

1A, 50V - 1000V Glass Passivated Rectifier

FEATURES

- Glass passivated chip junction
- Excellent high temperature switching
- High efficiency, low VF
- Ultrafast recovery time for high efficiency
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- TV
- Monitor

MECHANICAL DATA

- Case: DO-204AL (DO-41)
- Molding compound meets UL 94V-0 flammability rating
- Part no. with suffix "H" means AEC-Q101 qualified
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Pure tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.33 g (approximately)

| KEY PARAMETERS | | |
|----------------|------------------|------|
| PARAMETER | VALUE | UNIT |
| $I_{F(AV)}$ | 1 | A |
| V_{RRM} | 50 - 1000 | V |
| I_{FSM} | 30 | A |
| T_{JMAX} | 150 | °C |
| Package | DO-204AL (DO-41) | |
| Configuration | Single Die | |



DO-204AL (DO-41)

| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | | | | |
|---|--------------|--------------|--------|--------|--------|--------|--------|--------|------|
| PARAMETER | SYMBOL | UF4001 | UF4002 | UF4003 | UF4004 | UF4005 | UF4006 | UF4007 | UNIT |
| Marking code on the device | | UF4001 | UF4002 | UF4003 | UF4004 | UF4005 | UF4006 | UF4007 | |
| Repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Reverse voltage, total rms value | $V_{R(RMS)}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Forward current | $I_{F(AV)}$ | 1 | | | | | | | A |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 30 | | | | | | | A |
| Junction temperature | T_J | - 55 to +150 | | | | | | | °C |
| Storage temperature | T_{STG} | - 55 to +150 | | | | | | | °C |

| THERMAL PERFORMANCE | | | |
|--|-----------------|--------------|-------------|
| PARAMETER | SYMBOL | LIMIT | UNIT |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 60 | °C/W |
| Junction-to-lead thermal resistance | $R_{\theta JL}$ | 15 | °C/W |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|--------|---|---------------|------------|------------|---------------|
| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | UF4001 | $I_F = 1\text{A}, T_J = 25^\circ\text{C}$ | V_F | - | 1.0 | V |
| | UF4002 | | | | | V |
| | UF4003 | | | | | V |
| | UF4004 | | | | | V |
| | UF4005 | | | | | V |
| | UF4006 | | | | | V |
| | UF4007 | | | | | V |
| Reverse current @ rated V_R per diode ⁽²⁾ | | $T_J = 25^\circ\text{C}$ | I_R | - | 5 | μA |
| | | $T_J = 125^\circ\text{C}$ | | | 150 | μA |
| Junction capacitance | | 1 MHz, $V_R = 4.0\text{V}$ | C_J | 17 | - | pF |
| Reverse recovery time | UF4001 | $I_F = 0.5\text{A}, I_R = 1.0\text{A}$ $I_{RR} = 0.25\text{A}$ | t_{rr} | - | 50 | ns |
| | UF4002 | | | | | |
| | UF4003 | | | | | |
| | UF4004 | | | | | |
| | UF4005 | | | | | |
| UF4006 | 75 | | | | | |
| UF4007 | | | | | | |

Notes:

1. Pulse test with $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

| ORDERING INFORMATION | | | | | |
|-----------------------------|------------------------|---------------------|-------------------------------|----------------|-------------------------------------|
| PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX(*) | PACKAGE | PACKING |
| UF400x (Note 1) | H | A0 | G | DO-41 | 3,000 / Ammo box (52mm taping) |
| | | R0 | | DO-41 | 5,000 / 13" Paper reel |
| | | R1 | | DO-41 | 5,000 / 13" Paper reel (Reverse) |
| | | B0 | | DO-41 | 1,000 / Bulk packing |

Notes:

1. "x" defines voltage from 50V (UF4001) to 1000V (UF4007)
- *: Optional available

| EXAMPLE P/N | | | | | |
|--------------------|-----------------|------------------------|---------------------|----------------------------|--------------------------------------|
| EXAMPLE P/N | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION |
| UF4001HA0G | UF4001 | H | A0 | G | AEC-Q101 qualified Green compound |

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve



Fig.2 Typical Junction Capacitance



Fig.3 Typical Reverse Characteristics



Fig.4 Typical Forward Characteristics



Fig.5 Maximum Non-repetitive Forward Surge Current



Fig.6 Reverse Recovery Time Characteristic And Test Circuit Diagram



PACKAGE OUTLINE DIMENSIONS

DO-204AL (DO-41)



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min | Max | Min | Max |
| A | 2.00 | 2.70 | 0.079 | 0.106 |
| B | 0.71 | 0.86 | 0.028 | 0.034 |
| C | 25.40 | - | 1.000 | - |
| D | 4.20 | 5.20 | 0.165 | 0.205 |
| E | 25.40 | - | 1.000 | - |

MARKING DIAGRAM



- P/N = Marking Code
- G = Green Compound
- YWW = Date Code
- F = Factory Code

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