

HBL20M

General Bridge Rectifiers



Voltage: 1000 Volts

Current: 20 A

Package: HBL

Features

- NH'S Standard Rectifier Chip Technology
- Low Forward Voltage Drop For High Efficiency
- Low Leakage Current For High Reliability
- High Surge Capability For High Reliability

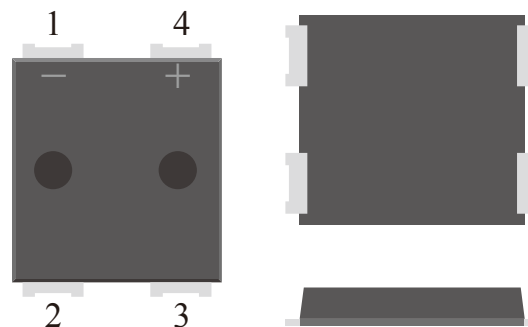
Mechanical Data

- **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

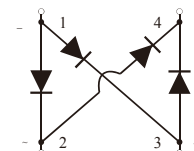
Typical Applications

- 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}	1000	V
Maximum RMS Voltag		V_{RMS}	700	V
Maximum DC Blocking Voltage		V_{DC}	1000	V
Maximum Average Forward Rectified Current		$I_{F(AV)}$	20	A
Peak Forward Surge Current Per Diode	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	350	A
Current Squared Time Per Diode	$t < 8.3ms$	I^2t	508.4	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	$I_F = 10.0 A$	V_F	--	0.95	1.0	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C , $V_R = V_{RRM}$	I_{RRM}	--	1	5	uA
	Ta=125°C , $V_R = V_{RRM} * 80\%$		--	25	200	uA
Typical Junction Capacitance Per Diode	4 V,1MHz	C_J	--	85	--	pF

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

Parameter	Test Conditions	Symbol	Ratings			Unit
Operating Junction Temperature Range		T _J	-55	to	150	°C
Storage Temperature Range		T _{STD}	-55	to	150	
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25°C	R _{θJA}	25.0			°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	R _{θJC}	3.2			

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

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Typical Characteristics Curves

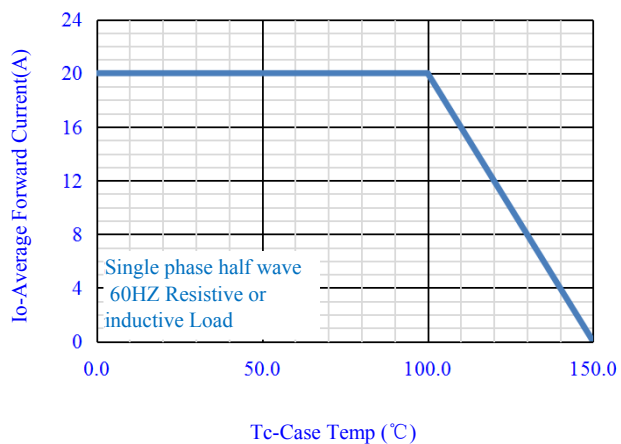


Fig.1-Forward Current Derating Curve

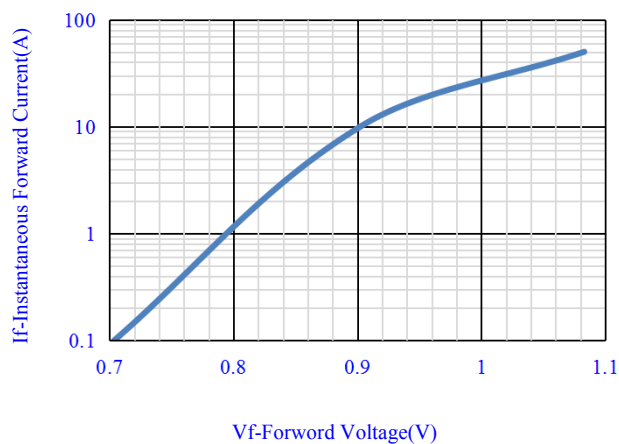


Fig.2-Typical Instantaneous Forward

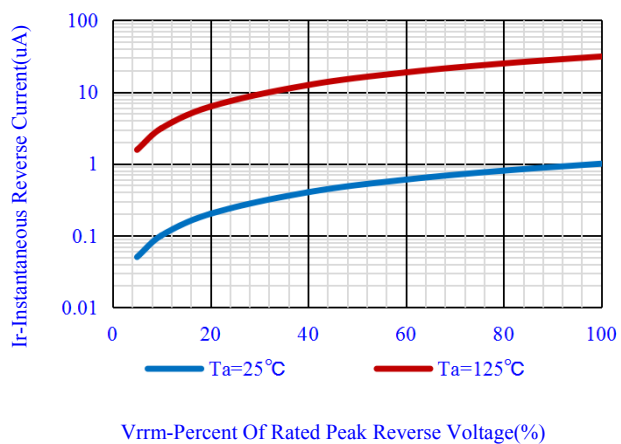


Fig.3-Typical Reverse Characteristics

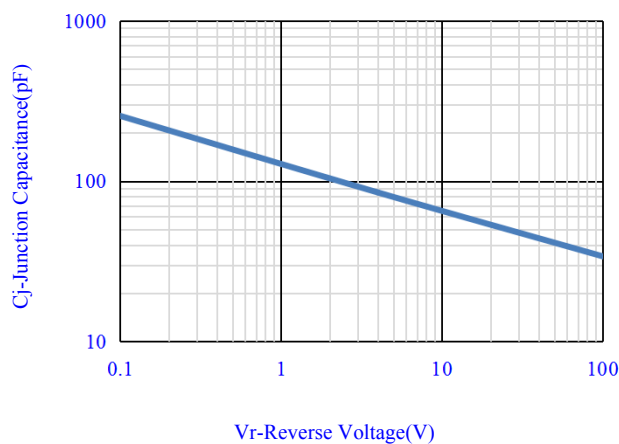


Fig.4-Typical Junction Capacitance

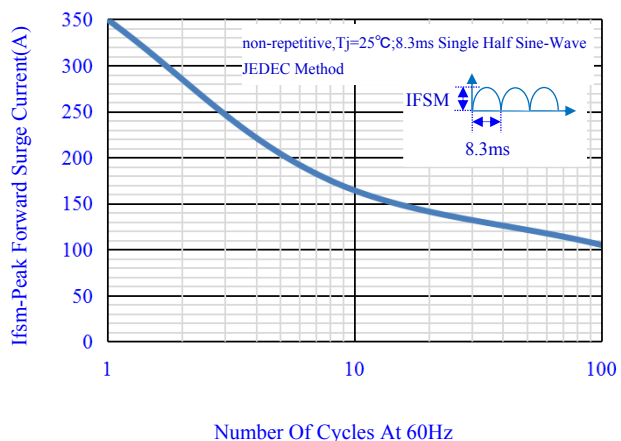


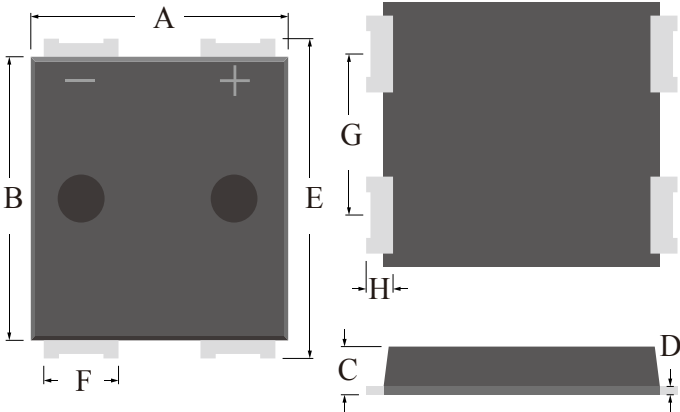
Fig.5-Max. Non-Repetitive Surge Current

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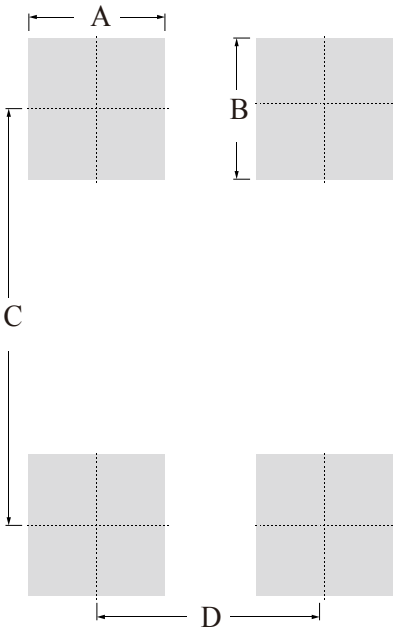
OUTLINE DRAWINGS



HBL

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	10.00	-	12.00	0.3937	-	0.4724
B	11.20	-	12.40	0.4409	-	0.4882
C	1.60	-	2.40	0.0630	-	0.0945
D	0.21	-	0.49	0.0083	-	0.0193
E	12.60	-	14.00	0.4961	-	0.5512
F	2.90	-	3.50	0.1142	-	0.1378
G	6.10	-	7.30	0.2402	-	0.2874
H	0.55	-	1.75	0.0217	-	0.0689

RECOMMEDND LAYOUT DRAWINGS



HBL

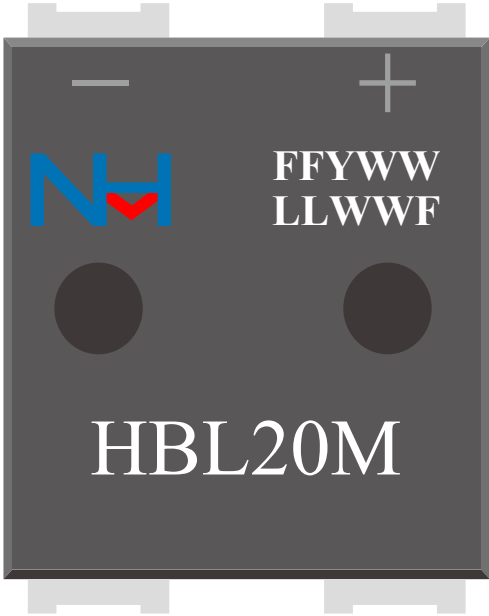
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	4.00	-	-	0.1575	-
B	-	4.00	-	-	0.1575	-
C	-	11.80	-	-	0.4646	-
D	-	6.70	-	-	0.2638	-

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MARKING



MARKING INSTRUCTION

NH=Niuhang Trademark
FF=Product Line Code,According To Actual Changes
YWW=Date Code,According To Actual Changes
LLWWF=Inernal Code,According To Actual Changes
HBL20M=Model
- +=Polarity Mark

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
HBL	P1	0.84	13" Reel	1500	3000	15000

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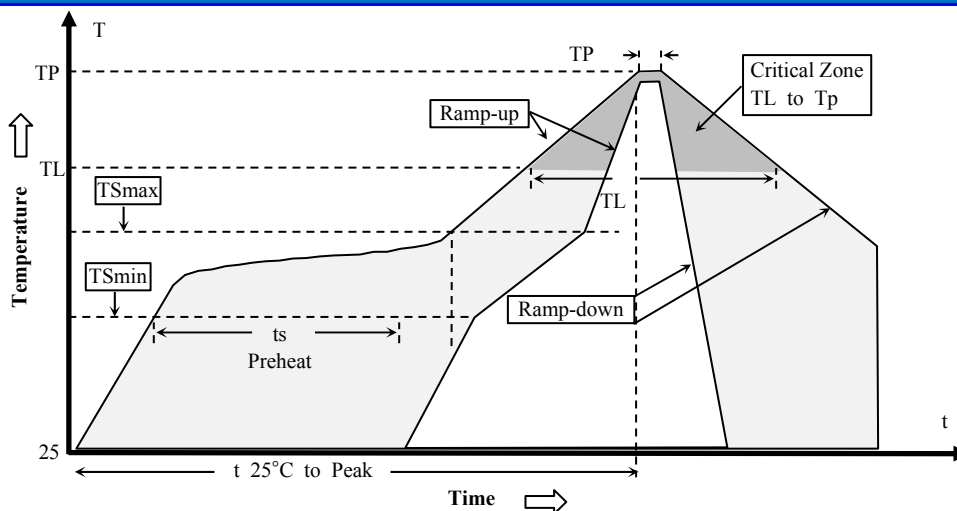
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Recommended wave soldering condition

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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