



## Soft Recovery 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

### 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

**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   |
| $V_{RRM}$               | 50 V, 100 V, 200 V, 300 V, 400 V, 500 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 150 A   |
| $t_{rr}$                | 50 ns, 75 ns  |
| $V_F$                   | 1.0 V, 1.7 V  |
| $T_J \text{ max.}$      | 150 °C  |
| Package                 | DO-201AD  |
| Diode variations        | Single die  |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                                 |                |             |        |        |        |        |        |        |        |        |      |
|--|----------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| PARAMETER  | SYMBOL         | UF5400      | UF5401 | UF5402 | UF5403 | UF5404 | UF5405 | UF5406 | UF5407 | UF5408 | UNIT |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 50          | 100    | 200    | 300    | 400    | 500    | 600    | 800    | 1000   | V    |
| Maximum RMS voltage  | $V_{RMS}$      | 35          | 70     | 140    | 210    | 280    | 350    | 420    | 560    | 700    | V    |
| Maximum DC blocking voltage  | $V_{DC}$       | 50          | 100    | 200    | 300    | 400    | 500    | 600    | 800    | 1000   | V    |
| Maximum average forward rectified current, 0.375" (9.5 mm) lead length at $T_A = 55\text{ °C}$ | $I_{F(AV)}$    | 3.0         |        |        |        |        |        |        |        |        | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load             | $I_{FSM}$      | 150         |        |        |        |        |        |        |        |        | A    |
| Operating junction and storage temperature range   | $T_J, T_{STG}$ | -55 to +150 |        |        |        |        |        |        |        |        | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |  |                        |                               |        |        |        |        |        |        |        |        |        |      |
|--|--|------------------------|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| PARAMETER  | TEST CONDITIONS  |                        | SYMBOL                        | UF5400 | UF5401 | UF5402 | UF5403 | UF5404 | UF5405 | UF5406 | UF5407 | UF5408 | UNIT |
| Maximum instantaneous forward voltage                                      | 3.0 A  |                        | V <sub>F</sub> <sup>(1)</sup> | 1.0    |        |        |        | 1.7    |        |        |        | 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  |                        |                               | 75     |        |        |        | 200    |        |        |        |        |      |
| Maximum reverse recovery time  | I <sub>F</sub> = 0.5 A,<br>I <sub>R</sub> = 1.0 A,<br>I <sub>rr</sub> = 0.25 A | T <sub>J</sub> = 25 °C | t <sub>rr</sub>               | 50     |        |        |        | 75     |        |        |        | ns     |      |
| Typical junction capacitance   | 4.0 V, 1 MHz   |                        | C <sub>J</sub>                | 45     |        |        |        | 36     |        |        |        | pF     |      |

**Note**

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |        |        |        |        |        |        |        |        |        |      |      |
|---|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|
| PARAMETER   | SYMBOL                          | UF5400 | UF5401 | UF5402 | UF5403 | UF5404 | UF5405 | UF5406 | UF5407 | UF5408 | UNIT |      |
| Typical thermal resistance  | Rθ <sub>JA</sub> <sup>(1)</sup> | 20     |        |        |        |        |        |        |        |        |      | °C/W |
|   | Rθ <sub>JL</sub> <sup>(1)</sup> | 8.5    |        |        |        |        |        |        |        |        |      |      |

**Note**

(1) Thermal resistance from junction to lead and from junction to ambient with 0.375" (9.5 mm) lead length, both leads attached to heatsink

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| UF5406-E3/54                   | 1.172           | 54                     | 1400          | 13" diameter paper tape and reel |
| UF5406-E3/73                   | 1.172           | 73                     | 1000          | Ammo pack packaging              |

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**



Fig. 1 - Maximum Forward Current Derating Curve



Fig. 2 - Forward Power Loss Characteristics

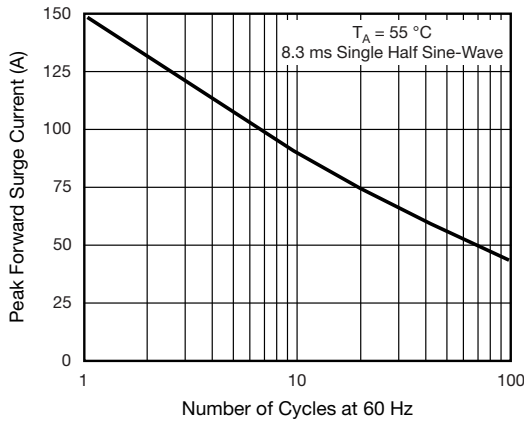


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

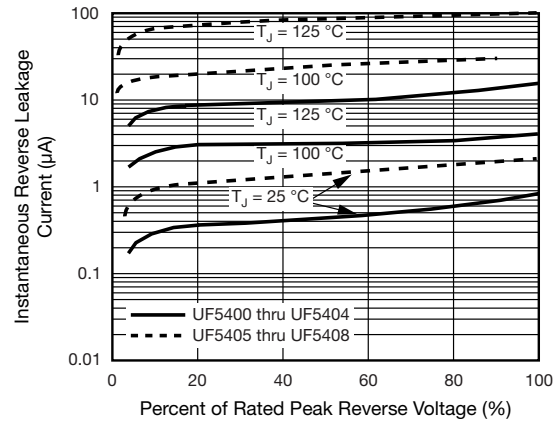


Fig. 5 - Typical Reverse Leakage Characteristics

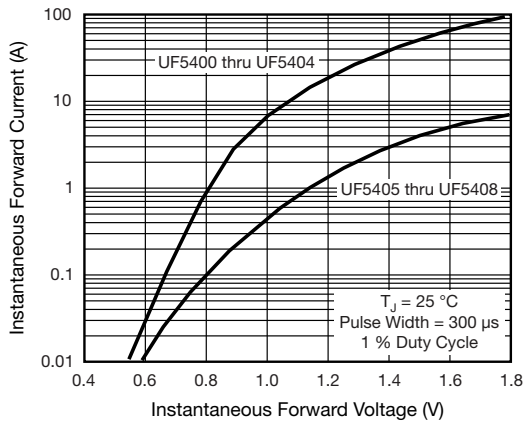


Fig. 4 - Typical Instantaneous Forward Characteristics

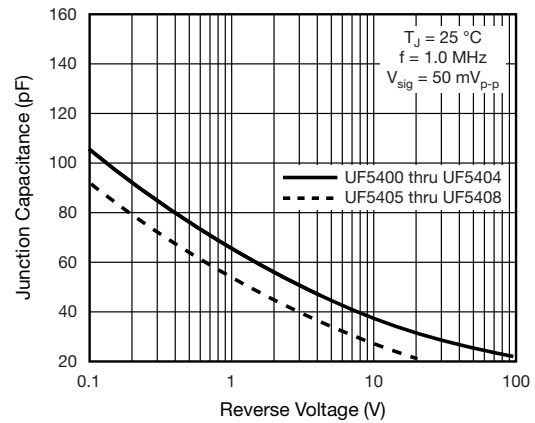
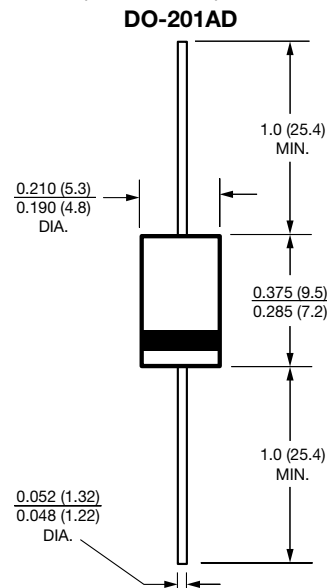


Fig. 6 - Typical Junction Capacitance

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





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