

## Ultrafast Plastic Rectifier



### 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](http://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-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 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
Circuit configuration	Single

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	
Maximum DC blocking voltage	$V_{DC}$	400	600	
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		
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +175		°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	MUR440	MUR460	UNIT
Maximum instantaneous forward voltage	3.0 A	$T_J = 150\text{ °C}$	$V_F^{(1)}$	1.05		V
		$T_J = 25\text{ °C}$		1.25		
	4.0 A	$T_J = 25\text{ °C}$		1.28		
Maximum instantaneous reverse current at rated DC blocking voltage	$T_J = 25\text{ °C}$		$I_R^{(1)}$	10		$\mu\text{A}$
	$T_J = 150\text{ °C}$			250		
Max. reverse recovery time	$I_F = 0.5, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		$t_{rr}$	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		
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		

**Note**

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

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

**Note**

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

<b>ORDERING INFORMATION</b> (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
MUR460-M3/54	1.138	54	1400	13" diameter paper tape and reel
MUR460-M3/73	1.138	73	1000	Ammo pack packaging

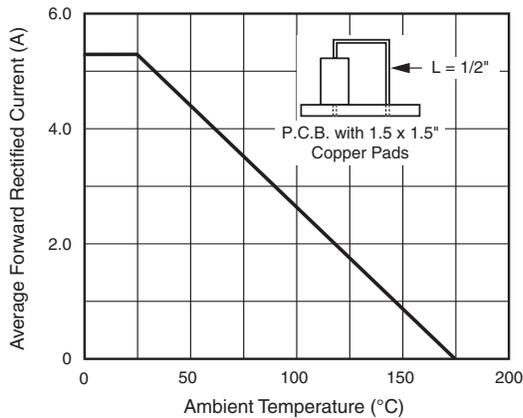
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

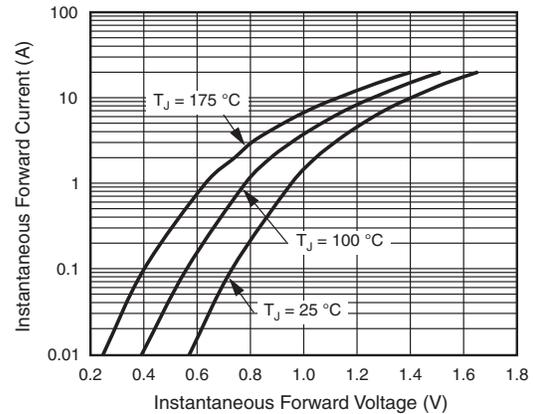


Fig. 3 - Typical Instantaneous Forward Characteristics

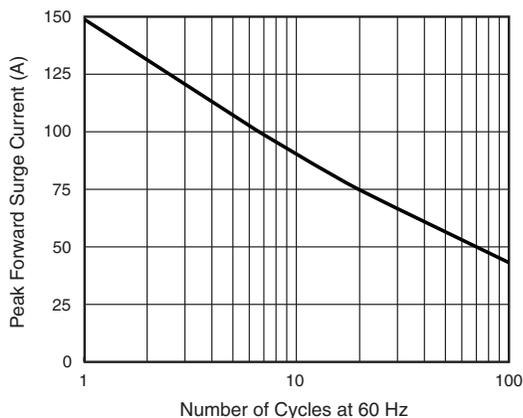


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

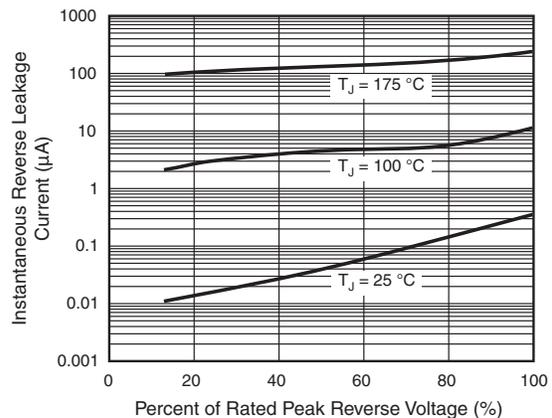


Fig. 4 - Typical Reverse Characteristics

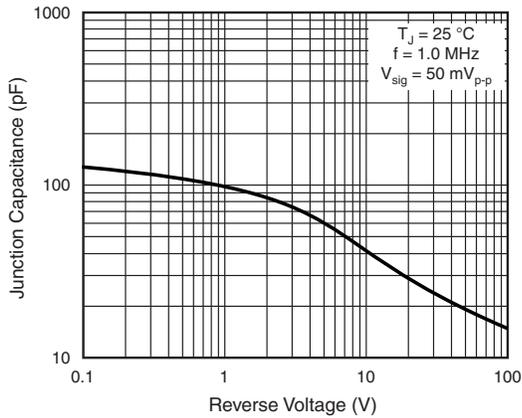
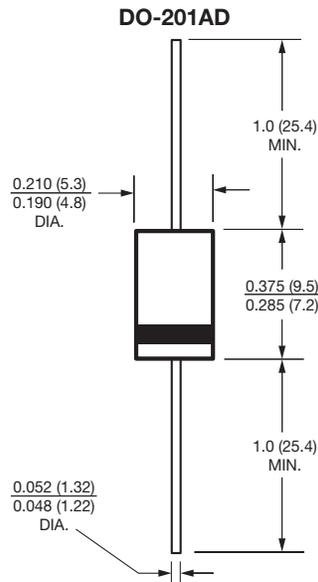


Fig. 5 - Typical Junction Capacitance per Leg

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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