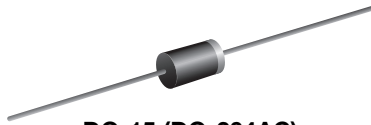


Soft Recovery Ultrafast Plastic Rectifier


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)

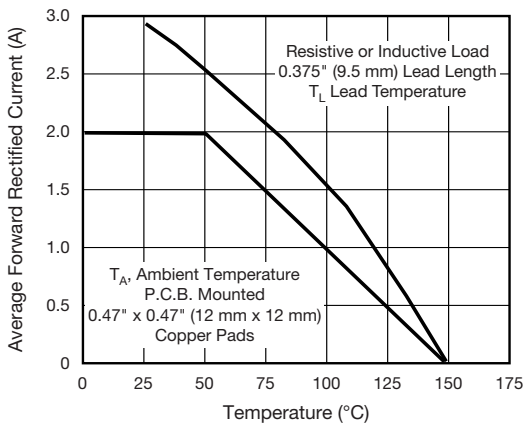


Fig. 1 - Maximum Forward Current Derating Curves

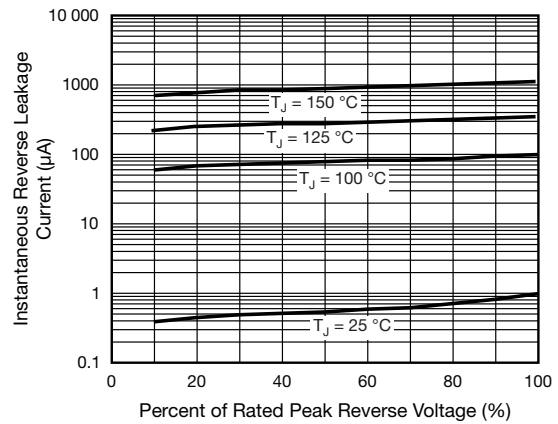


Fig. 4 - Typical Reverse Leakage Characteristics

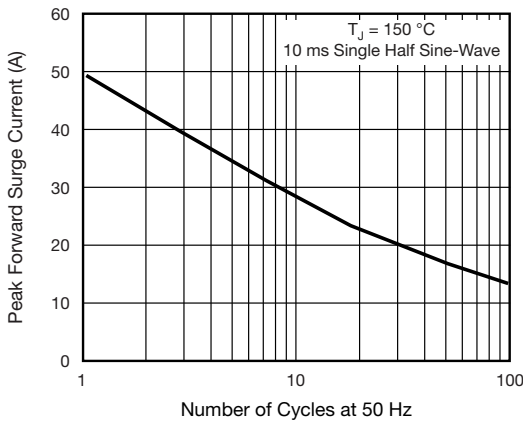


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

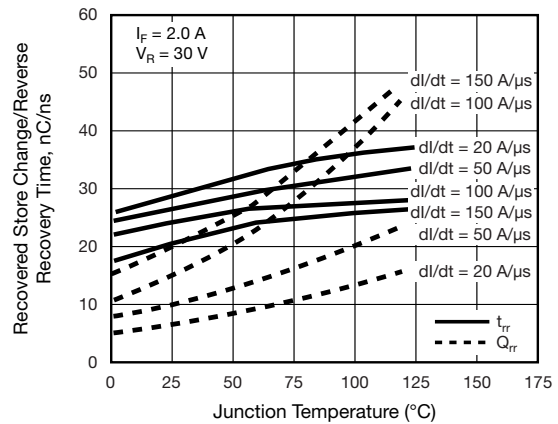


Fig. 5 - Reverse Switching Characteristics

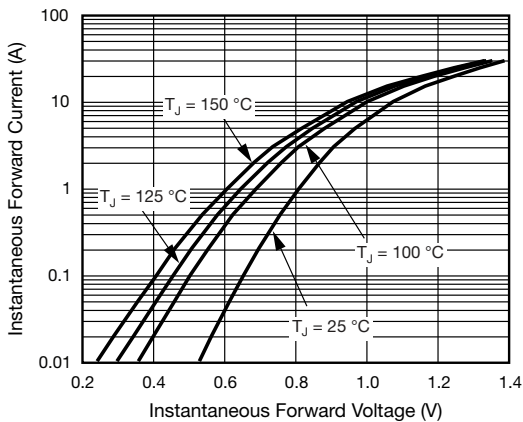


Fig. 3 - Typical Instantaneous Forward Characteristics

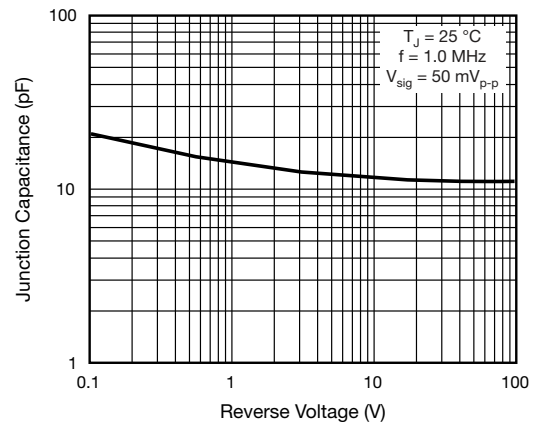
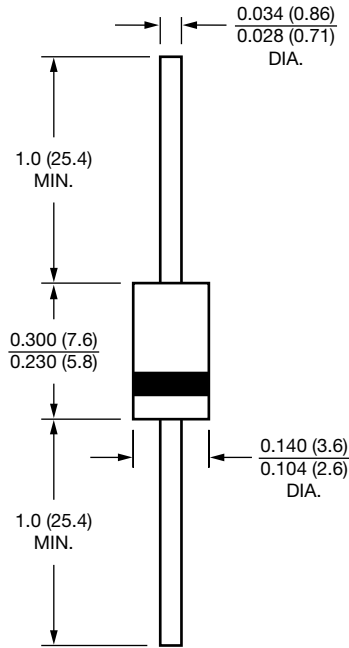


Fig. 6 - Typical Junction Capacitance



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-15 (DO-204AC)





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