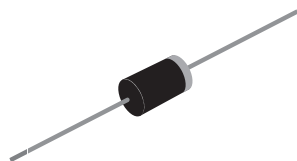


Soft Recovery Ultrafast Plastic Rectifier


DO-201AD

FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low switching losses, high efficiency
- High forward surge capability
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-201AD

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: Color band denotes cathode end

MAJOR RATINGS AND CHARACTERISTICS

| | |
|-------------|----------------|
| $I_{F(AV)}$ | 3.0 A |
| V_{RRM} | 50 V to 1000 V |
| I_{FSM} | 150 A |
| t_{rr} | 50 ns, 75 ns |
| V_F | 1.0 V, 1.7 V |
| T_j max. | 150 °C |

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

| PARAMETER | SYMBOL | UF 5400 | UF 5401 | UF 5402 | UF 5403 | UF 5404 | UF 5405 | UF 5406 | UF 5407 | UF 5408 | 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 $T_A = 55$ °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 ($T_A = 25$ °C unless otherwise noted)

| PARAMETER | TEST CONDITIONS | SYMBOL | UF 5400 | UF 5401 | UF 5402 | UF 5403 | UF 5404 | UF 5405 | UF 5406 | UF 5407 | UF 5408 | UNIT |
|--|-----------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| Maximum instantaneous forward voltage ⁽¹⁾ | at 3.0 A | V_F | 1.0 | | | | 1.7 | | | | | V |

| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) | | | | | | | | | | | | |
|---|--|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | UF 5400 | UF 5401 | UF 5402 | UF 5403 | UF 5404 | UF 5405 | UF 5406 | UF 5407 | UF 5408 | UNIT |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25\text{ }^{\circ}\text{C}$ | I_R | 10 | | | | | | | | | μA |
| | $T_A = 100\text{ }^{\circ}\text{C}$ | | 75 | | | | 200 | | | | | |
| Maximum reverse recovery time | at $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ $T_J = 25\text{ }^{\circ}\text{C}$ | t_{rr} | 50 | | | | 75 | | | | | ns |
| Typical junction capacitance | at 4.0 V, 1 MHz | C_J | 45 | | | | 36 | | | | | pF |

Note:

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

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | | |
|---|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|
| PARAMETER | SYMBOL | UF 5400 | UF 5401 | UF 5402 | UF 5403 | UF 5404 | UF 5405 | UF 5406 | UF 5407 | UF 5408 | UNIT |
| Typical thermal resistance ⁽¹⁾ | R _{θJA} | 20 | | | | | | | | | °C/W |
| | R _{θJL} | 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 | | | | |
|----------------------|-----------------|------------------------|---------------|--------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| UF5406-E3/54 | 1.172 | 54 | 1400 | 13" Diameter Paper Tape & Reel |
| UF5406-E3/73 | 1.172 | 73 | 1000 | Ammo Pack Packaging |

RATINGS AND CHARACTERISTICS CURVES

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

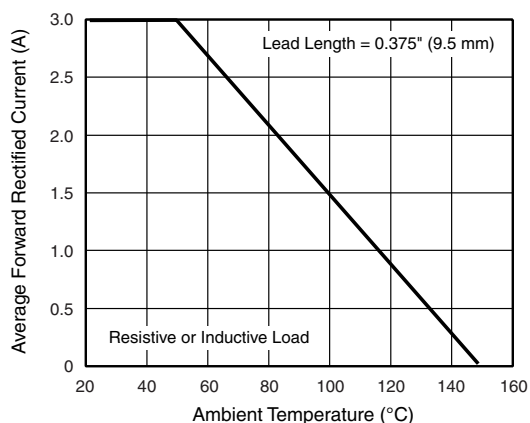


Figure 1. Maximum Forward Current Derating Curve

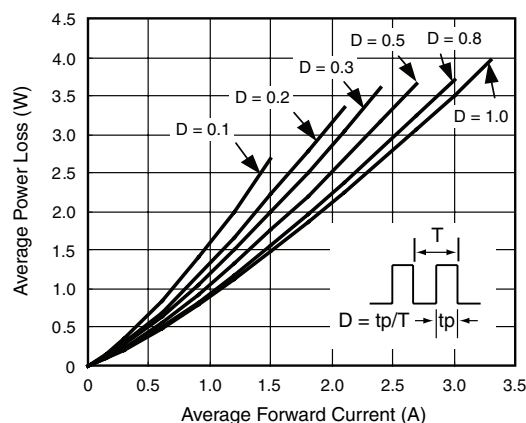


Figure 2. Forward Power Loss Characteristics

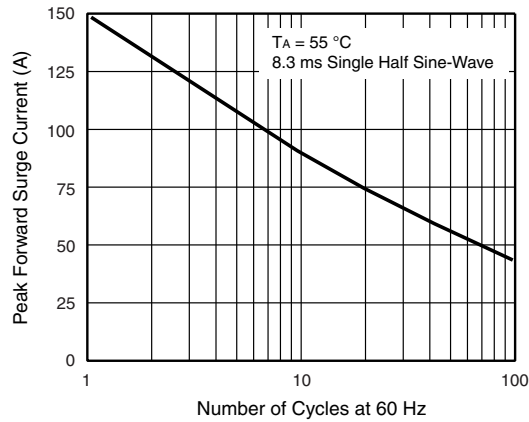


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

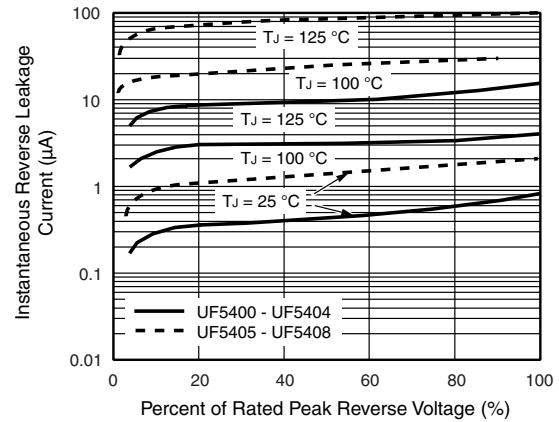


Figure 5. Typical Reverse Leakage Characteristics

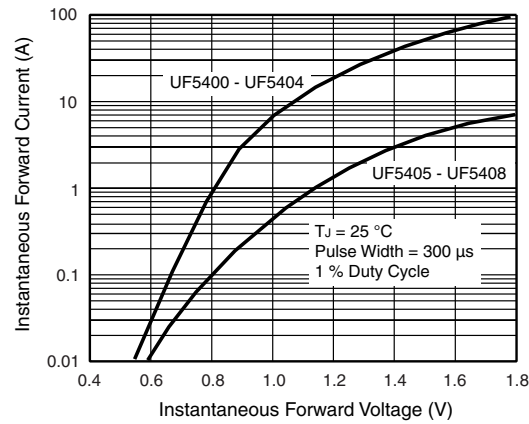


Figure 4. Typical Instantaneous Forward Characteristics

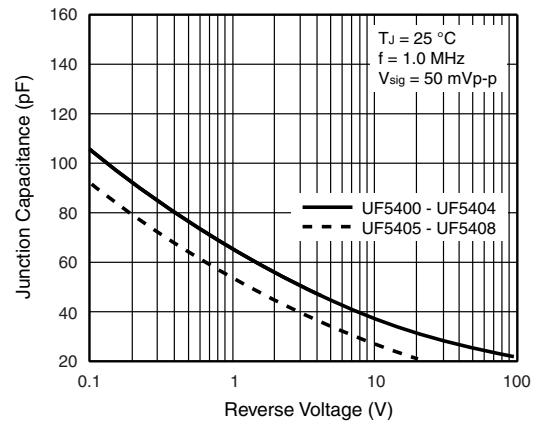
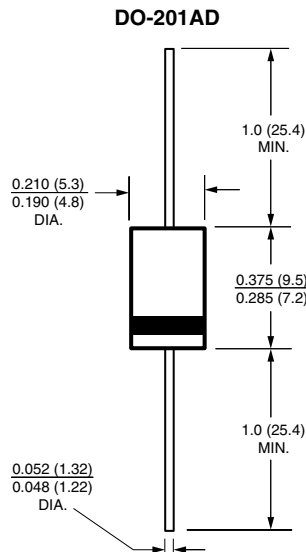


Figure 6. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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