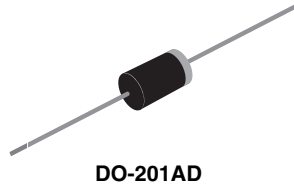


Ultrafast Plastic Rectifier



FEATURES

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



MAJOR RATINGS AND CHARACTERISTICS

| | |
|--------------------|---------------|
| $I_{F(AV)}$ | 4.0 A |
| V_{RRM} | 400 V & 600 V |
| I_{FSM} | 150 A |
| t_{tr} | 50 ns |
| V_F | 1.05 V |
| $T_j \text{ max.}$ | 175 °C |

TYPICAL APPLICATIONS

For use in high frequency rectification and free-wheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

MECHANICAL DATA

Case: DO-201AD

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: Color band denotes cathode end

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ 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 (see 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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|---|----------|--------|----------------------|---------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | MUR440 | MUR460 | UNIT |
| Maximum instantaneous forward voltage ⁽¹⁾ | at 3.0 A, $T_J = 150\text{ }^\circ\text{C}$ at 3.0 A, $T_J = 25\text{ }^\circ\text{C}$ at 4.0 A, $T_J = 25\text{ }^\circ\text{C}$ | V_F | | 1.05 1.25 1.28 | V |
| Maximum instantaneous reverse current at rated DC blocking voltage ⁽¹⁾ | $T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$ | I_R | | 10 250 | μA |
| 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 | at, $I_F = 1.0$ 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 , Rec. to 1.0 V | t_{fr} | | 50 | ns |

Note:

(1) Pulse test: $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

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

Note:

(1) Lead length = 1/2" on P.C. board with 1.5" x 1.5" copper surface

| ORDERING INFORMATION | | | | |
|-----------------------------|-----------------|------------------------|---------------|--------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| MUR460-E3/54 | 1.138 | 54 | 1400 | 13" Diameter Paper Tape & Reel |
| MUR460-E3/73 | 1.138 | 73 | 1000 | Ammo Pack Packaging |

RATINGS AND CHARACTERISTICS CURVES

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

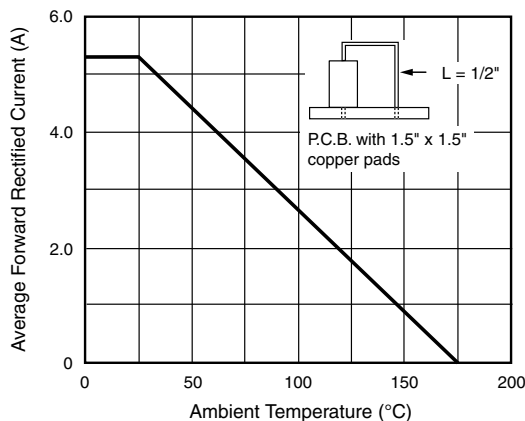


Figure 1. Forward Current Derating Curve

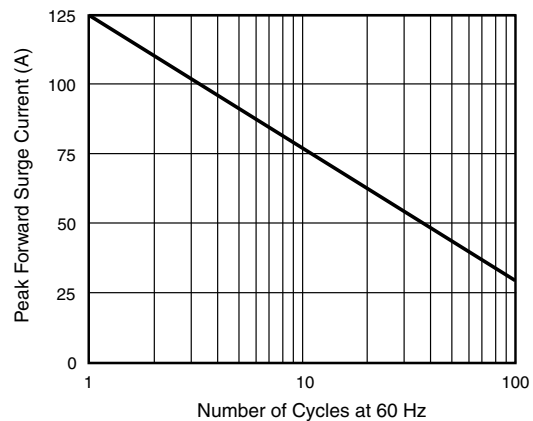


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

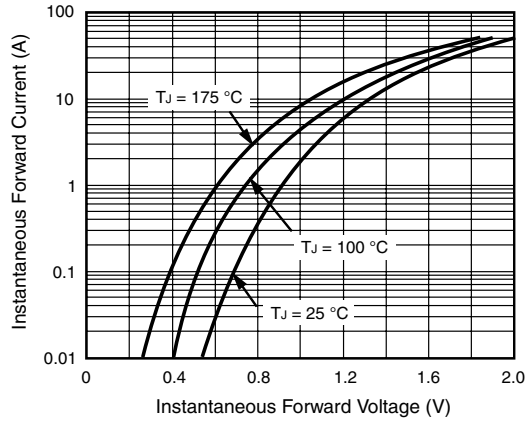


Figure 3. Typical Instantaneous Forward Characteristics

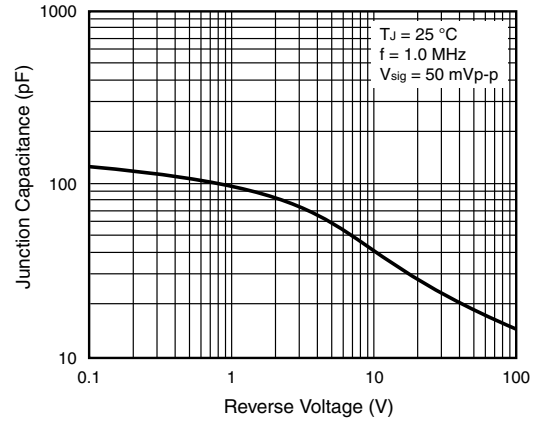


Figure 5. Typical Junction Capacitance per Leg

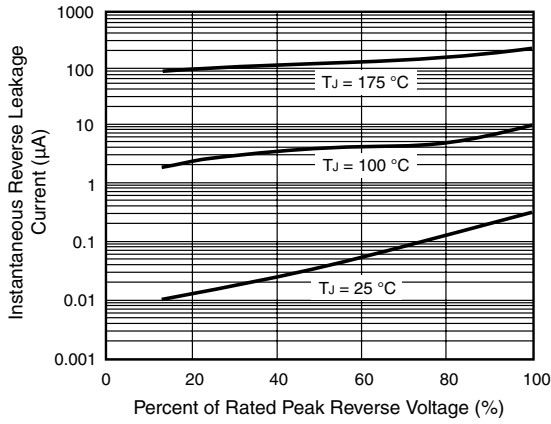
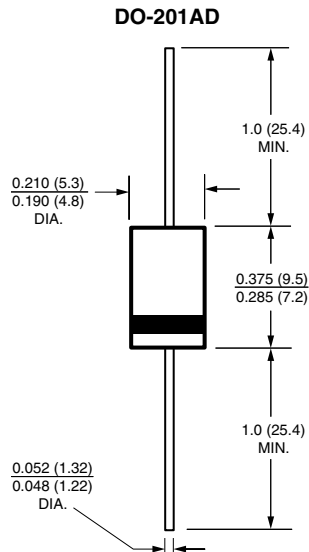


Figure 4. Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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