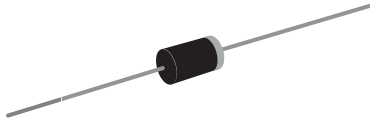


Soft Recovery Ultrafast Plastic Rectifier


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 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in high frequency rectification and free-wheeling 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-002B and JESD22-B102D

E3 suffix for commercial grade

Polarity: Color band denotes cathode end

| MAJOR RATINGS AND 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 μ A | V_{BR} | 55 | 110 | 165 | 220 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead lengths at $T_L = 85\text{ °C}$ | $I_{F(AV)}$ | 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 ⁽¹⁾ | at 3.0 A $T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$ | V_F | | | 1.07 0.88 | | V |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25\text{ }^\circ\text{C}$ $T_A = 100\text{ }^\circ\text{C}$ | I_R | | | 5.0 200 | | μA |
| Maximum reverse recovery time | at $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | | | 15 | | ns |
| Typical junction capacitance | at 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 ⁽¹⁾ | $R_{\theta JA}$ | | | 45 | | $^\circ\text{C/W}$ |

Note:

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length

| ORDERING INFORMATION | | | | |
|-----------------------------|-----------------|------------------------|---------------|--------------------------------|
| 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 & 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)

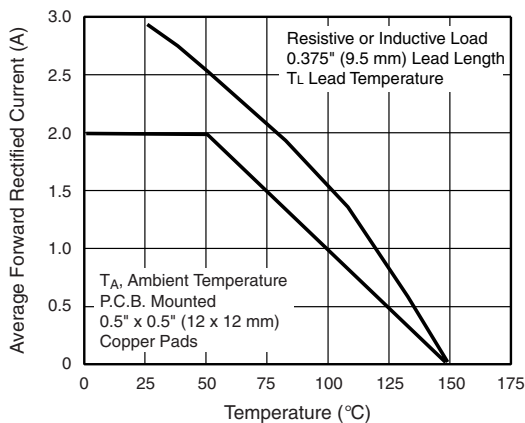


Figure 1. Maximum Forward Current Derating Curves

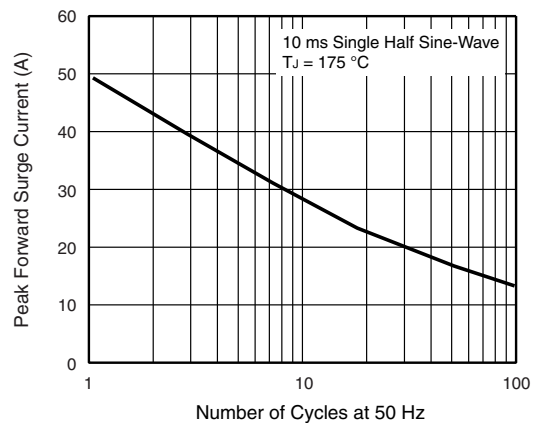


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

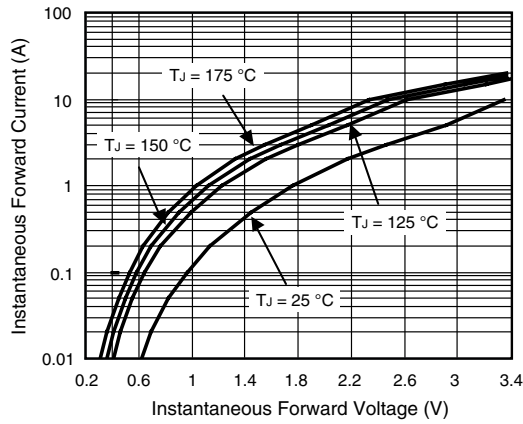


Figure 3. Typical Instantaneous Forward Characteristics

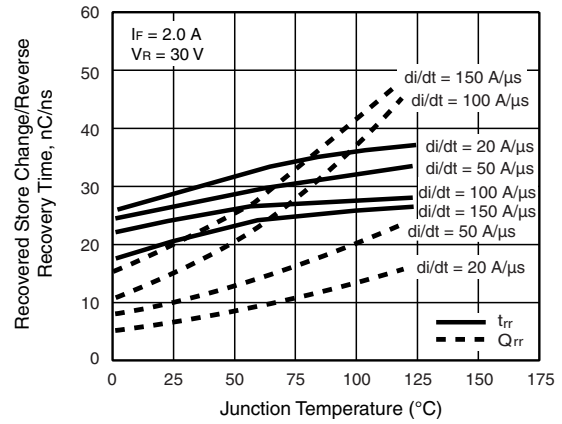


Figure 5. Reverse Switching Characteristics

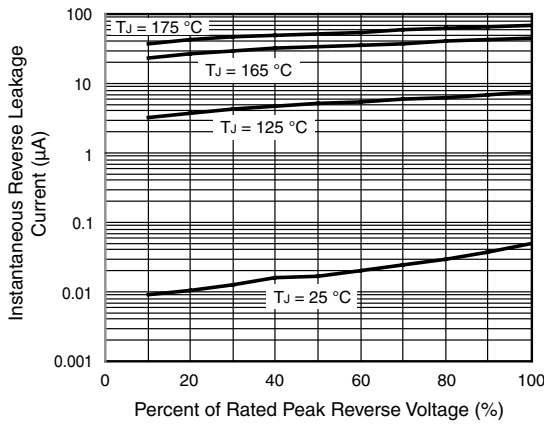


Figure 4. Typical Reverse Leakage Characteristics

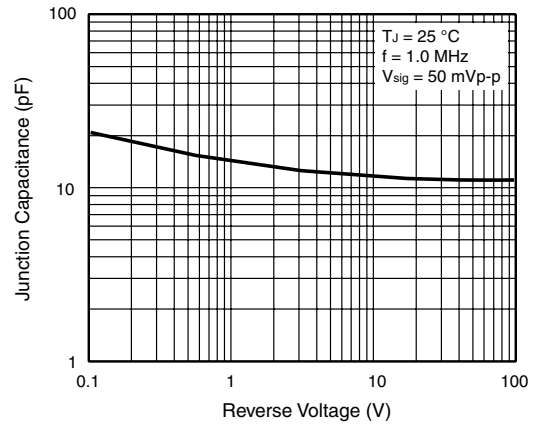
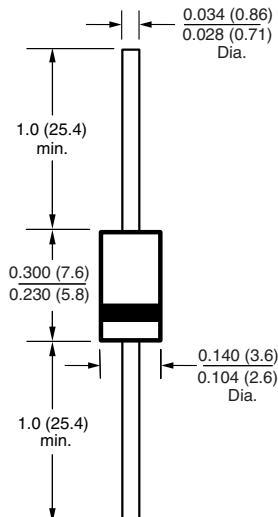


Figure 6. Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





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