

Ultrafast Plastic Rectifier


DO-201AD

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 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC


RoHS
COMPLIANT

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

| PRIMARY CHARACTERISTICS | |
|-------------------------|-----------------|
| $I_{F(AV)}$ | 4.0 A |
| V_{RRM} | 400 V and 600 V |
| I_{FSM} | 150 A |
| t_{rr} | 50 ns |
| V_F | 1.05 V |
| $T_J \text{ max.}$ | 175 °C |

| 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 (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 | 3.0 A | $T_J = 150\text{ }^\circ\text{C}$ | $V_F^{(1)}$ | 1.05 | | V |
| | | $T_J = 25\text{ }^\circ\text{C}$ | | 1.25 | | |
| | 4.0 A | | | 1.28 | | |
| Maximum instantaneous reverse current at rated DC blocking voltage | | $T_J = 25\text{ }^\circ\text{C}$ | $I_R^{(1)}$ | 10 | | μA |
| | | $T_J = 150\text{ }^\circ\text{C}$ | | 250 | | |
| Max. reverse recovery time | $I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$ | | t_{rr} | 50 | | ns |
| Maximum reverse recovery time | $I_F = 1.0\text{ A}, di/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{ V}, I_{rr} = 10\% I_{RM}$ | | t_{rr} | 75 | | ns |
| Maximum forward recovery time | $I_F = 1.0\text{ A}, di/dt = 100\text{ A}/\mu\text{s}, \text{recovery to } 1.0\text{ V}$ | | 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 | $R_{\theta JA}^{(1)}$ | 28 | | $^\circ\text{C}/\text{W}$ |

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-E3/54 | 1.138 | 54 | 1400 | 13" diameter paper tape and 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)

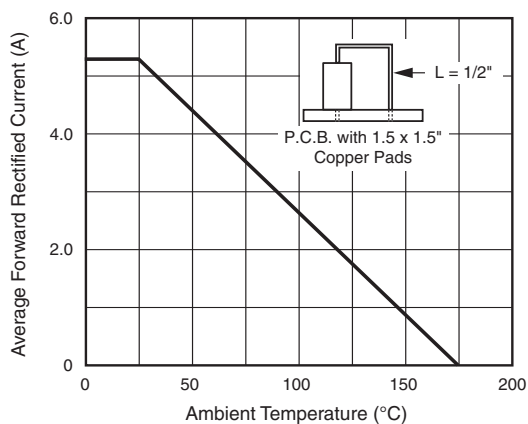


Fig. 1 - Forward Current Derating Curve

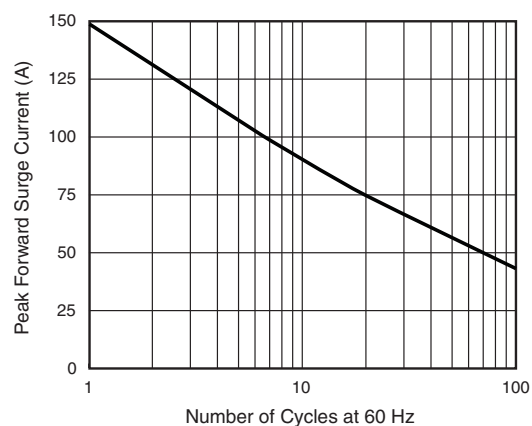


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

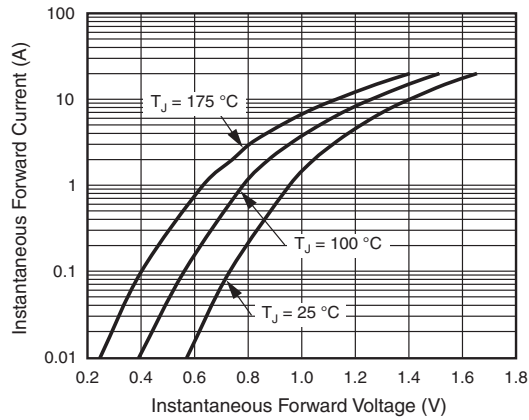


Fig. 3 - Typical Instantaneous Forward Characteristics

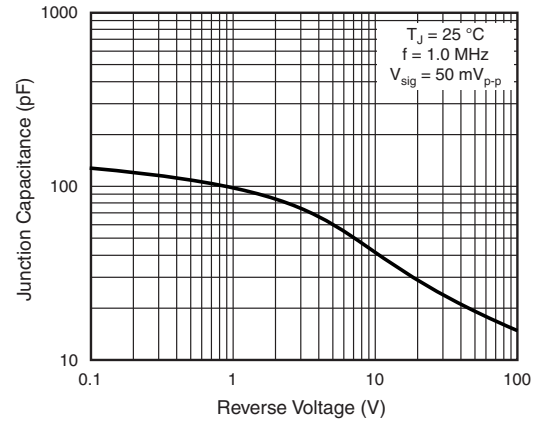


Fig. 5 - Typical Junction Capacitance per Leg

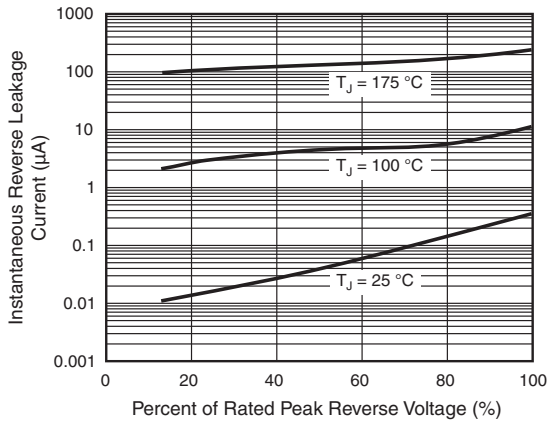
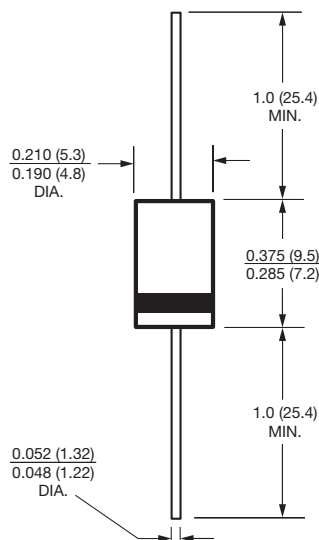


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD





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