

## SBYV27-50, SBYV27-100, SBYV27-150, SBYV27-200

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## Vishay General Semiconductor

# **Soft Recovery Ultrafast Plastic Rectifier**



PRIMARY CHARACTERISTICS				
I <sub>F(AV)</sub>	2.0 A			
$V_{RRM}$	50 V, 100 V, 150 V, 200 V			
I <sub>FSM</sub>	50 A			
t <sub>rr</sub>	15 ns			
$V_{F}$	0.88 V			
T <sub>J</sub> max.	150 °C			
Package	DO-15 (DO-204AC)			
Circuit configuration	Single			

#### **FEATURES**

- 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">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-15 (DO-204AC)

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	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT	
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200	V	
Maximum RMS voltage	V <sub>RMS</sub>	35	70	105	140	V	
Maximum DC blocking voltage	$V_{DC}$	50	100	150	200	V	
Minimum reverse breakdown voltage at 100 μA	$V_{BR}$	55	110	165	220	V	
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_L$ = 85 °C	I <sub>F(AV)</sub>	2.0					
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	50					
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150				°C	



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Maximum instantaneous	3.0 A	T <sub>J</sub> = 25 °C	V <sub>E</sub> (1)	1.07			V	
forward voltage	3.0 A	T <sub>J</sub> = 150 °C	V <sub>F</sub> (··/	0.88			]	
Maximum DC reverse current at rated DC		T <sub>A</sub> = 25 °C		5.0				μА
blocking voltage		T <sub>A</sub> = 100 °C	l <sub>R</sub>	200				
Maximum reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	15				ns
Typical junction capacitance	4.0 V, 1 MHz		CJ	15				pF

#### Note

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, duty cycle  $\leq 2~\%$ 

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Typical thermal resistance	R <sub>0JA</sub> (1)	45 °C			°C/W	

#### Note

 $^{(1)}\,$  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			
SBYV27-200-E3/54	0.404	54	4000	13" diameter paper tape and reel			
SBYV27-200-E3/73	0.404	73	2000	Ammo pack packaging			

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

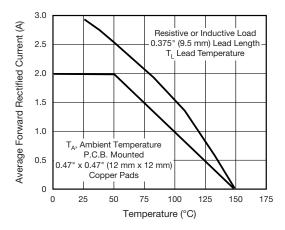


Fig. 1 - Maximum Forward Current Derating Curves

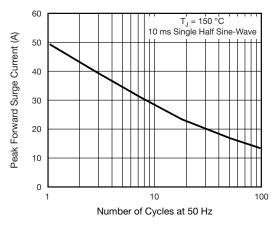


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

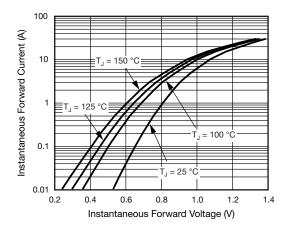


Fig. 3 - Typical Instantaneous Forward Characteristics

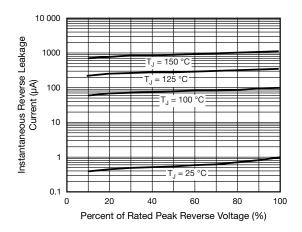


Fig. 4 - Typical Reverse Leakage Characteristics

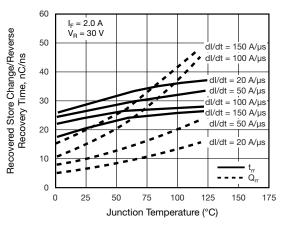


Fig. 5 - Reverse Switching Charateristics

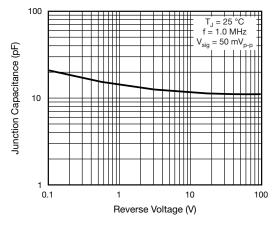


Fig. 6 - Typical Junction Capacitance

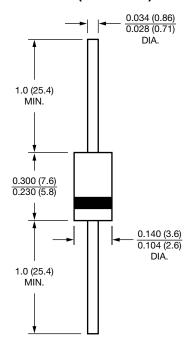
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### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

### DO-15 (DO-204AC)





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