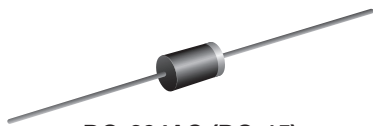


## Soft Recovery Ultrafast Plastic Rectifier



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 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to 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)

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 to 200 V |
| $I_{FSM}$          | 50 A          |
| $t_{rr}$           | 15 ns         |
| $V_F$              | 0.88 V        |
| $T_J \text{ max.}$ | 150 °C        |

### MAXIMUM RATINGS ( $T_A = 25 \text{ °C}$ 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 $\mu$ A                                                  | $V_{BR}$       | 55            | 110        | 165        | 220        | V    |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_L = 85 \text{ °C}$ | $I_{F(AV)}$    | 2.0           |            |            |            | A    |
| Peak forward surge current 10 ms single half<br>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                                      | 3.0 A                                                                    | T <sub>J</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 1.07      |            |            |            | V    |
|                                                                            |                                                                          | T <sub>J</sub> = 150 °C |                               | 0.88      |            |            |            |      |
| Maximum DC reverse current at rated DC blocking voltage                    |                                                                          | T <sub>A</sub> = 25 °C  | I <sub>R</sub>                | 5.0       |            |            |            | μA   |
|                                                                            |                                                                          | T <sub>A</sub> = 100 °C |                               | 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  $\mu\text{s}$  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              |

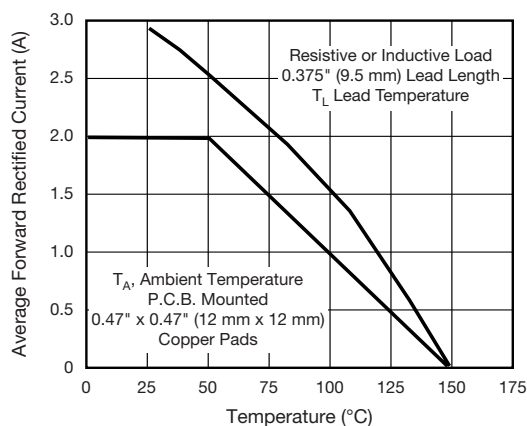
**RATINGS AND CHARACTERISTICS CURVES** $(T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curves

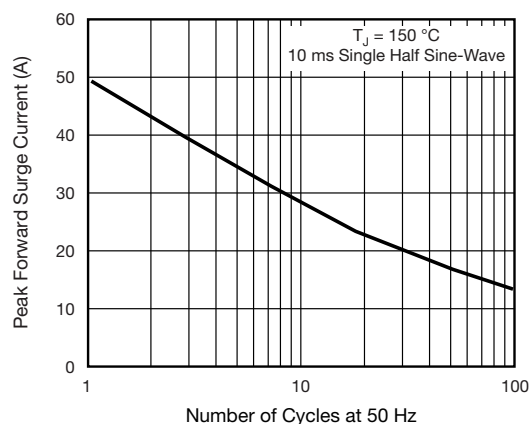


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

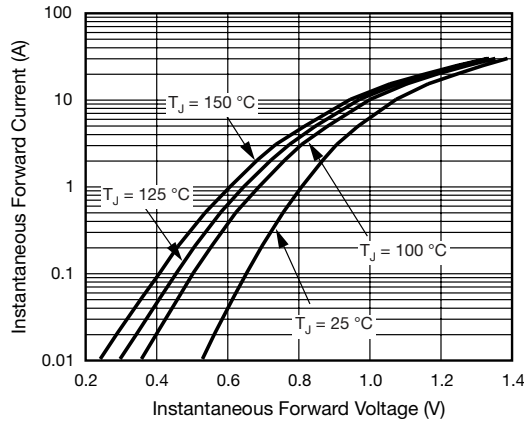


Fig. 3 - Typical Instantaneous Forward Characteristics

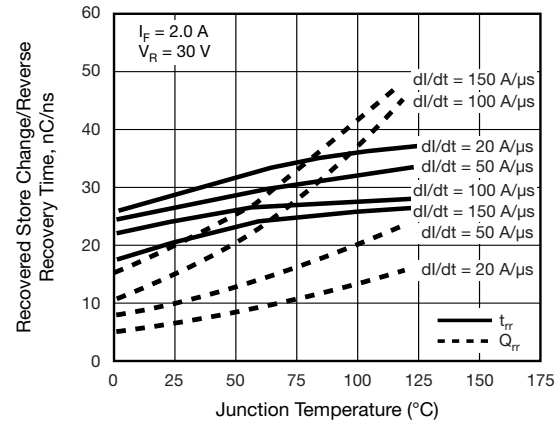


Fig. 5 - Reverse Switching Characteristics

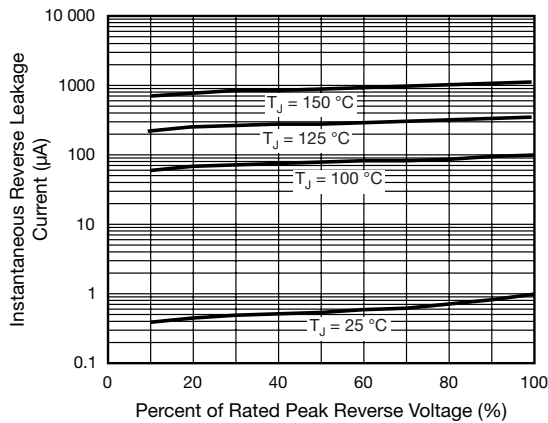


Fig. 4 - Typical Reverse Leakage Characteristics

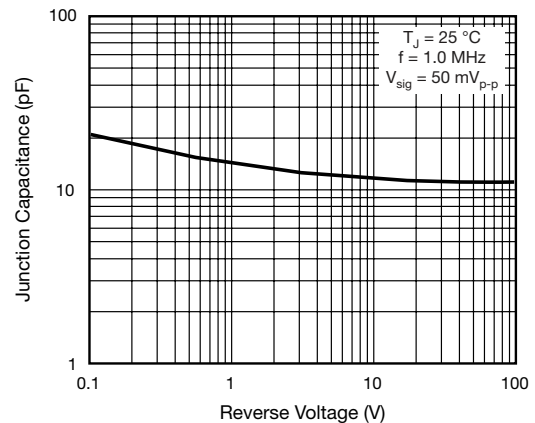
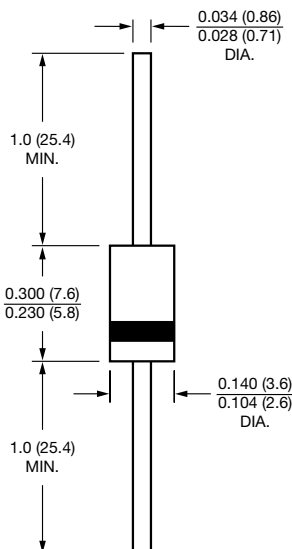


Fig. 6 - Typical Junction Capacitance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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