

GBJ50005 THRU GBJ5010

General Bridge Rectifiers



Voltage: 50~1000 Volts

Current: 50 Amperes

Package: GBJ

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

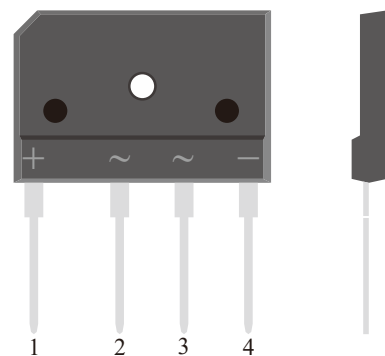
Mechanical Data

- **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

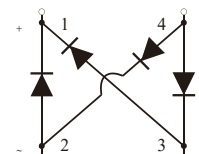
Typical Applications

- 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	GBJ 50005	GBJ 5001	GBJ 5002	GBJ 5004	GBJ 5006	GBJ 5008	GBJ 5010	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltage		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	With Heatsink 100 °C Without 25 °C	$I_{F(AV)}$	50 5.2							A
Peak Forward Surge Current Per Diode	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	500							A
Current Squared Time Per Diode	$t < 8.3ms$	I^2t	1037.5							A ² sec
Maximum Mounting Torque	M3 screw	T_{MM}	1.1							N.m

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

Parameter	Test Conditions	Symbol	GBJ 50005	GBJ 5001	GBJ 5002	GBJ 5004	GBJ 5006	GBJ 5008	GBJ 5010	Unit
Instantaneous Forward Voltage Per Diode	$I_F = 25.0 A$	V_F	1.0							V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C , $V_R = V_{RRM}$ Ta=125°C , $V_R = V_{RRM} * 80\%$	I_{RRM}	5 200							uA
Typical Junction Capacitance Per Diode	4 V,1MHz	C_J	160							pF

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

Parameter	Test Conditions	Symbol	GBJ 50005	GBJ 5001	GBJ 5002	GBJ 5004	GBJ 5006	GBJ 5008	GBJ 5010	Unit
Operating Junction Temperature Range		T _J	-55~150							℃
Storage Temperature Range		T _{STD}	-55~150							
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25℃	R _{θJA}	12.0							℃/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 75mm x 45mm x 2.5mm Alu. Heat.	R _{θJC}	0.9							

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

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Typical Characteristics Curves

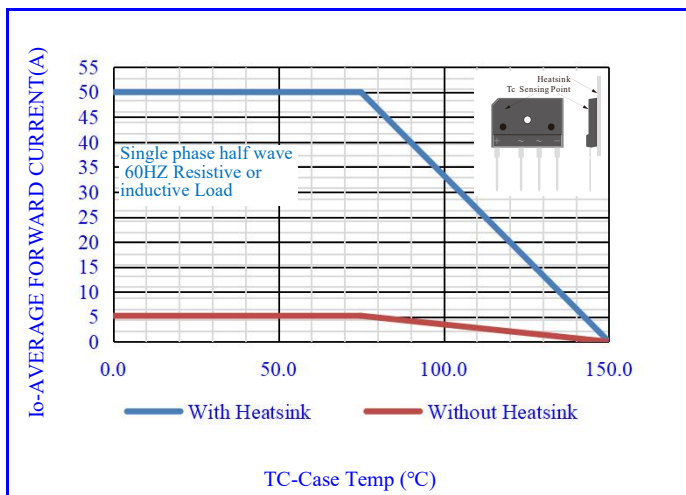


Fig.1-FORWARD CURRENT DERATING CURVE

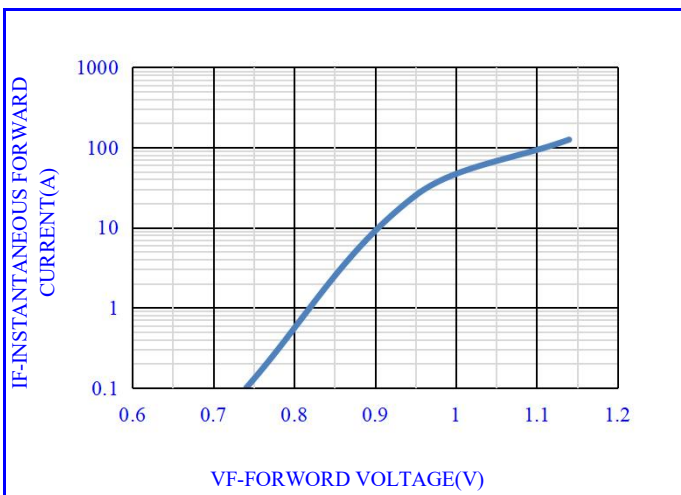


Fig.2- TYPICAL INSTANTANEOUS FORWARD

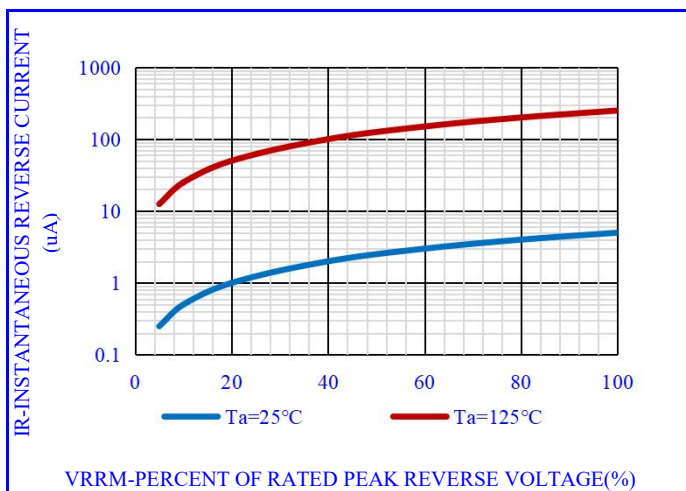


Fig.3- TYPICAL REVERSE CHARACTERISTICS

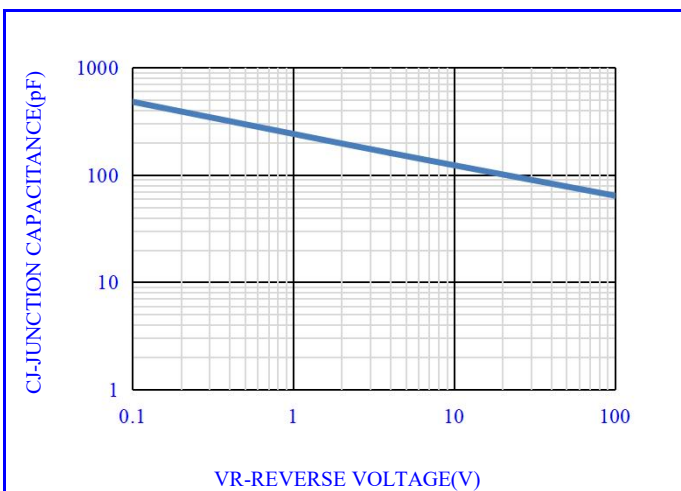


Fig.4- TYPICAL JUNCTION CAPACITANCE

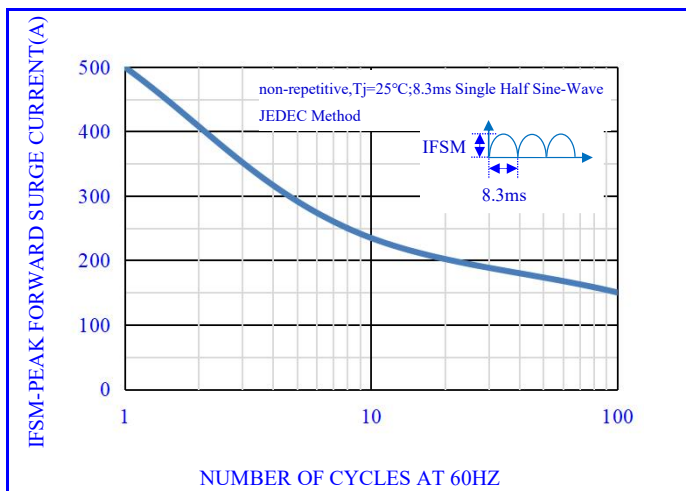
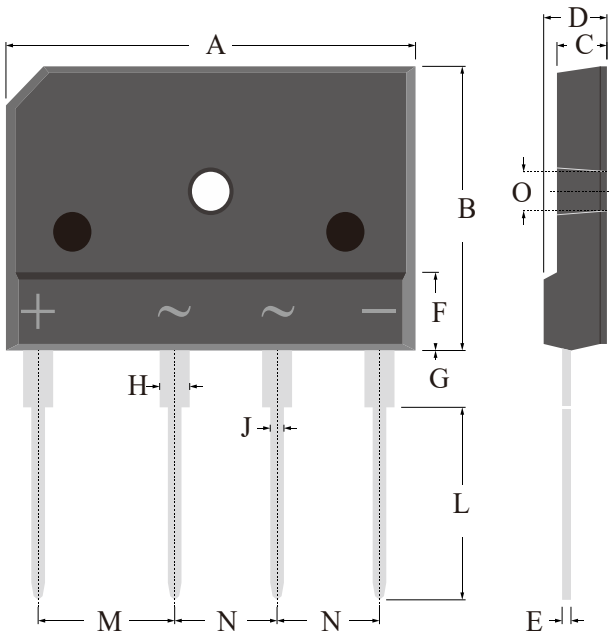


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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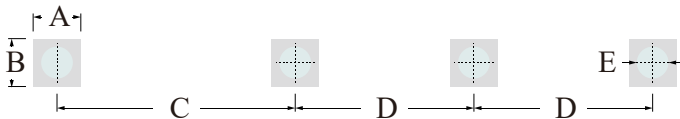
OUTLINE DRAWINGS



GBJ

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	29.00	-	31.00	1.1417	-	1.2205
B	19.00	-	21.00	0.7480	-	0.8268
C	3.45	-	3.95	0.1358	-	0.1555
D	4.35	-	4.85	0.1713	-	0.1909
E	0.50	-	0.90	0.0197	-	0.0354
F	5.20	-	5.80	0.2047	-	0.2283
G	3.75	-	4.25	0.1476	-	0.1673
H	2.00	-	2.40	0.0787	-	0.0945
J	0.80	-	1.20	0.0315	-	0.0472
L	13.00	-	15.00	0.5118	-	0.5906
M	9.50	-	10.50	0.3740	-	0.4134
N	7.20	-	7.80	0.2835	-	0.3071
O	3.00	-	3.40	0.1181	-	0.1339

RECOMMEDND LAYOUT DRAWINGS



GBJ

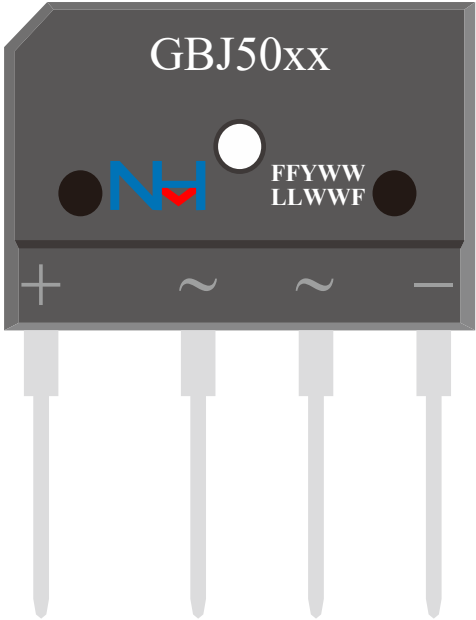
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	2.00	-	-	0.0787	-
B	-	2.00	-	-	0.0787	-
C	-	10.00	-	-	0.3937	-
D	-	4.60	-	-	0.1811	-
E	-	1.20	-	-	0.0472	-

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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
GBJ50xx=Model,xx=005,01,02,04,06,08,10

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
GBJ	P1	6.873	Box	250	250	2500
GBJ	P2	6.873	Tube	15	750	1500

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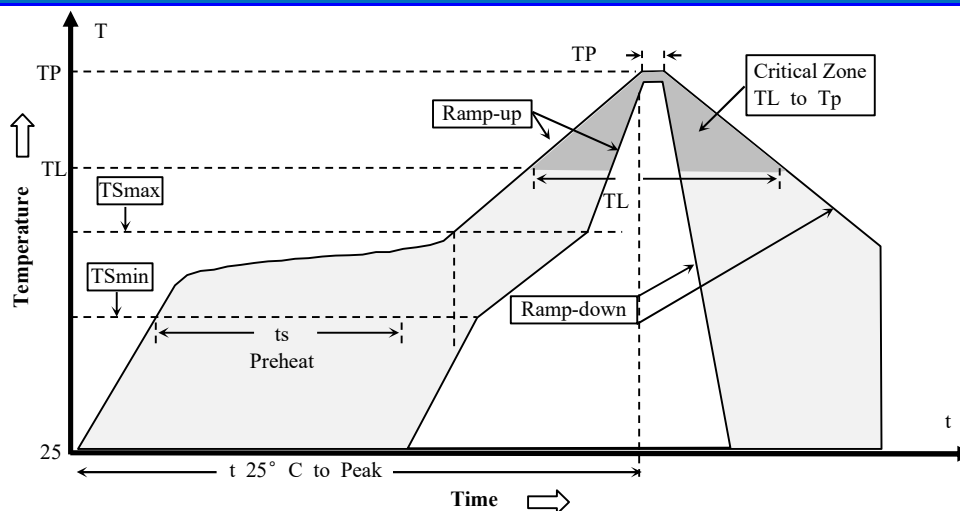
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Recommended wave soldering condition

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(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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