RoHS



## Vishay General Semiconductor

# **Ultrafast Plastic Rectifier**



PRIMARY CHARACTERISTICS			
I <sub>F(AV)</sub>	3.0 A		
$V_{RRM}$	600 V		
I <sub>FSM</sub>	90 A		
t <sub>rr</sub>	30 ns		
$V_{F}$	1.6 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">www.vishav.com/doc?99912</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

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	$V_{RRM}$	600	V
Maximum RMS voltage	$V_{RMS}$	420	V
Maximum DC blocking voltage	V <sub>DC</sub>	600	V
Maximum average forward rectified current, 0.375" (9.5 mm) lead length at $T_L$ = 110 °C	I <sub>F(AV)</sub>	I <sub>F(AV)</sub> 3.0	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	90	А
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 μΑ	$V_{BR}$	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	μА
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

(1) Pulse test: 300 µs pulse width, 1 % duty cycle



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THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	UNIT		
Typical thermal registance	R <sub>0</sub> JA (1)	30	°C/W	
Typical thermal resistance	R <sub>0JL</sub> (1)	8.0		

#### 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)

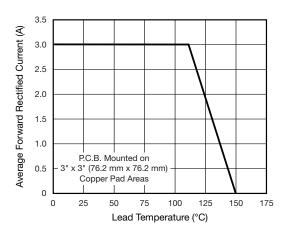


Fig. 1 - Maximum Forward Current Derating Curve

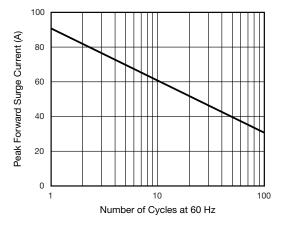


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

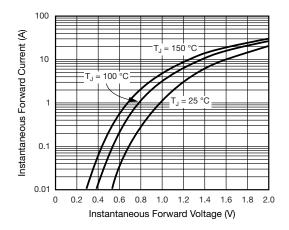


Fig. 3 - Typical Forward Voltage

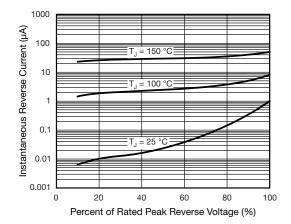
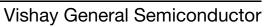


Fig. 4 - Typical Reverse Current





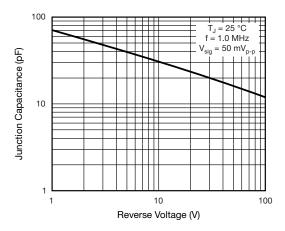
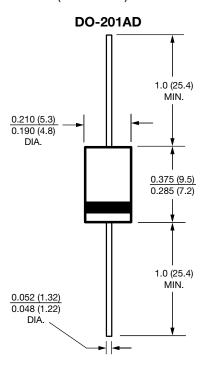


Fig. 5 - Typical Junction Capacitance

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





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