

RB407S

FAST RECOVERY BRIDGE RECTIFIERS



VOLTAGE: 1000 Volts

CURRENT: 4 Amperes

Package: DBS

Marking And Polarity

FEATURES

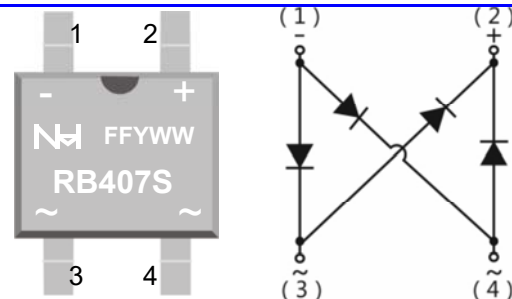
- Glass Passivated Chip Junction
- Super Fast Recovery Time For High Efficiency
- Low Leakage Current For High Reliability
- High Forward Surge Capability For High Reliability

MECHANICAL DATA

- **Package:** Molding Compound Meets UL 94 V-0 Flammability Rating, RoHS-Compliant
- **Polarity:** As Marked On Case
- **Mounting Position:** Any
- **Weight:** App. 0.339 Grams (0.01195 Ounce)

TYPICAL APPLICATIONS

- General Purpose Use In AC/DC Bridge Full Waverectification For PD, Adapter, Power Supply, Monitor, LED Driver, Printer, Audio Equipment, TV And Home appliances Etc. Applications.



Remark:

- ①. NH=Niuhan Trademark
- ②. FF=Product Line Code, According To Actual Changes
YWW=Date Code, According To Actual Changes
RB407S=Model
- ③. - +=Polarity Mark

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	RB407S	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	1000	V
Maximum RMS Voltage		V_{RMS}	700	V
Maximum DC Blocking Voltage		V_{DC}	1000	V
Maximum Average Forward Rectified Current	@TC= 100 °C	$I_{F(AV)}$	4	A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	120	A
Current Squared Time Per Diode	t<8.3ms	I^2t	59.8	A ² sec

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

Parameter	Test Conditions		Symbol	RB407S			Unit
				Min.	Typ.	Max.	
Instantaneous Forward Voltage Per Diode (note1)	Ta=25°C	$I_F = 4.0 A$	V_F	--	1.10	1.25	V
	Ta=125°C			--	1.00	1.17	
Maximum DC Reverse Current At Rated DC Blocking Voltage (Note 1)	Ta=25°C	$V_R = V_{RRM}$	I_{RRM}	--	1.00	5.00	uA
	Ta=125°C	$V_R = 80\% * V_{RRM}$		--	50.00	500.00	
Typical Junction Capacitance Per Diode	4.0 V, 1MHz		C_J	--	35.00	--	pF
Maximum Reverse Recovery Time	$I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A$		T_{RR}	--	--	500.00	nS

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

Parameter	Symbol	RB407S	Unit
Operating Junction Temperature Range	T_J	-55 to 150	°C
Storage Temperature Range	T_{STD}	-55 to 150	
Typical Thermal Resistance (Note 2)	$R_{\theta JA}$	68.0	°C/W
	$R_{\theta JC}$	10.0	

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

2. Device Mounted On Device Mounted On 75mm x 45mm x 5.5mm Aluminum Plate Heatsink.

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Typical Characteristics Curves

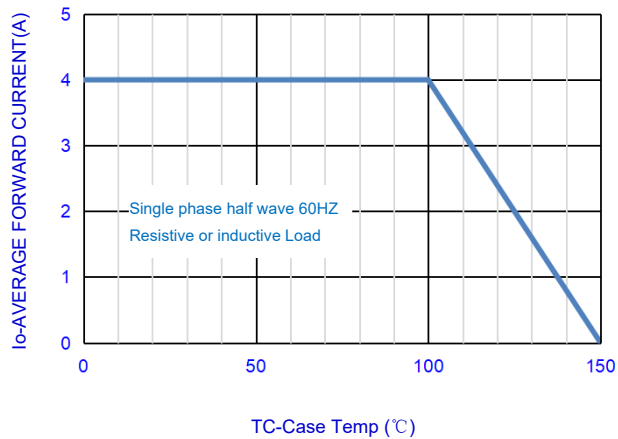


Fig.1-FORWARD CURRENT DERATING CURVE

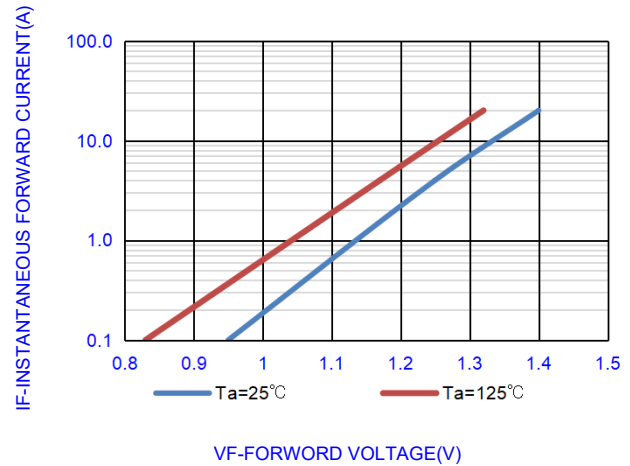


Fig.2- TYPICAL INSTANTANEOUS FORWARD

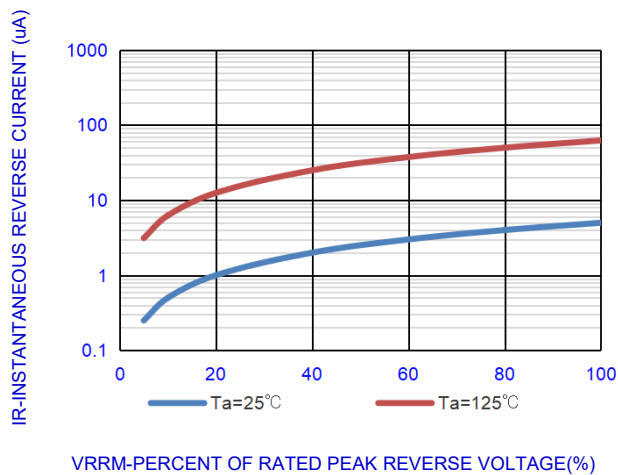


Fig.3- TYPICAL REVERSE CHARACTERISTICS

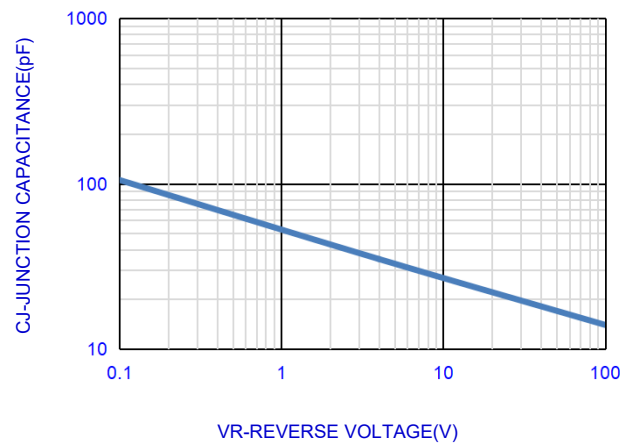


Fig.4- TYPICAL JUNCTION CAPACITANCE

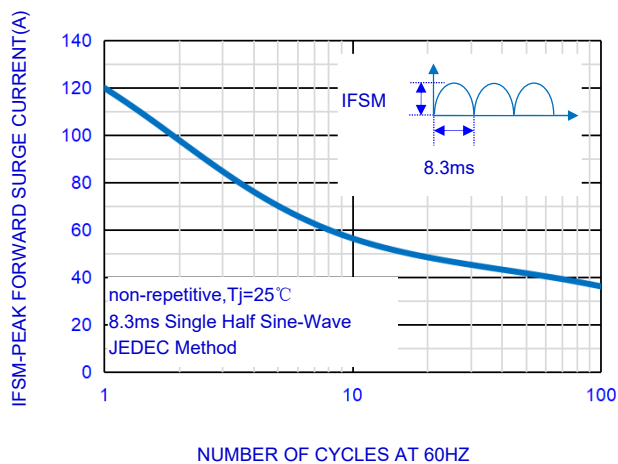


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

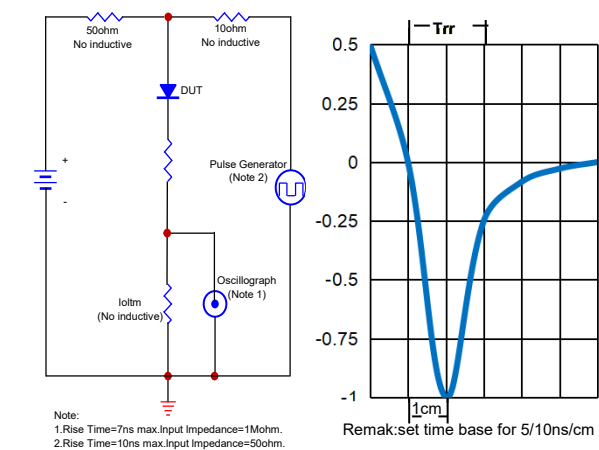


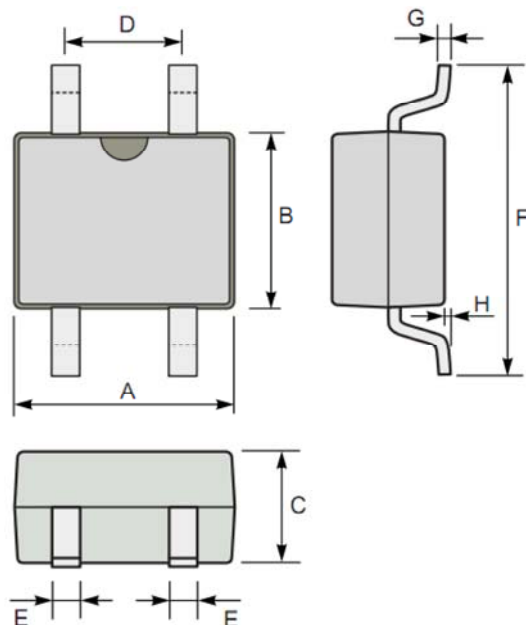
Fig.6-REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT

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OUTLINE DRAWINGS



DBS

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.800	-	8.500	0.307	-	0.335
B	6.200	-	6.500	0.244	-	0.256
C	2.350	-	3.000	0.093	-	0.118
D	5.000	-	5.200	0.197	-	0.205
E	0.900	-	1.200	0.035	-	0.047
F	9.700	-	10.200	0.382	-	0.402
G	0.200	-	0.350	0.008	-	0.014
H	0.050	-	0.200	0.002	-	0.008

PACKING INFORMATION

Package Code	Package Method	Inner Box Size L×W×H(mm)	Quantity (Pcs/Inner Box)	Outer Carton Size L×W×H(mm)	Quantity (Pcs/Carton)
DBS	Tape Reel	340X340X40	3000	360×360×380	27000

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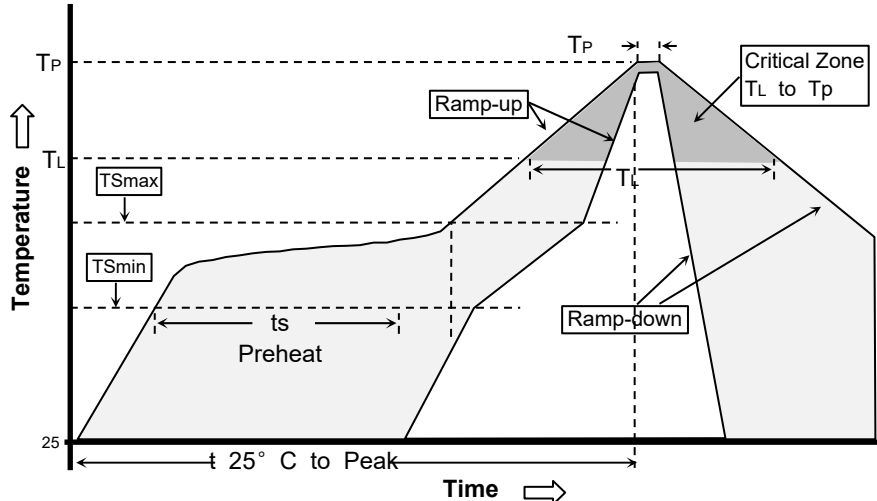
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Recommended wave soldering condition

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_{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(t_P)	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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