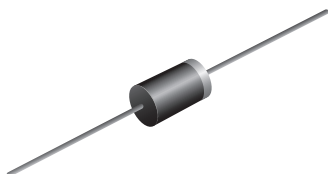




## Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®



DO-201AD

## FEATURES

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

## 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 $\mu A$                                     |
| $V_F$            | 1.2 V, 1.1 V                                    |
| $T_J$ max.       | 175 °C                                          |
| Package          | DO-201AD                                        |
| Diode variations | Single die                                      |

## 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  
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

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           |       |       |       |       |       |       | $\mu A$ |
| 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**

(1) 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              |
| GP30JHE3/54 <sup>(1)</sup>     | 1.28            | 54                     | 1400          | 13" diameter paper tape and reel |
| GP30JHE3/73 <sup>(1)</sup>     | 1.28            | 73                     | 1000          | Ammo pack packaging              |

**Note**

(1) AEC-Q101 qualified

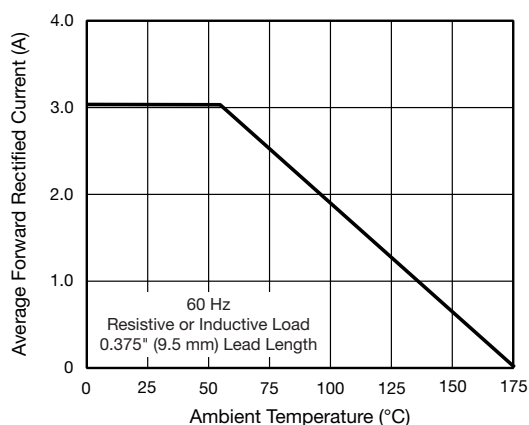
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

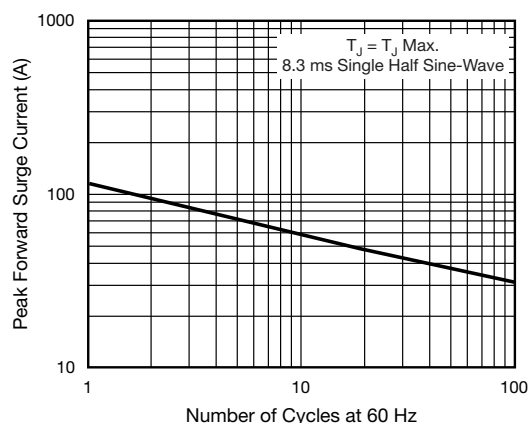


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

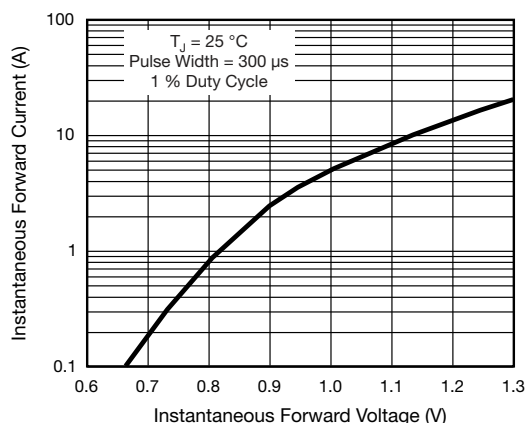


Fig. 3 - Typical Instantaneous Forward Characteristics

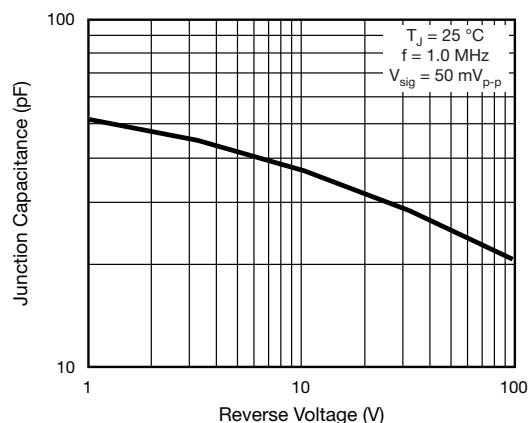


Fig. 5 - Typical Junction Capacitance

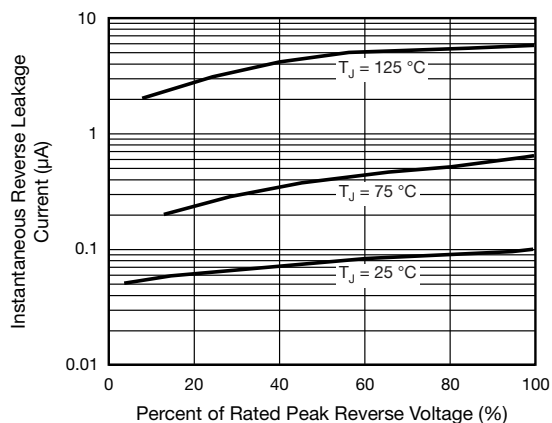
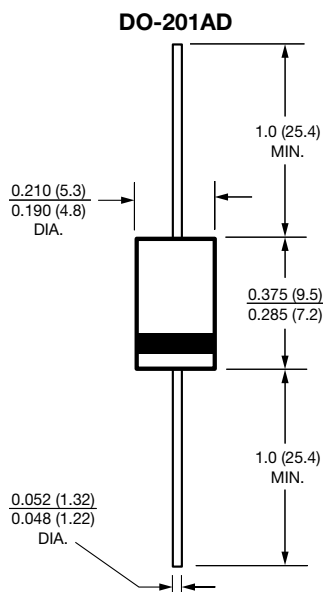


Fig. 4 - Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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