RoHS COMPLIANT

Vishay General Semiconductor

## **Ultrafast Plastic Rectifier**

## **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 www.vishay.com/doc?99912

### **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

MAXIMUM RATINGS (T<sub>A</sub> = 25 °C unless otherwise noted) PARAMETER SYMBOL VALUE UNIT Maximum repetitive peak reverse voltage V<sub>RRM</sub> 600 ٧ Maximum RMS voltage 420 v V<sub>RMS</sub> Maximum DC blocking voltage 600 V  $\mathsf{V}_{\mathsf{DC}}$ Maximum average forward rectified current, 3.0 A I<sub>F(AV)</sub> 0.375" (9.5 mm) lead length at  $T_L = 110 \text{ °C}$ Peak forward surge current 8.3 ms single half sine-wave 90 А IFSM superimposed on rated load 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) 10 mJ  $\mathsf{E}_{\mathsf{AR}}$ 

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT			
Minimum reverse breakdown voltage	10 µA	V <sub>BR</sub>	600	V			
Maximum instantaneous forward voltage	3.0 A	V <sub>F</sub> <sup>(1)</sup>	1.6	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

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PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	3.0 A				
V <sub>RRM</sub>	600 V				
I <sub>FSM</sub>	90 A				
t <sub>rr</sub>	30 ns				
V <sub>F</sub>	1.6 V				
T <sub>J</sub> max.	150 °C				
Package	DO-201AD				
Diode variations	Single die				



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<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	VALUE	UNIT		
Typical thermal resistance	R <sub>0JA</sub> <sup>(1)</sup>	30	°C/W		
rypical mermanesistance	R <sub>0JL</sub> <sup>(1)</sup>	8.0	C/W		

Note

<sup>(1)</sup> Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length

ORDERING INFORMATION (Example)							
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE			
31GF6-E3/54	1.13	54	1400	13" diameter paper tape and reel			
31GF6-E3/73	1.13	73	1000	Ammo pack packaging			

**RATINGS AND CHARACTERISTICS CURVES** (T<sub>A</sub> = 25 °C unless otherwise noted)

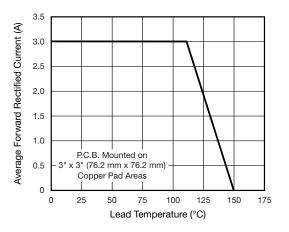


Fig. 1 - Maximum Forward Current Derating Curve

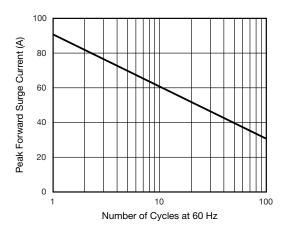
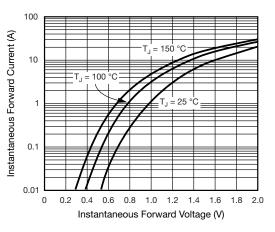


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current





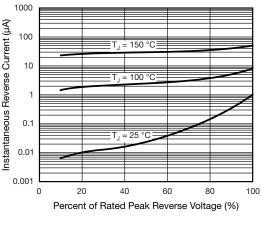


Fig. 4 - Typical Reverse Current

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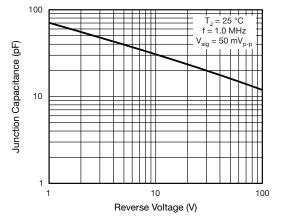
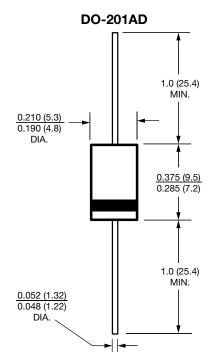


Fig. 5 - Typical Junction Capacitance

### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



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