High Voltage Glass Passivated Junction Plastic Rectifier

**FEATURES**

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106

**TYPICAL APPLICATIONS**

For use in rectification of high voltage power supplies, inverters, converters, and freewheeling diodes application.

**MECHANICAL DATA**

- **Case:** DO-204AL, molded epoxy over glass body
- **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:** Color band denotes cathode end

### PRIMARY CHARACTERISTICS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>GP02-20</th>
<th>GP02-25</th>
<th>GP02-30</th>
<th>GP02-35</th>
<th>GP02-40</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum average forward rectified current 0.375” (9.5 mm) lead length at $T_A = 55 , ^\circ C$</td>
<td>$I_{F(AV)}$</td>
<td>2000</td>
<td>2500</td>
<td>3000</td>
<td>3500</td>
<td>4000</td>
<td>A</td>
</tr>
<tr>
<td>Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load</td>
<td>$I_{FSM}$</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Operating junction and storage temperature range</td>
<td>$T_J, T_{STG}$</td>
<td>-65 to +175</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

**MAXIMUM RATINGS** ($T_A = 25 \, ^\circ C$ unless otherwise noted)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>GP02-20</th>
<th>GP02-25</th>
<th>GP02-30</th>
<th>GP02-35</th>
<th>GP02-40</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum repetitive peak reverse voltage</td>
<td>$V_{RRM}$</td>
<td>2000</td>
<td>2500</td>
<td>3000</td>
<td>3500</td>
<td>4000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS voltage</td>
<td>$V_{RMS}$</td>
<td>1400</td>
<td>1750</td>
<td>2100</td>
<td>2450</td>
<td>2800</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC blocking voltage</td>
<td>$V_{DC}$</td>
<td>2000</td>
<td>2500</td>
<td>3000</td>
<td>3500</td>
<td>4000</td>
<td>V</td>
</tr>
</tbody>
</table>

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- For technical questions within your region: [www.vishay.com/doc?91000](http://www.vishay.com/doc?91000)

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### Electrical Characteristics \( (T_A = 25 \, ^\circ C \text{ unless otherwise noted}) \)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TEST CONDITIONS</th>
<th>SYMBOL</th>
<th>GP02-20</th>
<th>GP02-25</th>
<th>GP02-30</th>
<th>GP02-35</th>
<th>GP02-40</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum instantaneous forward voltage</td>
<td>1.0 A</td>
<td>( V_F )</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC reverse current at rated DC blocking voltage</td>
<td>( T_A = 25 , ^\circ C )</td>
<td>( I_R )</td>
<td>5.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>( \mu A )</td>
</tr>
<tr>
<td></td>
<td>( T_A = 100 , ^\circ C )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Typical reverse recovery time</td>
<td>( I_F = 0.5 , A, I_{R1} = 1.0 , A, I_{R2} = 0.25 , A )</td>
<td>( t_{rr} )</td>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>( \mu s )</td>
</tr>
<tr>
<td>Typical junction capacitance</td>
<td>4.0 V, 1 MHz</td>
<td>( C_J )</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pF</td>
</tr>
</tbody>
</table>

### Thermal Characteristics \( (T_A = 25 \, ^\circ C \text{ unless otherwise noted}) \)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>GP02-20</th>
<th>GP02-25</th>
<th>GP02-30</th>
<th>GP02-35</th>
<th>GP02-40</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical thermal resistance</td>
<td>( R_{JJA} ) (^{(1)})</td>
<td>130</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>( ^\circ C/W )</td>
</tr>
</tbody>
</table>

**Note**

\(^{(1)}\) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

### Ordering Information (Example)

<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>GP02-20-E3/54</td>
<td>0.339</td>
<td>54</td>
<td>5500</td>
<td>13* diameter paper tape and reel</td>
</tr>
<tr>
<td>GP02-20-E3/73</td>
<td>0.339</td>
<td>73</td>
<td>3000</td>
<td>Ammo pack packaging</td>
</tr>
</tbody>
</table>
RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

Fig. 3 - Typical Instantaneous Forward Characteristics

Fig. 4 - Typical Reverse Characteristics

Fig. 5 - Typical Junction Capacitance
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)

0.107 (2.7)
0.080 (2.0)
DIA.

0.034 (0.86)
0.028 (0.71)
DIA.

1.0 (25.4)
MIN.

0.205 (5.2)
0.160 (4.1)

1.0 (25.4)
MIN.

1.0 (25.4)
MIN.

0.080 (2.0)
DIA.
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