

**Glass Passivated Junction Fast Switching Plastic Rectifier****FEATURES**

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current, typical  $I_R$  less than 0.2  $\mu\text{A}$
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- 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 fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer, automotive, and telecommunication.

**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  
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 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   |
| $V_F$                   | 1.3 V   |
| $I_R$                   | 5.0 $\mu\text{A}$                               |
| $T_J$ max.              | 175 °C  |
| Package                 | DO-201AD  |
| Diode variation         | Single die                                      |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)  |                |               |        |        |        |        |        |        |               |
|---|----------------|---------------|--------|--------|--------|--------|--------|--------|---------------|
| PARAMETER   | SYMBOL         | RGP30A        | RGP30B | RGP30D | RGP30G | RGP30J | RGP30K | RGP30M | 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 0.375" (9.5 mm) lead length at $T_A = 55\text{ °C}$             | $I_{F(AV)}$    | 3.0           |        |        |        |        |        |        | A             |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load                        | $I_{FSM}$      | 125           |        |        |        |        |        |        | A             |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A = 55\text{ °C}$ | $I_{R(AV)}$    | 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          | RGP30A | RGP30B | RGP30D | RGP30G | RGP30J | RGP30K | RGP30M | UNIT |    |
| Maximum instantaneous forward voltage                                      | 3.0 A  | V <sub>F</sub>  | 1.3    |        |        |        |        |        |        |      | V  |
| Maximum DC 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 A, I <sub>rr</sub> = 0.25 A | t <sub>rr</sub> | 150    |        |        |        |        | 250    | 500    |      | ns |
| Typical junction capacitance   | 4.0 V, 1 MHz   | C <sub>J</sub>  | 60     |        |        |        |        |        |        |      | pF |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |        |        |        |        |        |      |      |
|---|---------------------------------|--------|--------|--------|--------|--------|--------|--------|------|------|
| PARAMETER   | SYMBOL                          | RGP30A | RGP30B | RGP30D | RGP30G | RGP30J | RGP30K | RGP30M | UNIT |      |
| Typical thermal resistance  | R <sub>θJA</sub> <sup>(1)</sup> | 20     |        |        |        |        |        |        |      | °C/W |

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| RGP30J-E3/54                   | 1.28            | 54                     | 1400          | 13" diameter paper tape and reel |
| RGP30J-E3/73                   | 1.28            | 73                     | 1000          | Ammo pack packaging              |
| RGP30JHE3/54 <sup>(1)</sup>    | 1.28            | 54                     | 1400          | 13" diameter paper tape and reel |
| RGP30JHE3/73 <sup>(1)</sup>    | 1.28            | 73                     | 1000          | Ammo pack packaging              |

**Note**

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

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

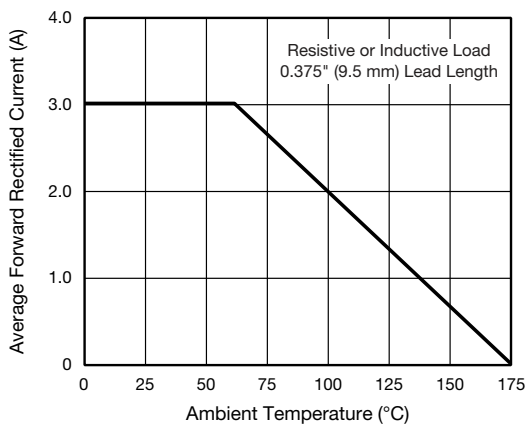


Fig. 1 - Forward Current Derating Curve

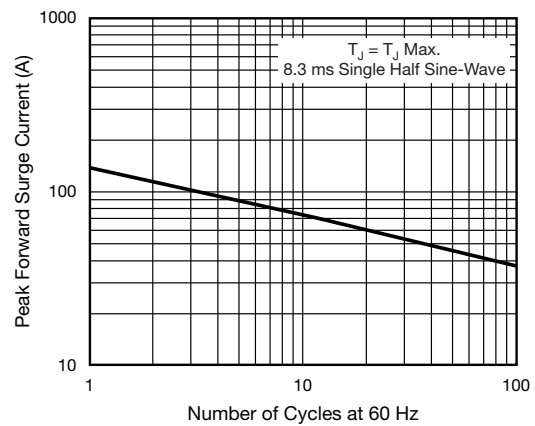


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

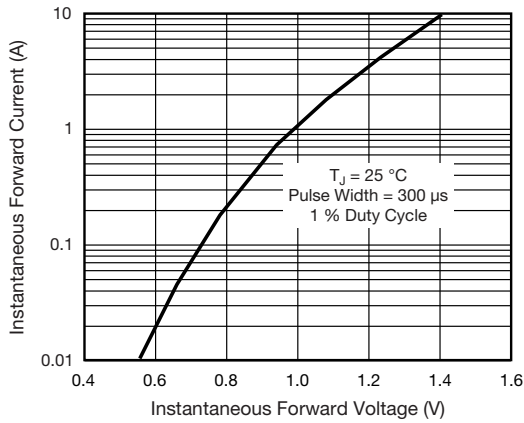


Fig. 3 - Typical Instantaneous Forward Characteristics

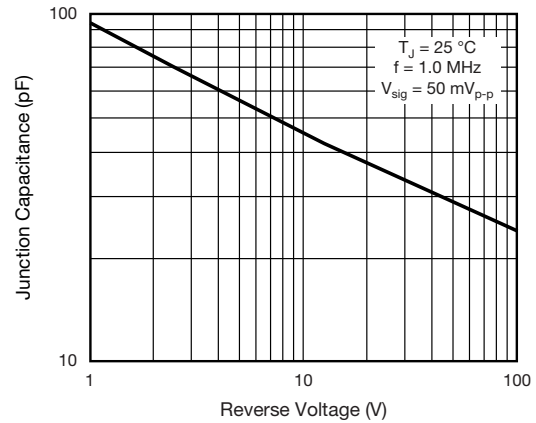


Fig. 5 - Typical Junction Capacitance

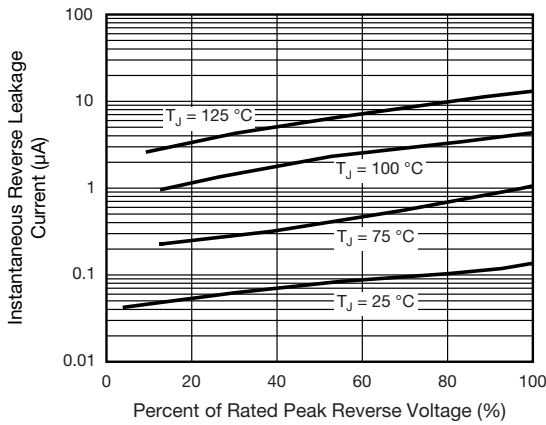
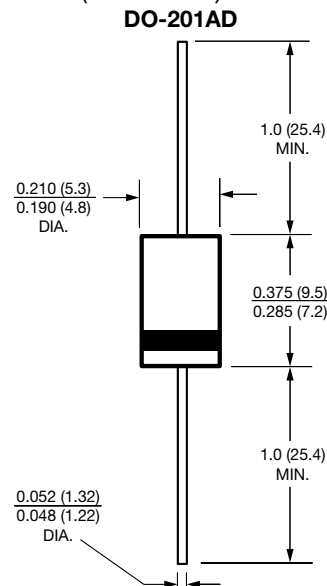


Fig. 4 - Typical Reverse Characteristics

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





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