Vishay General Semiconductor

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 <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, 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	VALUE	UNIT	
Maximum repetitive peak reverse voltage	V _{RRM}	200		
Working peak reverse voltage	V _{RWM}	200	V	
Maximum DC blocking voltage	V _{DC}	200		
Maximum average forward rectified current at $T_A = 80 \ ^{\circ}C$ (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	А	
Operating junction and storage temperature range	T _J , T _{STG}	-65 to +175	°C	

ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage	3.0 A	T _J = 150 °C		0.710	
		V _F ⁽¹⁾	0.875	V	
	4.0 A	T _J = 25 °C		0.890	
Maximum instantaneous reverse current at rated DC blocking voltage		T _J = 25 °C	I _R ⁽¹⁾	5.0	μA
		T _J = 150 °C		150	
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$		t _{rr}	25	ns
	$ I_F = 1.0 \text{ A}, \text{ dI/dt} = 50 \text{ A/}\mu\text{s}, \\ V_R = 30 \text{ V}, \text{ I}_{rr} = 10 \ \% \text{ I}_{RM} $			35	
Maximum forward recovery time	I _F = 1.0 A, dl/dt = 100 A/μs, recovery to 1.0 V		t _{fr}	25	

Note

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

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PRIMARY CHARACTERISTICS				
I _{F(AV)}	4.0 A			
V _{RRM}	200 V			
I _{FSM}	150 A			
t _{rr}	25 ns			
V _F	0.710 V			
T _J max.	175 °C			
Package	DO-201AD			
Circuit configuration	Single			



HALOGEN



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THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance junction to ambient	R _{0JA} ⁽¹⁾	28	°C/W

Note

⁽¹⁾ Lead length = 1/2" on PCB with 1.2" x 1.2" (30.5 mm x 30.5 mm) copper surface

ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
MUR420-E3/54	1.138	54	1400	13" diameter paper tape and reel	
MUR420-E3/73	1.138	73	1000	Ammo pack packaging	
MUR420-M3/54	1.138	54	1400	13" diameter paper tape and reel	
MUR420-M3/73	1.138	73	1000	Ammo pack packaging	

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

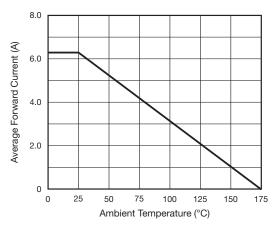


Fig. 1 - Forward Current Derating Curve

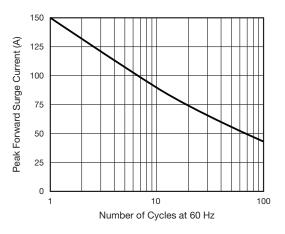


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

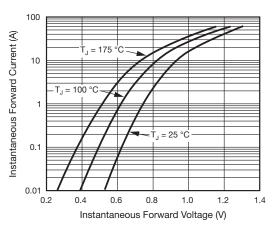


Fig. 3 - Typical Instantaneous Forward Characteristics

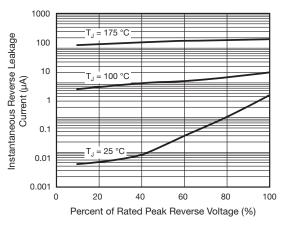


Fig. 4 - Typical Reverse Leakage Characteristics

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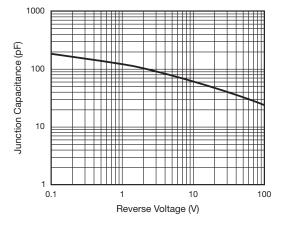
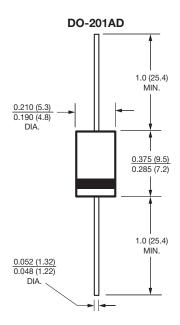


Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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