

## Small Signal Schottky Diodes



### MECHANICAL DATA

**Case:** SOD-123

**Weight:** approx. 10.3 mg

**Cathode band color:** black

**Packaging codes/options:**

18/10K per 13" reel (8 mm tape), 10K/box

08/3K per 7" reel (8 mm tape), 15K/box

### FEATURES

- 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
- The SD103 series is a metal-on-silicon Schottky barrier device which is protected by a PN junction guarding
- For general purpose applications
- AEC-Q101 qualified
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### PARTS TABLE

| PART    | ORDERING CODE                    | INTERNAL CONSTRUCTION | TYPE MARKING | REMARKS       |
|---------|----------------------------------|-----------------------|--------------|---------------|
| SD103AW | SD103AW-E3-08 or SD103AW-E3-18   | Single diode          | S6           | Tape and reel |
|         | SD103AW-HE3-08 or SD103AW-HE3-18 |                       |              |               |
| SD103BW | SD103BW-E3-08 or SD103BW-E3-18   | Single diode          | S7           |               |
|         | SD103BW-HE3-08 or SD103BW-HE3-18 |                       |              |               |
| SD103CW | SD103CW-E3-08 or SD103CW-E3-18   | Single diode          | S8           |               |
|         | SD103CW-HE3-08 or SD103CW-HE3-18 |                       |              |               |

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified)

| PARAMETER                                             | TEST CONDITION               | PART    | SYMBOL    | VALUE | UNIT |
|-------------------------------------------------------|------------------------------|---------|-----------|-------|------|
| Repetitive peak reverse voltage                       |                              | SD103AW | $V_{RRM}$ | 40    | V    |
|                                                       |                              | SD103BW | $V_{RRM}$ | 30    | V    |
|                                                       |                              | SD103CW | $V_{RRM}$ | 20    | V    |
| Forward continuous current <sup>(1)</sup>             |                              |         | $I_F$     | 350   | mA   |
| Power dissipation (infinite heat sink) <sup>(1)</sup> |                              |         | $P_{tot}$ | 400   | mW   |
| Single cycle surge                                    | 10 $\mu\text{s}$ square wave |         | $I_{FSM}$ | 2     | A    |

#### Note

<sup>(1)</sup> Valid provided that electrodes are kept at ambient temperature

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

| PARAMETER                                                 | TEST CONDITION | SYMBOL     | VALUE         | UNIT               |
|-----------------------------------------------------------|----------------|------------|---------------|--------------------|
| Thermal resistance junction to ambient air <sup>(1)</sup> |                | $R_{thJA}$ | 300           | K/W                |
| Junction temperature                                      |                | $T_j$      | 125           | $^{\circ}\text{C}$ |
| Operating temperature range                               |                | $T_{op}$   | - 55 to + 125 | $^{\circ}\text{C}$ |
| Storage temperature range                                 |                | $T_{stg}$  | - 55 to + 150 | $^{\circ}\text{C}$ |

#### Note

<sup>(1)</sup> Valid provided that electrodes are kept at ambient temperature



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                                |         |          |      |      |      |               |
|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------|----------|------|------|------|---------------|
| PARAMETER                                                                                                | TEST CONDITION                                                                 | PART    | SYMBOL   | MIN. | TYP. | MAX. | UNIT          |
| Leakage current                                                                                          | $V_R = 30\text{ V}$                                                            | SD103AW | $I_R$    |      |      | 5    | $\mu\text{A}$ |
|                                                                                                          | $V_R = 20\text{ V}$                                                            | SD103BW | $I_R$    |      |      | 5    | $\mu\text{A}$ |
|                                                                                                          | $V_R = 10\text{ V}$                                                            | SD103CW | $I_R$    |      |      | 5    | $\mu\text{A}$ |
| Forward voltage drop                                                                                     | $I_F = 20\text{ mA}$                                                           |         | $V_F$    |      |      | 370  | mV            |
|                                                                                                          | $I_F = 200\text{ mA}$                                                          |         | $V_F$    |      |      | 600  | mV            |
| Diode capacitance                                                                                        | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                                        |         | $C_D$    |      | 50   |      | pF            |
| Reverse recovery time                                                                                    | $I_F = I_R = 50\text{ mA}$ to $200\text{ mA}$ ,<br>recover to $0.1\text{ }I_R$ |         | $t_{rr}$ |      | 10   |      | ns            |

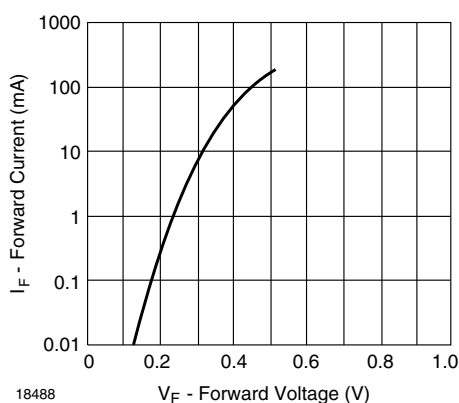
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

Fig. 1 - Typical Variation of Forward Current vs. Forward Voltage

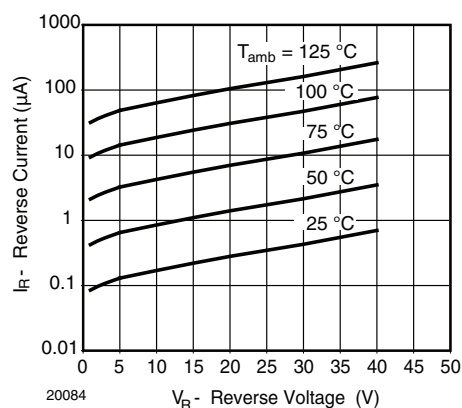


Fig. 3 - Typical Variation of Reverse Current at Various Temperatures

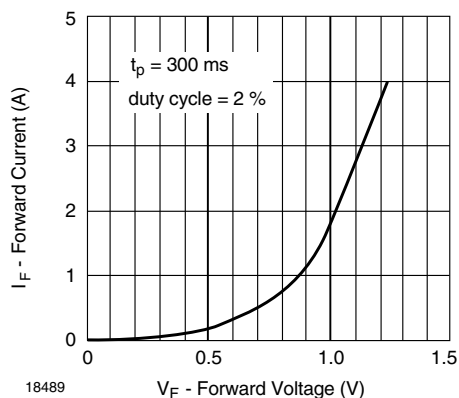


Fig. 2 - Typical High Current Forward Conduction Curve

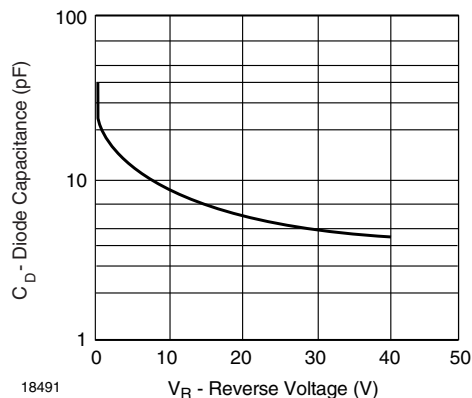


Fig. 4 - Typical Capacitance vs. Reverse Voltage

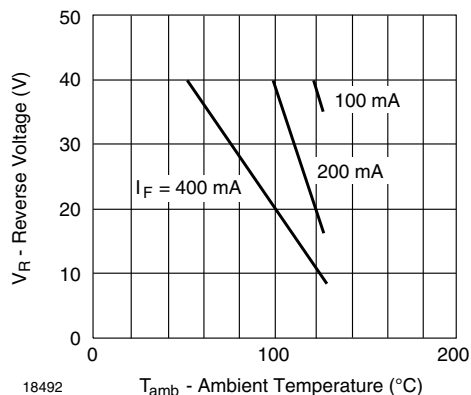
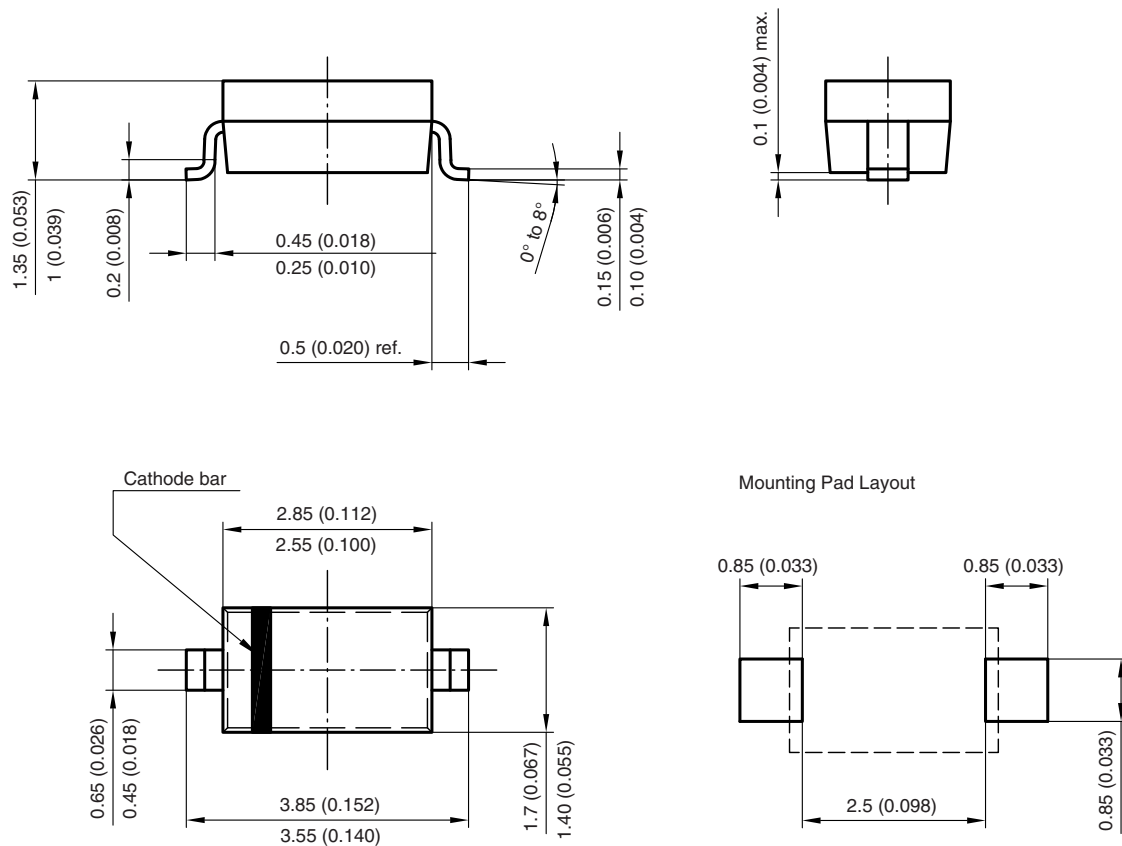


Fig. 5 - Blocking Voltage Deration vs. Temperature at Various Average Forward Currents

### PACKAGE DIMENSIONS in millimeters (inches): SOD-123



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