

TL510BF

Schottky Barrier Rectifiers



Voltage: 100 Volts

Current: 5 A

Package: SMBF

Features

- NH'S Plane Schottky Barrier Chip Technology
- Low Forward Voltage Drop For High Efficiency
- Low Power Loss For High Reliability
- High Frequency 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	Ratings	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	100	V
Maximum RMS Voltag		V_{RMS}	70	V
Maximum DC Blocking Voltage		V_{DC}	100	V
Maximum Average Forward Rectified Current(Note2)		$I_{F(AV)}$	5	A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	120	A
Current Squared Time	$t < 8.3ms$	I^2t	59.8	A ² sec

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

Parameter	Test Conditions	Symbol	Ratings			Unit
			Min.	Typ.	Max.	
Instaneous Forward Voltage Per Diode	Ta=25°C	$I_F = 5 A$	--	0.56	0.6	V
	Ta=110°C		--	0.52	0.56	
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C , $V_R = V_{RRM}$	I_{RRM}	--	5	50	uA
	Ta=125°C , $V_R = V_{RRM} * 80\%$		--	2	6	
Typical Junction Capacitance	4 V,1MHz	C_J	--	700	--	pF

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

Parameter	Test Conditions	Symbol	Ratings			Unit
Operating Junction Temperature Range		T _J	-55	to	150	℃
Storage Temperature Range		T _{STD}	-55	to	150	
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25℃	R _{θJA}	60			℃/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	R _{θJC}	17			

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

2.Device mounted on 250mm x 250mm x 2.0mm Aluminum Plate Heatsink.

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Typical Characteristics Curves

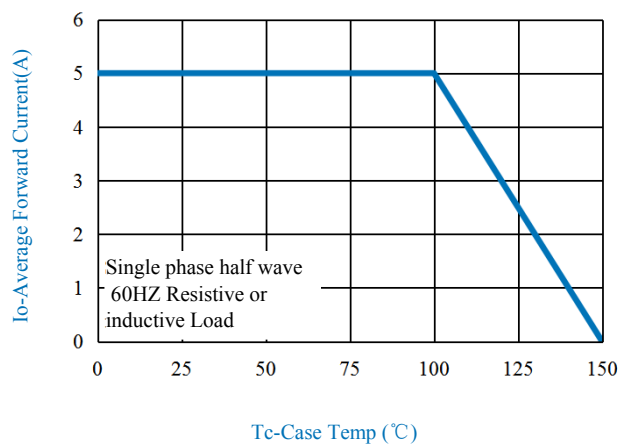


Fig.1-Forward Current Derating Curve

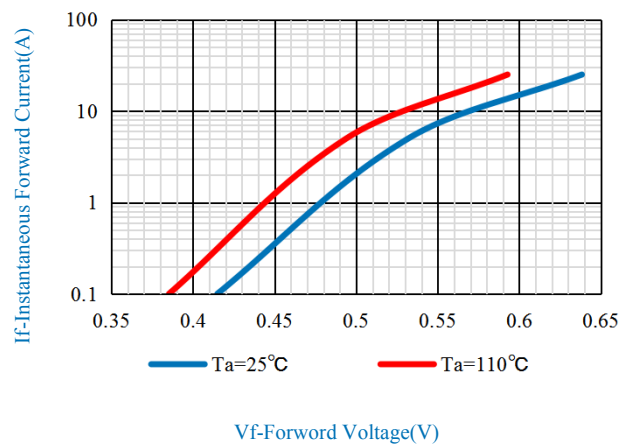


Fig.2-Typical Instantaneous Forward

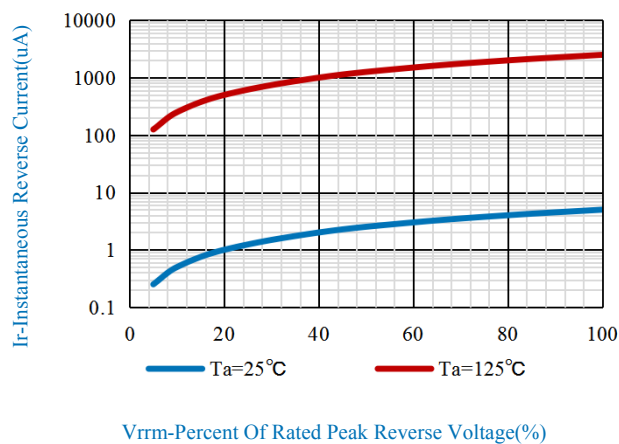


Fig.3-Typical Reverse Characteristics

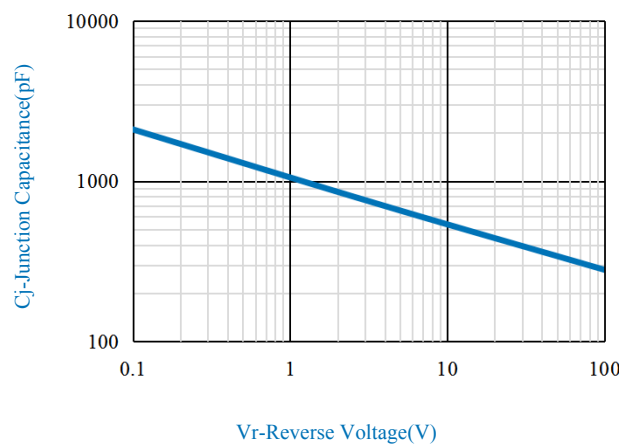


Fig.4-Typical Junction Capacitance

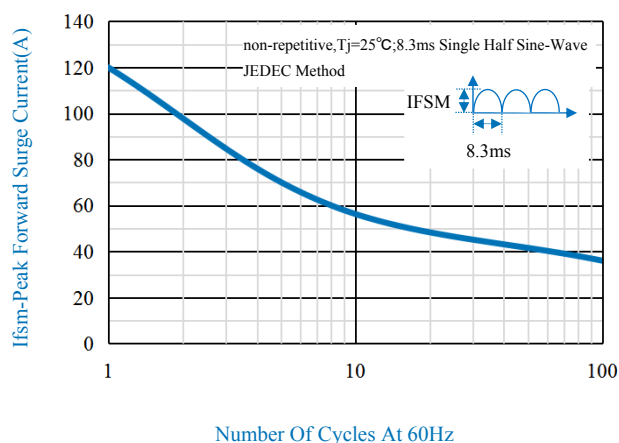


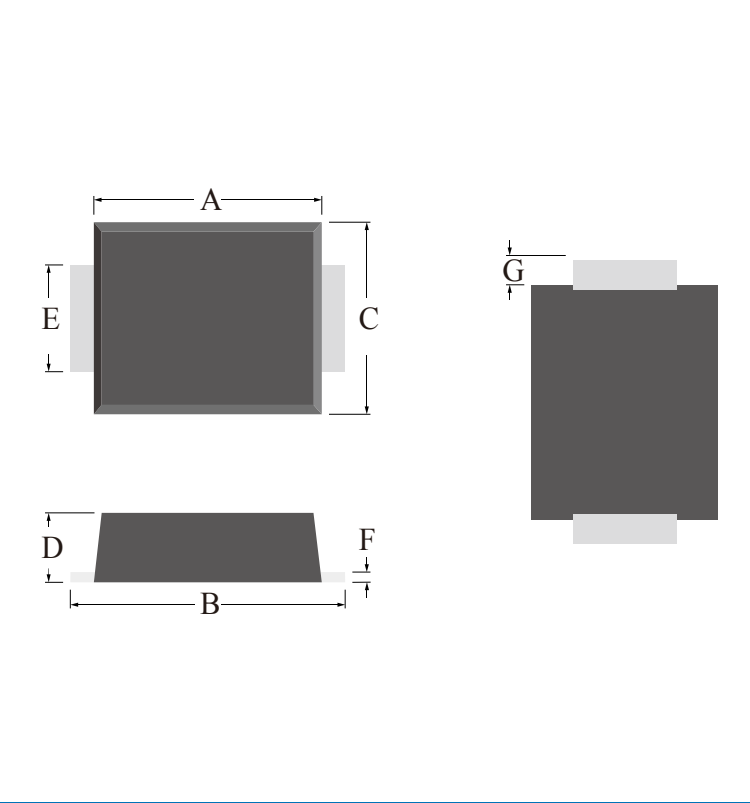
Fig.5-Max. Non-Repetitive Surge Current

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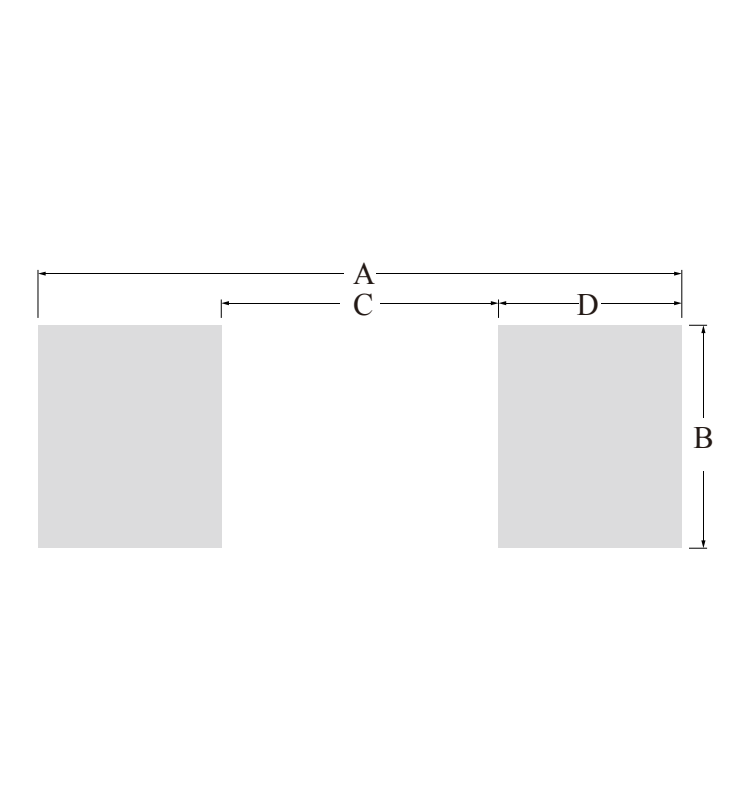
OUTLINE DRAWINGS



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OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	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

RECOMMEDND LAYOUT DRAWINGS



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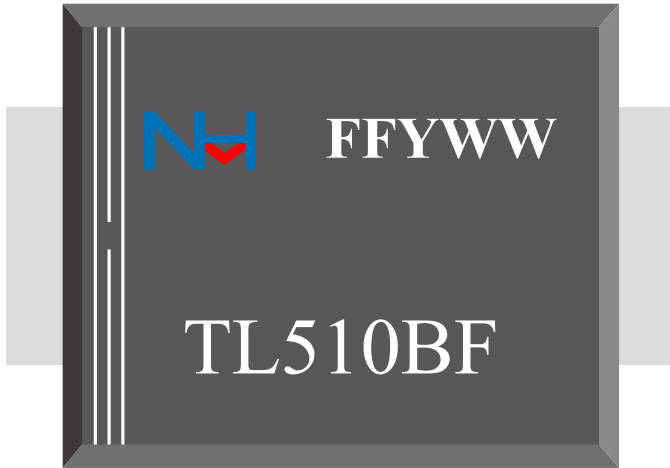
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	6.50	-	-	0.2559	-
B	-	2.20	-	-	0.0866	-
C	-	2.80	-	-	0.1102	-
D	-	1.85	-	-	0.0728	-

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MARKING



MARKING INSTRUCTION

NH=Niuhan Trademark

FF=Product Line Code,According To Actual Changes

YWW=Date Code,According To Actual Changes

TL510BF=Model

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	5000	10000	48000

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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 _{S min}) -Temperature Max (T _{S 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 (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.

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Specification Revision History

Rev.	Date	Changed Items	Pre-Changed Content	Changed Content
A/1	2014-10-20	First Issue		
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