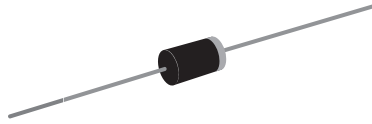


## Soft Recovery Ultrafast Plastic Rectifier


**DO-204AC (DO-15)**

### FEATURES

- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


**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-204AC (DO-15)

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, 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 to 200 V
$I_{FSM}$	50 A
$t_{tr}$	15 ns
$V_F$	0.88 V
$T_J \text{ max.}$	150 °C

MAXIMUM RATINGS ( $T_A = 25 \text{ }^\circ\text{C}$ 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 $\mu\text{A}$	$V_{BR}$	55	110	165	220	V
Maximum average forward rectified current 0.375" (9.5 mm) lead lengths at $T_L = 85 \text{ }^\circ\text{C}$	$I_{F(AV)}$	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 <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	SBYV27-50	SBYV27-100	SBYV27-150	SBYV27-200	UNIT
Maximum instantaneous forward voltage (1)	3.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	1.07				V
		T <sub>J</sub> = 150 °C		0.88				
Maximum DC reverse current at rated DC blocking voltage			I <sub>R</sub>	5.0				μA
				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		C <sub>J</sub>	15				pF

**Note:**

(1) Pulse test: 300 μs pulse width, duty cycle ≤ 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 (1)	R <sub>θJA</sub>	45				°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<sub>A</sub> = 25 °C unless otherwise noted)

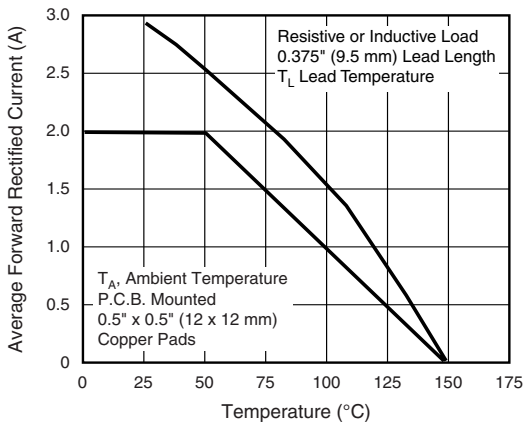


Figure 1. Maximum Forward Current Derating Curves

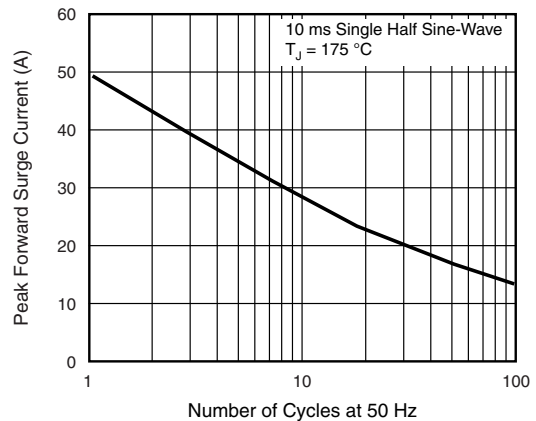


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

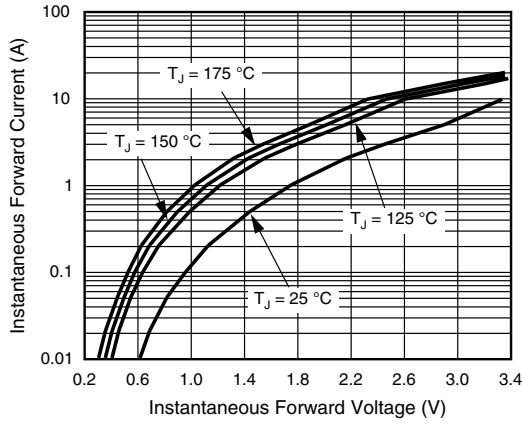


Figure 3. Typical Instantaneous Forward Characteristics

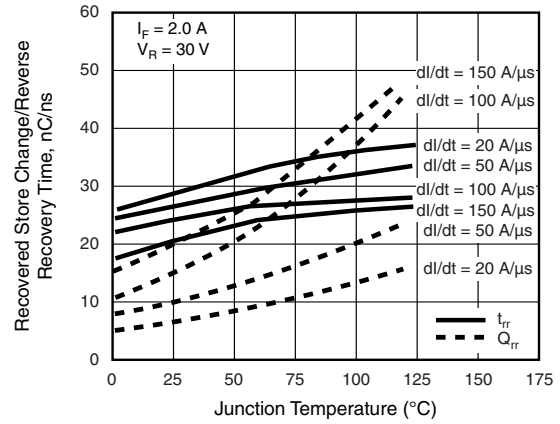


Figure 5. Reverse Switching Characteristics

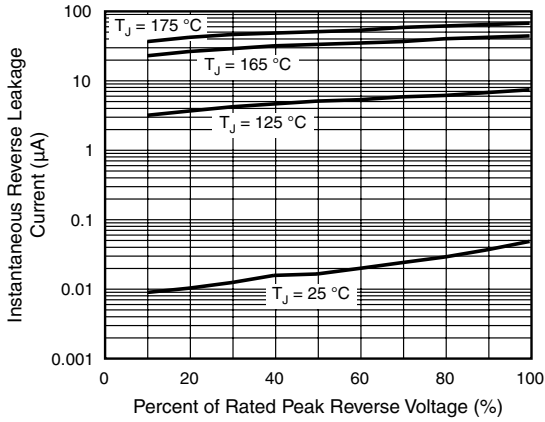


Figure 4. Typical Reverse Leakage Characteristics

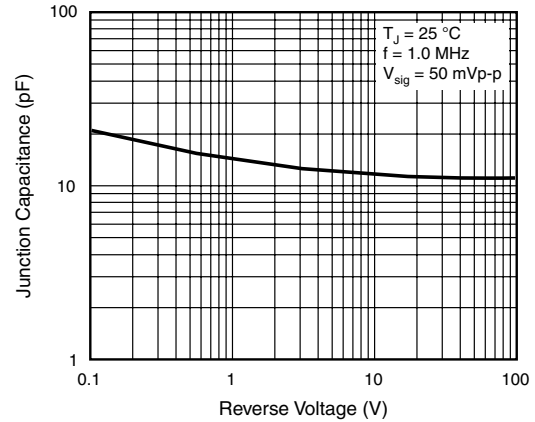
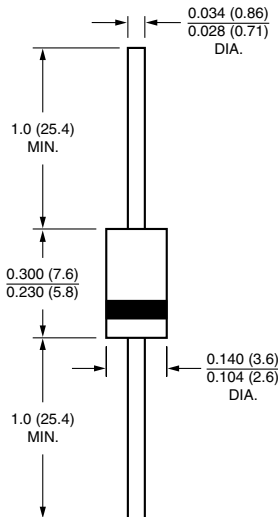


Figure 6. Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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