

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

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MUR440, MUR460

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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
		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: $t_p = 300\text{ }\mu\text{s}$, 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)

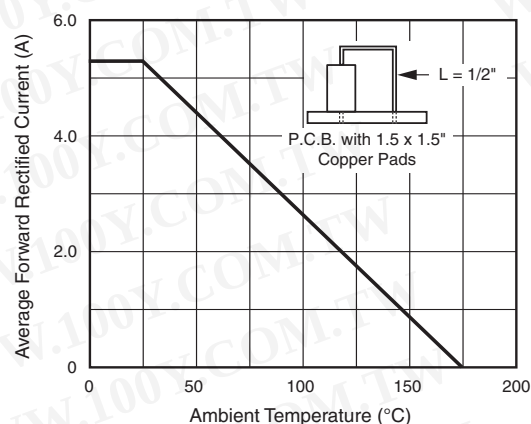


Fig. 1 - Forward Current Derating Curve

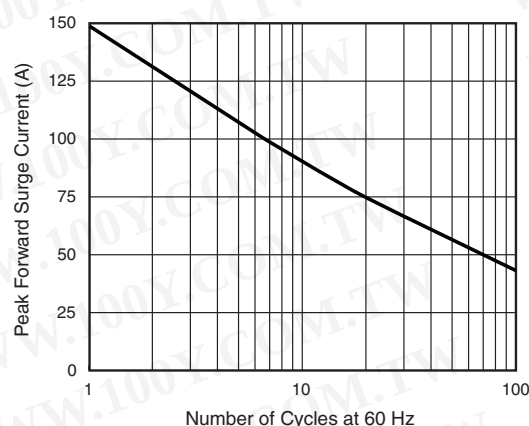


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



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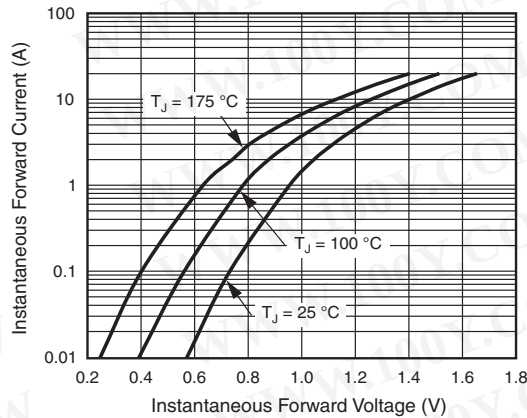


Fig. 3 - Typical Instantaneous Forward Characteristics

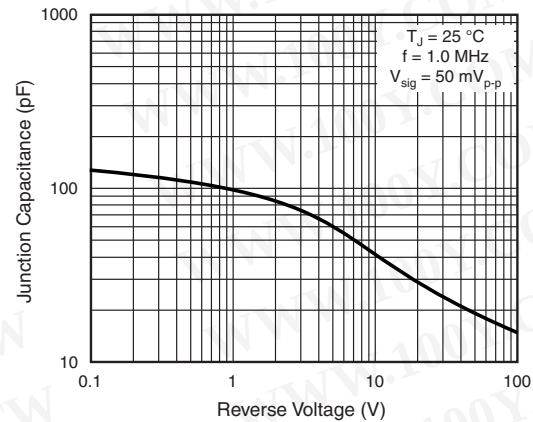


Fig. 5 - Typical Junction Capacitance per Leg

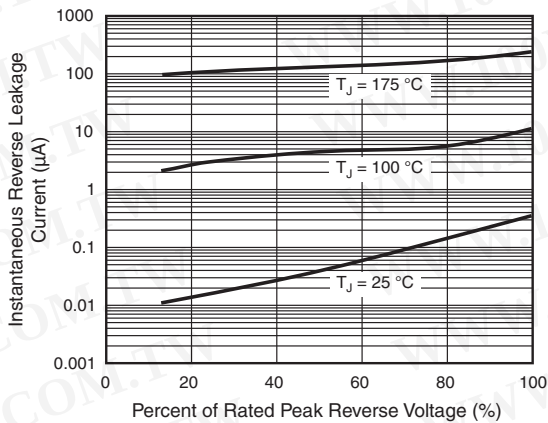
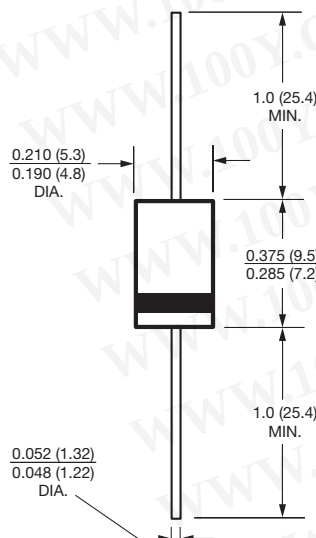


Fig. 4 - Typical Reverse Characteristics

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD





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