COMPLIANT

HALOGEN

FREE



### Vishay General Semiconductor

## **Ultrafast Plastic Rectifier**



PRIMARY CHARACTERISTICS			
I <sub>F(AV)</sub>	3.0 A		
$V_{RRM}$	400 V		
I <sub>FSM</sub>	60 A		
t <sub>rr</sub>	30 ns		
V <sub>F</sub>	1.25 V		
T <sub>J</sub> max.	150 °C		
Package	DO-201AD		
Circuit configuration	Single		

#### **FEATURES**

- Glass passivated pellet chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- · 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 <a href="https://www.vishav.com/doc?99912"><u>www.vishav.com/doc?99912</u></a>

#### **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

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER		SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage		$V_{RRM}$	400	
Maximum RMS voltage		$V_{RMS}$	280	V
Maximum DC blocking voltage		$V_{DC}$	400	
Maximum average forward rectified current, 0.375" (9.5 mm) lead length	with FIN	I <sub>F(AV)</sub>	3.0	A
	without FIN/PCB		1.5	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	60	
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-40 to +150	°C
Reverse avalanche energy (8/20 µs surge)		E <sub>AR</sub>	10	mJ

<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Minimum reverse breakdown voltage	10 μA	$V_{BR}$	400	V
Maximum instantaneous forward voltage	3.0 A	V <sub>F</sub> <sup>(1)</sup>	1.25	V
Maximum DC reverse current at rated DC blocking voltage		I <sub>R</sub>	20	μΑ
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$	t <sub>rr</sub>	30	ns

#### Note

<sup>(1)</sup> Pulse test: 300 µs pulse width, 1 % duty cycle

# Vishay General Semiconductor

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to ambient	R <sub>0JA</sub> <sup>(1)</sup>	80	°C/W

#### Note

<sup>(2)</sup> Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
31GF4-E3/54	1.13	54	1400	13" diameter paper tape and reel
31GF4-E3/73	1.13	73	1000	Ammo pack packaging
31GF4-M3/54	1.13	54	1400	13" diameter paper tape and reel
31GF4-M3/73	1.13	73	1000	Ammo pack packaging

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

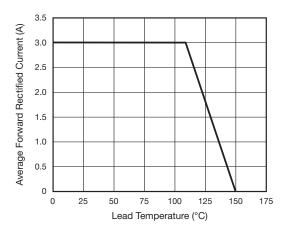


Fig. 1 - Maximum Forward Current Derating Curve

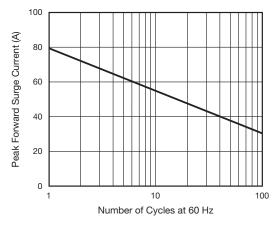


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

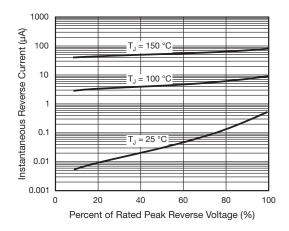


Fig. 3 - Typical Reverse Characteristics

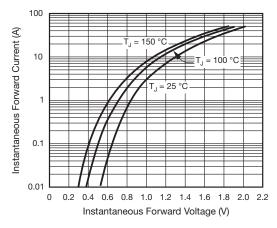


Fig. 4 - Typical Instantaneous Forward Characteristics



# Vishay General Semiconductor

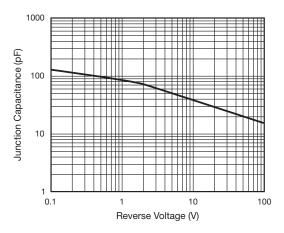
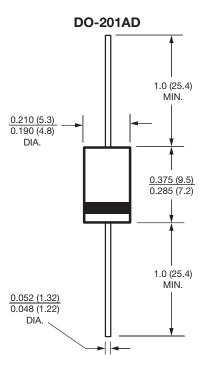


Fig. 5 - Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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