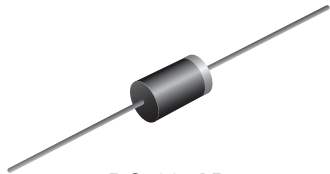




## Glass Passivated Ultrafast Plastic Rectifier



DO-201AD

### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### PRIMARY CHARACTERISTICS

|                       |   |
|-----------------------|---|
| $I_{F(AV)}$           | 3.0 A                                   |
| $V_{RRM}$             | 50 V, 100 V, 150 V, 200 V, 300 V, 400 V |
| $I_{FSM}$             | 125 A                                   |
| $t_{rr}$              | 50 ns                                   |
| $V_F$                 | 0.95 V, 1.25 V                          |
| $T_J \text{ max.}$    | 175 °C                                  |
| Package               | DO-201AD                                |
| Circuit configuration | Single                                  |

### TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, and telecommunication.

### MECHANICAL DATA

**Case:** DO-201AD

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

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER   | SYMBOL         | EGP31A      | EGP31B | EGP31C | EGP31D | EGP31F | EGP31G | UNIT |
|---|----------------|-------------|--------|--------|--------|--------|--------|------|
| Maximum repetitive peak reverse voltage   | $V_{RRM}$      | 50          | 100    | 150    | 200    | 300    | 400    | V    |
| Maximum RMS voltage   | $V_{RMS}$      | 35          | 70     | 105    | 140    | 210    | 280    | V    |
| Maximum DC blocking voltage   | $V_{DC}$       | 50          | 100    | 150    | 200    | 300    | 400    | V    |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_L = 150$ °C | $I_{F(AV)}$    | 3.0         |        |        |        |        |        | 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 +175 |        |        |        |        |        | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |  |                               |        |        |        |        |        |        |      |
|--|--|-------------------------------|--------|--------|--------|--------|--------|--------|------|
| PARAMETER  | TEST CONDITIONS  | SYMBOL                        | EGP31A | EGP31B | EGP31C | EGP31D | EGP31F | EGP31G | UNIT |
| Maximum instantaneous forward voltage                                      | 3.0 A  | V <sub>F</sub> <sup>(1)</sup> | 0.95   |        |        |        | 1.25   |        | V    |
| Maximum DC reverse current at rated DC blocking voltage                    | T <sub>A</sub> = 25 °C   | I <sub>R</sub> <sup>(2)</sup> | 5.0    |        |        |        |        |        | μA   |
|  | T <sub>A</sub> = 125 °C  |                               | 100    |        |        |        |        |        |      |
| 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>               | 50     |        |        |        |        |        | ns   |
| Typical junction capacitance   | 4.0 V, 1 MHz   | C <sub>J</sub>                | 117    |        |        |        | 48     |        | pF   |

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: pulse width, ≤ 40 ms

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                    |        |        |        |        |        |        |      |  |
|---|------------------------------------|--------|--------|--------|--------|--------|--------|------|--|
| PARAMETER   | SYMBOL                             | EGP31A | EGP31B | EGP31C | EGP31D | EGP31F | EGP31G | UNIT |  |
| Typical thermal resistance  | R <sub>θJA</sub> <sup>(1)(2)</sup> | 55     |        |        |        |        |        | °C/W |  |
|   | R <sub>θJL</sub> <sup>(2)(3)</sup> | 8.5    |        |        |        |        |        |      |  |

**Notes**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/ R<sub>θJA</sub>
- (2) Thermal resistance R<sub>θJA</sub> - junction to ambient, R<sub>θJL</sub> - junction to lead at 0.375" (9.5 mm) lead length (use DC test method)
- (3) Device mounted on 30 mm x 30 mm PCB pad size areas.

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| EGP31G-E3/C                    | 1.21            | C                      | 1400          | 13" diameter paper tape and reel |
| EGP31G-E3/D                    | 1.21            | D                      | 1000          | Ammo pack packaging              |

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

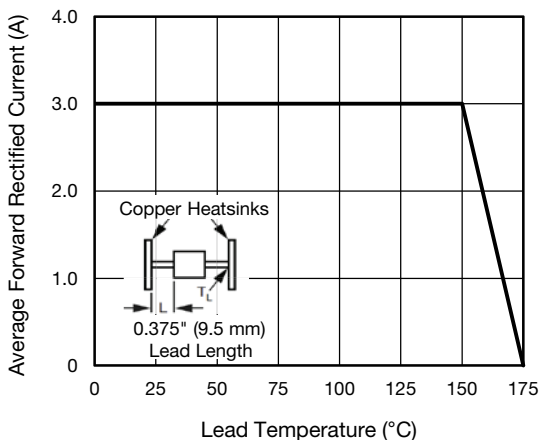


Fig. 1 - Maximum Forward Current Derating Curve

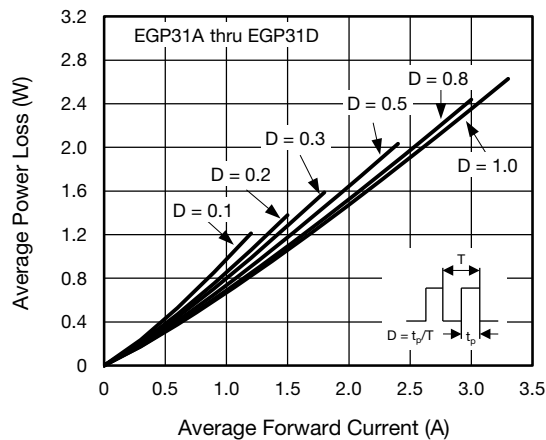


Fig. 2 - Forward Power Loss Characteristics

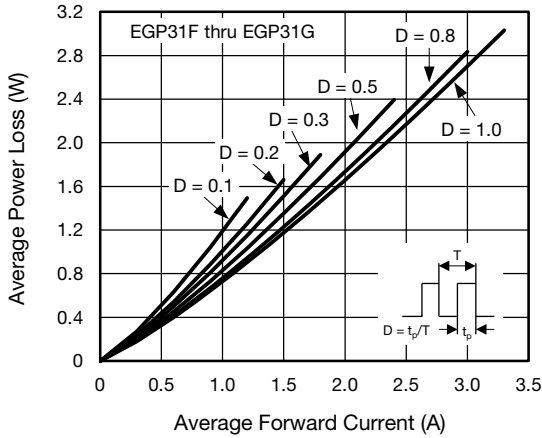


Fig. 3 - Forward Power Loss Characteristics

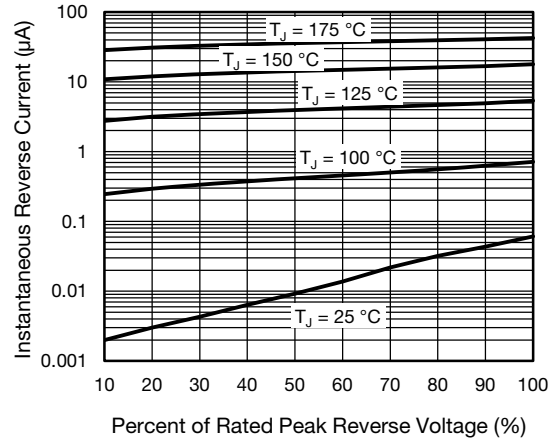


Fig. 6 - Typical Reverse Leakage Characteristics

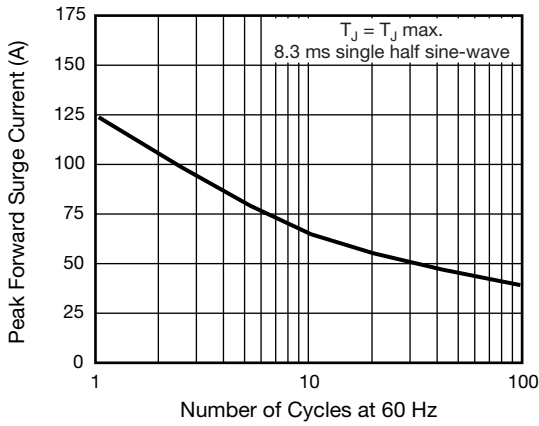


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current

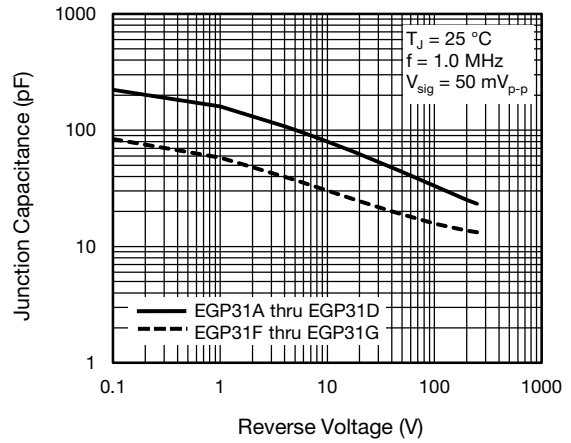


Fig. 7 - Typical Junction Capacitance

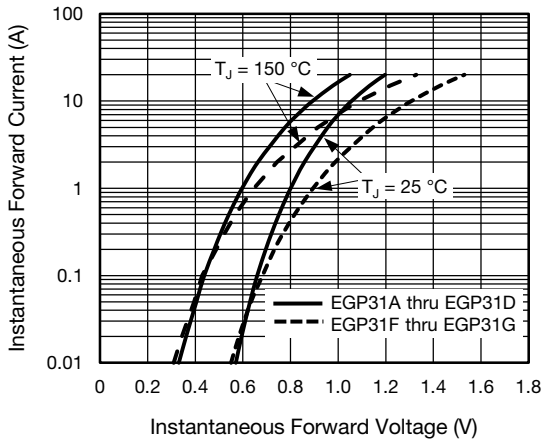


Fig. 5 - Typical Instantaneous Forward Characteristics

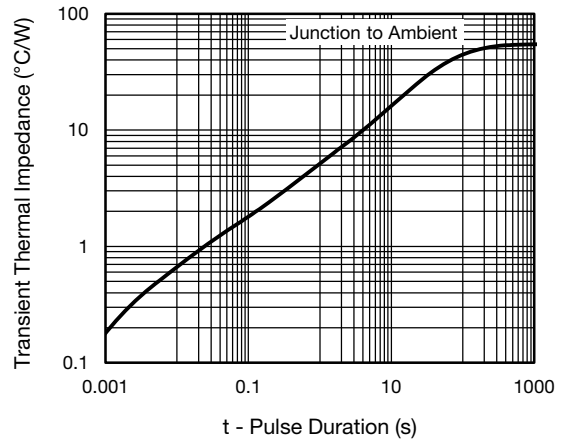
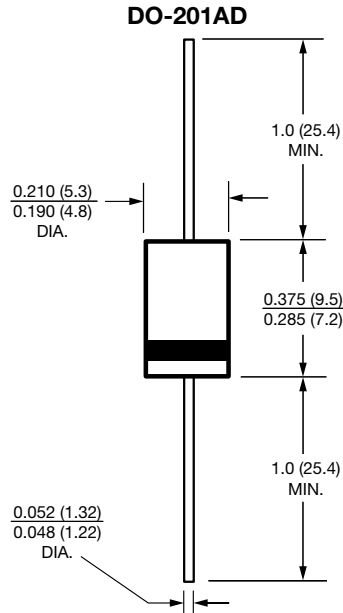


Fig. 8 - Typical Transient Thermal Impedance



**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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