



## Soft Recovery Fast Switching Plastic Rectifier



DO-201AD

### FEATURES

- Fast switching for high efficiency
- Low forward voltage drop
- Low leakage current
- 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 medium frequency rectification of switching mode power supplies, inverters, converters, TV sanning, Ultrasonic-system, speed controlled DC motors, low RF interference and freewheeling diode circuit.

#### 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 |                                   |
|-------------------------|-----------------------------------|
| $I_{F(AV)}$             | 5.0 A                             |
| $V_{RRM}$               | 100 V, 200 V, 400 V, 600 V, 800 V |
| $I_{FSM}$               | 200 A                             |
| $t_{rr}$                | 200 ns                            |
| $I_R$                   | 10 $\mu$ A                        |
| $V_F$                   | 1.35 V                            |
| $T_J$ max.              | 125 °C                            |
| Package                 | DO-201AD                          |
| Diode variation         | Single die                        |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                                            |             |               |           |           |           |           |      |
|----------------------------------------------------------------------------------------------------|-------------|---------------|-----------|-----------|-----------|-----------|------|
| PARAMETER                                                                                          | SYMBOL      | BY500-100     | BY500-200 | BY500-400 | BY500-600 | BY500-800 | UNIT |
| Maximum repetitive peak reverse voltage                                                            | $V_{RRM}$   | 100           | 200       | 400       | 600       | 800       | V    |
| Maximum RMS voltage                                                                                | $V_{RMS}$   | 70            | 140       | 280       | 420       | 560       | V    |
| Maximum DC blocking voltage                                                                        | $V_{DC}$    | 100           | 200       | 400       | 600       | 800       | V    |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_L = 45$ °C             | $I_{F(AV)}$ | 5.0           |           |           |           |           | A    |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load at $T_A = 25$ °C | $I_{FSM}$   | 200           |           |           |           |           | A    |
| Maximum repetitive peak forward surge                                                              | $I_{FRM}$   | 10            |           |           |           |           | A    |
| Operating junction temperature range                                                               | $T_J$       | - 50 to + 125 |           |           |           |           | °C   |
| Storage temperature range                                                                          | $T_{STG}$   | - 50 to + 150 |           |           |           |           | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                                                              |                         |                      |           |           |           |           |           |      |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|-----------|-----------|-----------|-----------|-----------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                                                              |                         | SYMBOL               | BY500-100 | BY500-200 | BY500-400 | BY500-600 | BY500-800 | UNIT |
| Maximum instantaneous forward voltage                                      | 5.0 A                                                                                                        |                         | V <sub>F</sub>       | 1.35      |           |           |           |           | V    |
| Maximum DC reverse current at rated DC blocking voltage                    |                                                                                                              | T <sub>A</sub> = 25 °C  | I <sub>R</sub>       | 10        |           |           |           |           | μA   |
|                                                                            |                                                                                                              | T <sub>A</sub> = 100 °C |                      | 1.0       |           |           |           |           | mA   |
| Maximum reverse recovery time                                              | I <sub>F</sub> = 1.0 A, V <sub>R</sub> = 30 V,<br>dI/dt = 50 A/μs,<br>I <sub>rr</sub> = 10 % I <sub>RM</sub> |                         | t <sub>rr</sub>      | 200       |           |           |           |           | ns   |
| Maximum reverse recovery current                                           |                                                                                                              |                         | I <sub>RM(REC)</sub> | 2.0       |           |           |           |           | A    |
| Typical junction capacitance                                               | 4.0 V, 1 MHz                                                                                                 |                         | C <sub>J</sub>       | 28        |           |           |           |           | pF   |

| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                       |           |           |           |           |           |                             |  |
|--------------------------------------------------------------------------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------------------------|--|
| PARAMETER                                                                            | SYMBOL                | BY500-100 | BY500-200 | BY500-400 | BY500-600 | BY500-800 | UNIT                        |  |
| Typical thermal resistance                                                           | $R_{\theta JA}^{(1)}$ | 22        |           |           |           |           | $^{\circ}\text{C}/\text{W}$ |  |

## Note

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length with both leads to heat sink

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| BY500-400-E3/54                | 1.1             | 54                     | 1400          | 13" diameter paper tape and reel |
| BY500-400-E3/73                | 1.1             | 73                     | 1000          | Ammo pack packaging              |

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

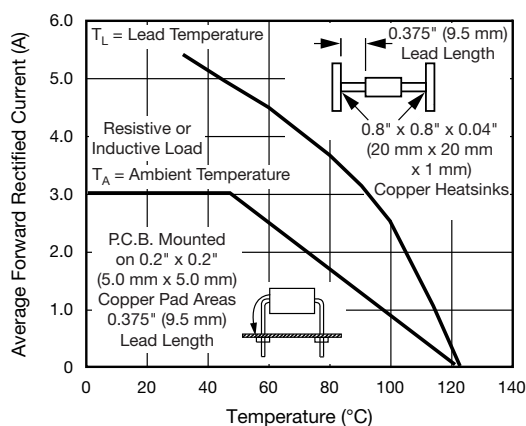


Fig. 1 - Forward Current Derating Curves

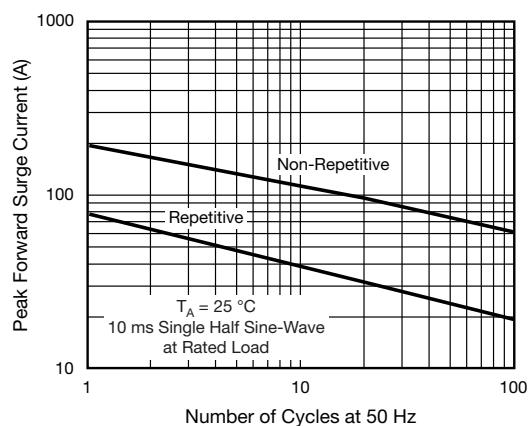
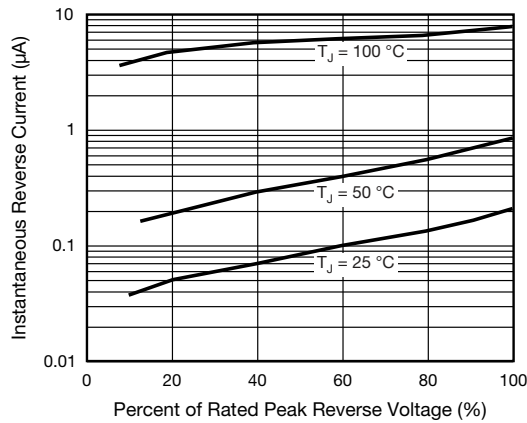
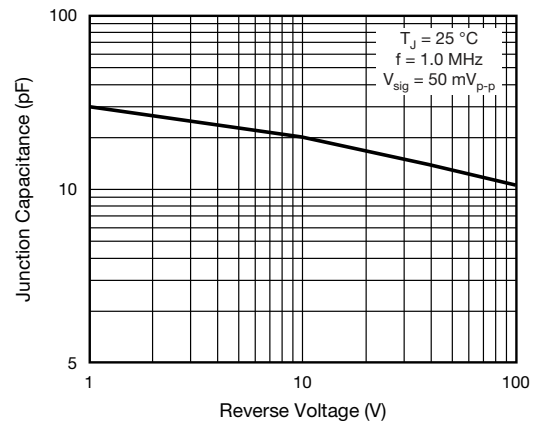
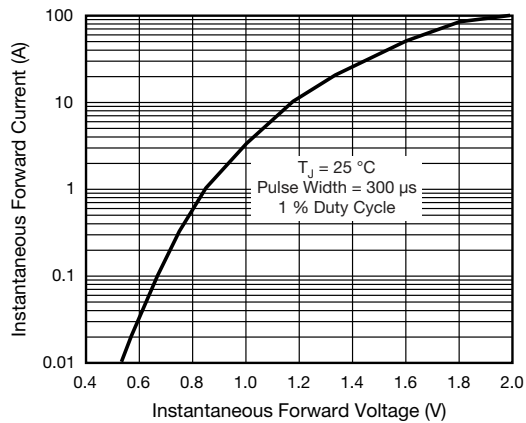
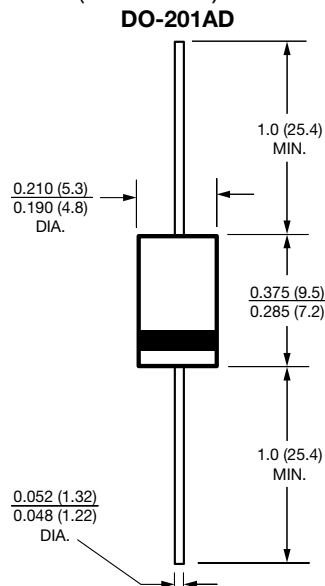


Fig. 2 - Maximum Peak Forward Surge Current



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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