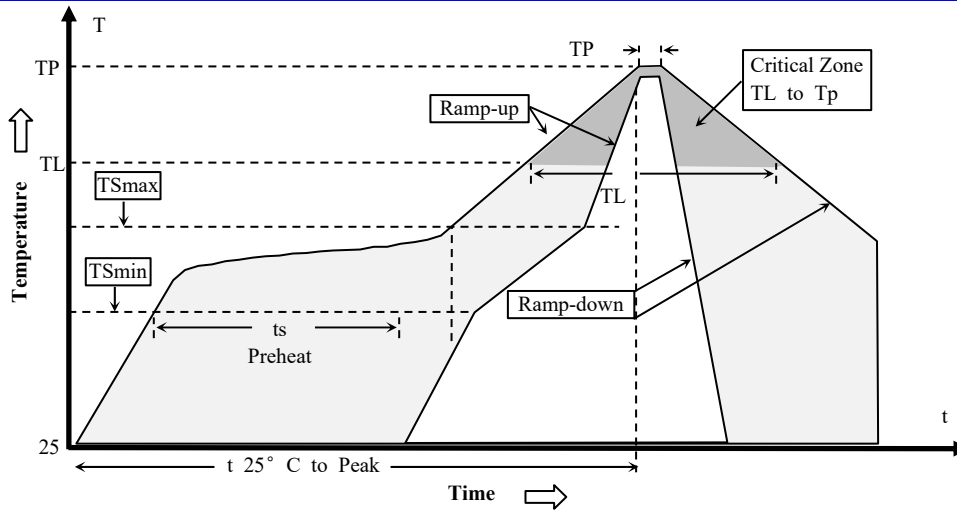
RS3ABF THRU RS3MBF
Fast Recovery Rectifiers



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 _{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.

RS3ABF THRU RS3MBF

Fast Recovery Rectifiers



Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Nihang Electronics Technology Co., LTD
- Nihang Electronics Technology Co., LTD. reserves the rights to make changes of the content herein the document anytime without notification.
- Nihang Electronics Technology Co., LTD. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Nihang Electronics Technology 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. Nihang Electronics Technology 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 Nihang Electronics Technology 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 Nihang can not notify