

Soft Recovery Ultrafast Plastic Rectifier


DO-15 (DO-204AC)

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.vishay.com/doc?99912


RoHS
COMPLIANT

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

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

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 μ A	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				A
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	50				A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150				°C



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Maximum instantaneous forward voltage	3.0 A	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	1.07				V
		$T_J = 150\text{ }^\circ\text{C}$		0.88				
Maximum DC reverse current at rated DC blocking voltage			I_R	5.0				μA
				200				
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		t_{rr}	15				ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	15				pF

Note

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

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT	
Typical thermal resistance	$R_{\theta JA}^{(1)}$	45				$^\circ\text{C/W}$	

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 ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

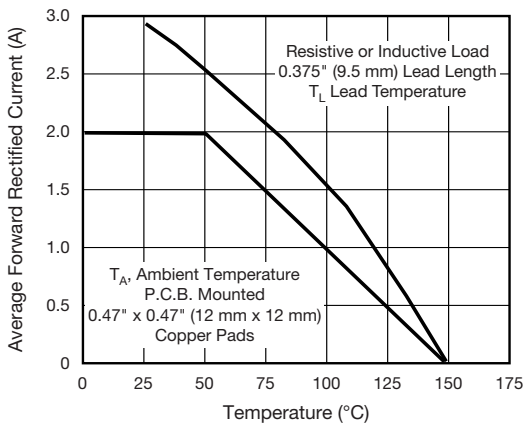


Fig. 1 - Maximum Forward Current Derating Curves

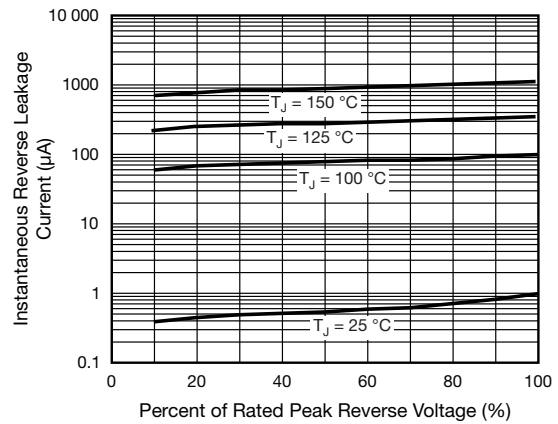


Fig. 4 - Typical Reverse Leakage Characteristics

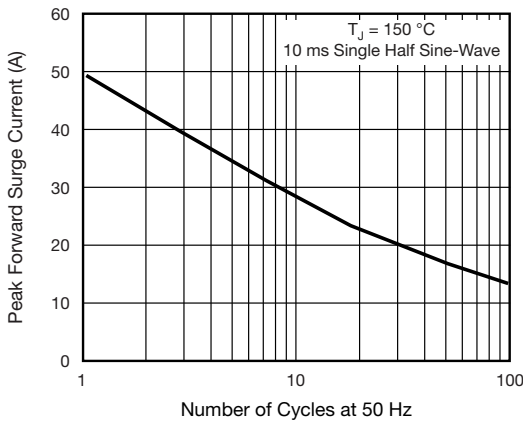


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

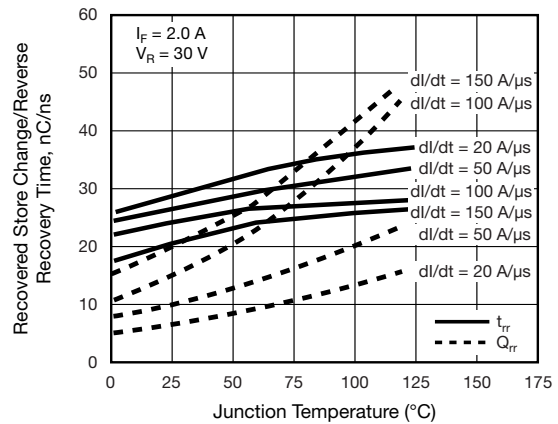


Fig. 5 - Reverse Switching Characteristics

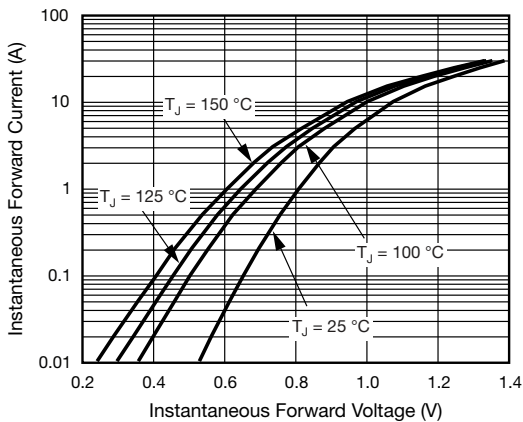


Fig. 3 - Typical Instantaneous Forward Characteristics

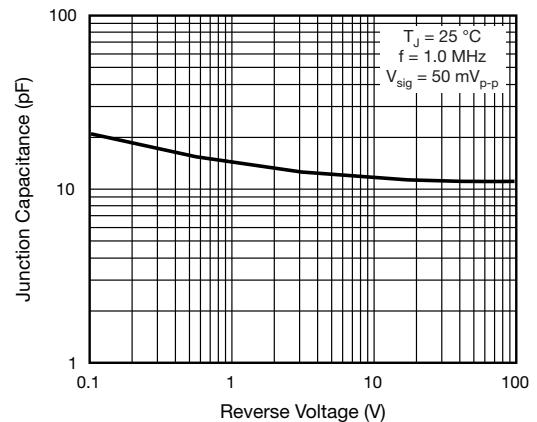
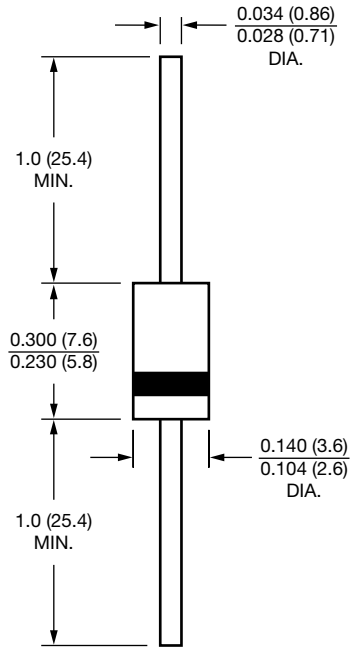


Fig. 6 - Typical Junction Capacitance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-15 (DO-204AC)





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