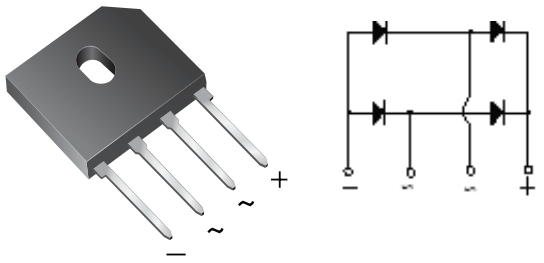
Glass Passivated Single-Phase Bridge Rectifier



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_{RMS}
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

TYPICAL APPLICATIONS

General purpose use in ac-to-dc bridge full wave rectification for monitor, TV, printer, switching mode power supply, adapter, audio equipment, and home appliances applications.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	6.0 A
V_{RRM}	50 V to 1000 V
I_{FSM}	175 A
I_R	5 µA
V_F	1.0 V
T_J max.	150 °C

MECHANICAL DATA

Case: GBU

Epoxy meets UL 94 V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, 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)

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	GBU6A	GBU6B	GBU6D	GBU6G	GBU6J	GBU6K	GBU6M	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 output current at (Fig. 1) T_C = 90 °C (1)	$I_{F(AV)}$	6.0							A
T_A = 40 °C (2)		3.8							
Peak forward surge current single sine-wave superimposed on rated load	I_{FSM}	175							A
Rating for fusing (t < 8.3 ms)	I^2t	127							A^2s
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150							°C

Notes:

(1) Unit case mounted on aluminum plate heatsink

(2) Units mounted on P.C.B. with 0.5 x 0.5" (12 x 12 mm) copper pads and 0.375" (9.5 mm) lead length

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)										
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**GBU6A**	**GBU6B**	**GBU6D**	**GBU6G**	**GBU6J**	**GBU6K**	**GBU6M**	**UNIT**
Maximum instantaneous forward voltage drop per diode	6.0 A	V_F	1.0							V
Maximum DC reverse current at rated DC blocking voltage per diode	T_A = 25 °C T_A = 125 °C	I_R	5.0 500							µA
Typical junction capacitance per diode	4.0 A, 1 MHz	C_J	211				94			pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
PARAMETER	**SYMBOL**	**GBU6A**	**GBU6B**	**GBU6D**	**GBU6G**	**GBU6J**	**GBU6K**	**GBU6M**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (2) $R_{\theta JC}$ (1)(3)	20 2.5							°C/W

Notes:

(1) Units case mounted on aluminum plate heatsink

(2) Units mounted in free air, no heatsink on P.C.B., 0.5 x 0.5" (12 x 12 mm) copper pads, 0.375" (9.5 mm) lead length

(3) Recommended mounting position is to bolt down on heatsink with silicone thermal compound for maximum heat transfer with #6 screws

ORDERING INFORMATION				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
GBU6J-E3/45	3.857	45	20	Tube
GBU6J-E3/51	3.857	51	250	Paper tray

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

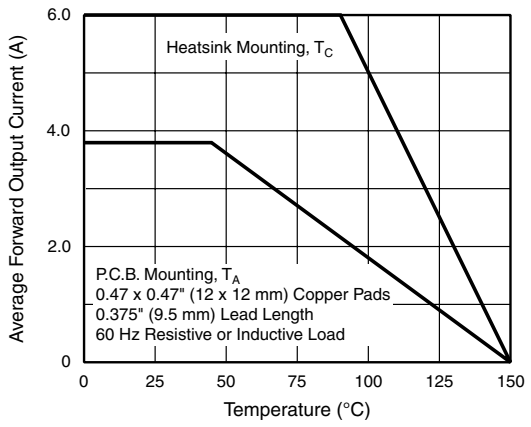


Figure 1. Derating Curve Output Rectified Current

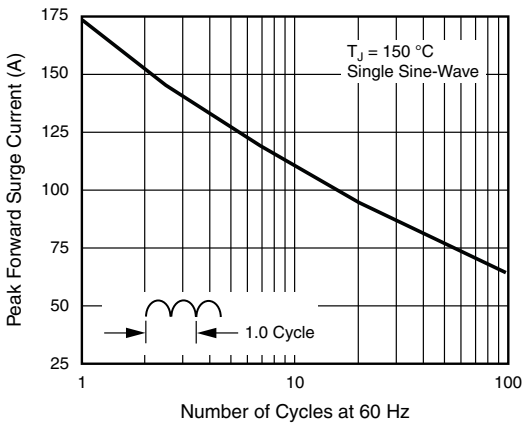


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

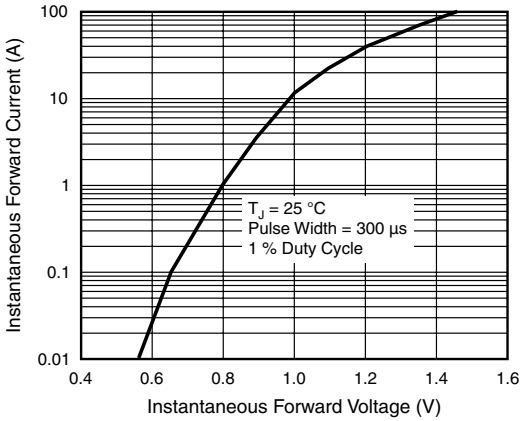


Figure 3. Typical Forward Characteristics Per Diode

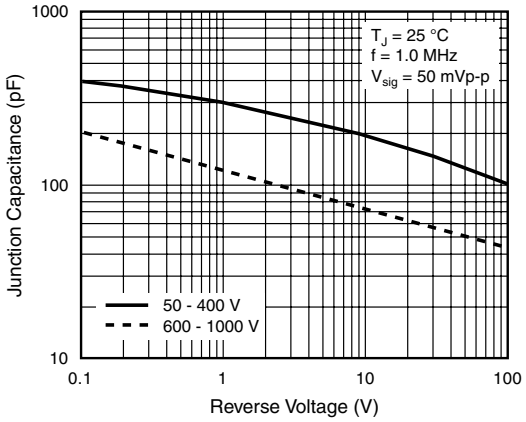


Figure 5. Typical Junction Capacitance Per Diode

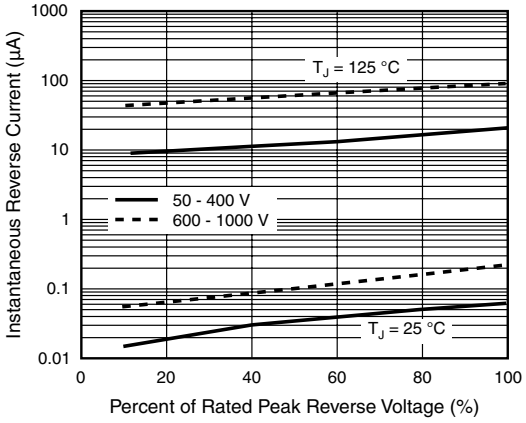


Figure 4. Typical Reverse Leakage Characteristics Per Diode

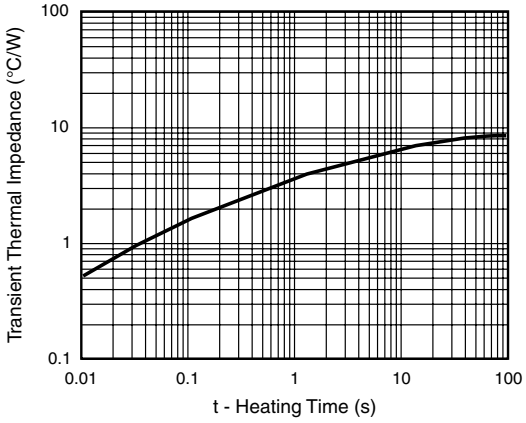
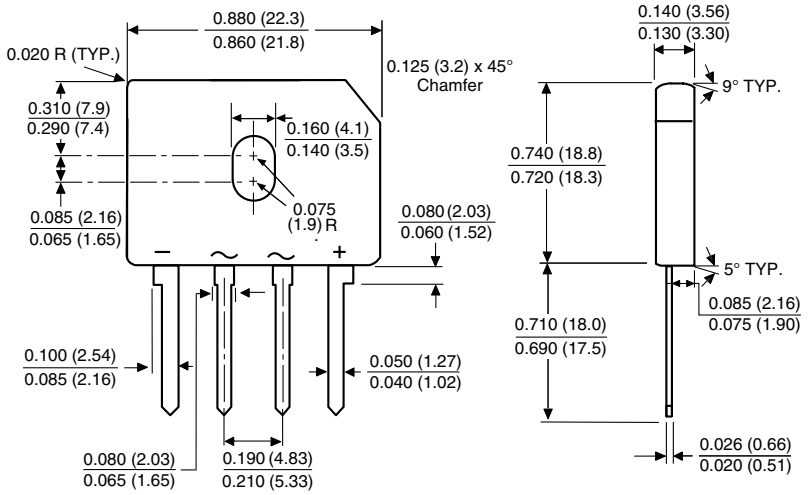


Figure 6. Typical Transient Thermal Impedance

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 and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. 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.