

## Small Signal Schottky Diodes



### MECHANICAL DATA

**Case:** DO-35

**Weight:** approx. 125 mg

**Cathode band color:** black

**Packaging codes/options:**

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

TAP/10K per ammpack (52 mm tape), 50K/box

### FEATURES

- The SD103 series is a metal-on-silicon Schottky barrier device which is protected by a PN junction guarding
- 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 to SD103CW(S)-V, and in the MiniMELF case with type designations LL103A thru LL103C
- For general purpose applications
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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### APPLICATIONS

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

### PARTS TABLE

| PART   | TYPE DIFFERENTIATION | ORDERING CODE           | TYPE MARKING | INTERNAL CONSTRUCTION | REMARKS                |
|--------|----------------------|-------------------------|--------------|-----------------------|------------------------|
| SD103A | $V_R = 40\text{ V}$  | SD103A-TR or SD103A-TAP | SD103A       | Single diode          | Tape and reel/ammopack |
| SD103B | $V_R = 30\text{ V}$  | SD103B-TR or SD103B-TAP | SD103B       | Single diode          | Tape and reel/ammopack |
| SD103C | $V_R = 20\text{ V}$  | SD103C-TR or SD103C-TAP | SD103C       | Single diode          | Tape and reel/ammopack |

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , 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) <sup>(1)</sup> |                |        | $P_{tot}$ | 400   | mW   |
| Single cycle surge 60 Hz sine wave                   |                |        | $I_{FSM}$ | 15    | A    |

**Note**

<sup>(1)</sup> Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature

### THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

| PARAMETER   | TEST CONDITION | SYMBOL     | VALUE         | UNIT             |
|---|----------------|------------|---------------|------------------|
| Thermal resistance junction to ambient air <sup>(1)</sup> |                | $R_{thJA}$ | 310           | K/W              |
| Junction temperature                                      |                | $T_j$      | 125           | $^\circ\text{C}$ |
| Storage temperature range                                 |                | $T_{stg}$  | - 55 to + 150 | $^\circ\text{C}$ |

**Note**

<sup>(1)</sup> Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature



| ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |  |        |                   |      |      |      |      |
|---|--|--------|-------------------|------|------|------|------|
| PARAMETER   | TEST CONDITION   | PART   | SYMBOL            | MIN. | TYP. | MAX. | UNIT |
| Reverse breakdown voltage   | I <sub>R</sub> = 50 μA   | SD103A | V <sub>(BR)</sub> | 40   |      |      | V    |
|   |  | SD103B | V <sub>(BR)</sub> | 30   |      |      | V    |
|   |  | SD103C | V <sub>(BR)</sub> | 20   |      |      | V    |
| Leakage current   | V <sub>R</sub> = 30 V  | SD103A | I <sub>R</sub>    |      |      | 5    | μA   |
|   | V <sub>R</sub> = 20 V  | SD103B | I <sub>R</sub>    |      |      | 5    | μA   |
|   | V <sub>R</sub> = 10 V  | SD103C | I <sub>R</sub>    |      |      | 5    | μA   |
| Forward voltage drop  | I <sub>F</sub> = 20 mA   |        | V <sub>F</sub>    |      |      | 370  | mV   |
|   | I <sub>F</sub> = 200 mA  |        | V <sub>F</sub>    |      |      | 600  | mV   |
| Diode capacitance   | V <sub>R</sub> = 0 V, f = 1 MHz  |        | C <sub>D</sub>    |      | 50   |      | pF   |
| Reverse recovery time   | I <sub>F</sub> = I <sub>R</sub> = 50 mA to 200 mA, recover to 0.1 I <sub>R</sub> |        | t <sub>rr</sub>   |      | 10   |      | ns   |

**TYPICAL CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

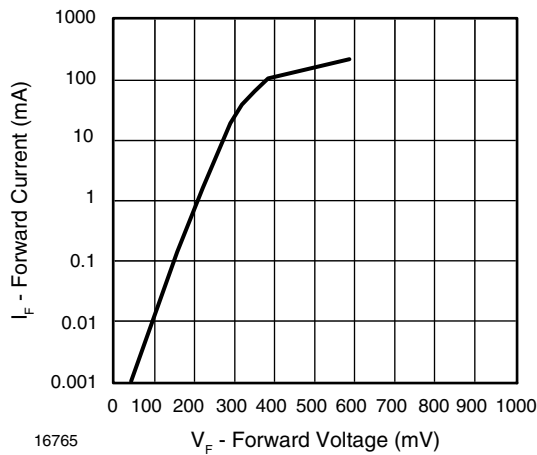


Fig. 1 - Forward Current vs. Forward Voltage

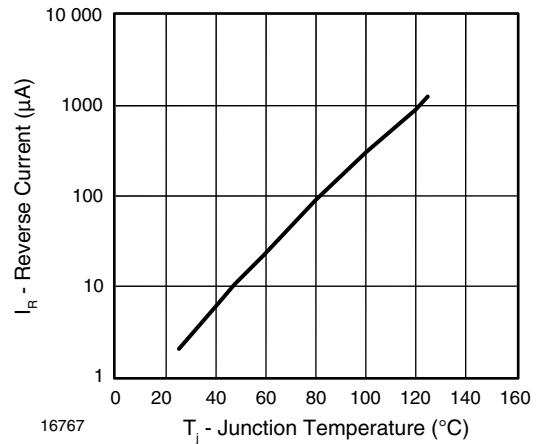


Fig. 3 - Reverse Current vs. Junction Temperature

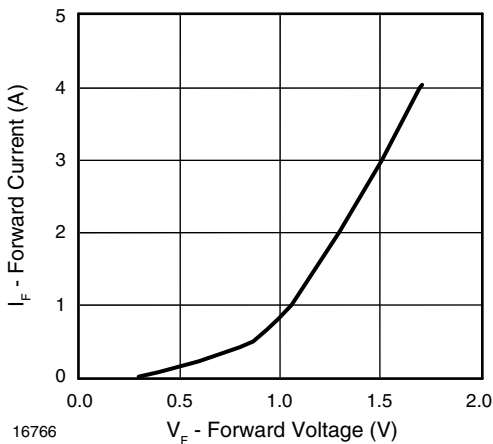


Fig. 2 - Forward Current vs. Forward Voltage

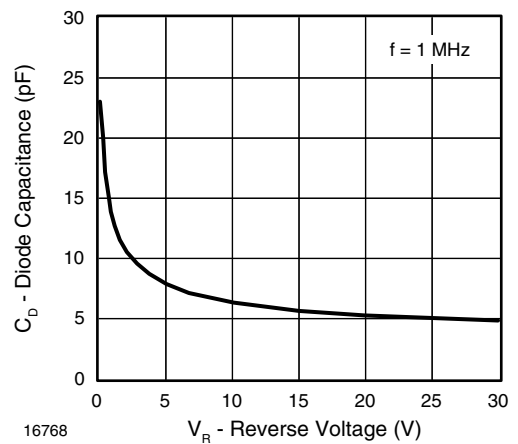


Fig. 4 - Diode Capacitance vs. Reverse Voltage

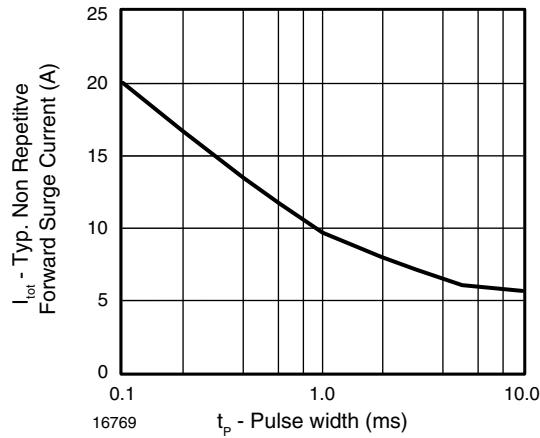
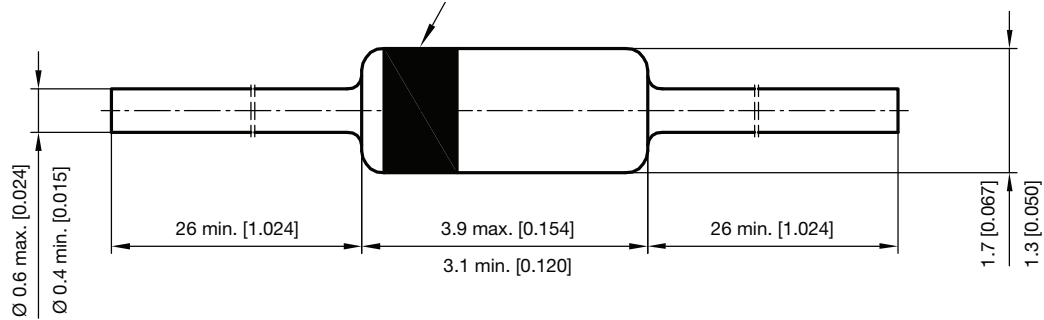


Fig. 5 - Typical Non-Repetitive Forward Surge Current vs. Pulse Width

**PACKAGE DIMENSIONS** in millimeters (inches): **DO-35**



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 94 9366



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