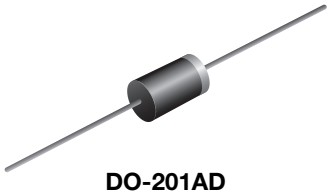
# Ultrafast Plastic Rectifier



DO-201AD

## FEATURES

- Glass passivated pellet chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- 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

RoHS COMPLIANT
HALOGEN FREE

## 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-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes cathode end

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 4.0 A |
| $V_{RRM}$ | 400 V, 600 V |
| $I_{FSM}$ | 150 A |
| $t_{rr}$ | 50 ns |
| $V_F$ at $I_F$ | 1.05 V |
| $T_J$ max. | 175 °C |
| Package | DO-201AD |
| Diode variations | Single die |

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

| PARAMETER | SYMBOL | MUR440 | MUR460 | UNIT |
|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 400 | 600 | V |
| Working peak reverse voltage | $V_{RWM}$ | 400 | 600 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 400 | 600 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | 4.0 | | 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 | $T_J$, $T_{STG}$ | -65 to +175 | | °C |

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | TEST CONDITIONS | | SYMBOL | MUR440 | MUR460 | UNIT |
|---|---|---|---|---|---|---|
| Maximum instantaneous forward voltage | 3.0 A | $T_J$ = 150 °C | $V_F$ (1) | 1.05 | | V |
| | 3.0 A | $T_J$ = 25 °C | | 1.25 | | |
| | 4.0 A | | | 1.28 | | |
| Maximum instantaneous reverse current at rated DC blocking voltage | | $T_J$ = 25 °C | $I_R$ (1) | 10 | | µA |
| | | $T_J$ = 150 °C | | 250 | | |
| Max. reverse recovery time | $I_F$ = 0.5, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | $t_{rr}$ | 50 | | ns |
| Maximum reverse recovery time | $I_F$ = 1.0 A, dI/dt = 50 A/µs, $V_R$ = 30 V, $I_{rr}$ = 10 % $I_{RM}$ | | $t_{rr}$ | 75 | | ns |
| Maximum forward recovery time | $I_F$ = 1.0 A, dI/dt = 100 A/µs, recovery to 1.0 V | | $t_{fr}$ | 50 | | ns |

**Note**

(1) Pulse test: $t_p$ = 300 µs, duty cycle ≤ 2 %



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| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | |
|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **MUR440** | **MUR460** | **UNIT** |
| Typical thermal resistance junction to ambient | $R_{\theta JA}$ (1) | 28 | | °C/W |

**Note**

(1) Lead length = 1/2" on PCB with 1.5" x 1.5" copper surface

| ORDERING INFORMATION (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| MUR460-M3/54 | 1.138 | 54 | 1400 | 13" diameter paper tape and reel |
| MUR460-M3/73 | 1.138 | 73 | 1000 | Ammo pack packaging |

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

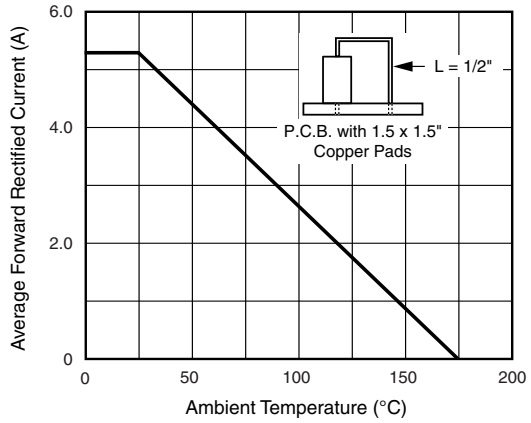


Fig. 1 - Forward Current Derating Curve

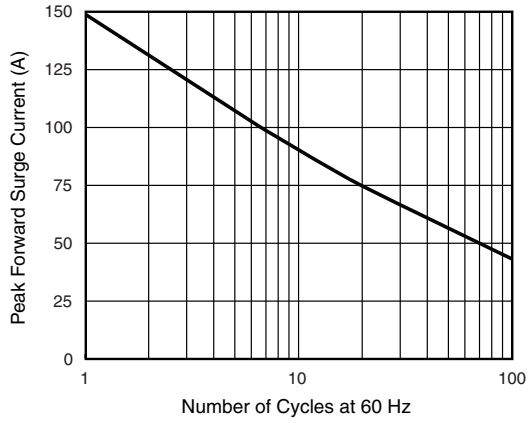


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

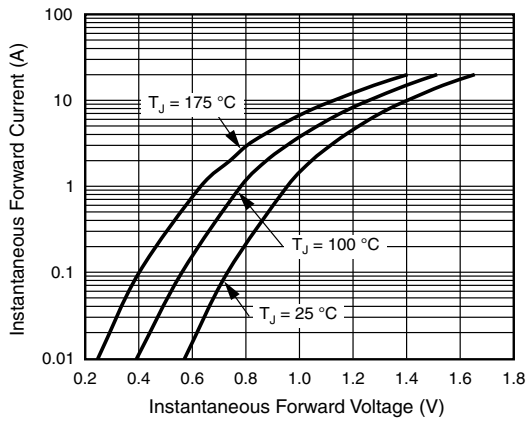


Fig. 3 - Typical Instantaneous Forward Characteristics

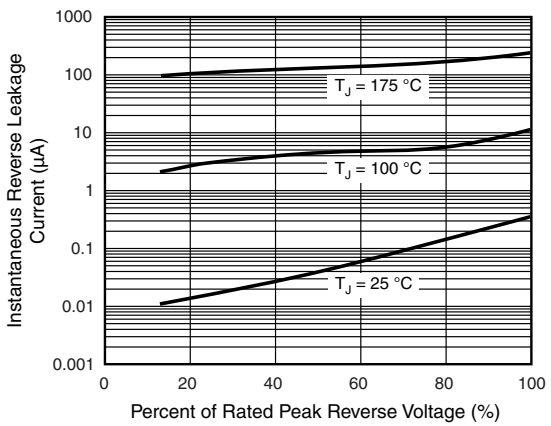


Fig. 4 - Typical Reverse Characteristics


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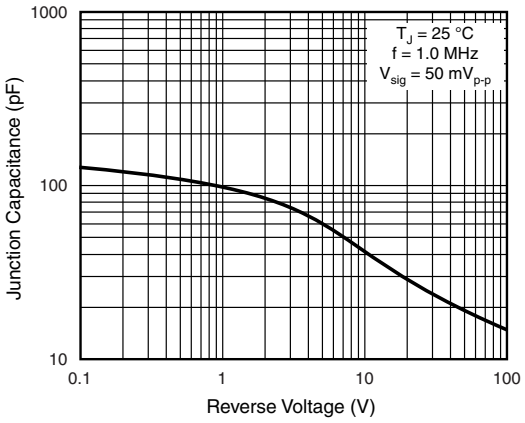
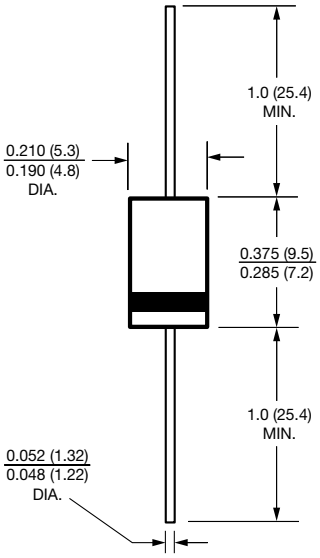



Fig. 5 - Typical Junction Capacitance Per Leg

## **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-201AD**





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