

## Product Summary

| $V_{RRM}$ (V) | $I_O$ (A) | $V_F$ Max (V)<br>@ +25°C | $I_R$ Max (μA)<br>@ +25°C |
|---------------|-----------|--------------------------|---------------------------|
| 100           | 1         | 0.77                     | 0.15                      |

## Description and Applications

The SDM1U100S1F is a single rectifier packaged in SOD123F (Standard). Offering low  $V_F$ , low power loss and high efficiency, this device is ideal for use in general rectification applications as a:

- Boost Diode
- Blocking Diode

## Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Interlocking Clip Design for High Surge Current Capacity
- Qualified to AEC-Q101 Standards
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: SOD123F (Standard)
- Case Material: Molded Plastic, "Green" Molding Compound.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe.  
Solderable per MIL-STD-202, Method 208 <sup>(E3)</sup>
- Polarity: Cathode Band
- Weight: 0.015 grams (Approximate)

SOD123F (Standard)



Top View

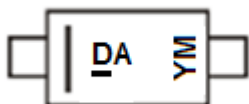
## Ordering Information (Note 4)

| Part Number   | Case               | Packaging         |
|---------------|--------------------|-------------------|
| SDM1U100S1F-7 | SOD123F (Standard) | 3,000/Tape & Reel |

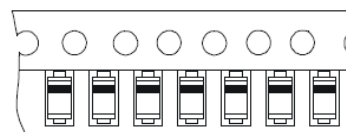
- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information

Cathode Pin



DA = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex.: E = 2017)  
 M = Month (ex.: 9 = September)  
 Bar Denotes Cathode Pin



Bar Denotes Cathode Pin

Date Code Key

| 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   |

## Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derating current by 20%.

| Characteristic                                                                                      | Symbol           | Value | Unit |
|-----------------------------------------------------------------------------------------------------|------------------|-------|------|
| Peak Repetitive Reverse Voltage                                                                     | V <sub>RRM</sub> | 100   | V    |
| Working Peak Reverse Voltage                                                                        | V <sub>RWM</sub> |       |      |
| DC Blocking Voltage                                                                                 | V <sub>RM</sub>  |       |      |
| Average Rectified Output Current                                                                    | I <sub>O</sub>   | 1     | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 50    | A    |

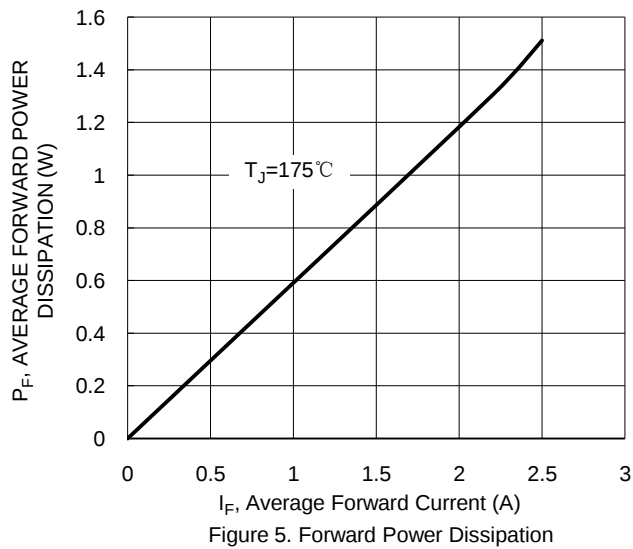
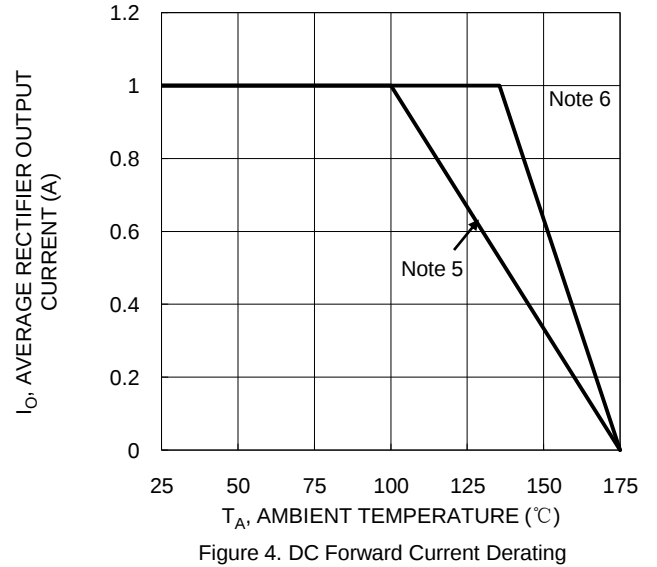
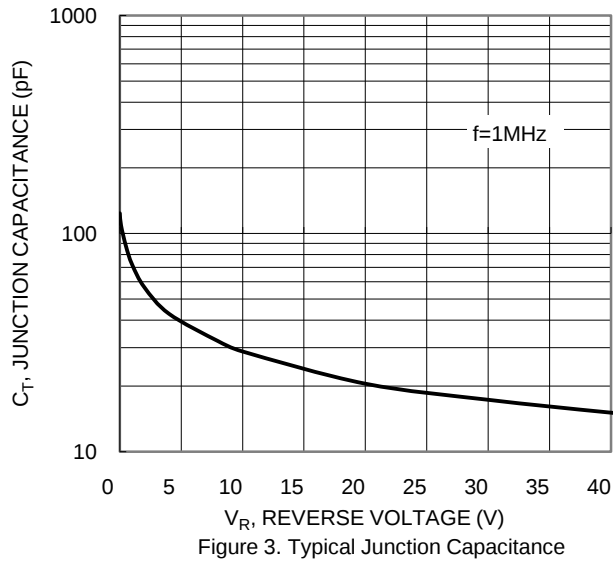
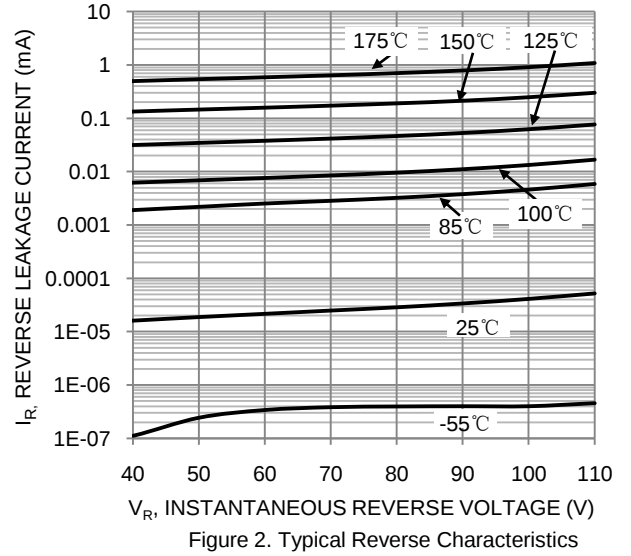
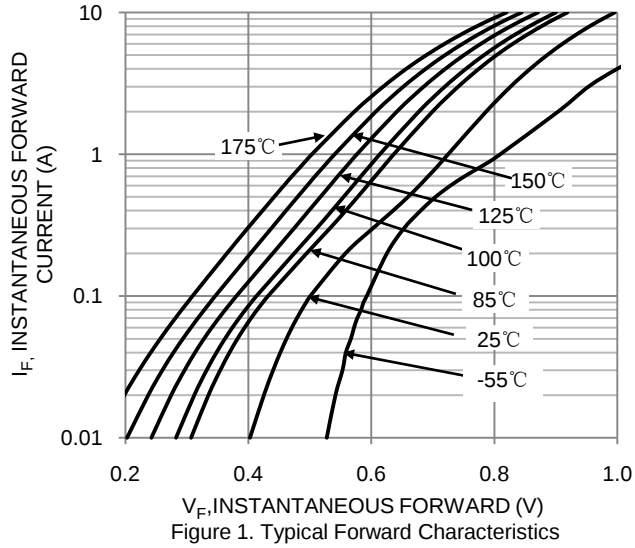
## Thermal Characteristics

| Characteristic                                          | Symbol                            | Value       | Unit |
|---------------------------------------------------------|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Case (Note 5)    | R <sub>θJC</sub>                  | 50          | °C/W |
| Typical Thermal Resistance Junction to Ambient (Note 5) | R <sub>θJA</sub>                  | 120         |      |
| Typical Thermal Resistance Junction to Case (Note 6)    | R <sub>θJC</sub>                  | 40          |      |
| Typical Thermal Resistance Junction to Ambient (Note 6) | R <sub>θJA</sub>                  | 100         |      |
| Operating and Storage Temperature Range                 | T <sub>J</sub> , T <sub>STG</sub> | -55 to +175 | °C   |

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol         | Min | Typ          | Max          | Unit | Test Condition                                                                                  |
|------------------------------------|----------------|-----|--------------|--------------|------|-------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 7) | V <sub>R</sub> | 100 | —            | —            | V    | I <sub>R</sub> = 1.0mA                                                                          |
| Forward Voltage Drop               | V <sub>F</sub> | —   | 0.72<br>0.58 | 0.77<br>0.67 | V    | I <sub>F</sub> = 1A, T <sub>J</sub> = +25°C<br>I <sub>F</sub> = 1A, T <sub>J</sub> = +125°C     |
| Leakage Current (Note 7)           | I <sub>R</sub> | —   | 0.035<br>65  | 0.15<br>500  | μA   | V <sub>R</sub> = 100V, T <sub>J</sub> = +25°C<br>V <sub>R</sub> = 100V, T <sub>J</sub> = +125°C |
| Total Capacitance                  | C <sub>T</sub> | —   | 42           | —            | pF   | V <sub>R</sub> = 4V, f = 1MHz                                                                   |

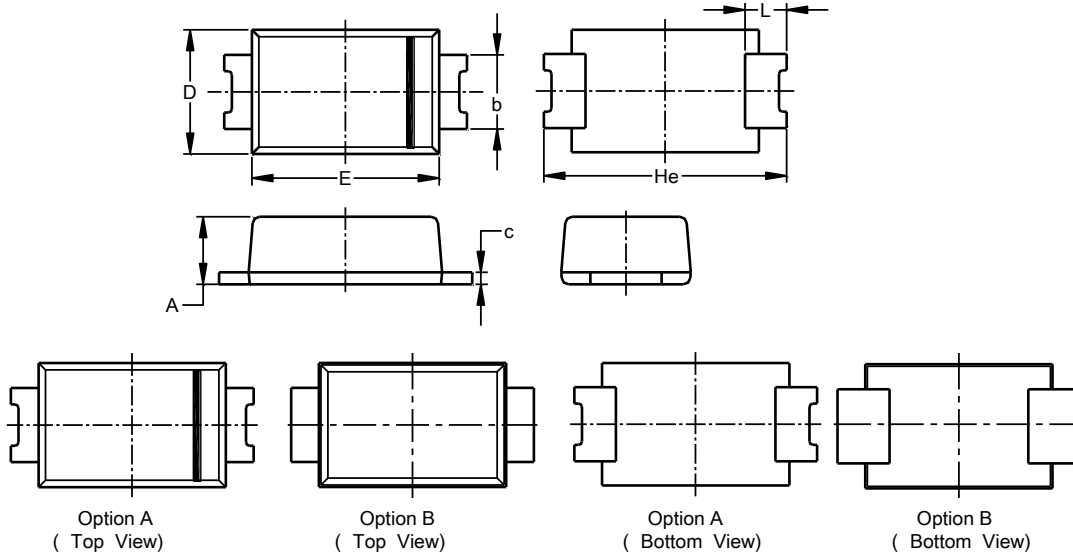
Notes: 5. Device mounted on FR-4 substrate, 1"×1", 2oz, single-sided, PC boards with 0.1"×0.15" copper pad.  
6. Device mounted on FR-4 substrate, 0.4"×0.5", 2oz, single-sided, PC boards with 0.2"×0.25" copper pad.  
7. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

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

### SOD123F (Standard)

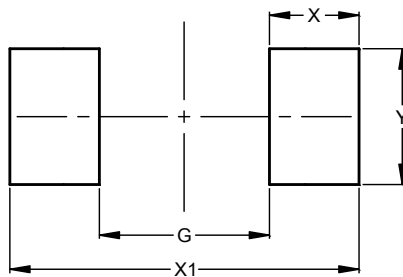


| SOD123F (Standard)   |      |      |      |
|----------------------|------|------|------|
| Dim                  | Min  | Max  | Typ  |
| A                    | 0.81 | 1.15 | -    |
| b                    | 0.80 | 1.35 | -    |
| c                    | 0.05 | 0.30 | -    |
| D                    | 1.70 | 1.90 | 1.80 |
| E                    | 2.60 | 2.80 | 2.70 |
| He                   | 3.30 | 3.70 | 3.50 |
| L                    | 0.35 | 0.85 | -    |
| All Dimensions in mm |      |      |      |

## Suggested Pad Layout

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

### SOD123F (Standard)



| Dimensions | Value<br>(in mm) |
|------------|------------------|
| G          | 1.90             |
| X          | 1.00             |
| X1         | 3.90             |
| Y          | 1.50             |

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