

## 6A, 50V - 1000V Glass Passivated Single-Phase Bridge Rectifier

### FEATURES

- Ideal for printed circuit board
- High case dielectric strength of 1500 V<sub>RMS</sub>
- High surge current capability
- Typical I<sub>R</sub> less than 0.1μA
- UL Recognized File # E-326243
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

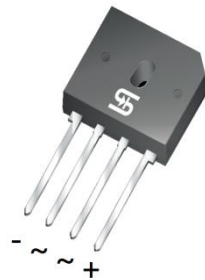
### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- TV
- Monitor

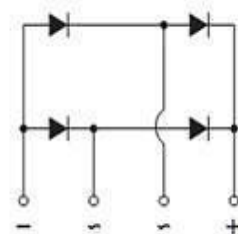
### MECHANICAL DATA

- Case: GBU
- Molding compound meets UL 94V-0 flammability rating
- Packing code with suffix "G" means green compound (halogen-free)
- Part no. with suffix "H" means AEC-Q101 qualified
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Polarity: As marked
- Mounting torque: 0.56 Nm max
- Weight: 4 g (approximately)

| KEY PARAMETERS     |           |      |
|--------------------|-----------|------|
| PARAMETER          | VALUE     | UNIT |
| I <sub>F(AV)</sub> | 6         | A    |
| V <sub>RRM</sub>   | 50 - 1000 | V    |
| I <sub>FSM</sub>   | 175       | A    |
| T <sub>J MAX</sub> | 150       | °C   |
| Package            | GBU       |      |
| Configuration      | Quad      |      |



GBU



| ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise noted)                        |                     |              |         |         |         |         |         |         |                  |
|------------------------------------------------------------------------------------------------|---------------------|--------------|---------|---------|---------|---------|---------|---------|------------------|
| PARAMETER                                                                                      | SYMBOL              | GBU 601      | GBU 602 | GBU 603 | GBU 604 | GBU 605 | GBU 606 | GBU 607 | UNIT             |
| Marking code on the device                                                                     |                     | GBU 601      | GBU 602 | GBU 603 | GBU 604 | GBU 605 | GBU 606 | GBU 607 |                  |
| Repetitive peak reverse voltage                                                                | V <sub>RRM</sub>    | 50           | 100     | 200     | 400     | 600     | 800     | 1000    | V                |
| Reverse voltage, total rms value                                                               | V <sub>R(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                |
| Forward current                                                                                | I <sub>F(AV)</sub>  | 6            |         |         |         |         |         |         | A                |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode) | I <sub>FSM</sub>    | 175          |         |         |         |         |         |         | A                |
| Rating of fusing ( t<8.3ms)                                                                    | I <sup>2</sup> t    | 127          |         |         |         |         |         |         | A <sup>2</sup> s |
| Junction temperature                                                                           | T <sub>J</sub>      | - 55 to +150 |         |         |         |         |         |         | °C               |
| Storage temperature                                                                            | T <sub>STG</sub>    | - 55 to +150 |         |         |         |         |         |         | °C               |

| <b>THERMAL PERFORMANCE</b>             |                 |              |             |
|----------------------------------------|-----------------|--------------|-------------|
| <b>PARAMETER</b>                       | <b>SYMBOL</b>   | <b>LIMIT</b> | <b>UNIT</b> |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 21           | °C/W        |
| Junction-to-case thermal resistance    | $R_{\theta JC}$ | 2            | °C/W        |

| <b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |                                           |               |            |            |               |
|-------------------------------------------------------------------------------------|-------------------------------------------|---------------|------------|------------|---------------|
| <b>PARAMETER</b>                                                                    | <b>CONDITIONS</b>                         | <b>SYMBOL</b> | <b>TYP</b> | <b>MAX</b> | <b>UNIT</b>   |
| Forward voltage per diode <sup>(1)</sup>                                            | $I_F = 3\text{A}, T_J = 25^\circ\text{C}$ | $V_F$         | -          | 1.0        | V             |
|                                                                                     | $I_F = 6\text{A}, T_J = 25^\circ\text{C}$ |               | -          | 1.1        | V             |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup>                              | $T_J = 25^\circ\text{C}$                  | $I_R$         | -          | 5          | $\mu\text{A}$ |
|                                                                                     | $T_J = 125^\circ\text{C}$                 |               | -          | 500        | $\mu\text{A}$ |
| Junction capacitance                                                                | 1 MHz, $V_R = 4.0\text{V}$                | $C_J$         | 211        | -          | pF            |
|                                                                                     |                                           |               | 94         | -          | pF            |

**Notes:**

- Pulse test with  $PW = 0.3\text{ ms}$
- Pulse test with  $PW = 30\text{ ms}$

| <b>ORDERING INFORMATION</b> |                        |                     |                               |                |                |
|-----------------------------|------------------------|---------------------|-------------------------------|----------------|----------------|
| <b>PART NO.</b>             | <b>PART NO. SUFFIX</b> | <b>PACKING CODE</b> | <b>PACKING CODE SUFFIX(*)</b> | <b>PACKAGE</b> | <b>PACKING</b> |
| GBU60x<br>(Note 1)          | H                      | C2                  | G                             | GBU            | 20 / Tube      |
|                             |                        | D2                  |                               |                | 20 / Tube      |
|                             |                        | X0                  |                               |                | Forming        |

**Note:**

- "x" defines voltage from 50V (GBU601) to 1000V (GBU607)

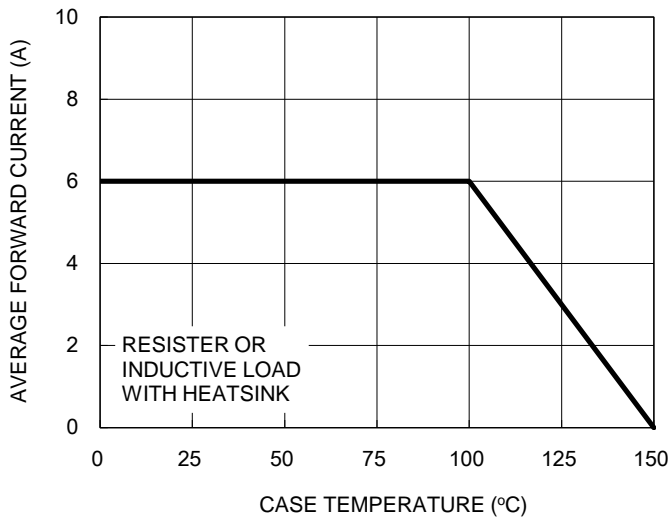
\*: Optional available

| <b>EXAMPLE P/N</b> |                 |                        |                     |                            |                                      |
|--------------------|-----------------|------------------------|---------------------|----------------------------|--------------------------------------|
| <b>EXAMPLE P/N</b> | <b>PART NO.</b> | <b>PART NO. SUFFIX</b> | <b>PACKING CODE</b> | <b>PACKING CODE SUFFIX</b> | <b>DESCRIPTION</b>                   |
| GBU606HC2G         | GBU606          | H                      | C2                  | G                          | AEC-Q101 qualified<br>Green compound |

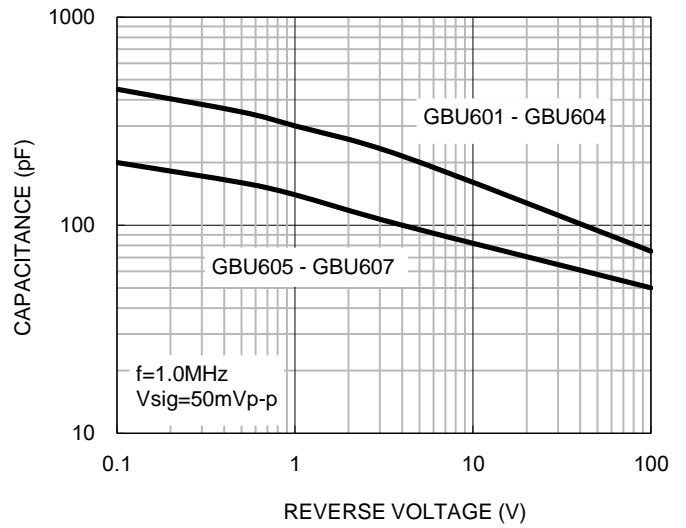
**CHARACTERISTICS CURVES**

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

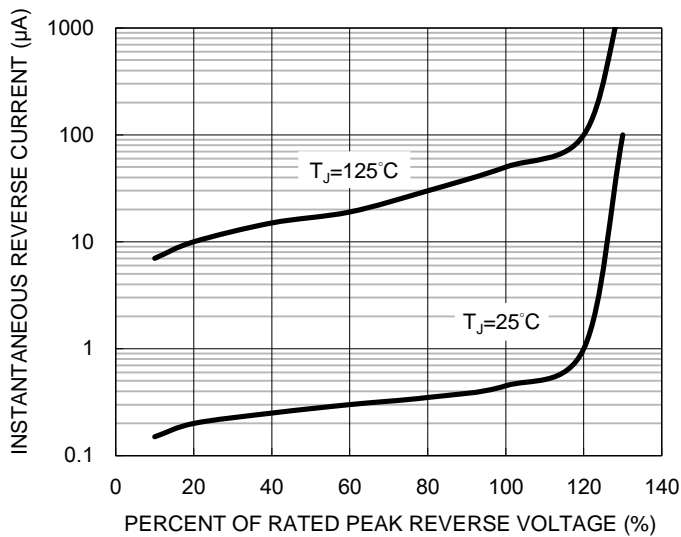
**Fig.1 Forward Current Derating Curve**



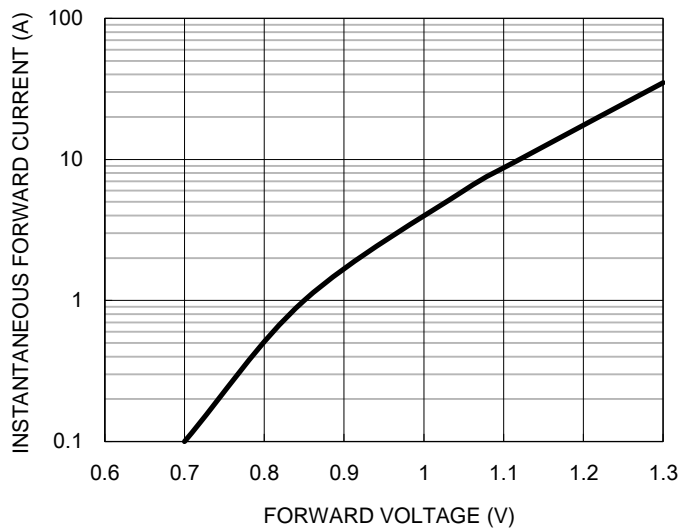
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**



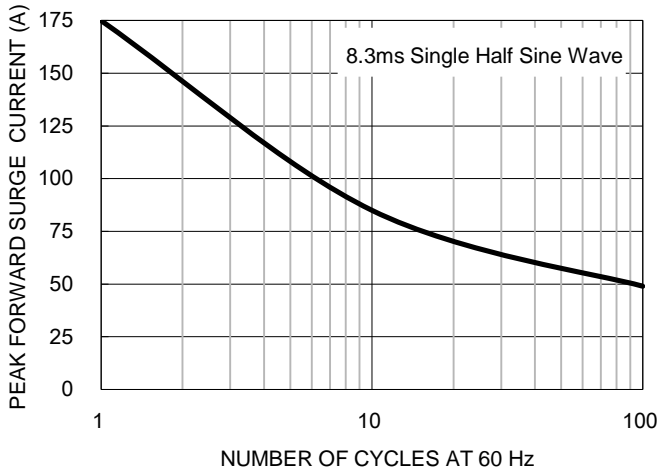
**Fig.4 Typical Forward Characteristics**



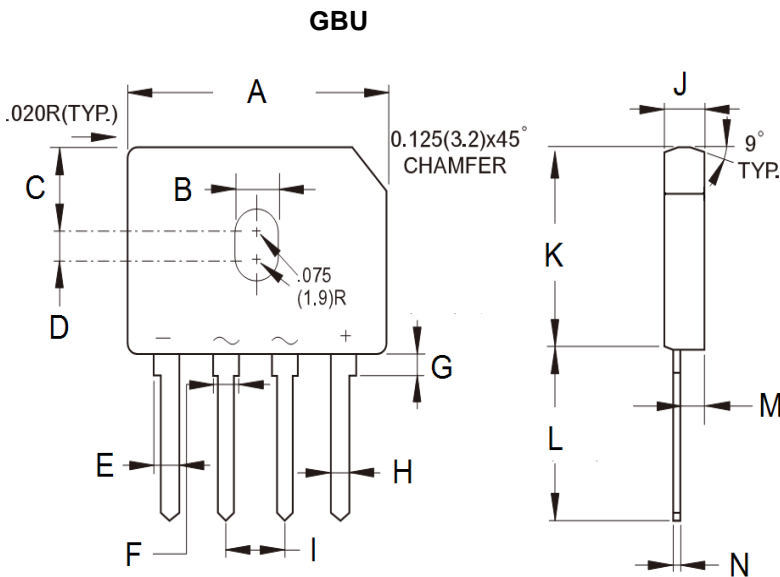
**CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25°C unless otherwise noted)

**Fig.5 Maximum Non-repetitive Forward Surge Current**



**PACKAGE OUTLINE DIMENSIONS**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | 21.80     | 22.30 | 0.858       | 0.878 |
| B    | 3.50      | 4.10  | 0.138       | 0.161 |
| C    | 7.40      | 7.90  | 0.291       | 0.311 |
| D    | 1.65      | 2.16  | 0.065       | 0.085 |
| E    | 2.16      | 2.54  | 0.085       | 0.100 |
| F    | 1.65      | 2.03  | 0.065       | 0.080 |
| G    | 1.52      | 2.03  | 0.060       | 0.080 |
| H    | 1.02      | 1.27  | 0.040       | 0.050 |
| I    | 4.83      | 5.33  | 0.190       | 0.210 |
| J    | 3.30      | 3.56  | 0.130       | 0.140 |
| K    | 18.30     | 18.80 | 0.720       | 0.740 |
| L    | 17.50     | 18.00 | 0.689       | 0.709 |
| M    | 1.90      | 2.16  | 0.075       | 0.085 |
| N    | 0.46      | 0.56  | 0.018       | 0.022 |

**MARKING DIAGRAM**



- P/N = Marking Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code

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