

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

|                      |                                                |
|----------------------|------------------------------------------------|
| <b>Part Number:</b>  | GBU6K-M3/45                                    |
| <b>Manufacturer:</b> | Vishay General Semiconductor - Diodes Division |
| <b>Package:</b>      | 4-SIP, GBU                                     |
| <b>Availability:</b> | Please confirm with sales                      |

#### Product Page:

<https://antrexco.com/product/details/vishay-general-semiconductor-diodes-division/gbu6k-m3-45.html>

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#### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

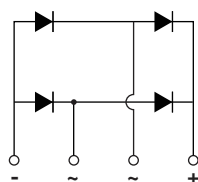
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## Glass Passivated Single-Phase Bridge Rectifier



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  
HALOGEN  
**FREE**

### 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.

### LINKS TO ADDITIONAL RESOURCES



3D Models

### PRIMARY CHARACTERISTICS

|                        |                                                 |
|------------------------|-------------------------------------------------|
| $I_{F(AV)}$            | 6.0 A                                           |
| $V_{RRM}$              | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$              | 175 A                                           |
| $I_R$                  | 5 $\mu$ A                                       |
| $V_F$ at $I_F = 6.0$ A | 1.0 V                                           |
| $T_J$ max.             | 150 °C                                          |
| Package                | GBU                                             |
| Circuit configuration  | In-line                                         |

### MECHANICAL DATA

#### Case: GBU

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 and M3 suffix meet 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)

| MAXIMUM RATINGS (TA = 25 °C unless otherwise noted)                    |          |                |       |       |       |       |       |       |      |
|------------------------------------------------------------------------|----------|----------------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                              | SYMBOL   | GBU6A          | GBU6B | GBU6D | GBU6G | GBU6J | GBU6K | GBU6M | UNIT |
| Maximum repetitive peak reverse voltage                                | VRRM     | 50             | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Maximum RMS voltage                                                    | VRMS     | 35             | 70    | 140   | 280   | 420   | 560   | 700   | V    |
| Maximum DC blocking voltage                                            | VDC      | 50             | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Maximum average forward rectified output current at (fig. 1)           | IF(AV)   | TC = 90 °C (1) |       |       |       |       |       |       | A    |
|                                                                        |          | TA = 40 °C (2) |       |       |       |       |       |       |      |
| Peak forward surge current single sine-wave superimposed on rated load | IFSM     | 175            |       |       |       |       |       |       | A    |
| Rating for fusing (t < 8.3 ms)                                         | I²t      | 127            |       |       |       |       |       |       | A²s  |
| Operating junction and storage temperature range                       | TJ, TSTG | -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



## ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ 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 <sub>F</sub> | 1.0   |       |       |       |       |       |       | V    |
| Maximum DC reverse current at rated DC blocking voltage per diode | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 5.0   |       |       |       |       |       |       | μA   |
|                                                                   | T <sub>A</sub> = 125 °C |                | 500   |       |       |       |       |       |       |      |
| Typical junction capacitance per diode                            | 4 V, 1 MHz              | C <sub>J</sub> | 68    |       |       |       |       |       |       | pF   |

## THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER                  | SYMBOL                  | GBU6A | GBU6B | GBU6D | GBU6G | GBU6J | GBU6K | GBU6M | UNIT |
|----------------------------|-------------------------|-------|-------|-------|-------|-------|-------|-------|------|
| Typical thermal resistance | R <sub>θJA</sub> (2)    | 20    |       |       |       |       |       |       | °C/W |
|                            | R <sub>θJC</sub> (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

## 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    |
| GBU6J-M3/45   | 3.857           | 45                     | 20            | Tube          |
| GBU6J-M3/51   | 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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