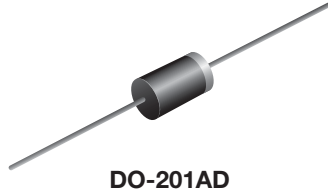


## Ultrafast Plastic Rectifier



### FEATURES

- Glass passivated pellet chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- 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  
HALOGEN  
**FREE**  
Available

### TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

### MECHANICAL DATA

**Case:** DO-201AD

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

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

E3 and M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** color band denotes cathode end

| PRIMARY CHARACTERISTICS |          |
|-------------------------|----------|
| $I_{F(AV)}$             | 4.0 A    |
| $V_{RRM}$               | 200 V    |
| $I_{FSM}$               | 150 A    |
| $t_{rr}$                | 25 ns    |
| $V_F$                   | 0.710 V  |
| $T_J \text{ max.}$      | 175 °C   |
| Package                 | DO-201AD |
| Circuit configuration   | Single   |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                     |                |             |      |
|--|----------------|-------------|------|
| PARAMETER  | SYMBOL         | VALUE       | UNIT |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 200         | V    |
| Working peak reverse voltage   | $V_{RWM}$      | 200         |      |
| Maximum DC blocking voltage  | $V_{DC}$       | 200         |      |
| Maximum average forward rectified current at $T_A = 80\text{ °C}$ (fig. 1)         | $I_{F(AV)}$    | 4.0         | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 150         |      |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | -65 to +175 | °C   |

| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ °C}$ unless otherwise noted) |  |                       |             |       |      |
|---|--|-----------------------|-------------|-------|------|
| PARAMETER   | TEST CONDITIONS  |                       | SYMBOL      | VALUE | UNIT |
| Maximum instantaneous forward voltage                                     | 3.0 A  | $T_J = 150\text{ °C}$ | $V_F^{(1)}$ | 0.710 | V    |
|   |  | $T_J = 25\text{ °C}$  |             | 0.875 |      |
|   | 4.0 A  |                       |             | 0.890 |      |
| Maximum instantaneous reverse current at rated DC blocking voltage        |  | $T_J = 25\text{ °C}$  | $I_R^{(1)}$ | 5.0   | µA   |
|   |  | $T_J = 150\text{ °C}$ |             | 150   |      |
| Maximum reverse recovery time   | $I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$                               |                       | $t_{rr}$    | 25    | ns   |
|   | $I_F = 1.0\text{ A}, di/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{ V}, I_{rr} = 10\% I_{RM}$ |                       |             | 35    |      |
| Maximum forward recovery time   | $I_F = 1.0\text{ A}, di/dt = 100\text{ A}/\mu\text{s}, \text{recovery to } 1.0\text{ V}$       |                       | $t_{fr}$    | 25    |      |

#### Note

(1) Pulse test:  $t_p = 300\text{ }\mu\text{s}$  pulse, duty cycle  $\leq 2\%$



| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |       |                    |
|--|-----------------------|-------|--------------------|
| PARAMETER  | SYMBOL                | VALUE | UNIT               |
| Typical thermal resistance junction to ambient                                     | $R_{\theta JA}^{(1)}$ | 28    | $^\circ\text{C/W}$ |

**Note**

(1) Lead length = 1/2" on PCB with 1.2" x 1.2" (30.5 mm x 30.5 mm) copper surface

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| MUR420-E3/54                   | 1.138           | 54                     | 1400          | 13" diameter paper tape and reel |
| MUR420-E3/73                   | 1.138           | 73                     | 1000          | Ammo pack packaging              |
| MUR420-M3/54                   | 1.138           | 54                     | 1400          | 13" diameter paper tape and reel |
| MUR420-M3/73                   | 1.138           | 73                     | 1000          | Ammo pack packaging              |

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

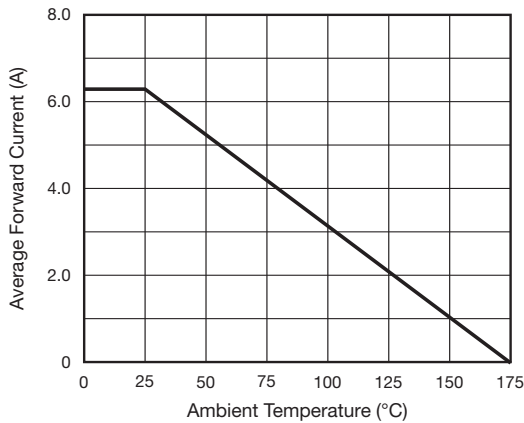


Fig. 1 - Forward Current Derating Curve

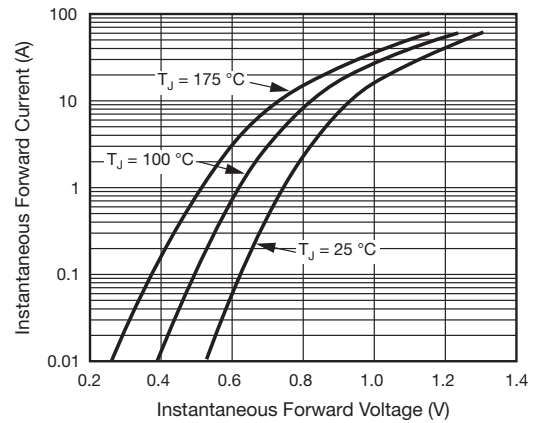


Fig. 3 - Typical Instantaneous Forward Characteristics

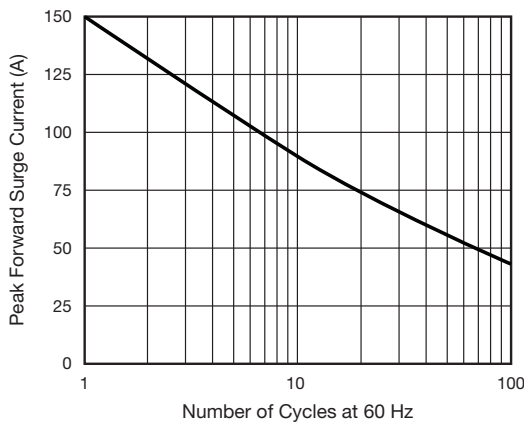


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

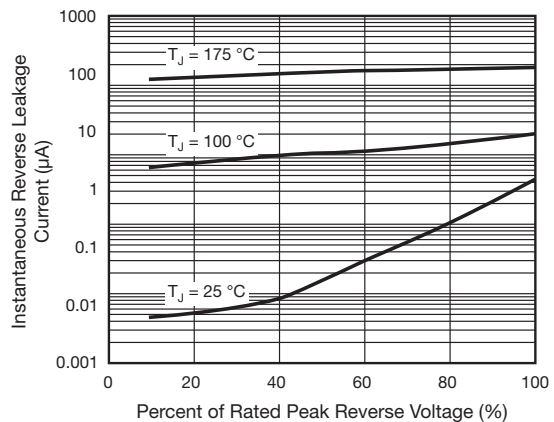


Fig. 4 - Typical Reverse Leakage Characteristics

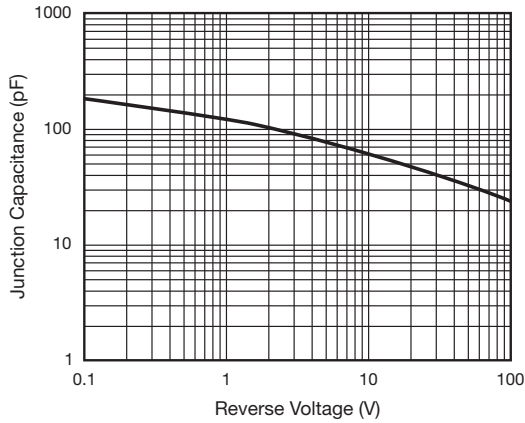
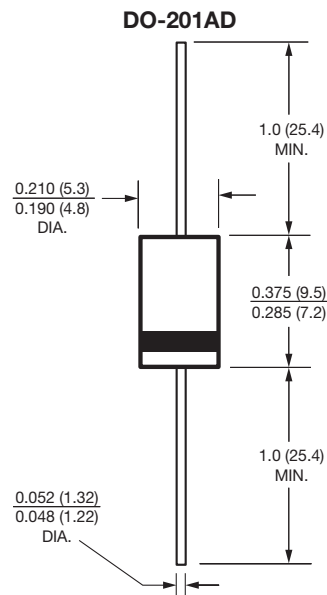


Fig. 5 - Typical Junction Capacitance

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





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