

UF5400, UF5401, UF5402, UF5403, UF5404, UF5405, UF5406, UF5407, UF5408

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Vishay General Semiconductor

Soft Recovery Ultrafast Plastic Rectifier



| 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 max. | 150 °C | | | | | | | |
| Package | DO-201AD | | | | | | | |
| Diode variations | Single die | | | | | | | |

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 <u>www.vishay.com/doc?99912</u>

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 °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 °C | I _{F(AV)} | | 3.0 | | | | | | | Α | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I _{FSM} | | 150 | | | | | | | Α | |
| Operating junction and storage temperature range | T _J , T _{STG} | | -55 to +150 | | | | | | | | °C |

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| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | | | | | | | | | | | |
|---|---|-------------------------|-------------------------------|--------|------------------------------------|----|--|---------------------------------------|--------|--------|--------|--------|------|---|---|--|----|
| PARAMETER | TEST CONDITIONS | | SYMBOL | UF5400 | JF5400 UF5401 UF5402 UF5403 UF5404 | | | | UF5405 | UF5406 | UF5407 | UF5408 | UNIT | | | | |
| Maximum instantaneous forward voltage | 3.0 A | | V _F ⁽¹⁾ | 1.0 | | | | V _F ⁽¹⁾ 1.0 1.7 | | | | | V | | | | |
| Maximum DC reverse current | | T _A = 25 °C | 1- | 10 | | | | | | | | μA | | | | | |
| at rated DC blocking voltage | | T _A = 100 °C | - I _R | | | 75 | | | | 20 | 00 | | μA | | | | |
| 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 | | | | 50 | | | 50 | | | 7 | 5 | | ns |
| Typical junction capacitance | 4.0 V, 1 MH | lz | СЈ | 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 | Rθ _{JA} ⁽¹⁾ | 20 | | | | | | °C/W |
| Typical thermal resistance | Rθ _{JL} ⁽¹⁾ | 8.5 | | | | | - C/VV | |

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)

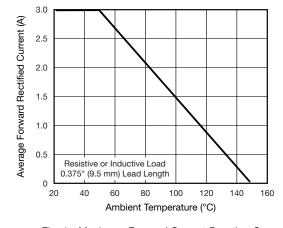


Fig. 1 - Maximum Forward Current Derating Curve

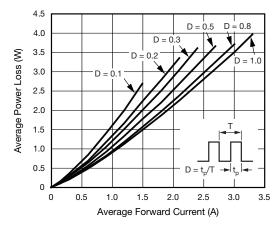


Fig. 2 - Forward Power Loss Characteristics

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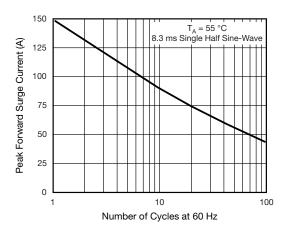


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

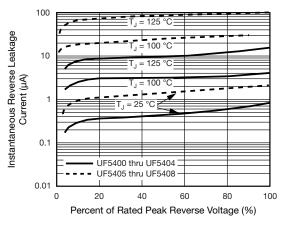


Fig. 5 - Typical Reverse Leakage Characteristics

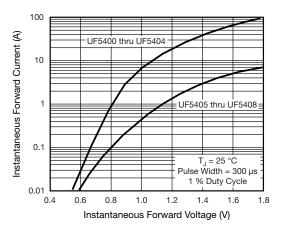


Fig. 4 - Typical Instantaneous Forward Characteristics

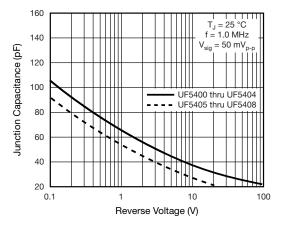
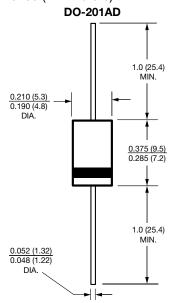


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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