



## Glass Passivated Single-Phase Bridge Rectifier



Case Style GBU



Case Style GBU

### FEATURES

- UL recognition file number E54214
- Ideal for printed circuit boards
- High surge current capability
- High case dielectric strength of 1500 V<sub>RMS</sub>
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

### TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification for monitor, TV, printer, switching mode power supply, adapter, audio equipment, and home appliances applications.

### MECHANICAL DATA

**Case:** GBU  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102  
E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked on body

**Mounting Torque:** 10 cm-kg (8.8 inches-lbs) max.

**Recommended Torque:** 5.7 cm-kg (5 inches-lbs)

PRIMARY CHARACTERISTICS	
Package	GBU
I <sub>F(AV)</sub>	4.0 A
V <sub>RRM</sub>	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
I <sub>FSM</sub>	150 A
I <sub>R</sub>	5 μA
V <sub>F</sub> at I <sub>F</sub> = 4.0 A	1.0 V
T <sub>J</sub> max.	150 °C
Diode variations	In-line

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	GBU4A	GBU4B	GBU4D	GBU4G	GBU4J	GBU4K	GBU4M	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	V
Maximum average forward rectified output current at	I <sub>F(AV)</sub>	4.0							A
		3.0							
Peak forward surge current single sine-wave superimposed on rated load	I <sub>FSM</sub>	150							A
Rating for fusing (t < 8.3 ms)	I <sup>2</sup> t	93							A <sup>2</sup> s
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150							°C

### Notes

- (1) Unit case mounted on 1.6" x 1.6" x 0.06" thick (4.0 cm x 4.0 cm x 0.15 cm) aluminum plate
- (2) Units mounted on PCB with 0.5" x 0.5" (12 mm x 12 mm) copper pads and 0.375" (9.5 mm) lead length



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	TEST CONDITIONS	SYMBOL	GBU4A	GBU4B	GBU4D	GBU4G	GBU4J	GBU4K	GBU4M	UNIT
Maximum instantaneous forward voltage drop per diode	4.0 A	$V_F$				1.0				V
Maximum DC reverse current at rated DC blocking voltage per diode	$T_A = 25\text{ }^\circ\text{C}$	$I_R$				5.0				$\mu\text{A}$
	$T_A = 125\text{ }^\circ\text{C}$					500				
Typical junction capacitance per diode	4 V, 1 MHz	$C_J$				57				pF

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	GBU4A	GBU4B	GBU4D	GBU4G	GBU4J	GBU4K	GBU4M	UNIT	
Typical thermal resistance	$R_{\theta JA}$ (2)				22				$^\circ\text{C/W}$	
	$R_{\theta JC}$ (1)				4.2					

**Notes**

- (1) Units case mounted on aluminum plate heatsink
- (2) Units mounted in free air, no heatsink on PCB, 0.5" x 0.5" (12 mm x 12 mm) copper pads, 0.375" (9.5 mm) lead length

<b>ORDERING INFORMATION</b>				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
GBU4J-E3/45	3.857	45	20	Tube
GBU4J-E3/51	3.857	51	250	Paper tray

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

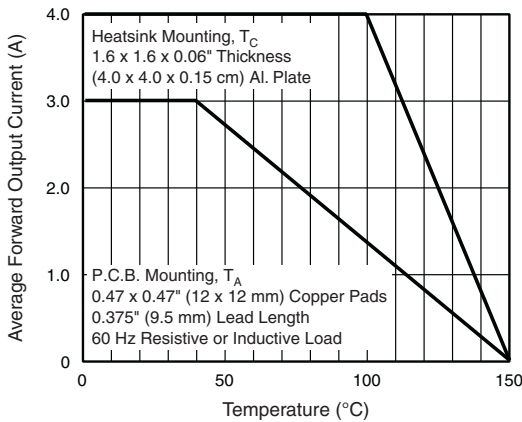


Fig. 1 - Derating Curve Output Rectified Current

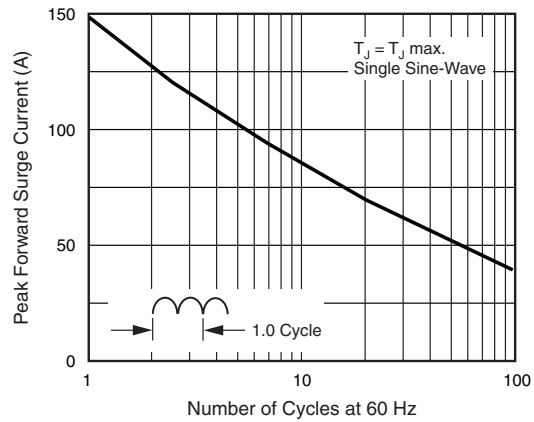


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

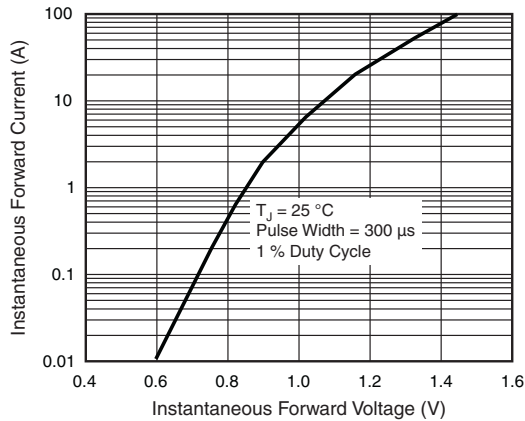


Fig. 3 - Typical Forward Characteristics Per Diode

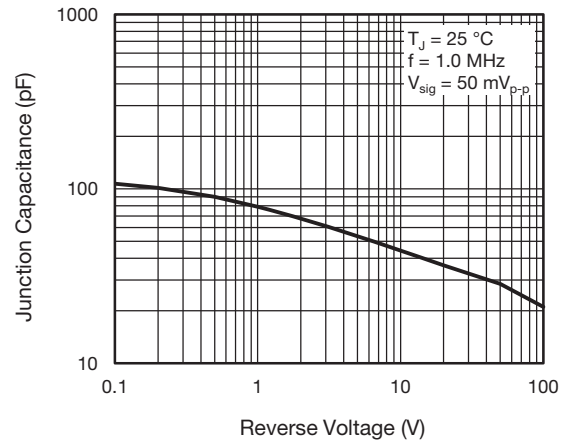


Fig. 5 - Typical Junction Capacitance Per Diode



Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

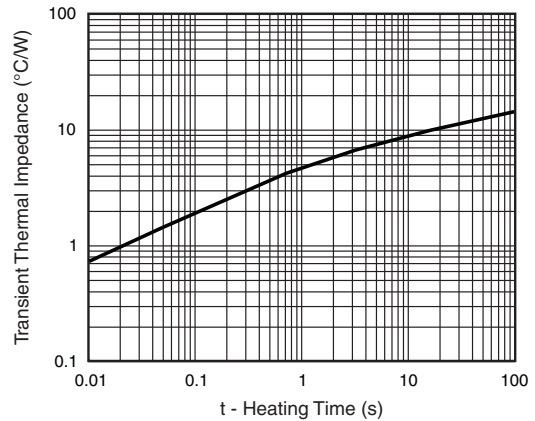


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Type GBU



Polarity shown on front side of case, positive lead by beveled corner



## **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.