

Product Summary (@ T_A = +25°C)

| V _{RRM} (V) | I _O (A) | V _{F(MAX)} (V) | I _{R(MAX)} (µA) |
|----------------------|--------------------|-------------------------|--------------------------|
| 600 | 1 | 1.7 | 5 |

Description

The SF1JWF-7 is a rectifier packaged in the SOD123F package and is suited as a boost diode in power factor correction circuitry. For use in secondary rectification and freewheeling for super-fast switching speed AC-AC and DC-DC converters in high-temperature conditions for consumer applications.

Applications

- Flat Panel Display
- Switching Power Supplies/Chargers
- LED Lighting
- Freewheeling Diode

Features and Benefits

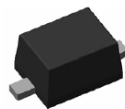
- Soft, Super-Fast Switching Capability for High Efficiency
- Low Leakage Current
- Glass Passivated for High Reliability
- Small Form Factor Package
- High Reverse Breakdown Voltage V_{RRM}
- Low Forward Voltage, Low Power Loss
- **Lead-Free Finish & RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

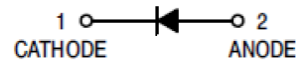
- Case: SOD123F
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.016 grams (Approximate)

NEW PRODUCT

SOD123F



Top View



Schematic View

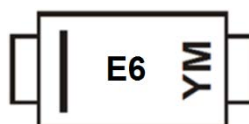
Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|-------------|------------|---------|-------------------|
| SF1JWF-7 | Commercial | SOD123F | 3,000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 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 <http://www.diodes.com/products/packages.html>.

Marking Information

SOD123F



E6 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: E = 2017)
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|------|------|------|------|------|------|------|------|------|
| Code | E | F | G | H | I | J | K | L |

| 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.)

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

| Characteristic | Symbol | Value | Unit |
|---|---------------------|-------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | 600 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 420 | V |
| Average Rectified Output Current @T _A = +25°C | I _O | 1 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 30 | A |

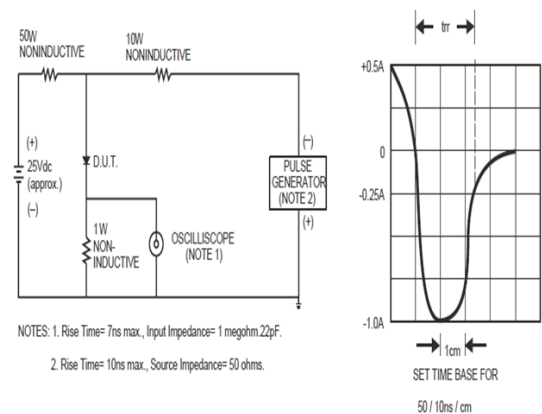
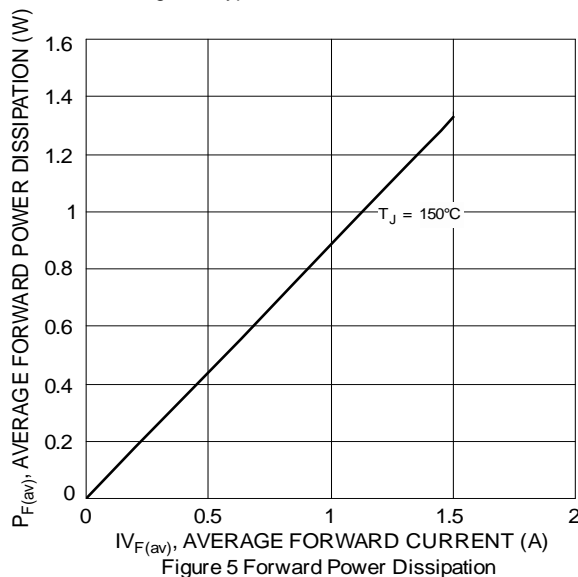
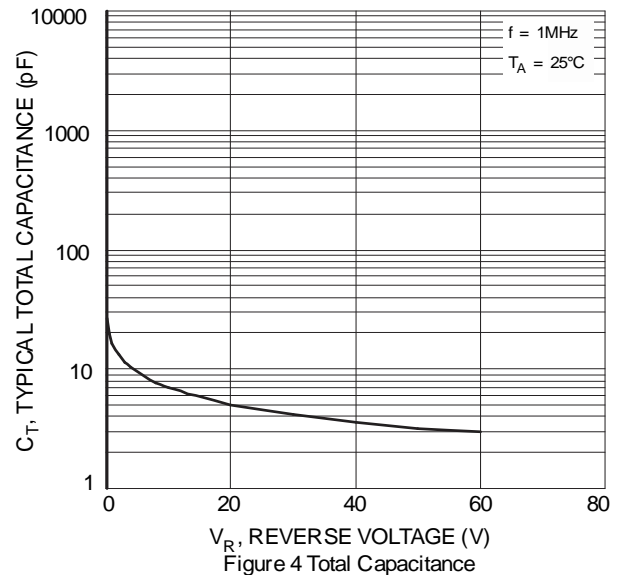
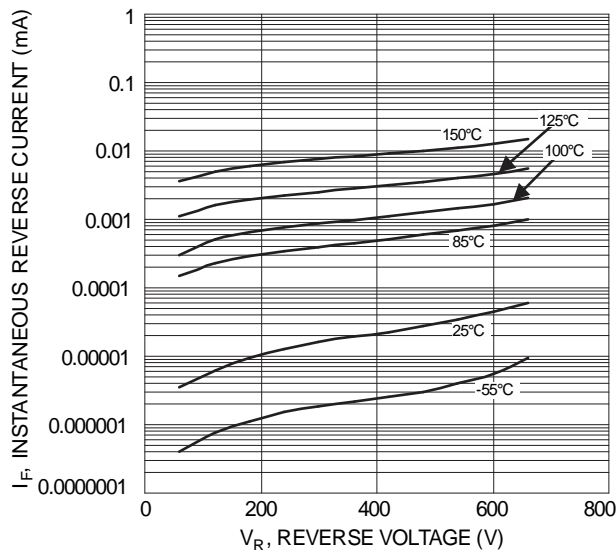
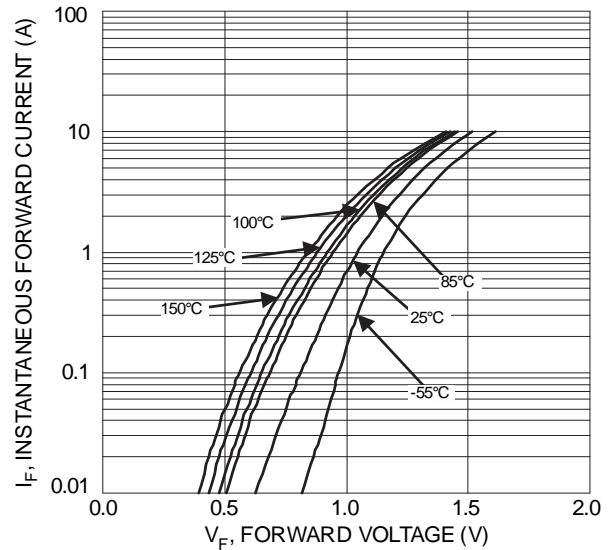
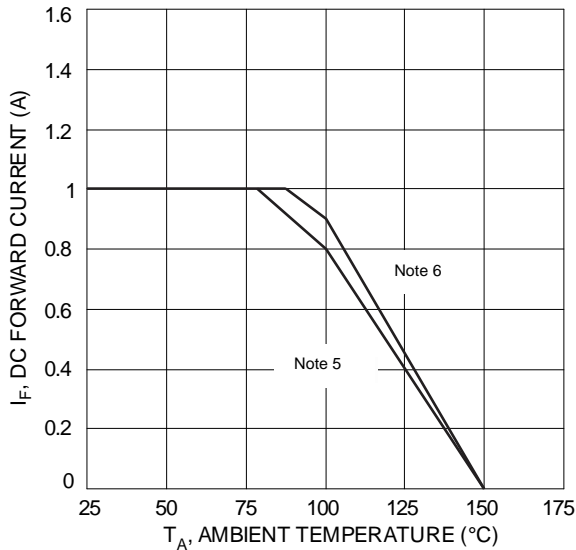
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance Junction to Case | R _{θJC} | 58 | °C/W |
| Typical Thermal Resistance Junction to Ambient (Note 6) | R _{θJA} | 95 | °C/W |
| Power Dissipation (Note 6) | P _D | 1.7 | W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|--------------------|-----|-----|-----|------|---|
| Reverse Breakdown Voltage (Note 7) | V _{(BR)R} | 600 | — | — | V | I _R = 10μA |
| Forward Voltage | V _F | — | 1.4 | 1.7 | V | I _F = 1A, T _J = +25°C I _F = 1A, T _J = +125°C |
| Reverse Leakage Current (Note 7) | I _R | — | 0.3 | 5 | μA | V _R = 600V, T _J = +25°C |
| | | — | 0.2 | — | mA | V _R = 600V, T _J = +125°C |
| Reverse Recovery Time | t _{RR} | — | 30 | 35 | ns | I _F = 0.5A, I _R = 1.0A, I _{RR} = 0.25A |
| Total Capacitance | C _T | — | 7 | — | pF | V _R = 4.0V _{DC} , f = 1MHz |

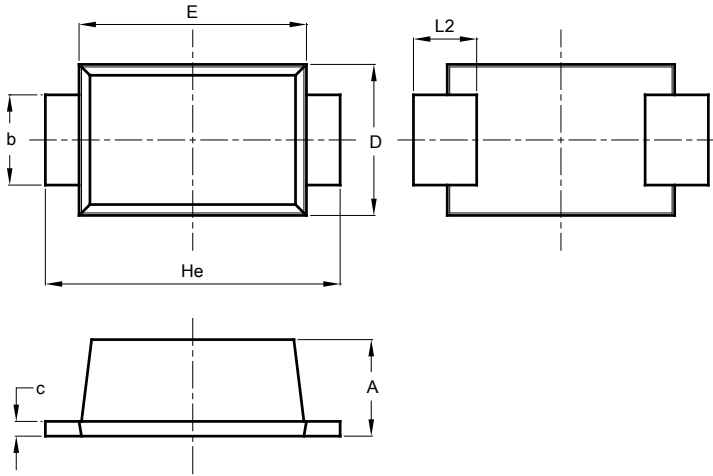
- Notes:
- Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PCBs with 0.2" x 0.25" copper pad.
 - Device mounted on FR-4 substrate, 25.4mm x 25.4mm, 2oz, single-sided, PCBs with 2.1mm x 2.1mm copper pad.
 - Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

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

SOD123F

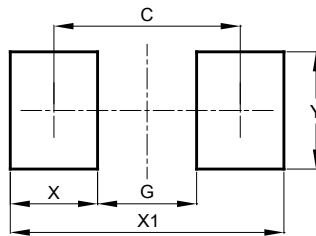


| SOD123F | | | |
|----------------------|------|------|------|
| Dim | Min | Max | Typ |
| A | 0.81 | 1.15 | — |
| b | 0.80 | 1.05 | — |
| c | 0.05 | 0.30 | — |
| D | 1.70 | 1.90 | 1.80 |
| E | 2.60 | 2.80 | 2.70 |
| He | 3.30 | 3.70 | 3.50 |
| L2 | 0.35 | 0.85 | — |
| All Dimensions in mm | | | |

Suggested Pad Layout

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

SOD123F



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.86 |
| G | 1.52 |
| X | 1.34 |
| X1 | 4.20 |
| Y | 1.80 |

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