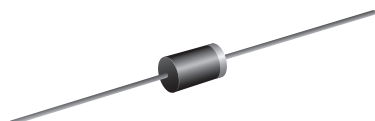


## Soft Recovery Ultrafast Plastic Rectifier



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](http://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 $\mu$ A                                          | $V_{BR}$       | 55          | 110        | 165        | 220        | V    |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_L = 85$ °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** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

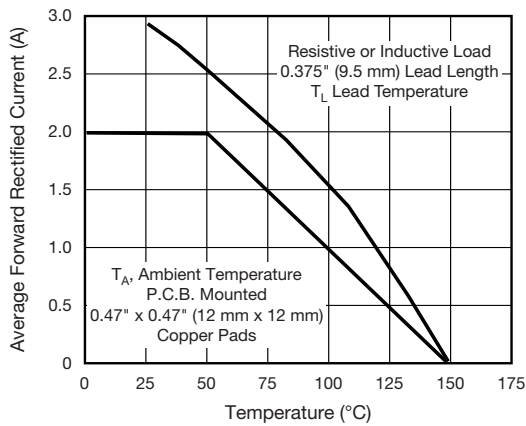


Fig. 1 - Maximum Forward Current Derating Curves

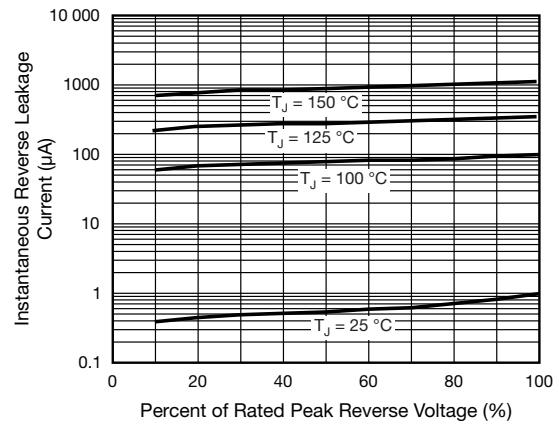


Fig. 4 - Typical Reverse Leakage Characteristics

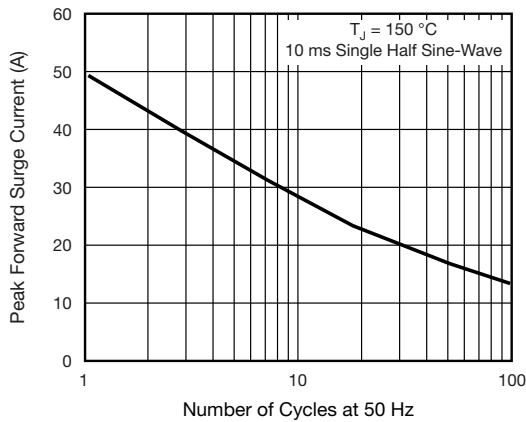


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

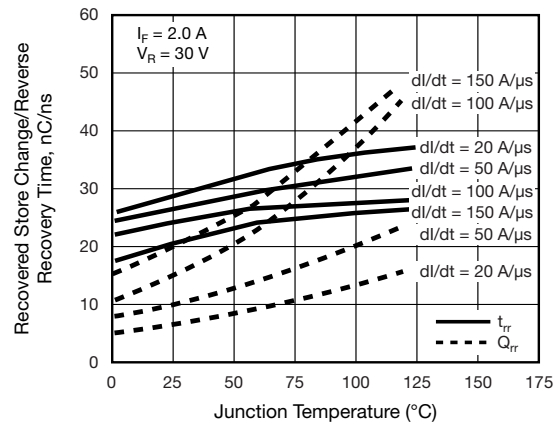


Fig. 5 - Reverse Switching Characteristics

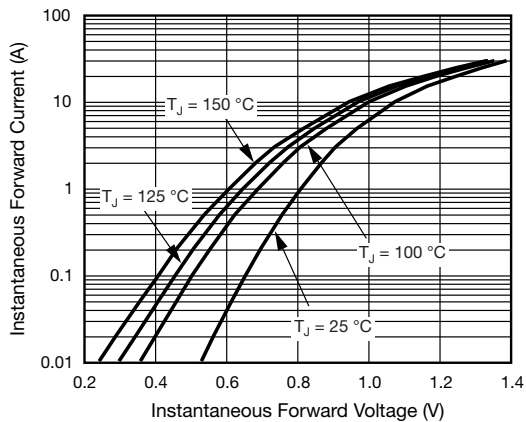


Fig. 3 - Typical Instantaneous Forward Characteristics

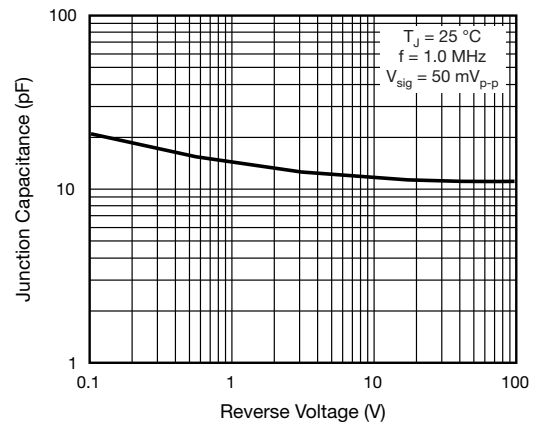
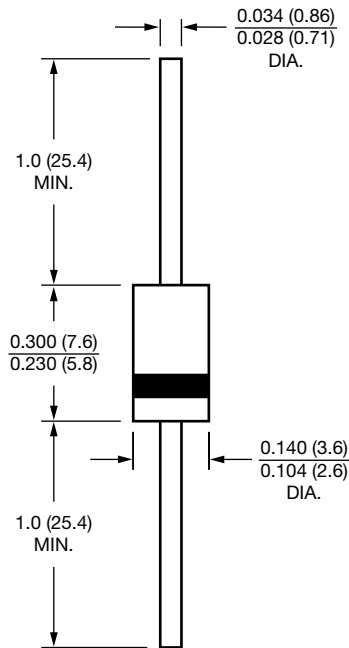


Fig. 6 - Typical Junction Capacitance



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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