

### Features

- Glass Passivated Die Construction
- High Case Dielectric Strength of 1500V<sub>RMS</sub>
- Low Reverse Leakage Current
- Surge Overload Rating to 170A Peak
- Ideal for Printed Circuit Board Applications
- UL Listed Under Recognized Component Index, File Number E94661
- **Lead Free Finish/RoHS Compliant (Note 4)**

### Mechanical Data

- Case: GBJ
- Case Material: Molded Plastic - UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Lead Free Plating (Tin Finish).
- Polarity: Molded on Body
- Mounting: Through Hole for #6 Screw
- Mounting Torque: 5.0 in-lbs Maximum
- Marking: Type Number
- Weight: 6.6 grams (approximate)



| GBJ                  |           |       |
|----------------------|-----------|-------|
| Dim                  | Min       | Max   |
| A                    | 29.70     | 30.30 |
| B                    | 19.70     | 20.30 |
| C                    | 17.00     | 18.00 |
| D                    | 3.80      | 4.20  |
| E                    | 7.30      | 7.70  |
| G                    | 9.80      | 10.20 |
| H                    | 2.00      | 2.40  |
| I                    | 0.90      | 1.10  |
| J                    | 2.30      | 2.70  |
| K                    | 3.0 X 45° |       |
| L                    | 4.40      | 4.80  |
| M                    | 3.40      | 3.80  |
| N                    | 3.10      | 3.40  |
| P                    | 2.50      | 2.90  |
| R                    | 0.60      | 0.80  |
| S                    | 10.80     | 11.20 |
| All Dimensions in mm |           |       |

### Maximum Ratings and Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Characteristic  | Symbol   | GBJ 10005   | GBJ 1001 | GBJ 1002 | GBJ 1004 | GBJ 1006 | GBJ 1008 | GBJ 1010 | Unit             |
|---|--|-------------|----------|----------|----------|----------|----------|----------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                      | V <sub>RRM</sub><br>V <sub>RWM</sub><br>V <sub>R</sub> | 50          | 100      | 200      | 400      | 600      | 800      | 1000     | V                |
| RMS Reverse Voltage   | V <sub>R(RMS)</sub>                                    | 35          | 70       | 140      | 280      | 420      | 560      | 700      | V                |
| Average Forward Rectified Output Current<br>@ T <sub>C</sub> = 110°C  | I <sub>O</sub>   | 10          |          |          |          |          |          |          | A                |
| Non-Repetitive Peak Forward Surge Current, 8.3 ms single half-sine-wave superimposed on rated load          | I <sub>FSM</sub>                                       | 170         |          |          |          |          |          |          | A                |
| Forward Voltage per element<br>@ I <sub>F</sub> = 5.0A  | V <sub>FM</sub>  | 1.05        |          |          |          |          |          |          | V                |
| Peak Reverse Current<br>@ T <sub>C</sub> = 25°C<br>at Rated DC Blocking Voltage<br>@ T <sub>C</sub> = 125°C | I <sub>R</sub>   | 10<br>500   |          |          |          |          |          |          | μA               |
| I <sup>2</sup> t Rating for Fusing (t < 8.3ms) (Note 1)   | I <sup>2</sup> t                                       | 120         |          |          |          |          |          |          | A <sup>2</sup> s |
| Typical Total Capacitance per Element (Note 2)  | C <sub>T</sub>   | 55          |          |          |          |          |          |          | pF               |
| Typical Thermal Resistance, Junction to Case (Note 3)   | R <sub>θJC</sub>                                       | 1.4         |          |          |          |          |          |          | °C/W             |
| Operating and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub>                      | -65 to +150 |          |          |          |          |          |          | °C               |

- Notes:
1. Non-repetitive, for t > 1.0ms and < 8.3ms.
  2. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.
  3. Thermal resistance from junction to case per element. Unit mounted on 150 x 150 x 1.6mm copper plate heat sink.
  4. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex Notes 5 and 7.

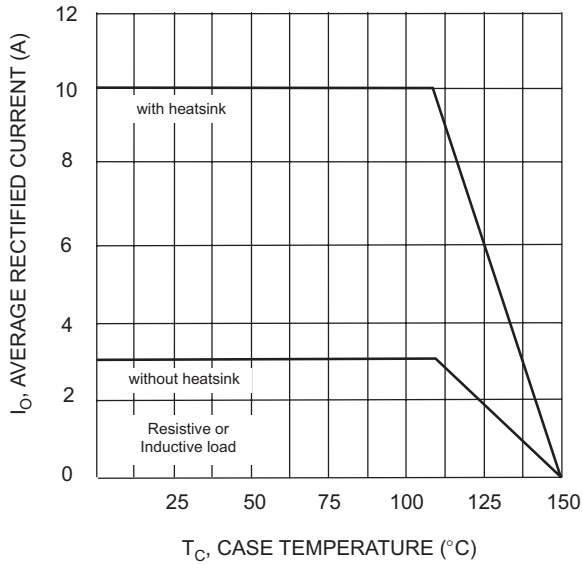


Fig. 1 Forward Current Derating Curve



Fig. 2 Typical Forward Characteristics (per element)

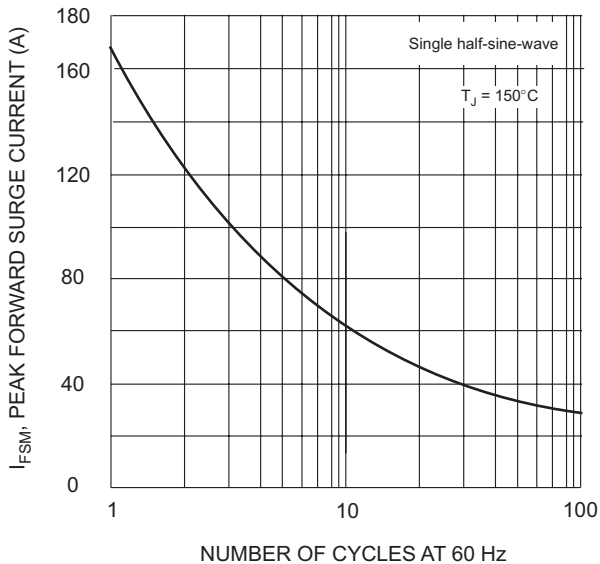


Fig. 3 Maximum Non-Repetitive Surge Current

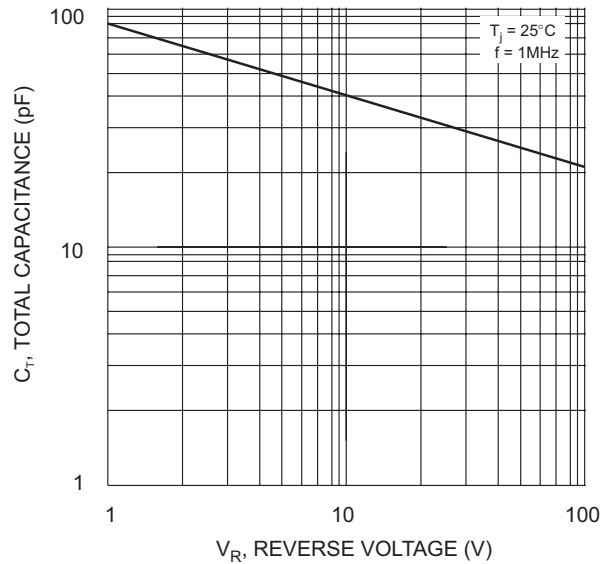


Fig. 4 Typical Total Capacitance, Per Element

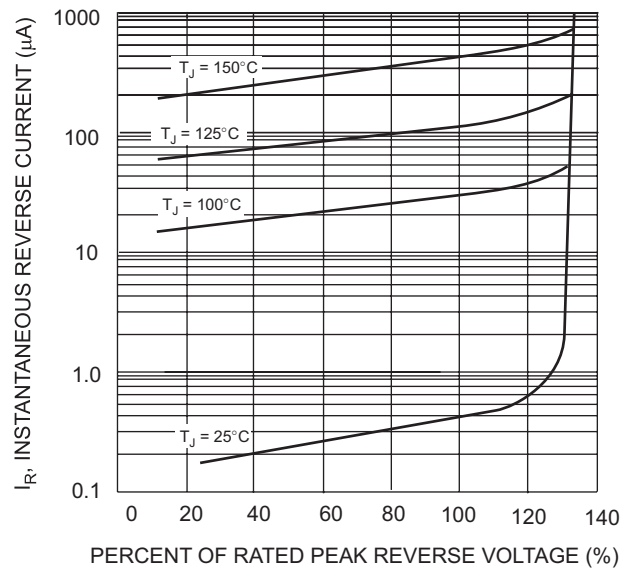


Fig. 5 Typical Reverse Characteristics

**Ordering Information** (Note 5)

| Device     | Packaging | Shipping |
|------------|-----------|----------|
| GBJ10005-F | GBJ       | 15/Tube  |
| GBJ1001-F  | GBJ       | 15/Tube  |
| GBJ1002-F  | GBJ       | 15/Tube  |
| GBJ1004-F  | GBJ       | 15/Tube  |
| GBJ1006-F  | GBJ       | 15/Tube  |
| GBJ1008-F  | GBJ       | 15/Tube  |
| GBJ1010-F  | GBJ       | 15/Tube  |

Notes: 5. For packaging details, visit our website at <http://www.diodes.com/datasheets/ap2008.pdf>.

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