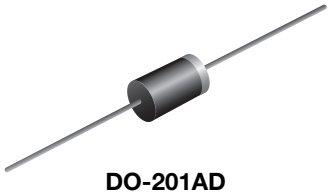
# Soft Recovery Ultrafast Plastic Rectifier



DO-201AD

## FEATURES

- Glass passivated chip junction
- 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

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 3.5 A |
| $V_{RRM}$ | 50 V, 100 V, 150 V, 200 V |
| $I_{FSM}$ | 90 A |
| $t_{rr}$ | 20 ns |
| $V_F$ | 0.89 V |
| $T_J$ max. | 150 °C |
| Package | DO-201AD |
| Diode variations | Single die |

## 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-201AD
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

**MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | SYMBOL | SBYV28-50 | SBYV28-100 | SBYV28-150 | SBYV28-200 | 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 µA | $V_{BR}$ | 55 | 110 | 165 | 220 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead lengths at $T_L$ = 85 °C | $I_{F(AV)}$ | 3.5 | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 90 | | | | A |
| Operating and storage temperature range | $T_J$, $T_{STG}$ | - 55 to + 150 | | | | °C |

| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **SBYV28-50** | **SBYV28-100** | **SBYV28-150** | **SBYV28-200** | **UNIT** |
| Maximum instantaneous forward voltage | 3.5 A | $T_J$ = 25 °C | $V_F$ (1) | 1.1 | | | | V |
| | | $T_J$ = 150 °C | | 0.89 | | | | |
| Maximum DC reverse current at rated DC blocking voltage | | $T_A$ = 25 °C | $I_R$ | 5.0 | | | | µA |
| | | $T_A$ = 100 °C | | 300 | | | | |
| Maximum reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | $T_J$ = 25 °C | $t_{rr}$ | 20 | | | | ns |
| Typical junction capacitance | 4.0 V, 1 MHz | | $C_J$ | 20 | | | | pF |

**Note**

(1) Pulse test: $t_p$ = 300 µs pulse, duty cycle ≤ 2 %

| **THERMAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **SBYV28-50** | **SBYV28-100** | **SBYV28-150** | **SBYV28-200** | **UNIT** |
| Typical thermal resistance | $R_{\theta JA}$ (1) | 25 | | | | °C/W |

**Note**

(1) Lead length = 3/8" on PCB with 1.5" x 1.5" (38.1 mm x 38.1 mm) copper surface

| **ORDERING INFORMATION** (Example) | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| SBYV28-200-E3/54 | 1.138 | 54 | 1400 | 13" diameter paper tape and reel |
| SBYV28-200-E3/73 | 1.138 | 73 | 1000 | Ammo pack packaging |

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

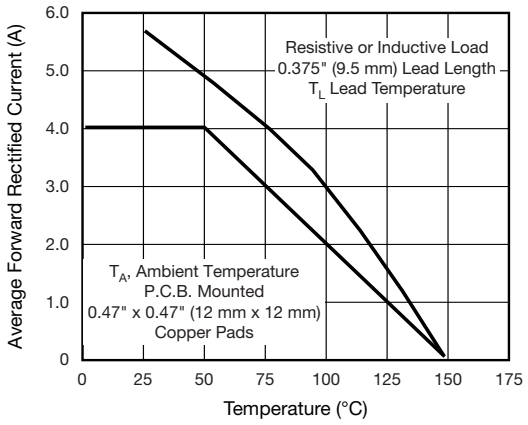



Fig. 1 - Forward Current Derating Curves

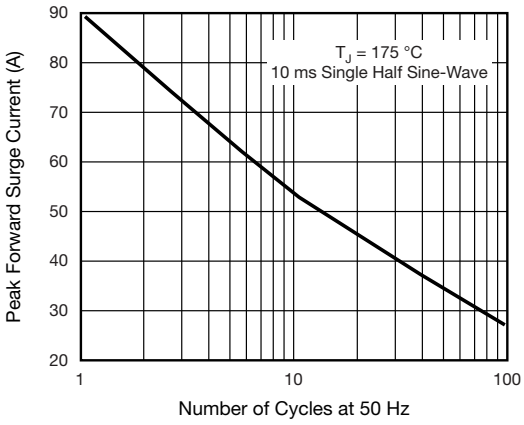



Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

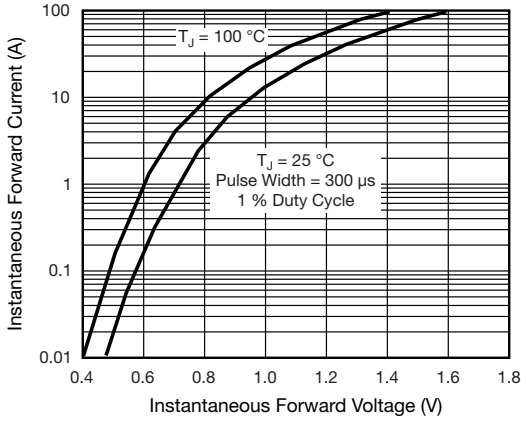



Fig. 3 - Typical Instantaneous Forward Characteristics

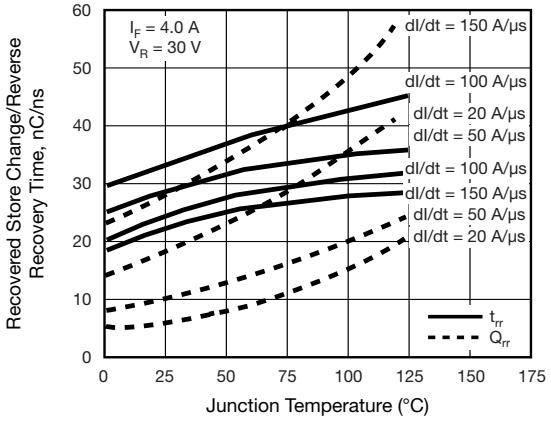



Fig. 5 - Reverse Switching Characteristics

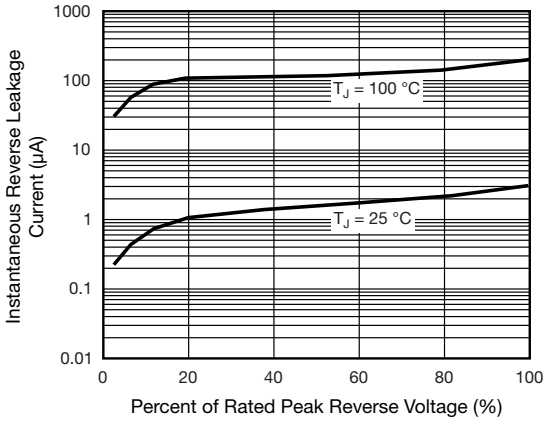



Fig. 4 - Typical Reverse Leakage Characteristics

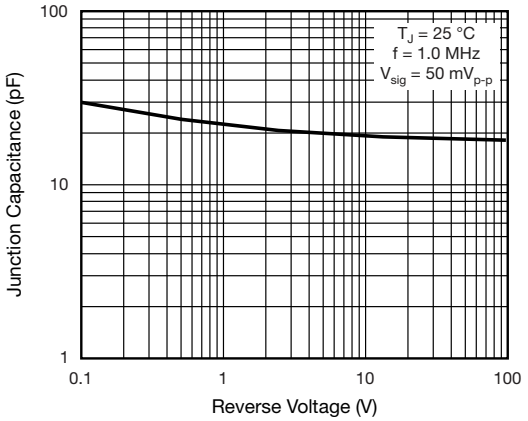
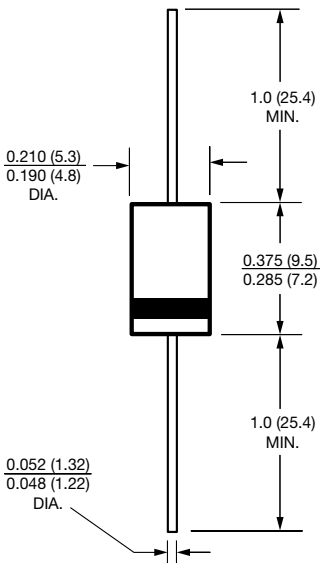



Fig. 6 - Typical Junction Capacitance

## **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-201AD**



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