

## Miniature Ultrafast Plastic Rectifier


**DO-201AD**

### FEATURES

- Glass passivated pellet chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- 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**

### 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, and 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                     |
| $V_{RRM}$               | 50 V, 100 V, 150 V, 200 V |
| $I_{FSM}$               | 150 A                     |
| $t_{rr}$                | 20 ns                     |
| $V_F$                   | 0.95 V                    |
| $T_J$ max.              | 150 °C                    |
| Package                 | DO-201AD                  |
| Circuit configuration   | Single                    |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                     |                |             |      |      |      |      |
|--|----------------|-------------|------|------|------|------|
| PARAMETER  | SYMBOL         | UG4A        | UG4B | UG4C | UG4D | UNIT |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 50          | 100  | 150  | 200  | V    |
| Maximum RMS voltage  | $V_{RMS}$      | 35          | 70   | 105  | 140  |      |
| Maximum DC blocking voltage  | $V_{DC}$       | 50          | 100  | 150  | 200  |      |
| Maximum average forward rectified current (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                                   | $T_J, T_{STG}$ | -55 to +150 |      |      |      | °C   |

| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ °C}$ unless otherwise noted) |  |             |                       |      |    |
|---|--|-------------|-----------------------|------|----|
| PARAMETER   | TEST CONDITIONS  | SYMBOL      | VALUE                 | UNIT |    |
| Maximum instantaneous forward voltage                                     | $I_F = 4.0\text{ A}$   | $V_F^{(1)}$ | 0.95                  | V    |    |
| Maximum DC reverse current at rated DC blocking voltage                   |  | $I_R$       | $T_A = 25\text{ °C}$  | 5.0  |    |
|   |  |             | $T_A = 100\text{ °C}$ | 300  |    |
| Maximum reverse recovery time   | $I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$                               | $t_{rr}$    | 20                    | ns   |    |
| Typical reverse recovery time   | $I_F = 4.0\text{ A}, di/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{ V}, I_{rr} = 10\% I_{RM}$ | $t_{rr}$    | $T_J = 25\text{ °C}$  |      | 30 |
|   |  |             | $T_J = 100\text{ °C}$ |      | 50 |
| Typical stored charge   | $I_F = 4.0\text{ A}, di/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{ V}, I_{rr} = 10\% I_{RM}$ | $Q_{rr}$    | $T_J = 25\text{ °C}$  | 15   |    |
|   |  |             | $T_J = 100\text{ °C}$ | 30   |    |
| Typical junction capacitance  | 4.0 V, 1 MHz   | $C_J$       | 20                    | pF   |    |

#### Note

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle



| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |      |      |      |      |                    |
|--|-----------------------|------|------|------|------|--------------------|
| PARAMETER  | SYMBOL                | UG4A | UG4B | UG4C | UG4D | UNIT               |
| Typical thermal resistance   | $R_{\theta JA}^{(1)}$ |      |      | 25   |      | $^\circ\text{C/W}$ |

**Note**

(2) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|--|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |  |
| UG4D-E3/54                     | 1.138           | 54                     | 1400          | 13" diameter paper tape and reel |  |
| UG4D-E3/73                     | 1.138           | 73                     | 1000          | Ammo pack packaging              |  |
| UG4D-M3/54                     | 1.138           | 54                     | 1400          | 13" diameter paper tape and reel |  |
| UG4D-M3/73                     | 1.138           | 73                     | 1000          | Ammo pack packaging              |  |

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

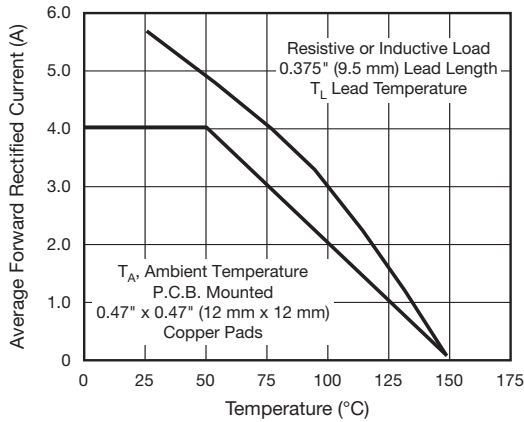


Fig. 1 - Forward Current Derating Curves

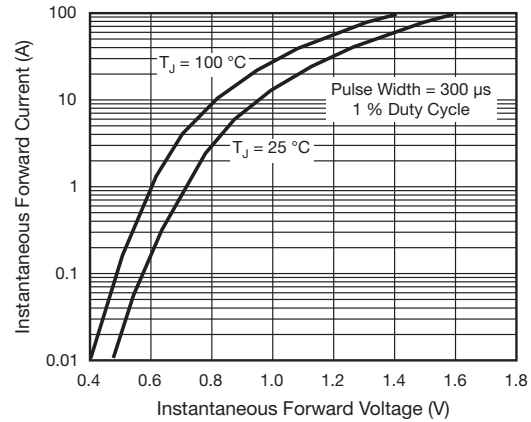


Fig. 3 - Typical Instantaneous Forward Characteristics

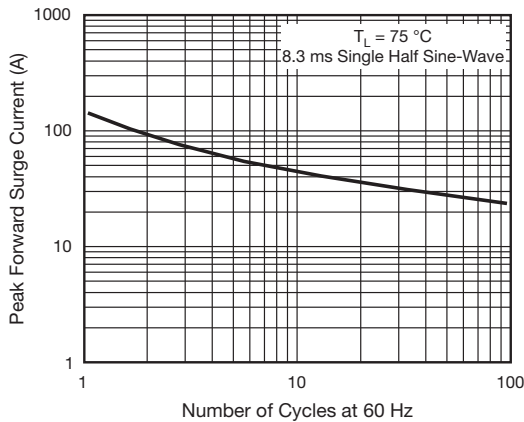


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

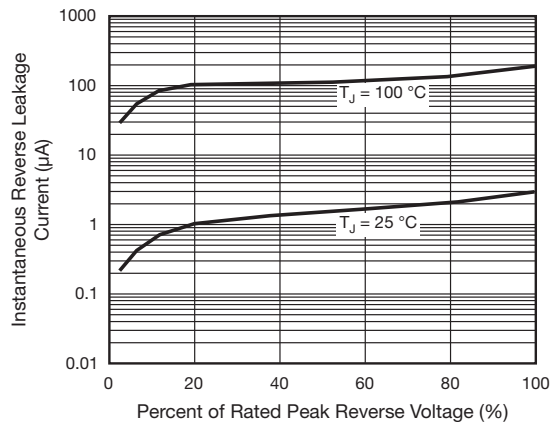


Fig. 4 - Typical Reverse Leakage Characteristics

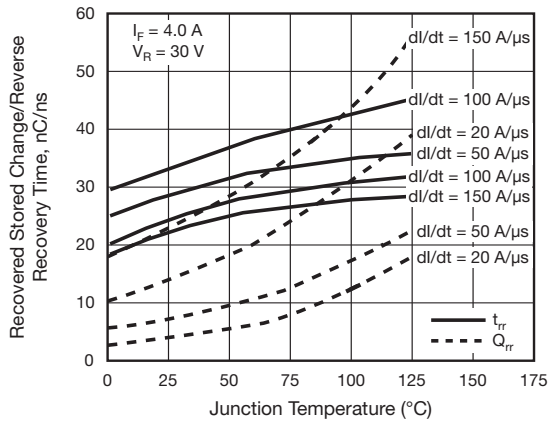


Fig. 5 - Reverse Switching Characteristics

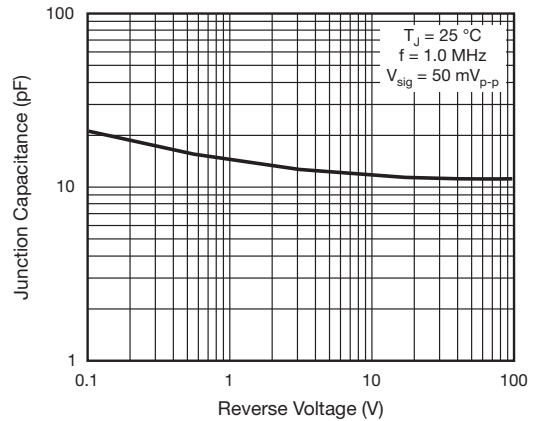
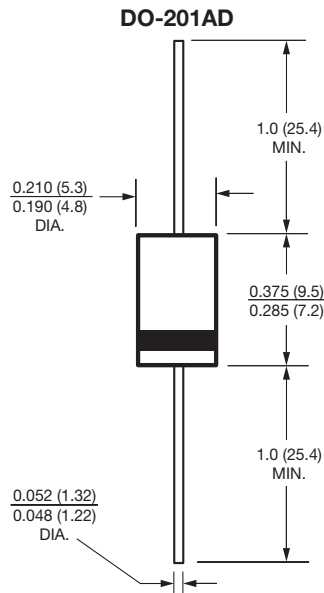


Fig. 6 - Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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