Vishay General Semiconductor

Ultrafast Plastic Rectifier



- 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 <u>www.vishay.com/doc?99912</u>

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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MUR440	MUR460	UNIT	
Maximum repetitive peak reverse voltage	V _{RRM}	400	600		
Working peak reverse voltage	V _{RWM}	400	600 V		
Maximum DC blocking voltage	V _{DC}	400	600		
Maximum average forward rectified current (fig. 1)	I _{F(AV)}	4.0		^	
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 ($T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER		TEST CONDITIONS	SYMBOL	MUR440	MUR460	UNIT	
Maximum instantaneous forward voltage	3.0 A	T _J = 150 °C		1.0	5		
	T ₁ = 25 °C	V _F ⁽¹⁾	1.25		V		
	4.0 A	IJ=25 C		1.2	8		
Maximum instantaneous reverse current		T _J = 25 °C	I _B ⁽¹⁾	10			
at rated DC blocking voltage		T _J = 150 °C	'R \''	25	0	μA	
Max. reverse recovery time	$I_F = 0.5, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$		t _{rr}	50			
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	5	ns	
Maximum forward recovery time	$I_F = 1.0 \text{ A}, \text{ dI/dt} = 100 \text{ A/}\mu\text{s}, \text{ recovery to } 1.0 \text{ V}$		t _{fr}	50)		

Note

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

Revision: 06-Aug-2018

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HALOGEN

FREE





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			



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THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MUR440	MUR460	UNIT	
Typical thermal resistance junction to ambient	R _{0JA} ⁽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-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 °C unless otherwise noted)

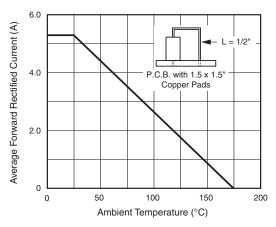


Fig. 1 - Forward Current Derating Curve

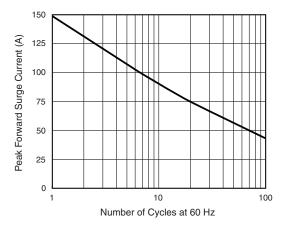


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

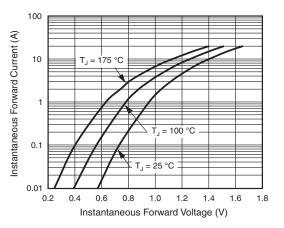


Fig. 3 - Typical Instantaneous Forward Characteristics

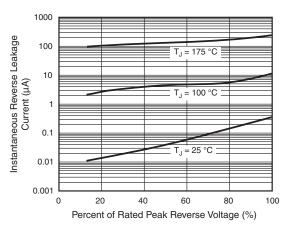
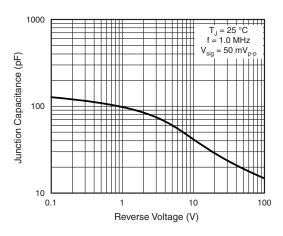


Fig. 4 - Typical Reverse Characteristics



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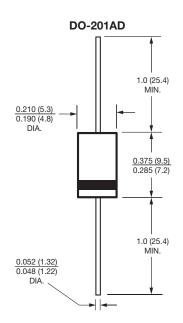


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Fig. 5 - Typical Junction Capacitance per Leg

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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