

RSBL5010

FAST RECOVERY BRIDGE RECTIFIERS



VOLTAGE: 1000 Volts	CURRENT: 5.0 Amperes	SBL	Marking & Schematic diagram
FEATURES <ul style="list-style-type: none"> ■ Glass passivated die construction ■ low forward voltage drop ■ High surge current capability(IFSM) ■ Good soft recovery features are good for EMC ■ Small high-temperature leakage current(IR) ■ Good consistency in electrical performance 			
MECHANICAL DATA <ul style="list-style-type: none"> ■ Case SBL Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant ■ Mounting Position: Any ■ Weight: App. 0.440 grams(0.0155ounce) 		Remark: <ol style="list-style-type: none"> ①. NH=niuhang trademark ②. FF=Product line code,According to actual changes YWW=Data code,According to actual changes EDD=Internal code,According to actual changes ③. RSBL5010=Mode ④. "- ~ ~ +"=Polarity mark 	
TYPICAL APPLICATIONS <ul style="list-style-type: none"> ■ Applied to high-frequency power converters such as PD chargers and adapters 			

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%

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

Parameter	Symbol	RSBL5010	Unit
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	1000	V
Maximum RMS Voltag	V_{RMS}	700	V
Maximum DC Blocking Voltage	V_{DC}	1000	V
Maximum Average Forward Rectified Current @ TC=100°C (see fig.1)	$I_{F(AV)}$	5.0	A
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed On Rate Load (JEDEC Method)	I_{FSM}	180	A
Current Squared Time Per Diode(t<8.3ms)	$I^2 t$	134.46	A ² sec

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

Parameter	Test Conditions	Symbol	RSBL5010			Unit
			Min.	Typ.	Max.	
Maximum Forward Voltage Per Diode (Note 1)	Ta=25°C IF= 5.0 A	V_{FM}	--	0.96	1.1	V
Maximum DC Reverse Current at Rated DC Blocking Voltage (Note 1)	Ta=25°C VR= 1000 V	I_{RRM}	--	0.50	10	uA
	Ta=125°C VR= 1000 V		--	50	500	
Typical Junction Capacitance Per Diode	IF=0.5A, IR=1.0A, IRR=0.25A	C_J	60			pF
Maximum Reverse Recovery Time	4V, 1MHz	T_{RR}	500			nS

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

Parameter	Symbol	RSBL5010	Unit
Operating Junction Temperature Range	T_J	-55 to 150	°C
Storage Temperature Range	T_{STD}	-55 to 150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	60.0	°C/W
	$R_{\theta JC}$	10.0	

- Notes: 1. Pulse test: 300 μs pulse width, 1% duty cycle
2. Device mounted on 75mm x 45mm x 5.5mm Aluminum Plate Heatsink.

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RATING AND CHARACTERISTIC CURVES

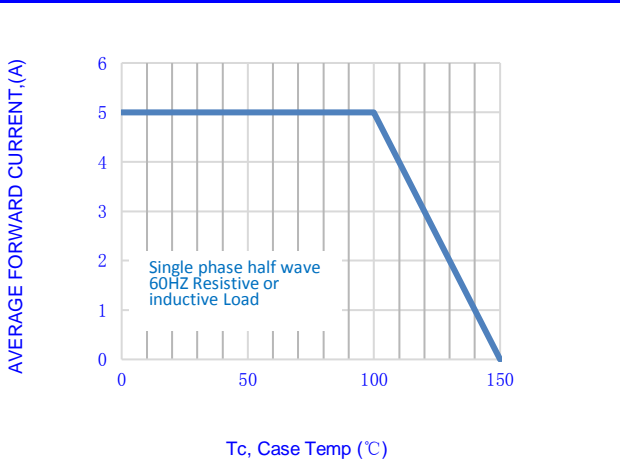


Fig.1-FORWARD CURRENT DERATING CURVE

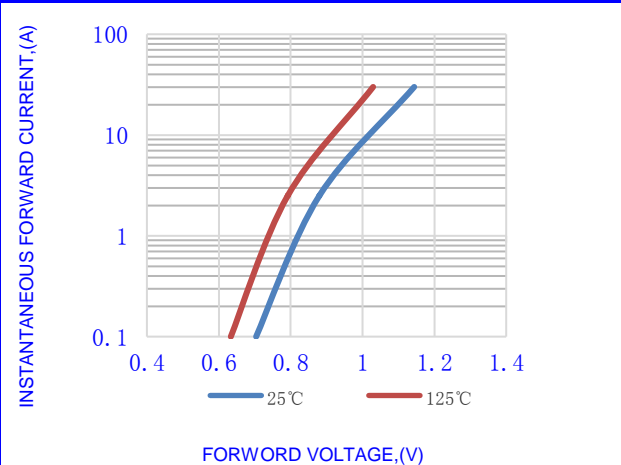


Fig.2- TYPICAL INSTANTANEOUS FORWARD

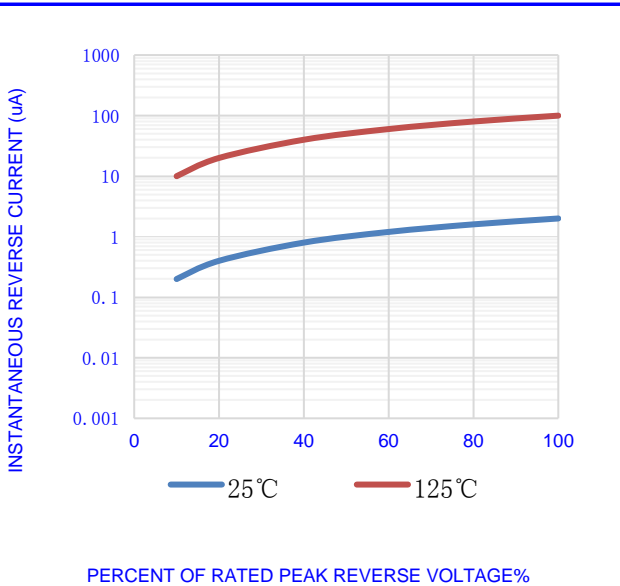


Fig.3- TYPICAL REVERSE CHARACTERISTICS

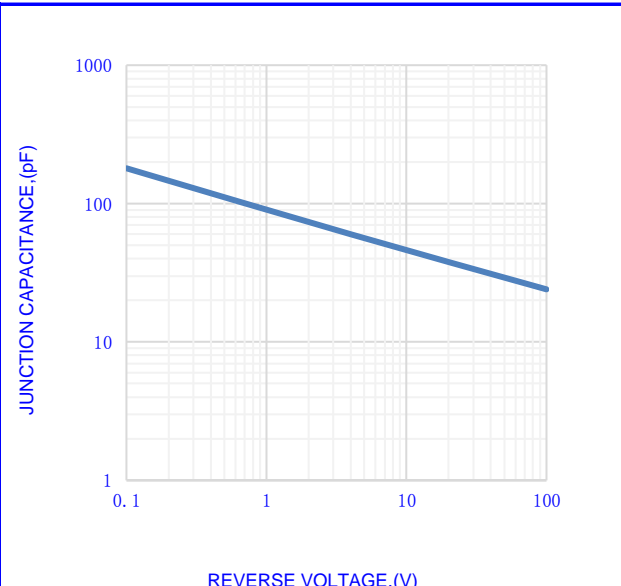


Fig.4- TYPICAL JUNCTION CAPACITANCE

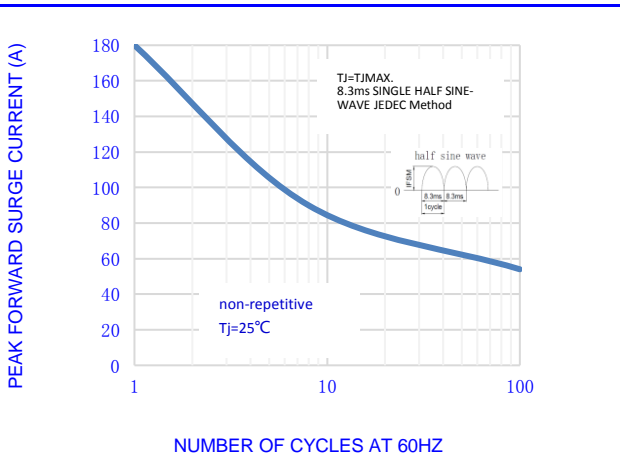


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

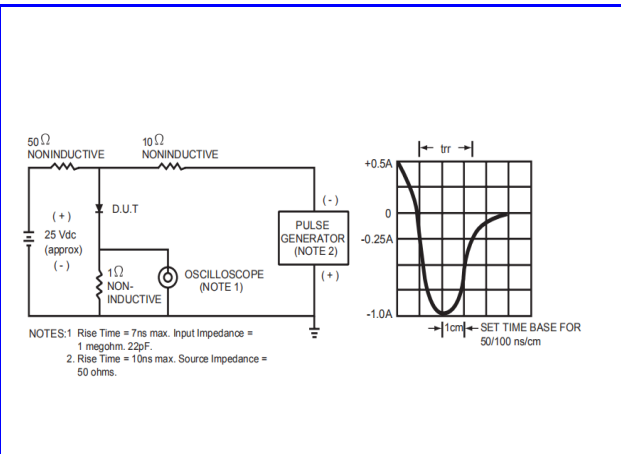


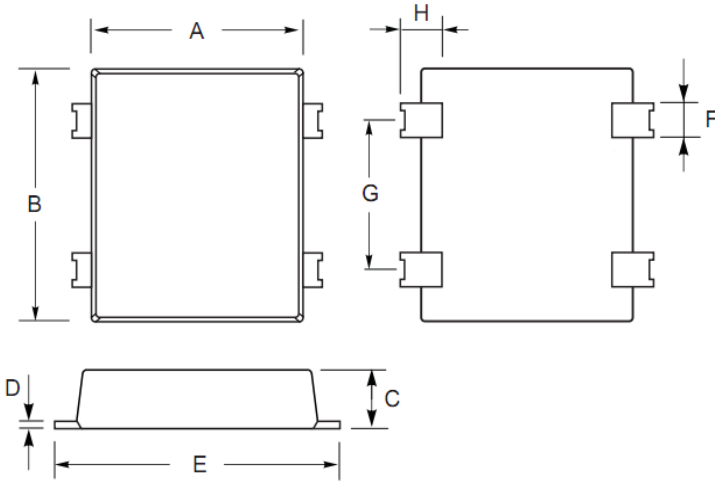
Fig.6- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

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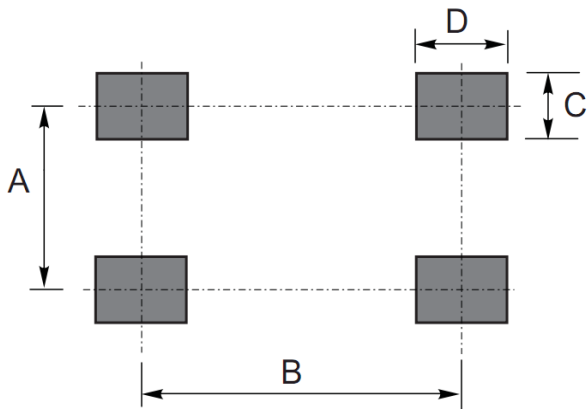
OUTLINE DRAWINGS



SBL

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	8.40	-	8.80	0.331	-	0.346
B	9.40	-	9.80	0.370	-	0.386
C	1.35	-	1.75	0.053	-	0.069
D	0.25	-	0.55	0.010	-	0.022
E	9.80	-	10.20	0.386	-	0.402
F	1.25	-	1.55	0.049	-	0.061
G	4.90	-	5.30	0.193	-	0.209
H	0.85	-	1.25	0.033	-	0.049

RECOMMENDED LAYOUT DRAWINGS



SBL

RECOMMENDED LAYOUT DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	5.100	-	-	0.201	
B	-	8.700	-	-	0.343	
C	-	2.100	-	-	0.083	
D	-	1.800	-	-	0.071	

PACKING INFORMATION

SBL

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	360x360x240	30000

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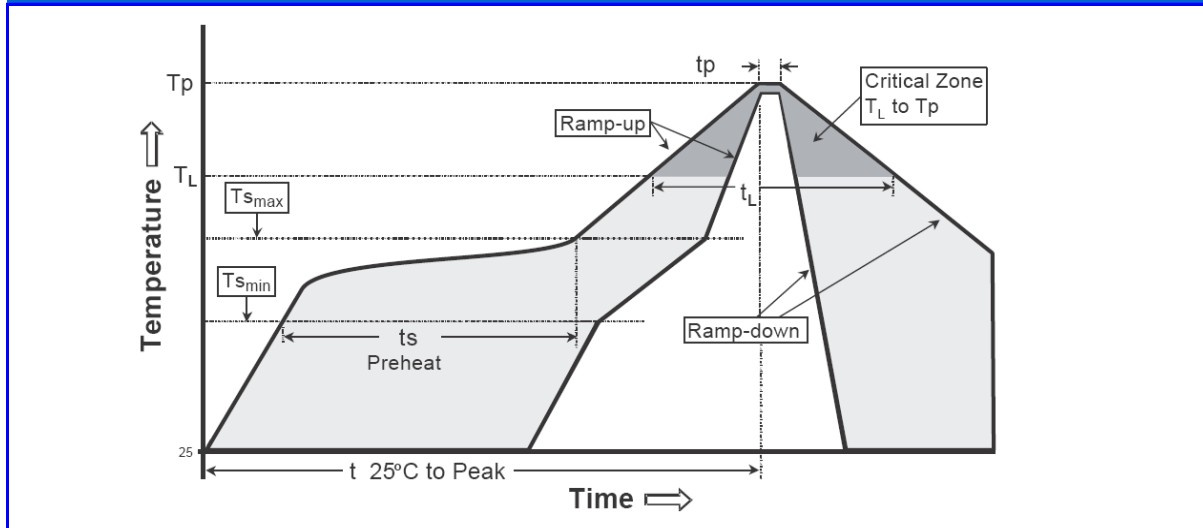


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Recommended wave soldering condition

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 (Tsmax 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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