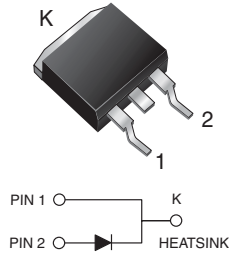


## Ultrafast Plastic Rectifier

**D<sup>2</sup>PAK (TO-263AB)**

**RoHS**  
COMPLIANT

### FEATURES

- Power pack
- Glass passivated pellet 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
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

### DESIGN SUPPORT TOOLS AVAILABLE



#### PRIMARY CHARACTERISTICS

|                        |                               |
|------------------------|-------------------------------|
| $I_{F(AV)}$            | 8.0 A                         |
| $V_{RRM}$              | 50 V, 100 V, 150 V, 200 V     |
| $I_{FSM}$              | 125 A                         |
| $t_{rr}$               | 35 ns                         |
| $V_F$                  | 0.895 V                       |
| $T_J \text{ max.}$     | 150 °C                        |
| Package                | D <sup>2</sup> PAK (TO-263AB) |
| Circuit configurations | Single                        |

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, DC/DC converters, and other power switching application.

### MECHANICAL DATA

**Case:** D<sup>2</sup>PAK (TO-263AB)

Molding compound meets UL 94V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified (“\_X” denotes revision code e.g. A, B,...)

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** as marked

**Mounting Torque:** 10 in-lbs max.

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

| PARAMETER  | SYMBOL         | GIB1401     | GIB1402 | GIB1403 | GIB1404 | UNIT |
|--|----------------|-------------|---------|---------|---------|------|
| Max. repetitive peak reverse voltage   | $V_{RRM}$      | 50          | 100     | 150     | 200     | V    |
| Max. RMS voltage   | $V_{RMS}$      | 35          | 70      | 105     | 140     | V    |
| Max. DC blocking voltage   | $V_{DC}$       | 50          | 100     | 150     | 200     | V    |
| Max. 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   |



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |  |                                   |          |         |         |         |               |      |
|--|--|-----------------------------------|----------|---------|---------|---------|---------------|------|
| PARAMETER  | TEST CONDITIONS  |                                   | SYMBOL   | GIB1401 | GIB1402 | GIB1403 | GIB1404       | UNIT |
| Max. instantaneous forward voltage   | $I_F = 4\text{ A}$   | $T_J = 25\text{ }^\circ\text{C}$  | $V_F$    | 0.900   |         |         | V             |      |
|  | $I_F = 8\text{ A}$   | $T_J = 25\text{ }^\circ\text{C}$  |          | 0.975   |         |         |               |      |
|  | $I_F = 4\text{ A}$   | $T_J = 100\text{ }^\circ\text{C}$ |          | 0.800   |         |         |               |      |
|  | $I_F = 8\text{ A}$   | $T_J = 100\text{ }^\circ\text{C}$ |          | 0.895   |         |         |               |      |
| Max. DC reverse current at rated DC blocking voltage   |  |                                   | $I_R$    | 5.0     |         |         | $\mu\text{A}$ |      |
|  |  |                                   |          | 150     |         |         |               |      |
| Max. reverse recovery time   | $I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$ |                                   | $t_{rr}$ | 35      |         |         | ns            |      |
| Typical junction capacitance   | 4 V, 1 MHz   |                                   | $C_J$    | 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**

<sup>(1)</sup> 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_A/P <sup>(1)</sup> | 1.33            | P            | 50/tube       | Tube          |
| TO-263AB                              | GIB1401HE3_A/I <sup>(1)</sup> | 1.33            | I            | 900/reel      | Tape and reel |

**Note**

<sup>(1)</sup> AEC-Q101 qualified

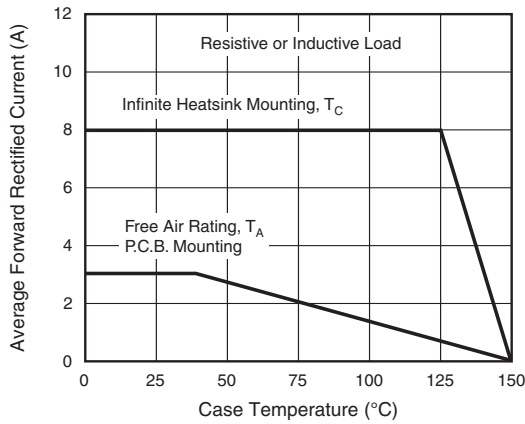
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Max. Forward Current Derating Curve

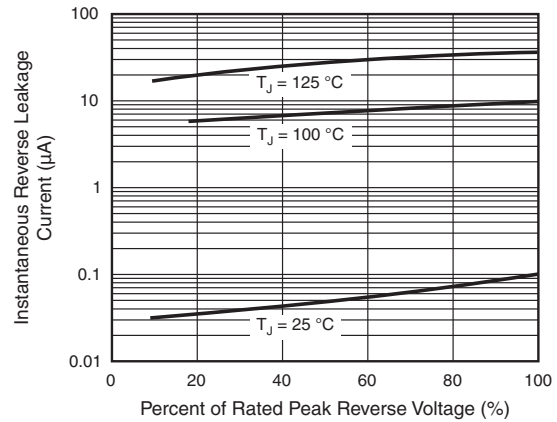


Fig. 4 - Typical Reverse Leakage Characteristics

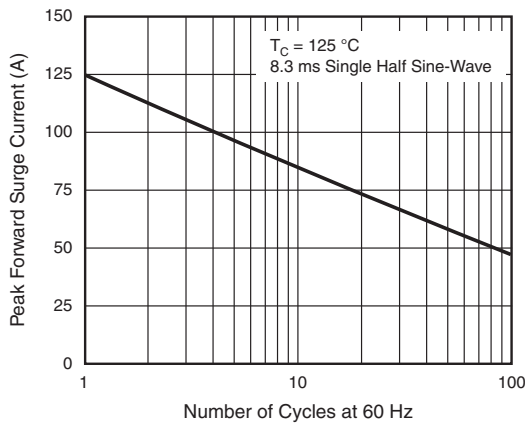


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

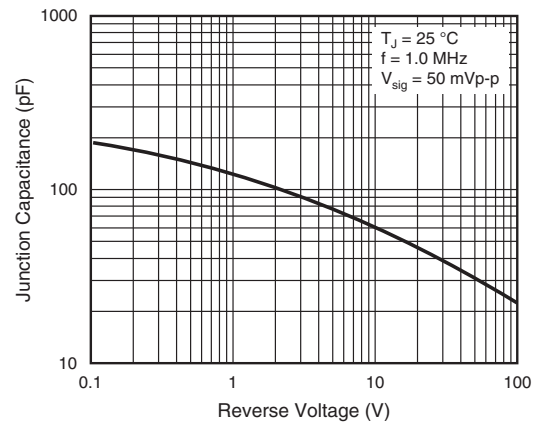


Fig. 5 - Typical Junction Capacitance

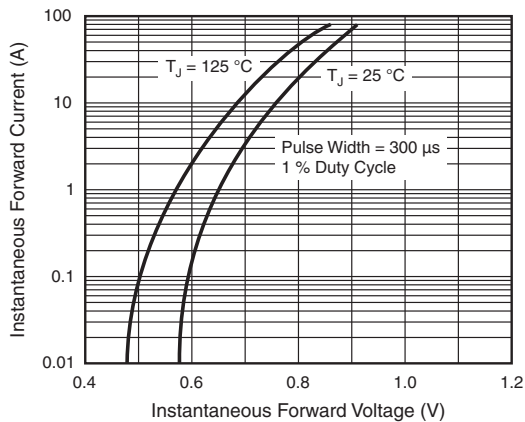
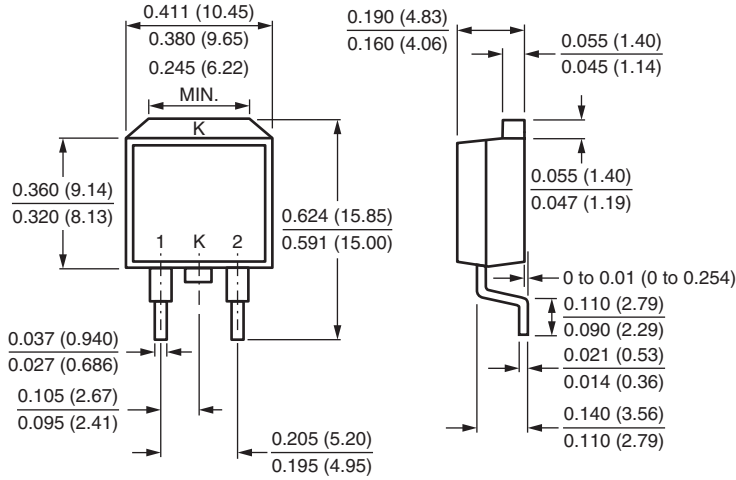


Fig. 3 - Typical Instantaneous Forward Characteristics

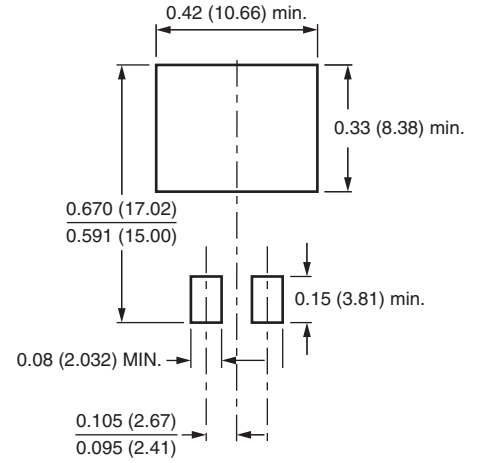


### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### D<sup>2</sup>PAK (TO-263AB)



#### Mounting Pad Layout





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