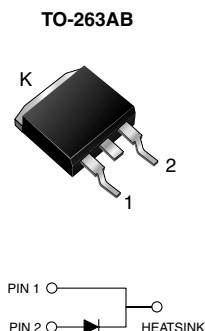


## Ultrafast Plastic Rectifier



### FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, free-wheeling diodes, dc-to-dc converters, and other power switching application.

### MECHANICAL DATA

**Case:** TO-263AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

### PRIMARY CHARACTERISTICS

|                    |               |
|--------------------|---------------|
| $I_{F(AV)}$        | 8.0 A         |
| $V_{RRM}$          | 50 V to 200 V |
| $I_{FSM}$          | 125 A         |
| $t_{rr}$           | 35 ns         |
| $V_F$              | 0.895 V       |
| $T_J \text{ max.}$ | 150 °C        |

### MAXIMUM RATINGS ( $T_A = 25 \text{ °C}$ unless otherwise noted)

| PARAMETER                                                                          | SYMBOL         | GIB1401       | GIB1402 | GIB1403 | GIB1404 | UNIT |
|------------------------------------------------------------------------------------|----------------|---------------|---------|---------|---------|------|
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$      | 50            | 100     | 150     | 200     | V    |
| Maximum RMS voltage                                                                | $V_{RMS}$      | 35            | 70      | 105     | 140     | V    |
| Maximum DC blocking voltage                                                        | $V_{DC}$       | 50            | 100     | 150     | 200     | V    |
| Maximum average forward rectified current at $T_C = 125 \text{ °C}$                | $I_{F(AV)}$    | 8.0           |         |         |         | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 125           |         |         |         | A    |
| Operating and storage temperature range                                            | $T_J, T_{STG}$ | - 65 to + 150 |         |         |         | °C   |

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                          |                         |                 |         |         |         |         |      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-----------------|---------|---------|---------|---------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                          |                         | SYMBOL          | GIB1401 | GIB1402 | GIB1403 | GIB1404 | UNIT |
| Maximum instantaneous forward voltage                                      | I <sub>F</sub> = 4 A                                                     | T <sub>J</sub> = 25 °C  | V <sub>F</sub>  | 0.900   |         |         |         | V    |
|                                                                            | I <sub>F</sub> = 8 A                                                     | T <sub>J</sub> = 25 °C  |                 | 0.975   |         |         |         |      |
|                                                                            | I <sub>F</sub> = 4 A                                                     | T <sub>J</sub> = 100 °C |                 | 0.800   |         |         |         |      |
|                                                                            | I <sub>F</sub> = 8 A                                                     | T <sub>J</sub> = 100 °C |                 | 0.895   |         |         |         |      |
| Maximum DC reverse current at rated DC blocking voltage                    |                                                                          | T <sub>C</sub> = 25 °C  | I <sub>R</sub>  | 5.0     |         |         |         | μA   |
|                                                                            |                                                                          | T <sub>C</sub> = 100 °C |                 | 150     |         |         |         |      |
| Maximum reverse recovery time                                              | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A |                         | t <sub>rr</sub> | 35      |         |         |         | ns   |
| Typical junction capacitance                                               | 4 V, 1 MHz                                                               |                         | C <sub>J</sub>  | 85      |         |         |         | pF   |

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                 |         |         |         |         |                      |
|---------------------------------------------------------------------------------------------|-----------------|---------|---------|---------|---------|----------------------|
| PARAMETER                                                                                   | SYMBOL          | GIB1401 | GIB1402 | GIB1403 | GIB1404 | UNIT                 |
| Typical thermal resistance <sup>(1)</sup>                                                   | $R_{\theta JC}$ |         | 2.25    |         |         | $^{\circ}\text{C/W}$ |

**Note:**

(1) Thermal resistance from junction to case mounted on heatsink

| <b>ORDERING INFORMATION</b> (Example) |                              |                 |              |               |               |
|---------------------------------------|------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE                               | PREFERRED P/N                | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-263AB                              | GIB1401-E3/45                | 1.33            | 45           | 50/tube       | Tube          |
| TO-263AB                              | GIB1401-E3/81                | 1.33            | 81           | 900/reel      | Tape and reel |
| TO-263AB                              | GIB1401HE3/45 <sup>(1)</sup> | 1.33            | 45           | 50/tube       | Tube          |
| TO-263AB                              | GIB1401HE3/81 <sup>(1)</sup> | 1.33            | 81           | 900/reel      | Tape and reel |

**Note:**

(1) Automotive grade AEC Q101 qualified

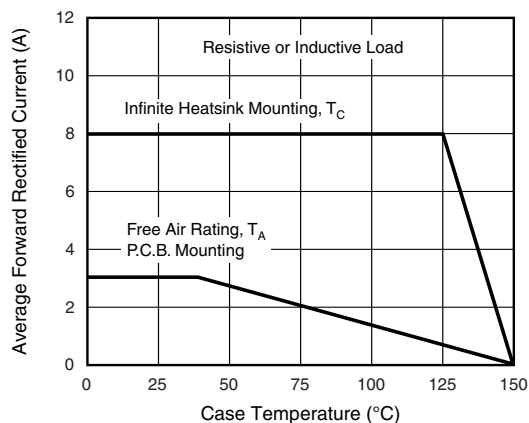
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Figure 1. Maximum Forward Current Derating Curve

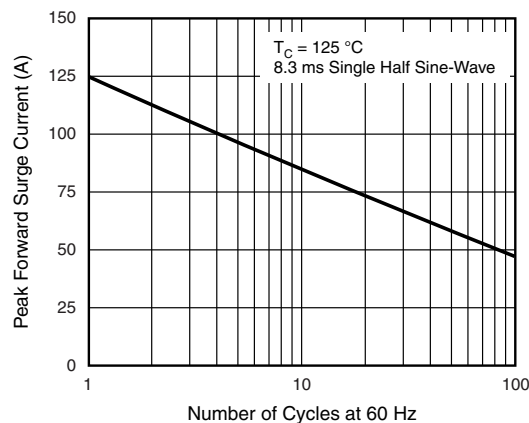


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

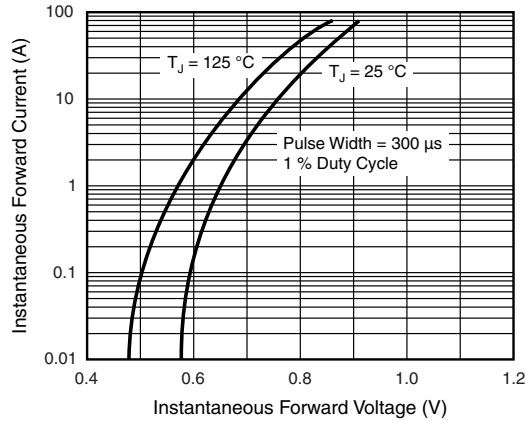


Figure 3. Typical Instantaneous Forward Characteristics

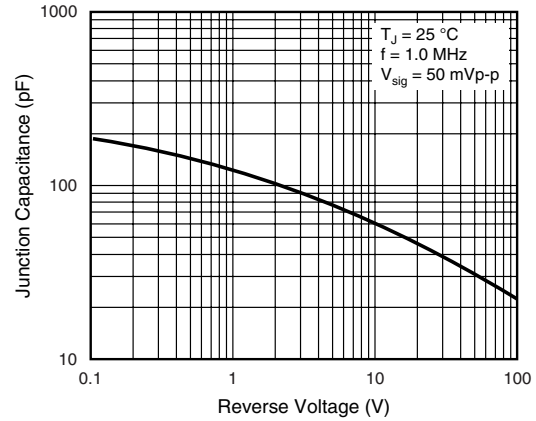


Figure 5. Typical Junction Capacitance

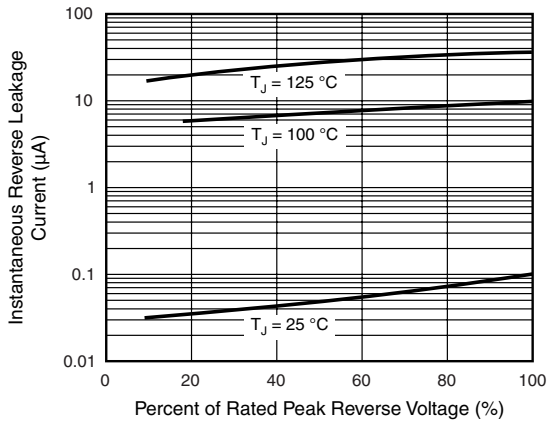
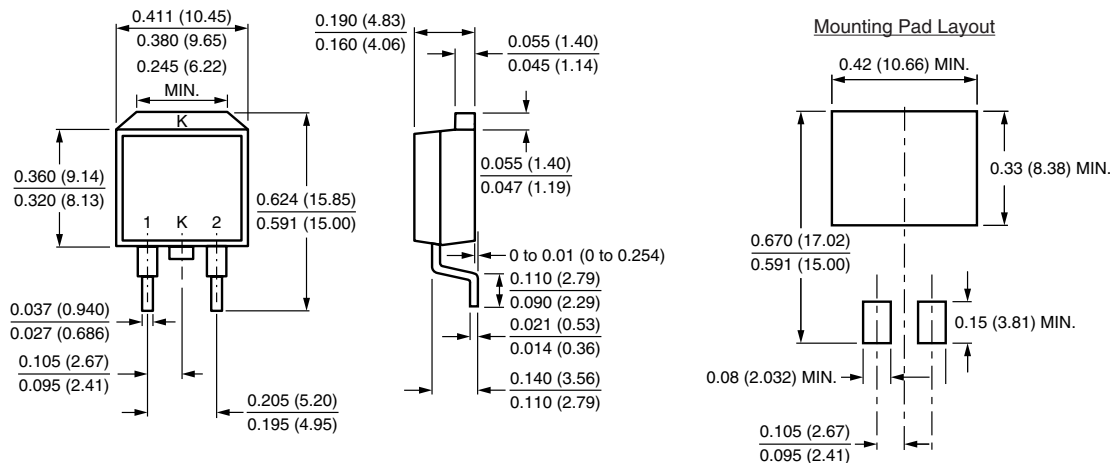


Figure 4. Typical Reverse Leakage Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### TO-263AB





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