

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 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


RoHS
COMPLIANT

PRIMARY 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 |
| $T_J \text{ max.}$ | 150 °C |

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

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 _A = 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 _F ⁽¹⁾ | 1.0 | | | | 1.7 | | | | V | |
| Maximum DC reverse current at rated DC blocking voltage | T _A = 25 °C | | I _R | 10 | | | | | | | | μA | |
| | T _A = 100 °C | | | 75 | | | | 200 | | | | | |
| Maximum reverse recovery time | I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | T _J = 25 °C | t _{rr} | 50 | | | | 75 | | | | ns | |
| Typical junction capacitance | 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 | UF5400 | UF5401 | UF5402 | UF5403 | UF5404 | UF5405 | UF5406 | UF5407 | UF5408 | UNIT |
| Typical thermal resistance | R _{θJA} ⁽¹⁾ | 20 | | | | | | | | °C/W | |
| | R _{θJL} ⁽¹⁾ | 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_A = 25 °C unless otherwise noted)

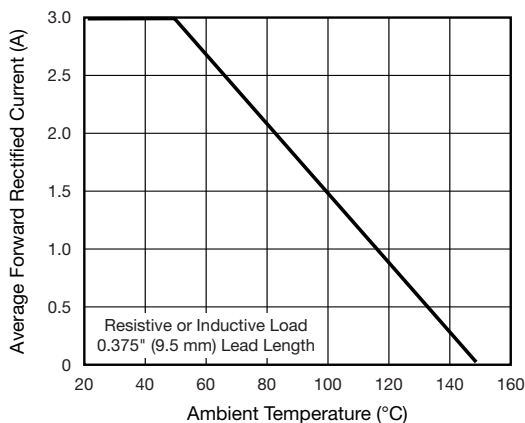


Fig. 1 - Maximum Forward Current Derating Curve

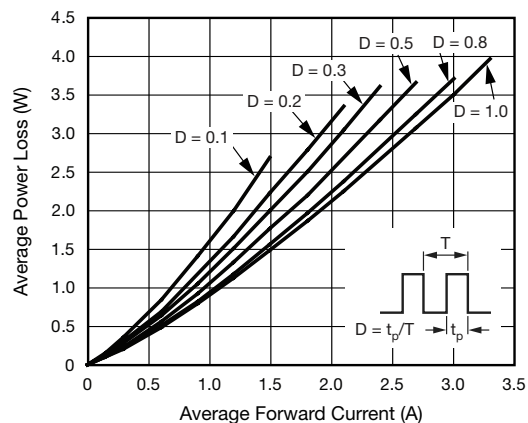


Fig. 2 - Forward Power Loss Characteristics

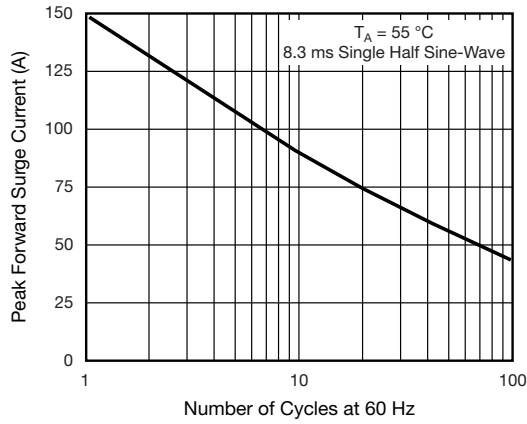


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

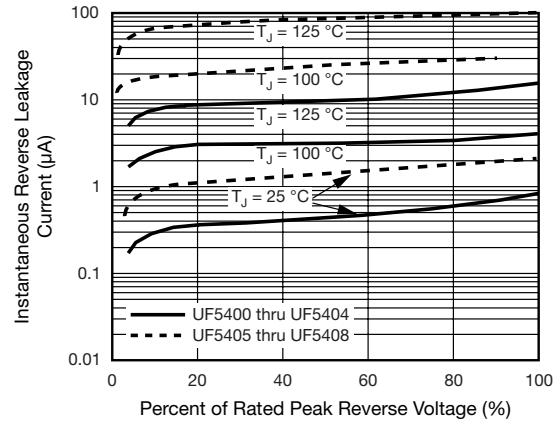


Fig. 5 - Typical Reverse Leakage Characteristics

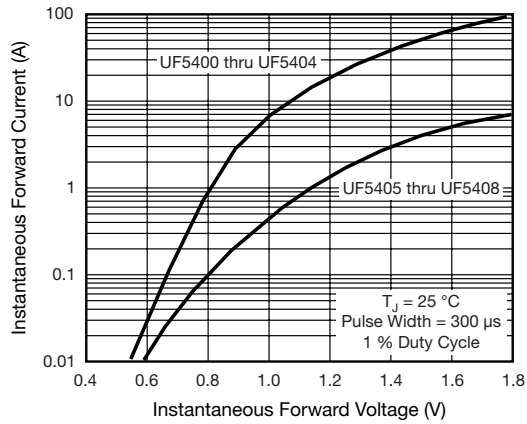


Fig. 4 - Typical Instantaneous Forward Characteristics

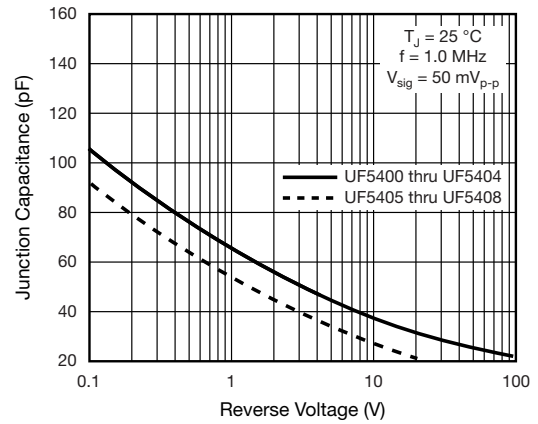


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD





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