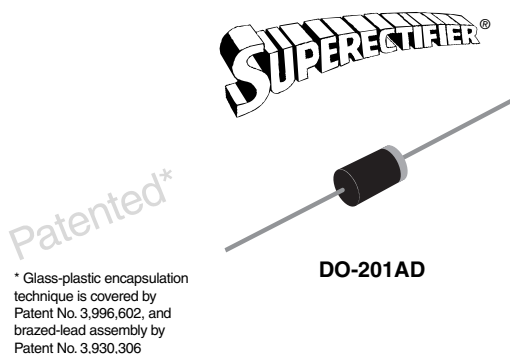


## Glass Passivated Junction Plastic Rectifiers


**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
- Meets environmental standard MIL-S-19500
- Solder dip  $260^\circ C$ , 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


**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

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), 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 to 1000 V |
| $I_{FSM}$   | 125 A          |
| $I_R$       | $5.0 \mu A$    |
| $V_F$       | 1.2 V, 1.1 V   |
| $T_J$ max.  | $175^\circ C$  |

### MAXIMUM RATINGS ( $T_A = 25^\circ C$ 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 0.375" (9.5 mm) lead length at $T_A = 55^\circ C$             | $I_{F(AV)}$    | 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 $T_A = 55^\circ C$ | $I_{R(AV)}$    | 100           |       |       |       |       |       |       | $\mu A$    |
| Operating junction and storage temperature range                                                        | $T_J, T_{STG}$ | - 65 to + 175 |       |       |       |       |       |       | $^\circ C$ |

| 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<br>T <sub>A</sub> = 125 °C | I <sub>R</sub>  | 5.0<br>100 |       |       |       |       |       |       | μA   |
| Maximum reverse recovery time                                              | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 V,<br>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 <sup>(1)</sup>                               | R <sub>θJA</sub> | 20    |       |       |       |       |       |       | °C/W |  |
|                                                                         | R <sub>θJL</sub> | 10    |       |       |       |       |       |       |      |  |

**Note:**

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

| <b>ORDERING INFORMATION</b> (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) Automotive grade AEC Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

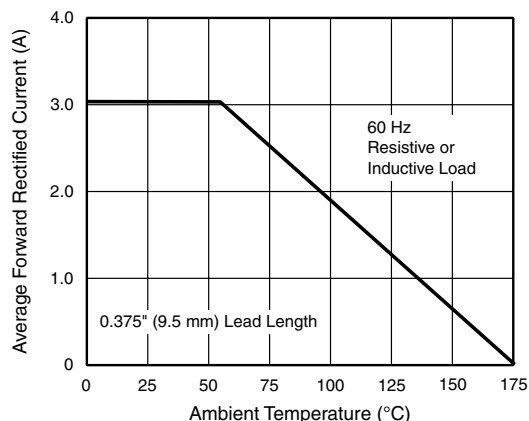


Figure 1. Forward Current Derating Curve

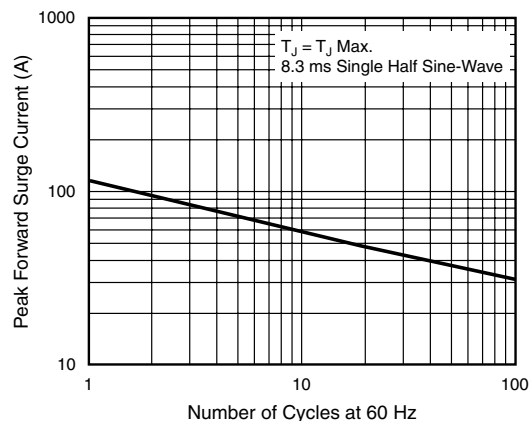


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

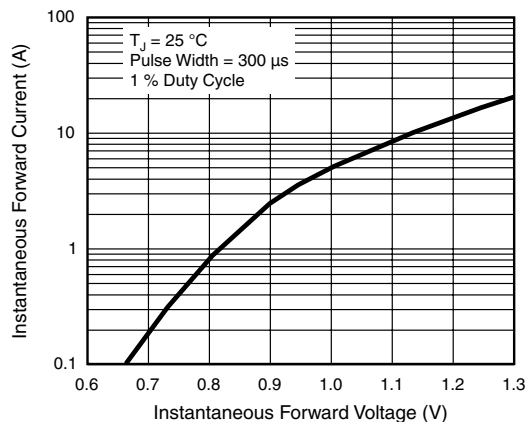


Figure 3. Typical Instantaneous Forward Characteristics

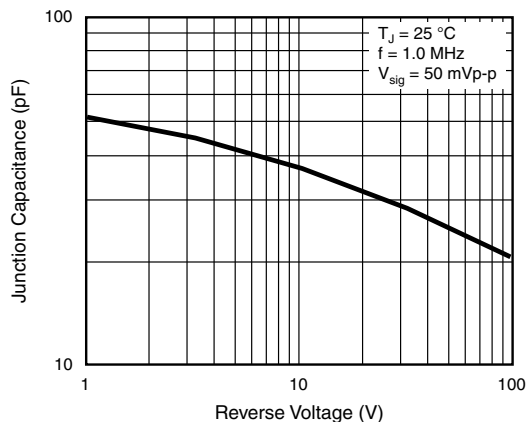


Figure 5. Typical Junction Capacitance

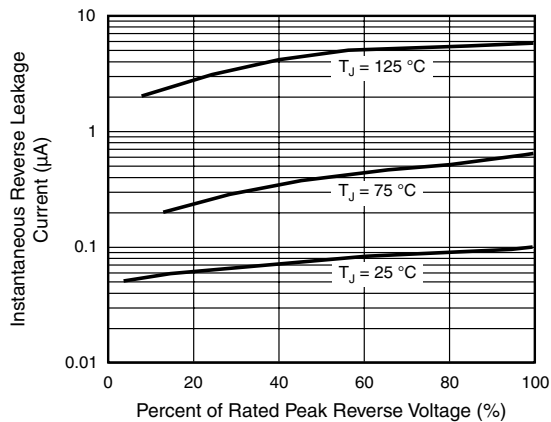
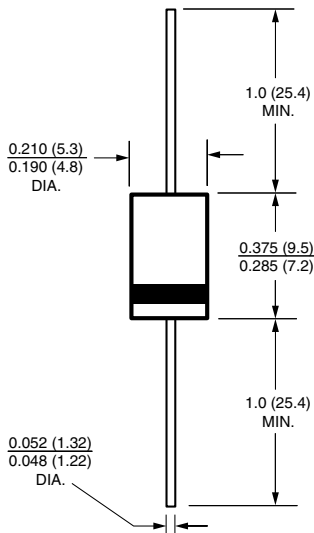


Figure 4. Typical Reverse Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-201AD





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