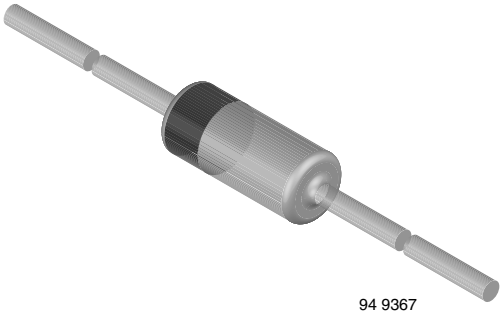
# Small Signal Schottky Diodes

## Features

- The SD103 series is a Metal-on-silicon Schottky barrier device which is protected by a PN junction guard ring.
- The low forward voltage drop and fast switching make it ideal for protection of MOS devices, steering, biasing and coupling diodes for fast switching and low logic level applications.
- Other applications are click suppression, efficient full wave bridges in telephone subsets, and blocking diodes in rechargeable low voltage battery systems.
- These diodes are also available in the SOD-123 and SOD-323 case with type designations SD103AW(S)-V...SD103CW(S)-V, and in the MiniMELF case with type designations LL103A thru LL103C.
- For general purpose applications
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

RoHS COMPLIANT
HALOGEN FREE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## Applications

- HF-Detector
- Protection circuit
- Small battery charger
- AC-DC/DC-DC converters

## Mechanical Data

**Case:** DO-35

**Weight:** approx. 125 mg

**Cathode band color:** black

**Packaging codes/options:**

TR/10 k per 13" reel (52 mm tape), 50 k/box

TAP/10 k per Ammopack (52 mm tape), 50 k/box

## Parts Table

| Part | Type differentiation | Ordering code | Type Marking | Remarks |
|---|---|---|---|---|
| SD103A | $V_R$ = 40 V | SD103A-TR or SD103A-TAP | SD103A | Tape and Reel/Ammopack |
| SD103B | $V_R$ = 30 V | SD103B-TR or SD103B-TAP | SD103B | Tape and Reel/Ammopack |
| SD103C | $V_R$ = 20 V | SD103C-TR or SD103C-TAP | SD103C | Tape and Reel/Ammopack |

## Absolute Maximum Ratings

$T_{amb}$ = 25 °C, unless otherwise specified

| Parameter | Test condition | Part | Symbol | Value | Unit |
|---|---|---|---|---|---|
| Peak inverse voltage | | SD103A | $V_R$ | 40 | V |
| | | SD103B | $V_R$ | 30 | V |
| | | SD103C | $V_R$ | 20 | V |
| Power dissipation (infinite heatsink) | | | $P_{tot}$ | 400[1)] | mW |
| Single cycle surge 60 Hz sine wave | | | $I_{FSM}$ | 15 | A |

[1)] Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature


For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

## Thermal Characteristics

$T_{amb}$ = 25 °C, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Thermal resistance junction to ambient air | | $R_{thJA}$ | 310[1)] | K/W |
| Junction temperature | | $T_j$ | 125 | °C |
| Storage temperature range | | $T_{stg}$ | - 55 to + 150 | °C |

[1)] Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

## Electrical Characteristics

$T_{amb}$ = 25 °C, unless otherwise specified

| Parameter | Test condition | Part | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage | $I_R$ = 50 µA | SD103A | $V_{(BR)}$ | 40 | | | V |
| | | SD103B | $V_{(BR)}$ | 30 | | | V |
| | | SD103C | $V_{(BR)}$ | 20 | | | V |
| Leakage current | $V_R$ = 30 V | SD103A | $I_R$ | | | 5 | µA |
| | $V_R$ = 20 V | SD103B | $I_R$ | | | 5 | µA |
| | $V_R$ = 10 V | SD103C | $I_R$ | | | 5 | µA |
| Forward voltage drop | $I_F$ = 20 mA | | $V_F$ | | | 370 | mV |
| | $I_F$ = 200 mA | | $V_F$ | | | 600 | mV |
| Diode capacitance | $V_R$ = 0 V, f = 1 MHz | | $C_D$ | | 50 | | pF |
| Reverse recovery time | $I_F = I_R$ = 50 to 200 mA, recover to 0.1 $I_R$ | | $t_{rr}$ | | 10 | | ns |

## Typical Characteristics

$T_{amb}$ = 25 °C, unless otherwise specified

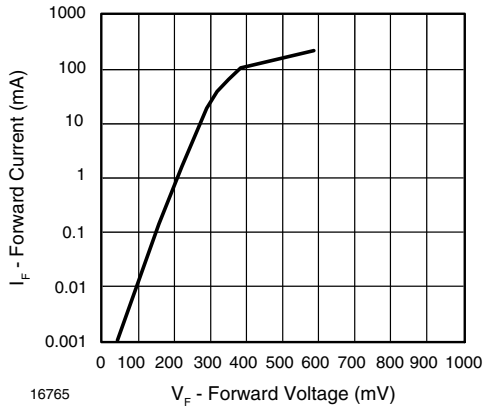


Figure 1. Forward Current vs. Forward Voltage

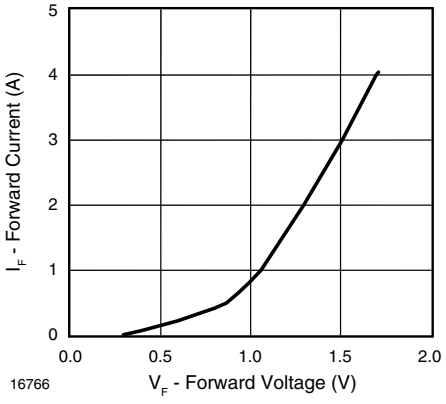


Figure 2. Forward Current vs. Forward Voltage



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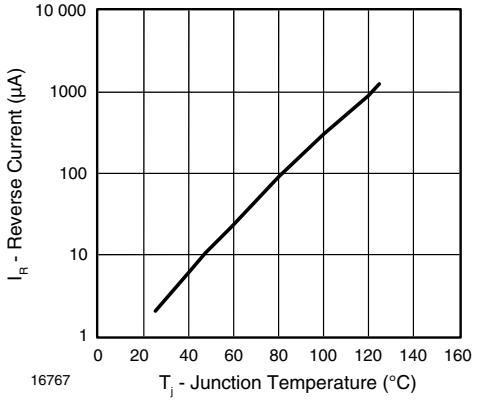



Figure 3. Reverse Current vs. Junction Temperature

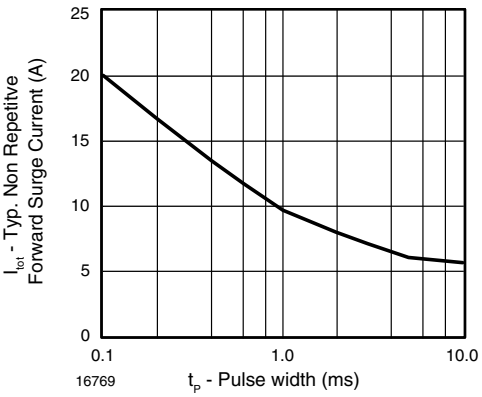



Figure 5. Typ. Non Repetitive Forward Surge Current vs. Pulse Width

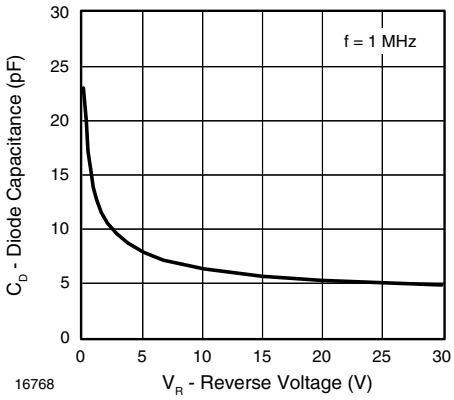
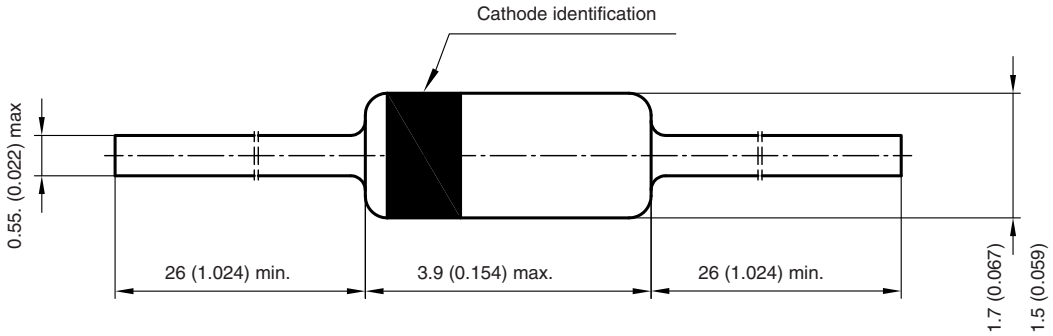



Figure 4. Diode Capacitance vs. Reverse Voltage

## **Package Dimensions** in millimeters (inches): **DO-35**

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