

150mA, 75V Switching Diode

FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- Compliance to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

MECHANICAL DATA

- Case: SOD-123F
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 8.85 ± 0.5mg

| KEY PARAMETERS | | |
|----------------------|------------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 150 | mA |
| V_{RRM} | 75 | V |
| I_{FSM} | 2 | A |
| V_F at $I_F=100mA$ | 1.00 | V |
| T_J Max. | 150 | °C |
| Package | SOD-123F | |
| Configuration | Single die | |



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted) | | | | |
|---|---------|-----------|-------------|------|
| PARAMETER | | SYMBOL | VALUE | UNIT |
| Marking code on the device | 1N4148W | | D1 | |
| | 1N4448W | | D2 | |
| | 1N914BW | | D3 | |
| Power dissipation | | P_D | 400 | mW |
| Reverse voltage | | V_R | 100 | V |
| Repetitive peak reverse voltage | | V_{RRM} | 75 | V |
| Forward current | | I_F | 150 | mA |
| Repetitive peak forward current | | I_{FRM} | 300 | mA |
| Non-repetitive peak forward surge current @ $t=1.0\mu\text{s}$ | | I_{FSM} | 2 | A |
| Junction temperature range | | T_J | -65 to +150 | °C |
| Storage temperature range | | T_{STG} | -65 to +150 | °C |

| THERMAL PERFORMANCE | | | |
|--|-----------------|------------|----------------------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 450 | $^{\circ}\text{C/W}$ |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted) | | | | | | |
|---|--|--|---------------|------------|------------|---------------|
| PARAMETER | | CONDITIONS | SYMBOL | MIN | MAX | UNIT |
| Forward voltage ⁽¹⁾ | 1N4448W, 1N914BW | $I_F = 5\text{mA}, T_J = 25^{\circ}\text{C}$ | V_F | 0.62 | 0.72 | V |
| | 1N4148W | $I_F = 10\text{mA}, T_J = 25^{\circ}\text{C}$ | | - | 1.00 | |
| | 1N4448W, 1N914BW | $I_F = 100\text{mA}, T_J = 25^{\circ}\text{C}$ | | - | 1.00 | |
| Reverse voltage | $I_R = 100\mu\text{A}, T_J = 25^{\circ}\text{C}$ | | V_R | 100 | - | V |
| | $I_R = 5\mu\text{A}, T_J = 25^{\circ}\text{C}$ | | | 75 | - | |
| Reverse leakage current ⁽²⁾ | $V_R = 20\text{V}, T_J = 25^{\circ}\text{C}$ | | I_R | - | 25 | nA |
| | $V_R = 75\text{V}, T_J = 25^{\circ}\text{C}$ | | | - | 5 | μA |
| Junction capacitance | 1 MHz, $V_R = 0\text{V}$ | | C_J | - | 4 | pF |
| Reverse recovery time | $I_F = 10\text{mA}, I_R = 60\text{mA}, R_L = 100\Omega, I_{RR} = 1\text{mA}$ | | t_{rr} | - | 4 | ns |

Notes:

1. Pulse test with $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

| ORDERING INFORMATION | | |
|-----------------------------|----------------|----------------|
| PART NO. | PACKAGE | PACKING |
| 1N4148W RHG | SOD-123F | 3K / 7" Reel |
| 1N4148W RH | SOD-123F | 3K / 7" Reel |
| 1N4448W RHG | SOD-123F | 3K / 7" Reel |
| 1N4448W RH | SOD-123F | 3K / 7" Reel |
| 1N914BW RHG | SOD-123F | 3K / 7" Reel |
| 1N914BW RH | SOD-123F | 3K / 7" Reel |

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig.1 Typical Forward Characteristics

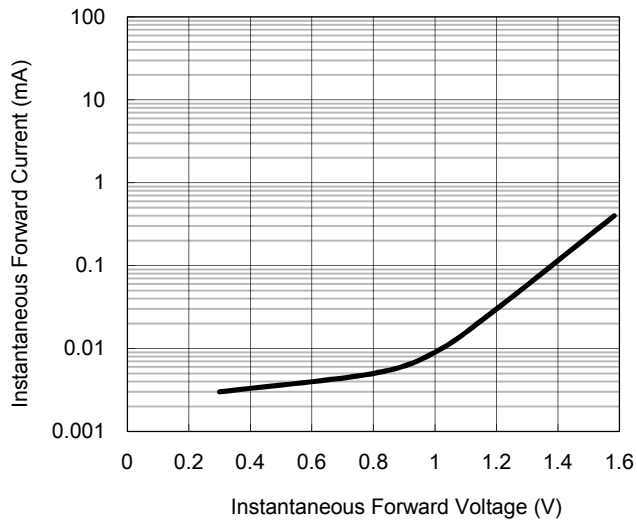


Fig.2 Reverse Current VS. Reverse Voltage

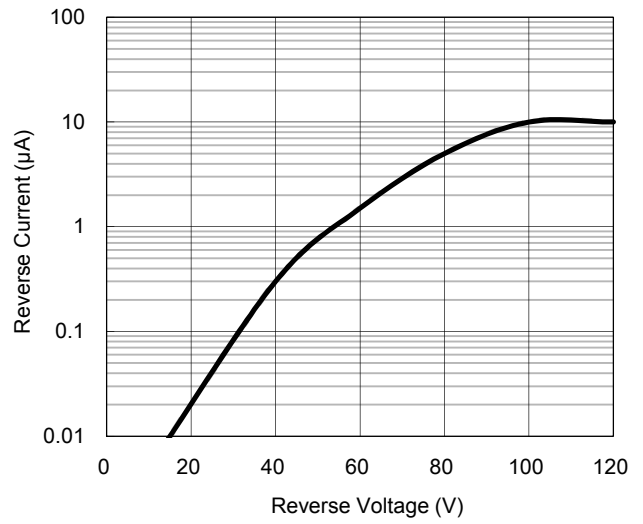


Fig.3 Admissible Power Dissipation Curve

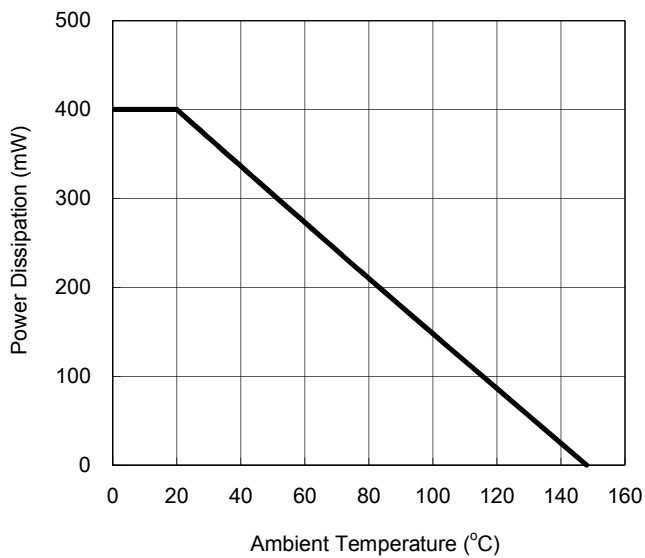
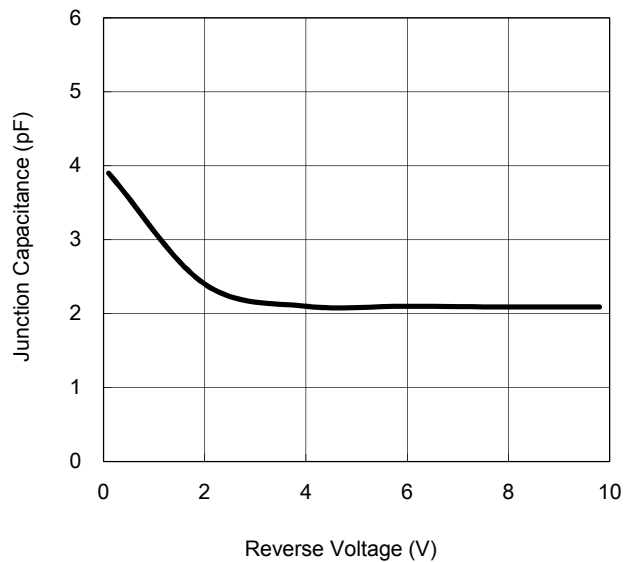
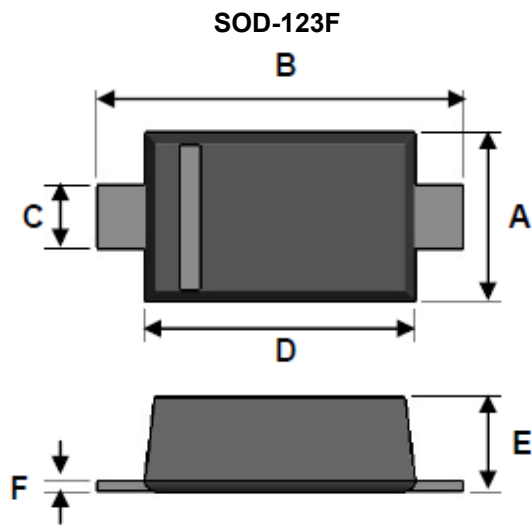


Fig.4 Typical Junction Capacitance

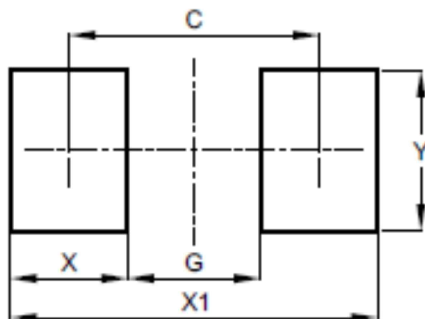


PACKAGE OUTLINE DIMENSION



| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|------|-------------|-------|
| | Min | Max | Min | Max |
| A | 1.50 | 1.70 | 0.059 | 0.067 |
| B | 3.30 | 3.90 | 0.130 | 0.154 |
| C | 0.50 | 0.70 | 0.020 | 0.028 |
| D | 2.50 | 2.70 | 0.098 | 0.106 |
| E | 0.80 | 1.15 | 0.031 | 0.045 |
| F | 0.05 | 0.20 | 0.002 | 0.008 |

SUGGEST PAD LAYOUT



| DIM. | Unit (mm) | Unit (inch) |
|------|-----------|-------------|
| | Typ. | Typ. |
| C | 2.86 | 0.113 |
| G | 1.52 | 0.060 |
| X | 1.34 | 0.053 |
| X1 | 4.20 | 0.165 |
| Y | 1.80 | 0.071 |

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