

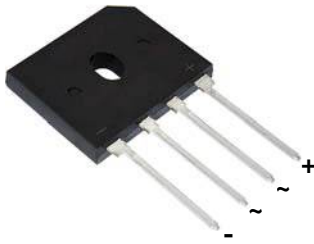


**THE DATASHEET OF  
GBU6K-E3/45**

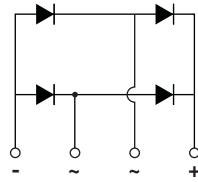




## Glass Passivated Single-Phase Bridge Rectifier



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>	6.0 A
V <sub>RRM</sub>	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
I <sub>FSM</sub>	175 A
I <sub>R</sub>	5 μA
V <sub>F</sub> at I <sub>F</sub> = 6.0 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	GBU6A	GBU6B	GBU6D	GBU6G	GBU6J	GBU6K	GBU6M	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 (fig. 1)	I <sub>F(AV)</sub>	T <sub>C</sub> = 90 °C <sup>(1)</sup>							A
		T <sub>A</sub> = 40 °C <sup>(2)</sup>							
Peak forward surge current single sine-wave superimposed on rated load	I <sub>FSM</sub>	175							A
Rating for fusing (t < 8.3 ms)	I <sup>2</sup> t	127							A <sup>2</sup> s
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150							°C

### Notes

<sup>(1)</sup> Unit case mounted on aluminum plate heatsink

<sup>(2)</sup> 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	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	$T_A = 25\text{ }^\circ\text{C}$	$I_R$				5.0				$\mu\text{A}$
	$T_A = 125\text{ }^\circ\text{C}$					500				
Typical junction capacitance per diode	4 V, 1 MHz	$C_J$				68				pF

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

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

<b>ORDERING INFORMATION</b>				
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** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

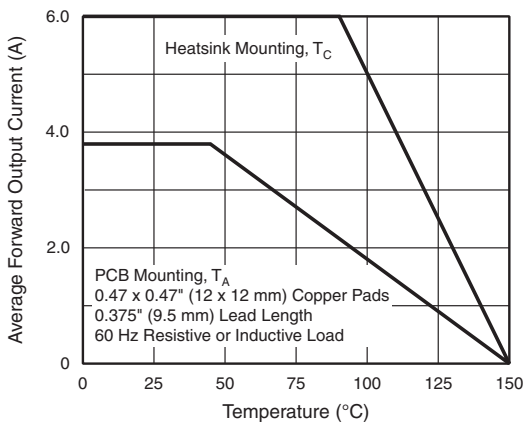


Fig. 1 - Derating Curve Output Rectified Current

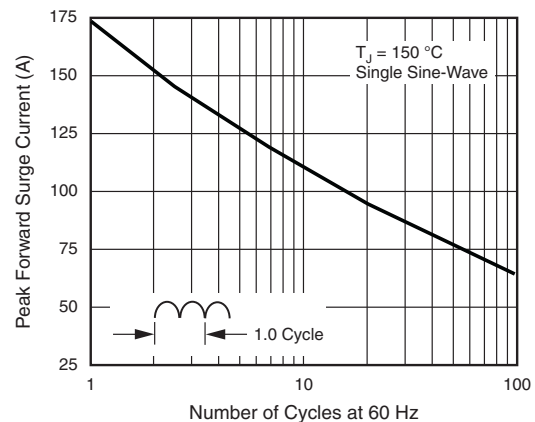


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

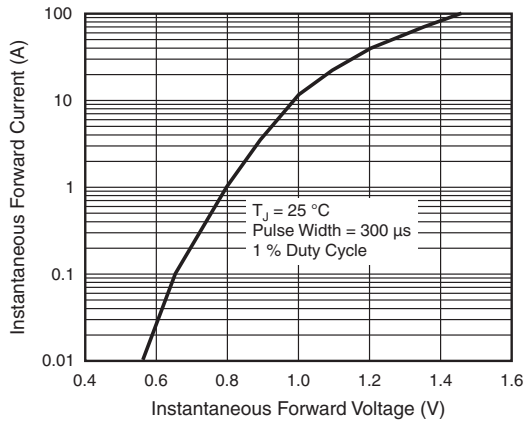


Fig. 3 - Typical Forward Characteristics Per Diode

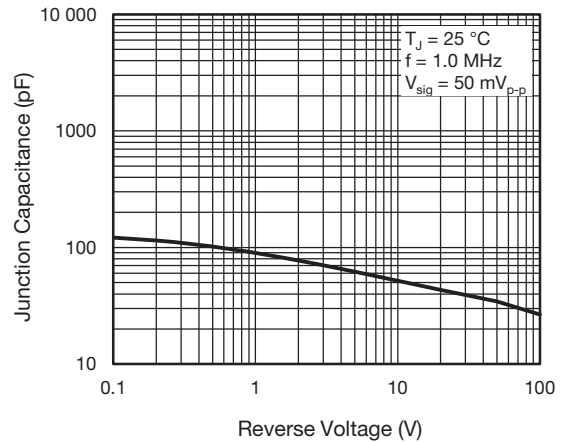


Fig. 5 - Typical Junction Capacitance Per Diode

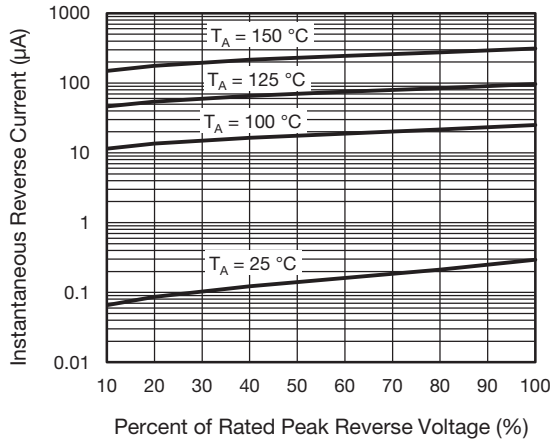


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

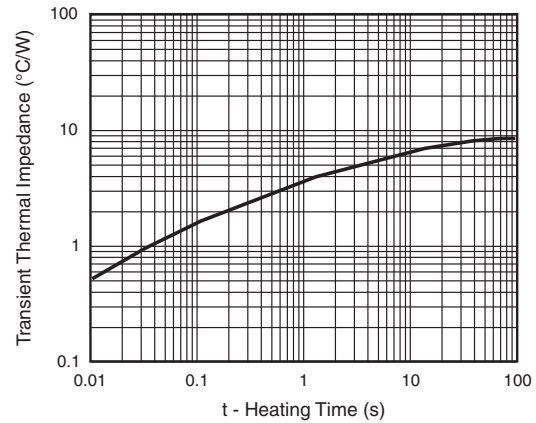
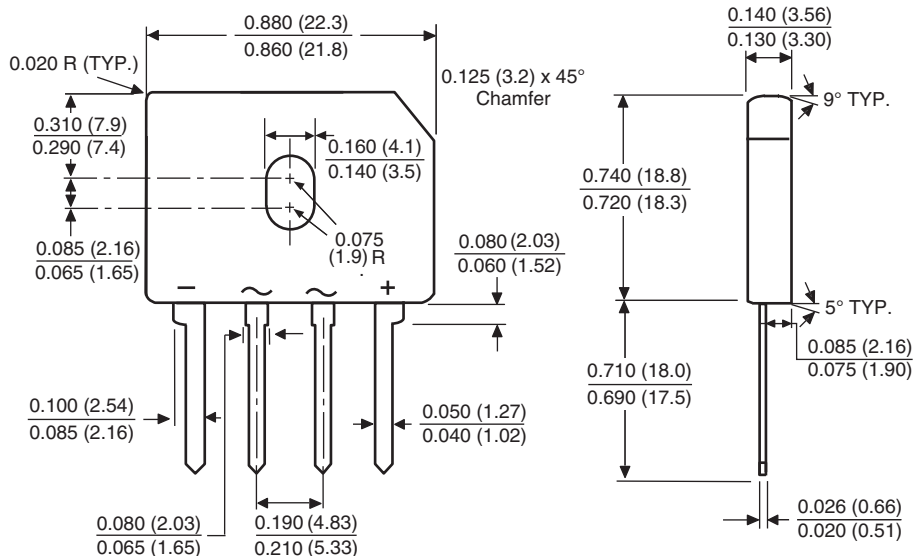


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### Case Type GBU



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



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