## Product Summary (@$T_A$ = +25°C)

| Name | $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ Max (V) | $I_R$ Max (µA) |
|---|---|---|---|---|
| SD103AW | 40 | 0.2 | 0.60 | 5.0µA@30V |
| SD103BW | 30 | 0.2 | 0.60 | 5.0µA@20V |
| SD103CW | 20 | 0.2 | 0.60 | 5.0µA@10V |

## Description

These are 0.2A, 20V/30V/40V Schottky rectifiers packaged in SOD123 package.

## Applications

Providing low $V_F$ and low reserve leakage, this device is ideal for use in general rectification applications such as:

- Low voltage rectifications
- High-efficiency DC-DC conversions
- Switch mode power supplies
- Inverse polarity protections

## Features and Benefits

- Low Forward Voltage Drop (VF)
- Better Efficiency and Cooler Operation
- Guard Ring Construction for Transient Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative.**
  **https://www.diodes.com/quality/product-definitions/**

## Mechanical Data

- Package: SOD123
- Package Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123

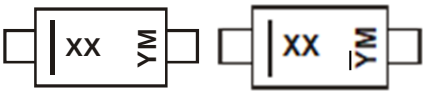
Top View

## Ordering Information (Note 4)

| Part Number | Package | Packing | |
|---|---|---|---|
| | | Qty. | Carrier |
| SD103AW-7-F | SOD123 | 3000 | Tape and Reel |
| SD103BW-7-F | SOD123 | 3000 | Tape and Reel |
| SD103CW-7-F | SOD123 | 3000 | Tape and Reel |
| SD103CW-13-F | SOD123 | 10,000 | Tape and Reel |

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

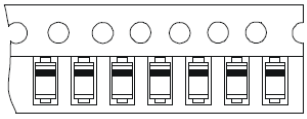
## Marking Information




Bar Denotes Cathode Pin

XX = Product Type Marking Code
S4 = SD103AW
S5 or S4 = SD103BW
S6 or S5 or S4 = SD103CW

YM & $\overline{Y}$M = Date Code Marking
Y& $\overline{Y}$ = Year (ex: J = 2022)
M = Month (ex: 9 = September)



Date Code Key

| Year | 2003 | … | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | P | … | J | K | L | M | N | O | P | R | S | T |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

## Maximum Ratings (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | Symbol | SD103AW | SD103BW | SD103CW | Unit |
|---|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 40 | 30 | 20 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 28 | 21 | 14 | V |
| Forward Continuous Current (Note 5) | $I_{FM}$ | 350 | | | mA |
| Non-Repetitive Peak Forward Surge Current @ t ≤ 1.0s | $I_{FSM}$ | 1.5 | | | A |

## Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation (Note 5) | $P_D$ | 367 | mW |
| Typical Thermal Resistance Junction to Ambient (Note 5) | $R_{\theta JA}$ | 340 | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +150 | °C |

## Electrical Characteristics (@$T_A$ = +25°C, unless otherwise specified.)

| Characteristic | | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage (Note 6) | SD103AW<br>SD103BW<br>SD103CW | $V_{(BR)R}$ | 40<br>30<br>20 | — | — | V | $I_R$ = 100μA |
| Forward Voltage Drop | | $V_{FM}$ | — | — | 0.37<br>0.60 | V | $I_F$ = 20mA<br>$I_F$ = 200mA |
| Peak Reverse Current (Note 6) | SD103AW<br>SD103BW<br>SD103CW | $I_{RM}$ | — | — | 5.0 | μA | $V_R$ = 30V<br>$V_R$ = 20V<br>$V_R$ = 10V |
| Total Capacitance | | $C_T$ | — | 28 | — | pF | $V_R$ = 0V, f = 1.0MHz |
| Reverse Recovery Time | | $t_{RR}$ | — | 10 | — | ns | $I_F$ = $I_R$ = 200mA,<br>$I_{RR}$ = 0.1 x $I_R$, $R_L$ = 100Ω |

Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
6. Short duration test pulse used to minimize self-heating effect.

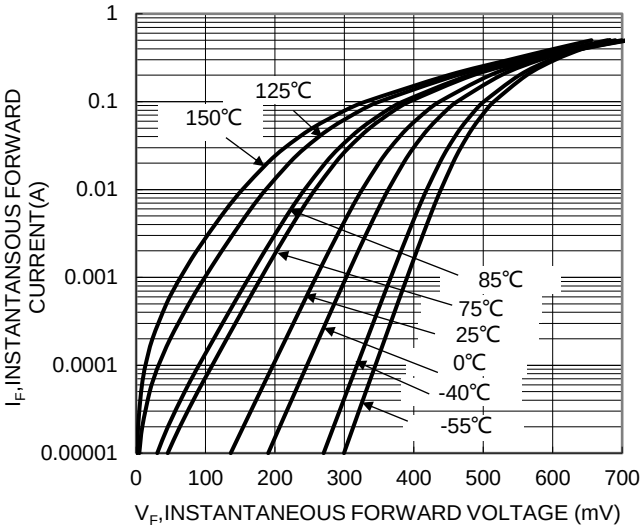



Fig. 1 Typical Forward Characteristics

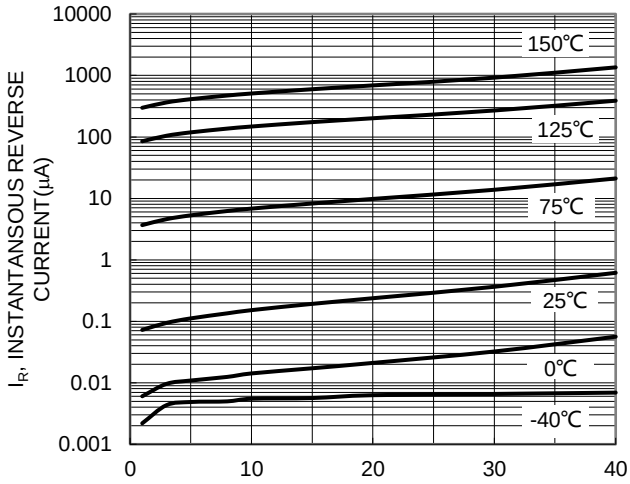



Fig. 2 Typical Reverse Characteristics

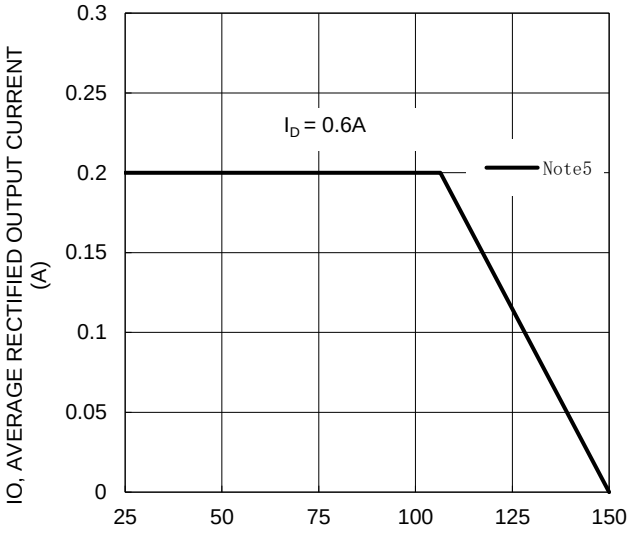



Fig 4. DC Forward Current Derating

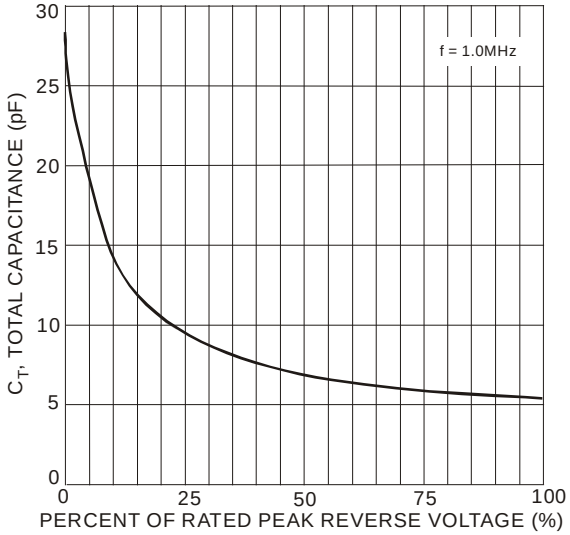
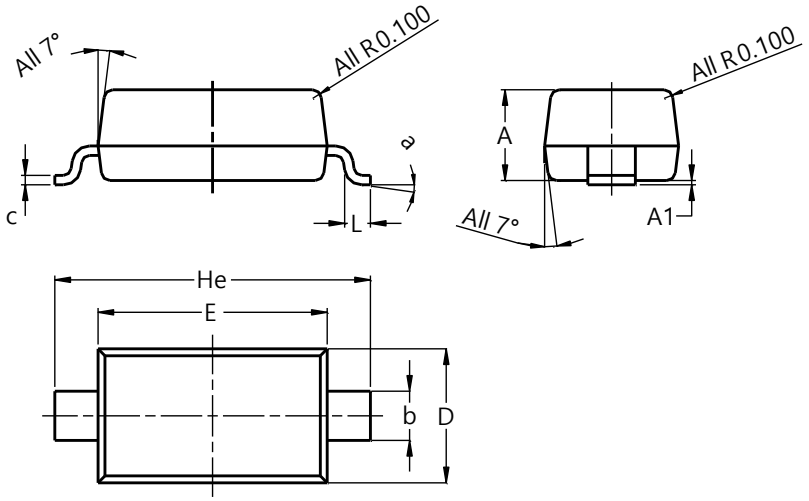



Fig. 3 Total Capacitance vs. Reverse Voltage

## Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

**SOD123**

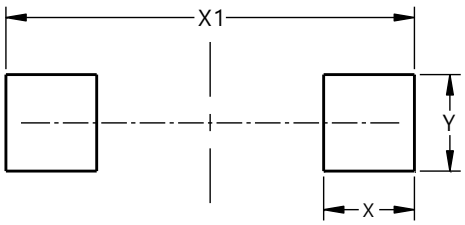



| SOD123 | | | |
|---|---|---|---|
| **Dim** | **Min** | **Max** | **Typ** |
| **A** | 1.00 | 1.35 | 1.05 |
| **A1** | 0.00 | 0.10 | 0.05 |
| **b** | 0.52 | 0.62 | 0.57 |
| **c** | 0.10 | 0.15 | 0.11 |
| **D** | 1.40 | 1.70 | 1.55 |
| **E** | 2.55 | 2.85 | 2.65 |
| **He** | 3.55 | 3.85 | 3.65 |
| **L** | 0.25 | 0.40 | 0.30 |
| **a** | 0º | 8º | -- |
| **All Dimensions in mm** | | | |

## Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

**SOD123**




| Dimensions | Value (in mm) |
|---|---|
| **X** | 0.900 |
| **X1** | 4.050 |
| **Y** | 0.950 |

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