

# SBYV28-50, SBYV28-100, SBYV28-150, SBYV28-200

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## Vishay General Semiconductor

# **Soft Recovery Ultrafast Plastic Rectifier**



PRIMARY CHARACTERISTICS					
I <sub>F(AV)</sub>	3.5 A				
V <sub>RRM</sub> 50 V, 100 V, 150 V, 200 V					
I <sub>FSM</sub> 90 A					
t <sub>rr</sub>	20 ns				
V <sub>F</sub>	0.89 V				
T <sub>J</sub> max.	150 °C				
Package	DO-201AD				
Diode variations	Single die				

### **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 <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

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	SBYV28-50	SBYV28-100	SBYV28-150	SBYV28-200	UNIT	
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200		
Maximum RMS voltage	$V_{RMS}$	35	70	105	140	V	
Maximum DC blocking voltage	$V_{DC}$	50	100	150	200		
Minimum reverse breakdown voltage at 100 μA	$V_{BR}$	55	110	165	220		
Maximum average forward rectified current 0.375" (9.5 mm) lead lengths at $T_L = 85^{\circ}\text{C}$	I <sub>F(AV)</sub>	3.5				А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	90			А		
Operating and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150			°C		

<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	SBYV28-50	SBYV28-100	SBYV28-150	SBYV28-200	UNIT
Maximum instantaneous	3.5 A	T <sub>J</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	1.1				V
forward voltage	0.0 A	T <sub>J</sub> = 150 °C	<b>V</b> F \ /	0.89				
Maximum DC reverse		T <sub>A</sub> = 25 °C		5.0				
current at rated DC blocking voltage		T <sub>A</sub> = 100 °C	I <sub>R</sub>	300			μA	
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A},$ $I_{rr} = 0.25 \text{ A}$	T <sub>J</sub> = 25 °C	t <sub>rr</sub>	20			ns	
Typical junction capacitance	4.0 V, 1 MHz		CJ	J 20			pF	

#### Note

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

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THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	SYMBOL SBYV28-50 SBYV28-100 SBYV28-150 SBYV28-200 UNIT				
Typical thermal resistance	R <sub>0</sub> JA (1)	25				°C/W

#### Note

<sup>(1)</sup> Lead length = 3/8" on PCB with 1.5" x 1.5" (38.1 mm x 38.1 mm) copper surface

ORDERING INFORMATION (Example)							
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE			
SBYV28-200-E3/54	1.138	54	1400	13" diameter paper tape and reel			
SBYV28-200-E3/73	1.138	73	1000	Ammo pack packaging			

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

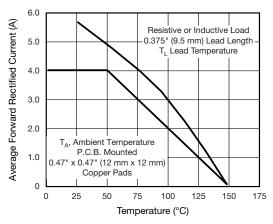


Fig. 1 - Forward Current Derating Curves

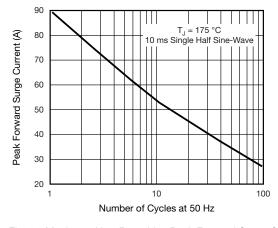


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

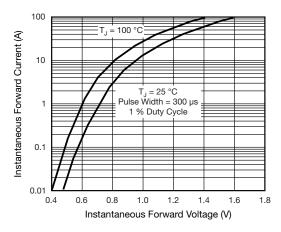


Fig. 3 - Typical Instantaneous Forward Characteristics

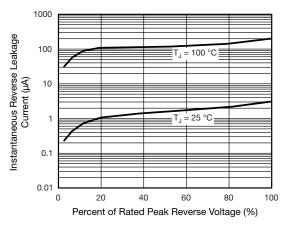


Fig. 4 - Typical Reverse Leakage Characteristics

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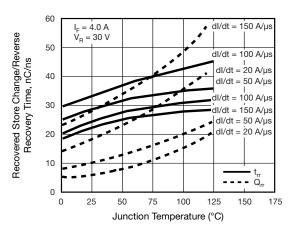


Fig. 5 - Reverse Switching Characteristics

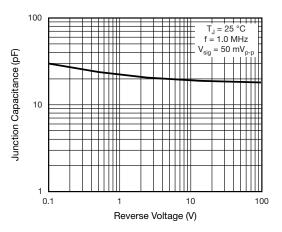
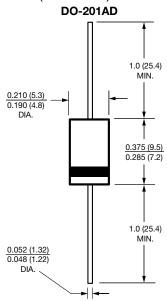


Fig. 6 - Typical Junction Capacitance

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





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