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Vishay General Semiconductor

Soft Recovery Ultrafast Plastic Rectifier



PRIMARY CHARACTERISTICS					
I _{F(AV)}	2.0 A				
V_{RRM}	50 V, 100 V, 150 V, 200 V				
I _{FSM}	50 A				
t _{rr}	15 ns				
V_{F}	0.88 V				
T _J 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 www.vishav.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-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 _A = 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 _{RMS}	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}	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 _{F(AV)}	2.0					
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	50				А	
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150				°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	TEST CO	NDITIONS	SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Maximum instantaneous	3.0 A	T _J = 25 °C	V _E (1)	1.07 0.88			V	
forward voltage	3.0 A	T _J = 150 °C	V _F (··/				7	
Maximum DC reverse current at rated DC		T _A = 25 °C		5.0				
blocking voltage		T _A = 100 °C	l _R	200			μA	
Maximum reverse recovery time	I _F = 0.5 A, I _R = ⁻¹	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		15				ns
Typical junction capacitance	4.0 V, 1 MHz		CJ	C _J 15			pF	

Note

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

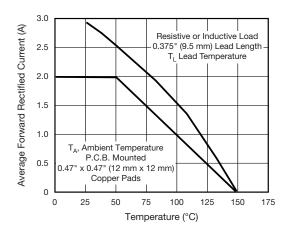
THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Typical thermal resistance	R _{0JA} (1)	45 °C/			°C/W	

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			

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



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Fig. 1 - Maximum Forward Current Derating Curves

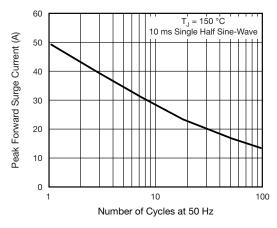


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

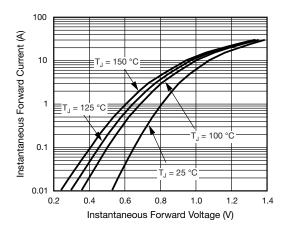


Fig. 3 - Typical Instantaneous Forward Characteristics

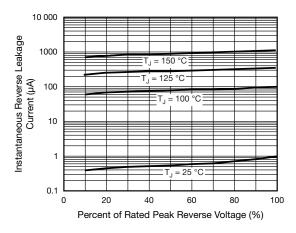


Fig. 4 - Typical Reverse Leakage Characteristics

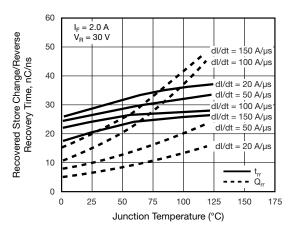


Fig. 5 - Reverse Switching Charateristics

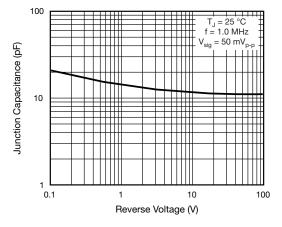


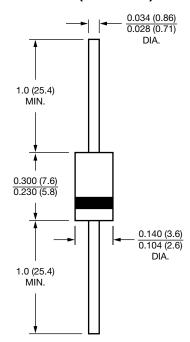
Fig. 6 - Typical Junction Capacitance

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-15 (DO-204AC)





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