



## Glass Passivated Junction Plastic Rectifier



### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Low leakage current, typical  $I_R$  less than 0.1  $\mu\text{A}$
- Low forward voltage drop
- 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

### TYPICAL APPLICATIONS

For use in high voltage rectification of power supply, inverters, converters, freewheeling diodes, and snubber circuit application.

### MECHANICAL DATA

**Case:** DO-201AD, molded epoxy over glass body  
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

| PRIMARY CHARACTERISTICS |   |
|-------------------------|---|
| $I_{F(AV)}$             | 3.0 A   |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 125 A   |
| $I_R$                   | 5.0 $\mu\text{A}$                               |
| $V_F$                   | 1.2 V, 1.1 V                                    |
| $T_J$ max.              | 175 °C  |
| Package                 | DO-201AD  |
| Circuit configuration   | Single  |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)   |                |             |       |       |       |       |       |       |               |
|---|----------------|-------------|-------|-------|-------|-------|-------|-------|---------------|
| PARAMETER   | SYMBOL         | GP30A       | GP30B | GP30D | GP30G | GP30J | GP30K | GP30M | UNIT          |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$      | 50          | 100   | 200   | 400   | 600   | 800   | 1000  | V             |
| Maximum RMS voltage   | $V_{RMS}$      | 35          | 70    | 140   | 280   | 420   | 560   | 700   | V             |
| Maximum DC blocking voltage   | $V_{DC}$       | 50          | 100   | 200   | 400   | 600   | 800   | 1000  | V             |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_A = 55$ °C             | $I_{F(AV)}$    | 3.0         |       |       |       |       |       |       | A             |
| Peak forward surge current 8.3 ms single half<br>sine-wave superimposed on rated load                 | $I_{FSM}$      | 125         |       |       |       |       |       |       | A             |
| Maximum full load reverse current, full cycle average<br>0.375" (9.5 mm) lead length at $T_A = 55$ °C | $I_{R(AV)}$    | 100         |       |       |       |       |       |       | $\mu\text{A}$ |
| Operating junction 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          | GP30A | GP30B | GP30D | GP30G | GP30J | GP30K | GP30M | UNIT |
| Maximum instantaneous forward voltage                                      | 3.0 A  | V <sub>F</sub>  | 1.2   |       | 1.1   |       |       |       |       | V    |
| Maximum reverse current at rated DC blocking voltage                       | T <sub>A</sub> = 25 °C   | I <sub>R</sub>  | 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 V, I <sub>rr</sub> = 0.25 A | t <sub>rr</sub> |       |       |       |       | 5.0   |       |       | μs   |
| Typical junction capacitance   | 4.0 V, 1 MHz   | C <sub>J</sub>  |       |       |       |       | 40    |       |       | pF   |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |       |       |       |       |       |       |       |      |  |
|---|---------------------------------|-------|-------|-------|-------|-------|-------|-------|------|--|
| PARAMETER   | SYMBOL                          | GP30A | GP30B | GP30D | GP30G | GP30J | GP30K | GP30M | UNIT |  |
| Typical thermal resistance  | R <sub>θJA</sub> <sup>(1)</sup> |       |       |       |       | 20    |       |       | °C/W |  |
|   | R <sub>θJL</sub> <sup>(1)</sup> |       |       |       |       | 10    |       |       |      |  |

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead at 0.375" (9.5 mm) lead length, PCB mounted

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| GP30J-E3/54                    | 1.28            | 54                     | 1400          | 13" diameter paper tape and reel |
| GP30J-E3/73                    | 1.28            | 73                     | 1000          | Ammo pack packaging              |

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

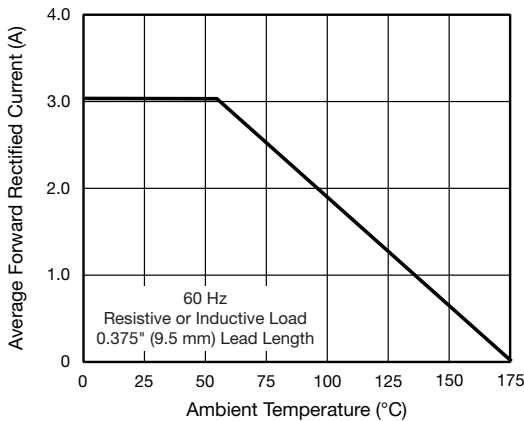


Fig. 1 - Forward Current Derating Curve

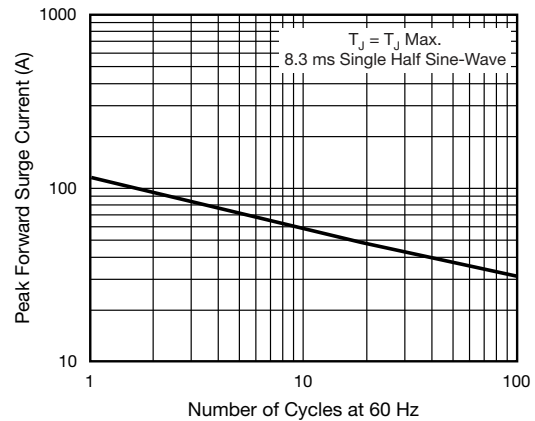


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

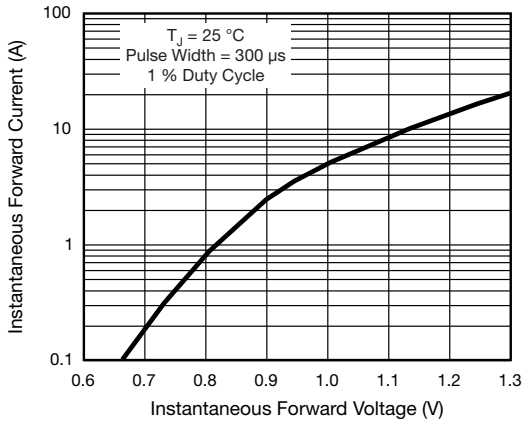


Fig. 3 - Typical Instantaneous Forward Characteristics

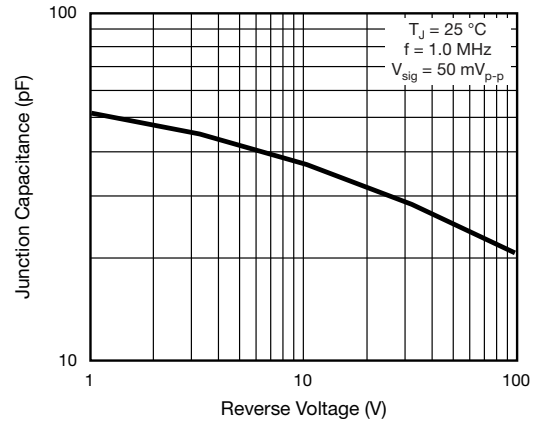


Fig. 5 - Typical Junction Capacitance

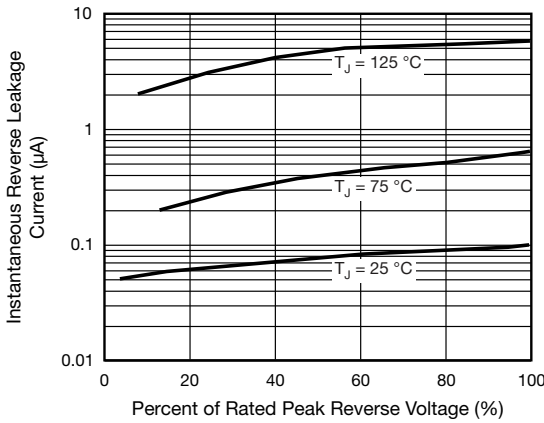
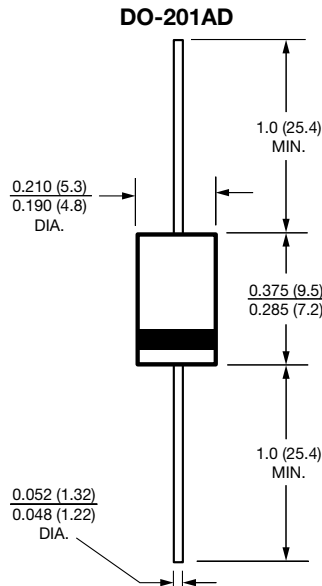


Fig. 4 - Typical Reverse Characteristics

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





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