Glass Passivated Single-Phase Bridge Rectifier

FEATURES

- UL recognition file number E54214
- Ideal for printed circuit boards
- High surge current capability
- Typical IR less than 0.1 μA
- High case dielectric strength
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

General purpose use in AC/DC bridge full wave rectification, for monitor, TV, printer, SMPS, adapter, audio equipment, and home appliances application.

MECHANICAL DATA

Case: GBL
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

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

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>GBL005</th>
<th>GBL01</th>
<th>GBL02</th>
<th>GBL04</th>
<th>GBL06</th>
<th>GBL08</th>
<th>GBL10</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum repetitive peak reverse voltage</td>
<td>V_RRM</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS voltage</td>
<td>V_RMS</td>
<td>35</td>
<td>70</td>
<td>140</td>
<td>280</td>
<td>420</td>
<td>560</td>
<td>700</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC blocking voltage</td>
<td>V_DC</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum average forward rectified output current at T_C = 50 °C</td>
<td>I_F(AV)</td>
<td>4.0</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum average forward rectified output current at T_A = 40 °C</td>
<td>I_F(AV)</td>
<td>3.0</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak forward surge current single sine-wave superimposed on rated load</td>
<td>I_FSM</td>
<td>150</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating for fusing (t &lt; 8.3 ms)</td>
<td>P_f</td>
<td>93</td>
<td>A^2s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating junction and storage temperature range</td>
<td>T_J, T_STG</td>
<td>-55 to +150</td>
<td>°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:
(1) Unit mounted on 3.0” x 3.0” x 0.11” thick (7.5 cm x 7.5 cm x 0.3 cm) aluminum plate
(2) Unit mounted on PCB at 0.375” (9.5 mm) lead length and 0.5” x 0.5” (12 mm x 12 mm) copper pads

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TEST CONDITIONS</th>
<th>SYMBOL</th>
<th>GBL005</th>
<th>GBL01</th>
<th>GBL02</th>
<th>GBL04</th>
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<th>GBL08</th>
<th>GBL10</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum instantaneous forward voltage drop per diode</td>
<td>4.0 A</td>
<td>V_F</td>
<td>1.0</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum DC reverse current at rated DC blocking voltage per diode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T_A = 25 °C</td>
<td>I_R</td>
<td>5.0</td>
<td>μA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T_A = 125 °C</td>
<td></td>
<td>500</td>
<td>μA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical junction capacitance per diode</td>
<td>4.0 V, 1 MHz</td>
<td>C_J</td>
<td>95</td>
<td>pF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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THERMAL CHARACTERISTICS (\(T_A = 25 \degree C\) unless otherwise noted)

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<th>GBL10</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical thermal resistance (R_{thJA}) ((2))</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>\degree C/W</td>
</tr>
<tr>
<td>Typical thermal resistance (R_{thJC}) ((1))</td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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Notes

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ORDERING INFORMATION

<table>
<thead>
<tr>
<th>PREFERRED P/N</th>
<th>UNIT WEIGHT (g)</th>
<th>PREFERRED PACKAGE CODE</th>
<th>BASE QUANTITY</th>
<th>DELIVERY MODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBL06-E3/45</td>
<td>2.18</td>
<td>45</td>
<td>20</td>
<td>Tube</td>
</tr>
<tr>
<td>GBL06-E3/51</td>
<td>2.18</td>
<td>51</td>
<td>400</td>
<td>Anti-static PVC tray</td>
</tr>
</tbody>
</table>

RATINGS AND CHARACTERISTICS CURVES (\(T_A = 25 \degree C\) unless otherwise noted)

Fig. 1 - Derating Curves Output Rectified Current
Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode
Fig. 3 - Typical Forward Voltage Characteristics Per Diode
Fig. 4 - Typical Reverse Characteristics Per Diode
**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**Case Type GBL**

![Package Dimensions Diagram]

- **Chamfer**:
  - 0.125 (3.17) x 45°

- **Lead Depth**:
  - 0.040 (1.02)
  - 0.030 (0.76)

- **Polarity**
  - Shown on front side of case, positive lead beveled corner

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**Fig. 5 - Typical Junction Capacitance Per Diode**

- **Junction Capacitance (pF)**
  - **Reverse Voltage (V)**
    - 0.1 - 1 - 10 - 100
    - 10 - 100 - 1000
  - **Tj = 25 °C**
  - **f = 1.0 MHz**
  - **Vsig = 50 mVpp**

- **50 - 400 V**
  - **600 - 1000 V**

**Fig. 6 - Typical Transient Thermal Impedance Per Diode**

- **Transient Thermal Impedance (°C/W)**
  - **t - Heating Time (s)**
    - 0.01 - 0.1 - 1 - 10 - 100
    - 0.1 - 1 - 10 - 100

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