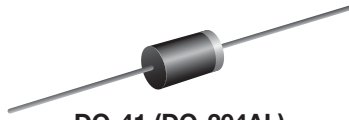


Miniature Ultrafast Plastic Rectifier



DO-41 (DO-204AL)


RoHS
 COMPLIANT
 HALOGEN
FREE

FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Soft recovery characteristics
- 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

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-41 (DO-204AL)

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-E3 - RoHS-compliant, commercial grade
 Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 and M3 suffix meet JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

| PRIMARY CHARACTERISTICS | |
|-------------------------|---------------------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 50 V, 100 V, 150 V, 200 V |
| I_{FSM} | 40 A |
| t_{rr} | 15 ns |
| V_F | 0.95 V |
| T_J max. | 150 °C |
| Package | DO-41 (DO-204AL) |
| Circuit configuration | Single |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | |
|--|----------------|-------------|------|------|------|------|
| PARAMETER | SYMBOL | UG1A | UG1B | UG1C | UG1D | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 150 | 200 | V |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 105 | 140 | V |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 150 | 200 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | 1.0 | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 40 | | | | 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 | VALUE | UNIT |
| Maximum instantaneous forward voltage | I _F = 1.0 A | V _F ⁽¹⁾ | 0.95 | V |
| Maximum DC reverse current at rated DC blocking voltage | | I _R | T _A = 25 °C | 5.0 |
| | | | T _A = 100 °C | 200 |
| Maximum reverse recovery time | I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | t _{rr} | 15 | ns |
| Maximum reverse recovery time | I _F = 1.0 A, V _R = 30 V, dl/dt = 50 A/μs, I _{rr} = 10 % I _{RM} | t _{rr} | T _J = 25 °C | 25 |
| | | | T _J = 100 °C | 35 |
| Maximum stored charge | I _F = 1.0 A, V _R = 30 V, dl/dt = 50 A/μs, I _{rr} = 10 % I _{RM} | Q _{rr} | T _J = 25 °C | 8.0 |
| | | | T _J = 100 °C | 12 |
| Typical junction capacitance | 4.0 V, 1 MHz | C _J | 7 | pF |

Note

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

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|---|---------------------------------|------|------|------|------|------|
| PARAMETER | SYMBOL | UG1A | UG1B | UG1C | UG1D | UNIT |
| Typical thermal resistance | R _{θJA} ⁽¹⁾ | 60 | | | | °C/W |
| | R _{θJL} ⁽¹⁾ | 20 | | | | |

Note

(2) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| UG1D-E3/54 | 0.334 | 54 | 5500 | 13" diameter paper tape and reel |
| UG1D-E3/73 | 0.334 | 73 | 3000 | Ammo pack packaging |
| UG1D-M3/54 | 0.334 | 54 | 5500 | 13" diameter paper tape and reel |
| UG1D-M3/73 | 0.334 | 73 | 3000 | Ammo pack packaging |

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

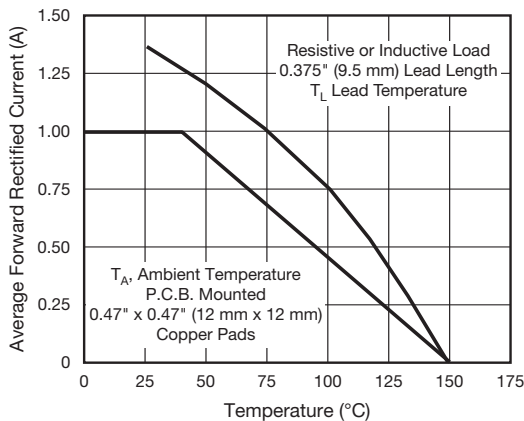


Fig. 1 - Forward Current Derating Curves

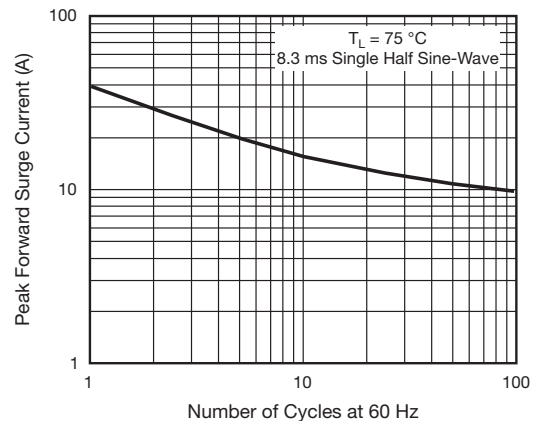


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

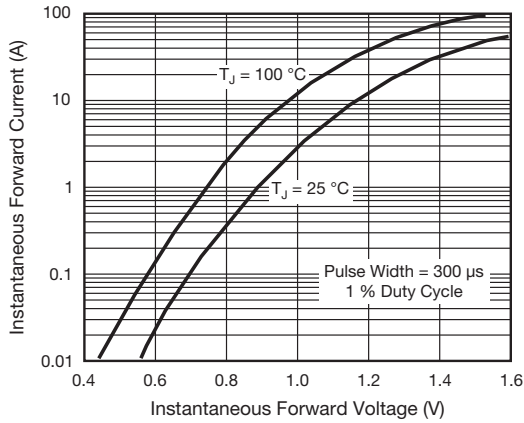


Fig. 3 - Typical Instantaneous Forward Characteristics

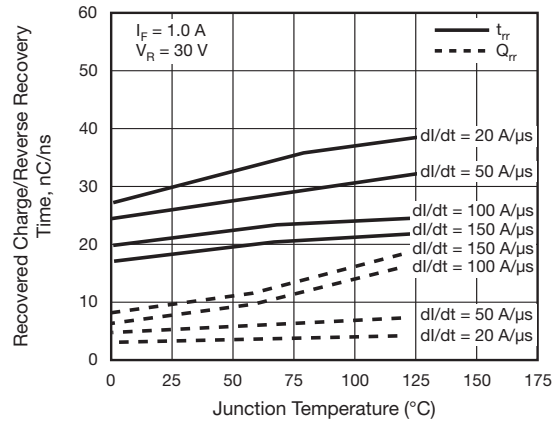


Fig. 5 - Reverse Switching Characteristics

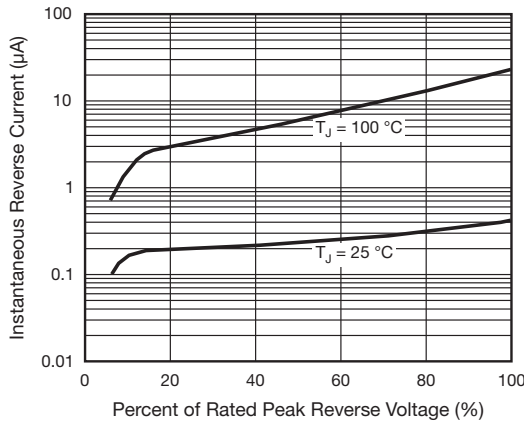


Fig. 4 - Typical Reverse Characteristics

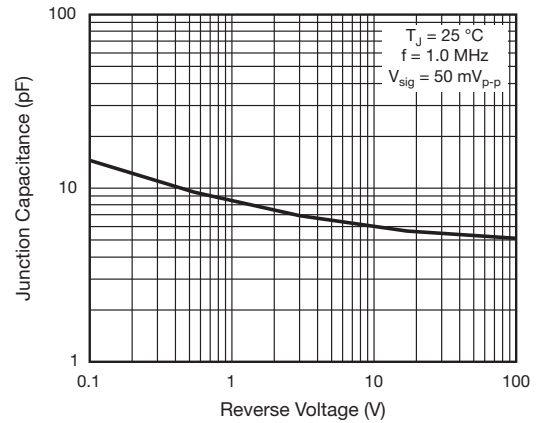
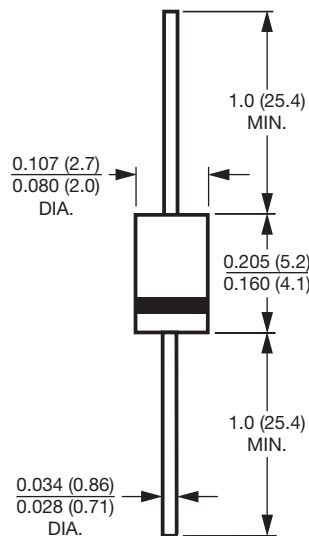


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-41 (DO-204AL)





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