

## General Purpose Plastic Rectifier


**DO-201AD**

### FEATURES

- Low forward voltage drop
- Low leakage current,  $I_R$  less than 0.1  $\mu\text{A}$
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes application.

#### Note

- These devices are not AEC-Q101 qualified.

### MECHANICAL DATA

**Case:** DO-201AD, molded epoxy 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             |
| $V_{RRM}$               | 200 V to 1300 V   |
| $I_{FSM}$               | 150 A             |
| $I_R$                   | 5.0 $\mu\text{A}$ |
| $V_F$                   | 1.1 V             |
| $T_J$ max.              | 150 °C            |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                       |                |               |        |        |        |        |               |
|--|----------------|---------------|--------|--------|--------|--------|---------------|
| PARAMETER  | SYMBOL         | BY251P        | BY252P | BY253P | BY254P | BY255P | UNIT          |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 200           | 400    | 600    | 800    | 1300   | V             |
| Maximum RMS voltage  | $V_{RMS}$      | 140           | 280    | 420    | 560    | 910    | V             |
| Maximum DC blocking voltage  | $V_{DC}$       | 200           | 400    | 600    | 800    | 1300   | V             |
| Maximum average forward rectified current<br>10 mm lead length                       | $I_{F(AV)}$    | 3.0           |        |        |        |        | A             |
| Peak forward surge current 10 ms single half<br>sine-wave superimposed on rated load | $I_{FSM}$      | 150           |        |        |        |        | A             |
| Maximum full load reverse current, full cycle average<br>10 mm lead length           | $I_{R(AV)}$    | 100           |        |        |        |        | $\mu\text{A}$ |
| Operating junction and storage temperature range                                     | $T_J, T_{STG}$ | - 55 to + 150 |        |        |        |        | °C            |

| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ °C}$ unless otherwise noted) |  |          |        |        |        |        |               |      |
|---|--|----------|--------|--------|--------|--------|---------------|------|
| PARAMETER   | TEST CONDITIONS  | SYMBOL   | BY251P | BY252P | BY253P | BY254P | BY255P        | UNIT |
| Maximum instantaneous forward voltage                                     | 3.0 A  | $V_F$    | 1.1    |        |        |        | V             |      |
| Maximum reverse current at rated DC blocking voltage                      | $T_A = 25\text{ °C}$   | $I_R$    | 5.0    |        |        |        | $\mu\text{A}$ |      |
| Maximum reverse recovery time   | $I_F = 0.5\text{ A}, I_R = 1.0\text{ V}, I_{rr} = 0.25\text{ A}$ | $t_{rr}$ | 3.0    |        |        |        | $\mu\text{s}$ |      |
| Typical junction capacitance  | 4.0 V, 1 MHz   | $C_J$    | 40     |        |        |        | pF            |      |

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

| PARAMETER                  | SYMBOL                | BY251P | BY252P | BY253P | BY254P | BY255P | UNIT               |
|----------------------------|-----------------------|--------|--------|--------|--------|--------|--------------------|
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 20     |        |        |        |        | $^\circ\text{C/W}$ |
|                            | $R_{\theta JL}^{(1)}$ | 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

### ORDERING INFORMATION (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
|---------------|-----------------|------------------------|---------------|----------------------------------|
| BY253P-E3/54  | 1.1             | 54                     | 1400          | 13" diameter paper tape and reel |
| BY253P-E3/73  | 1.1             | 73                     | 1000          | Ammo pack packaging              |

### RATINGS AND CHARACTERISTICS CURVES

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

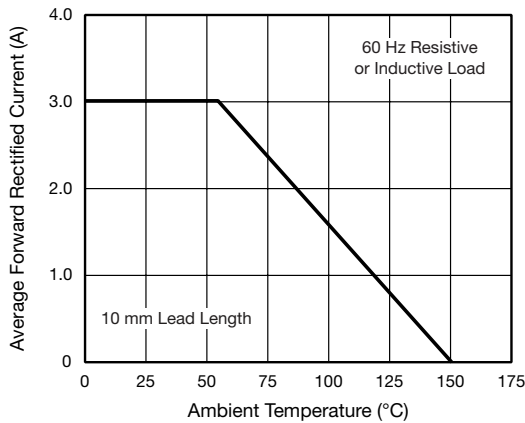


Fig. 1 - Forward Current Derating Curve

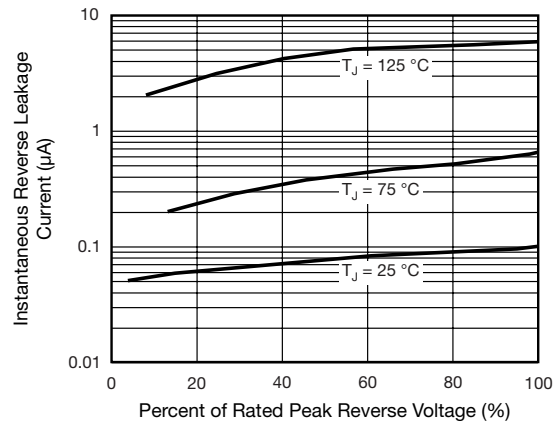


Fig. 3 - Maximum Non-repetitive Peak Forward Surge Current

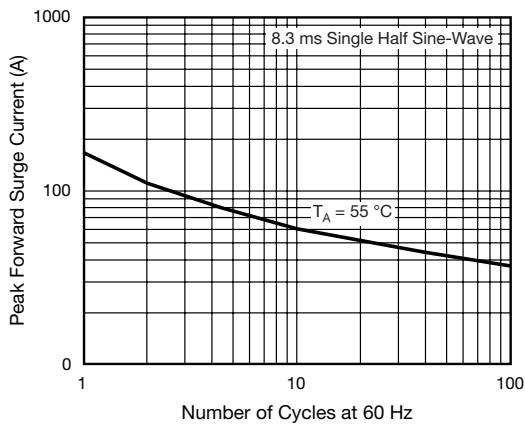


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

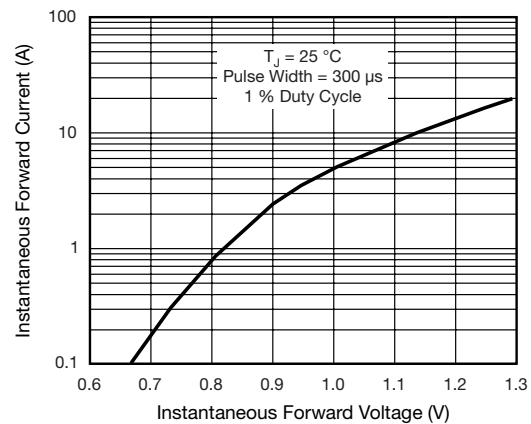


Fig. 4 - Typical Instantaneous Forward Characteristics

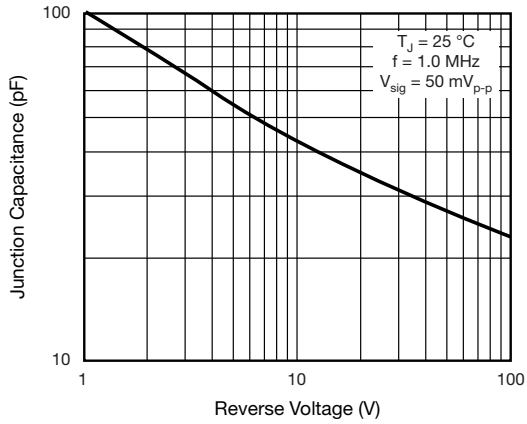
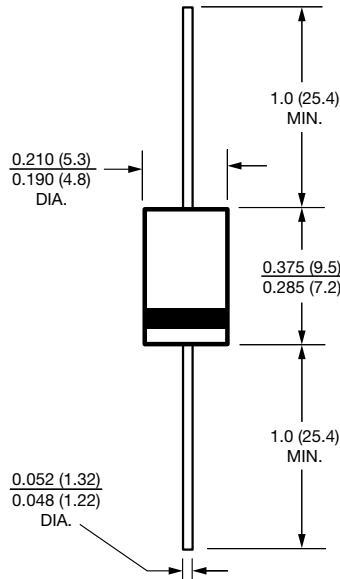


Fig. 5 - Typical Junction Capacitance

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

**DO-201AD**





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