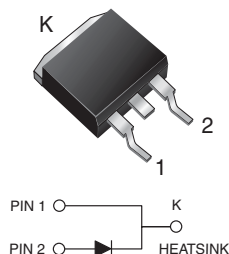


## Ultrafast Plastic Rectifier

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


### 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                        |

### 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)



### 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   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                          |                         |                 |         |         |         |         |      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------|-----------------|---------|---------|---------|---------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                          |                         | SYMBOL          | GIB1401 | GIB1402 | GIB1403 | GIB1404 | UNIT |
| Max. 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                                                       | T <sub>J</sub> = 100 °C |                 | 0.800   |         |         |         |      |
|                                                                            | I <sub>F</sub> = 8 A                                                     | T <sub>J</sub> = 100 °C |                 | 0.895   |         |         |         |      |
| Max. 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     |         |         |         |      |
| Max. 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   |

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ 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

| ORDERING INFORMATION (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)

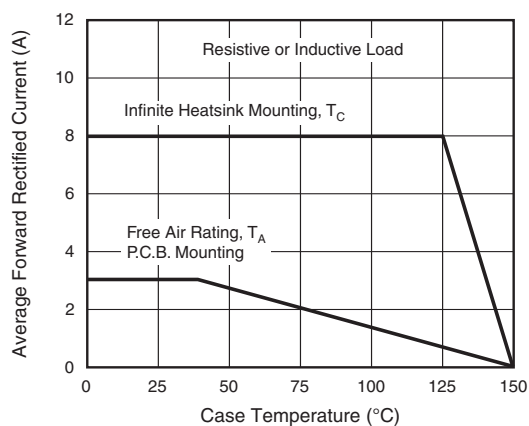


Fig. 1 - Max. Forward Current Derating Curve

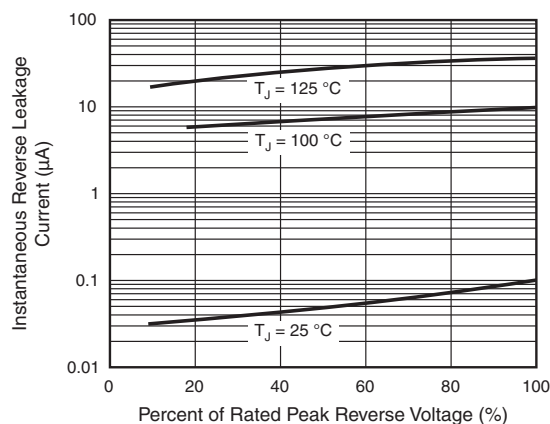


Fig. 4 - Typical Reverse Leakage Characteristics

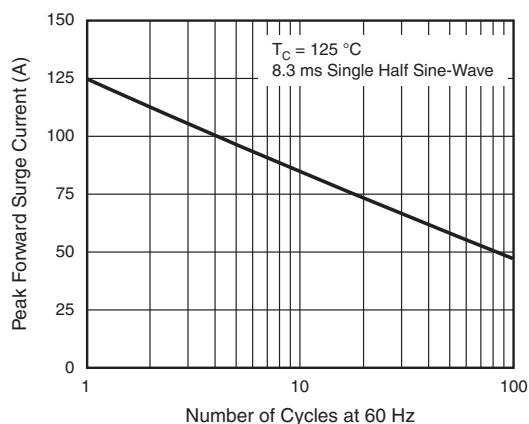


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

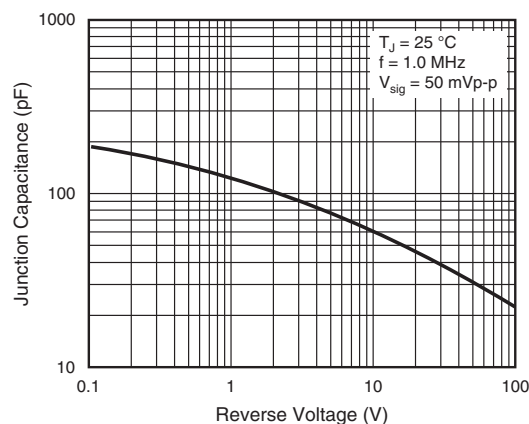


Fig. 5 - Typical Junction Capacitance

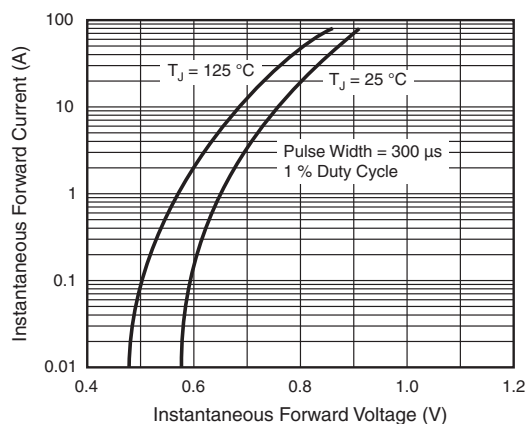
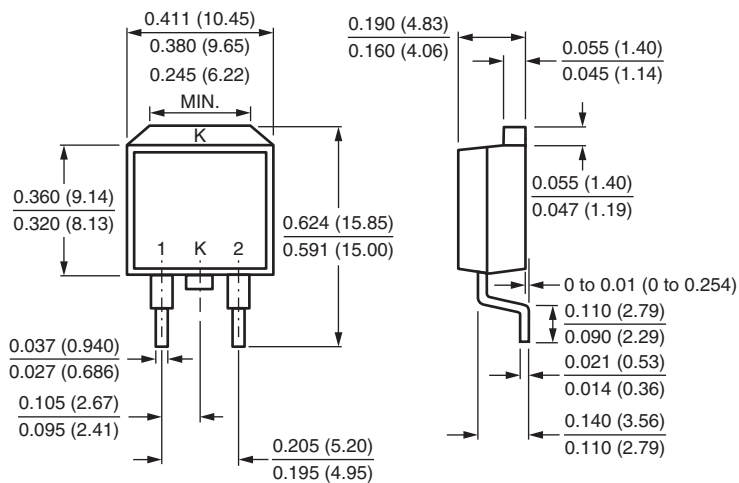


Fig. 3 - Typical Instantaneous Forward Characteristics

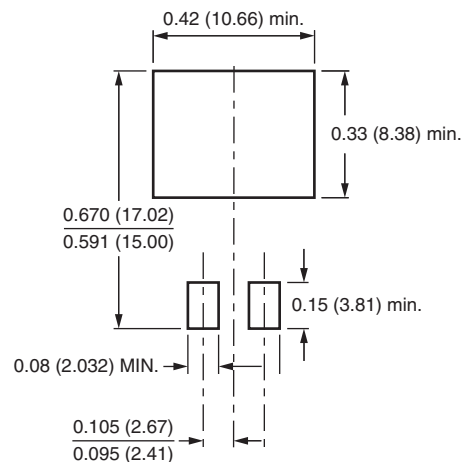


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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



### Mounting Pad Layout





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