

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 rectifier packaged in SOD123 package.

Applications

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

- Low Voltage Rectification
- High-Efficiency DC-DC Conversion
- Switch Mode Power Supply
- Inverse Polarity Protection

Features and Benefits

- Low Forward Voltage Drop (V_F)
- 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)**

Mechanical Data

- Case: SOD123
- Case 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 | Case | Packaging |
|--------------|--------|----------------------|
| 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) compliant.
 2. See http://www.diodes.com/quality/lead_free.html 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 <http://www.diodes.com/products/packages.html>.

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

| Characteristic | Symbol | SD103AW | SD103BW | SD103CW | Unit |
|--|---------------------|---------|---------|---------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | | | | |
| Working Peak Reverse Voltage | V _{RWM} | 40 | 30 | 20 | V |
| DC Blocking Voltage | V _R | | | | |
| 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 | $^{\circ}C/W$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^{\circ}C$ |

Electrical Characteristics (@ $T_A = +25^{\circ}C$, unless otherwise specified.)

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

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.

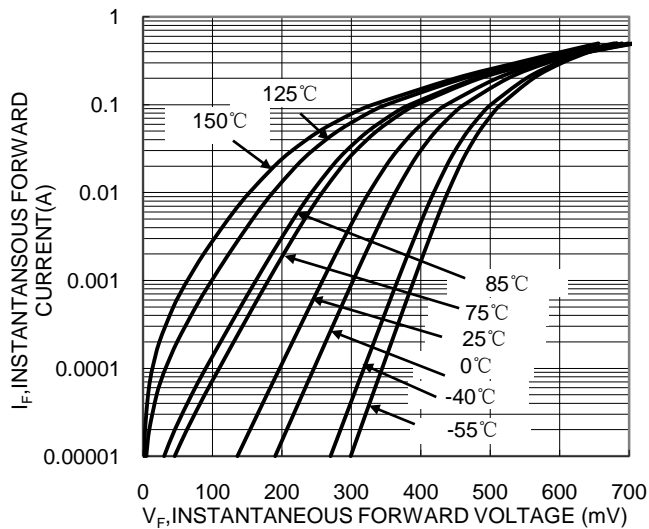


Fig. 1 Typical Forward Characteristics

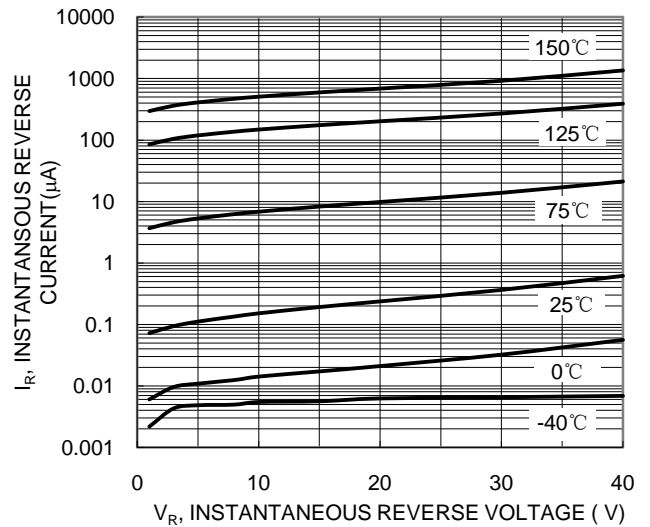


Fig. 2 Typical Reverse Characteristics

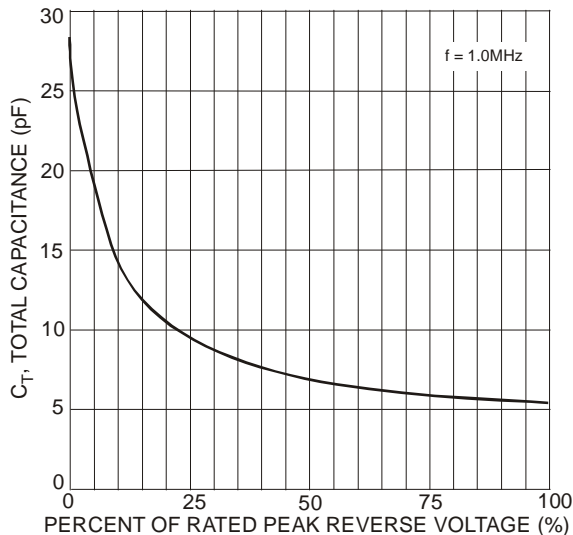


Fig. 3 Total Capacitance vs. Reverse Voltage

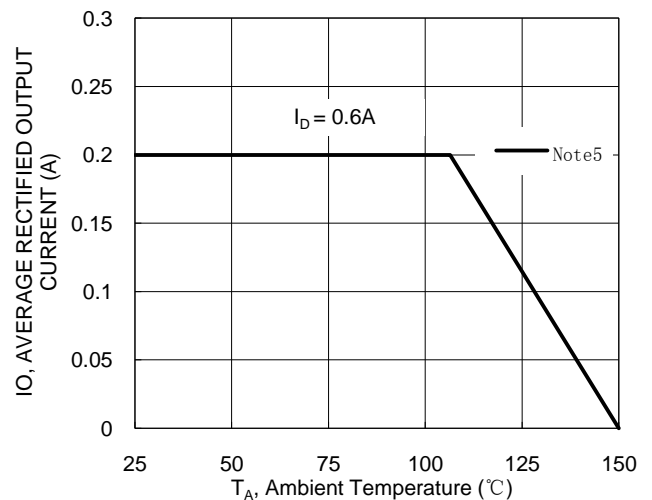
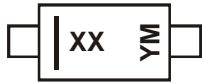
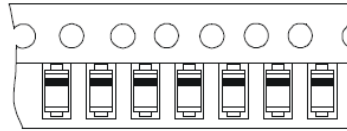


Fig. 4. DC Forward Current Derating

Marking Information



XX= Product Type Marking Code
 S4 = SD103AW
 S5 or S4 = SD103BW
 S6 or S5 or S4 = SD103CW
 Y = Year (ex: D = 2016)
 M = Month (ex: 9 = September)
 Bar Denotes Cathode Pin



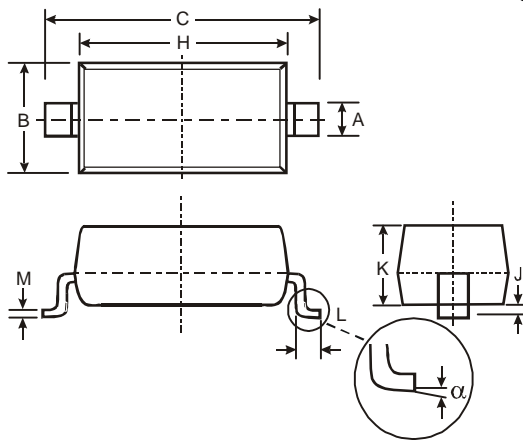
| Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|------|------|------|------|------|------|------|------|------|
| Code | A | B | C | D | E | F | G | H |

| 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 |

Package Outline Dimensions

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

SOD123

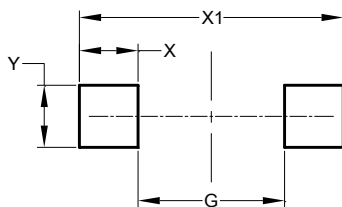


| SOD123 | | |
|----------------------|----------|------|
| Dim | Min | Max |
| A | 0.55 Typ | |
| B | 1.40 | 1.70 |
| C | 3.55 | 3.85 |
| H | 2.55 | 2.85 |
| J | 0.00 | 0.10 |
| K | 1.00 | 1.35 |
| L | 0.25 | 0.40 |
| M | 0.10 | 0.15 |
| α | 0 | 8° |
| All Dimensions in mm | | |

Suggested Pad Layout

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

SOD123



| Dimensions | Value(in mm) |
|------------|--------------|
| G | 2.250 |
| X | 0.900 |
| X1 | 4.050 |
| Y | 0.950 |

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