

## Small Signal Product

## 400mW High Speed SMD Switching Diode

**FEATURES**

- Fast switching device ( $t_{rr} < 4.0\text{ns}$ )
- Surface Mount Device Type
- Moisture sensitivity level 1
- Matte Tin (Sn) lead finish with Nickel (Ni) underplate
- Pb free version and RoHS compliant
- Packing code with suffix "G" means green compound (halogen-free)


**SOD-123F**

**MECHANICAL DATA**

- Case: Flat lead SOD-123F small outline plastic package
- Terminal: Matte tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- High temperature soldering guaranteed:  $260^{\circ}\text{C}/10\text{s}$
- Polarity: Indicated by cathode band
- Weight:  $8.85 \pm 0.5\text{mg}$



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ( $T_A=25^{\circ}\text{C}$ unless otherwise noted) |                 |             |                             |
|---|-----------------|-------------|-----------------------------|
| PARAMETER   | SYMBOL          | VALUE       | UNIT                        |
| Power Dissipation   | $P_D$           | 400         | mW                          |
| Reverse Voltage   | $V_R$           | 100         | V                           |
| Repetitive Peak Reverse Voltage   | $V_{RRM}$       | 75          | V                           |
| Repetitive Peak Forward Current   | $I_{FRM}$       | 300         | mA                          |
| Forward Current   | $I_F$           | 150         | mA                          |
| Thermal Resistance (Junction to Ambient) (Note 1)   | $R_{\theta JA}$ | 450         | $^{\circ}\text{C}/\text{W}$ |
| Junction and Storage Temperature Range  | $T_J, T_{STG}$  | -65 to +150 | $^{\circ}\text{C}$          |

| PARAMETER               | SYMBOL   | MIN                                   | MAX  | UNIT |               |
|-------------------------|----------|---------------------------------------|------|------|---------------|
| Reverse Voltage         | $V_R$    | $I_R=100\mu\text{A}$                  | 100  | -    | V             |
|                         |          | $I_R=5\mu\text{A}$                    | 75   | -    |               |
| Forward Voltage         | $V_F$    | 1N4448W, 1N914BW $I_F=5.0\text{mA}$   | 0.62 | 0.72 | V             |
|                         |          | 1N4148W $I_F=10.0\text{mA}$           | -    | 1.0  |               |
|                         |          | 1N4448W, 1N914BW $I_F=100.0\text{mA}$ | -    | 1.0  |               |
| Reverse Leakage Current | $I_R$    | $V_R=20\text{V}$                      | -    | 25   | nA            |
|                         |          | $V_R=75\text{V}$                      | -    | 5.0  | $\mu\text{A}$ |
| Junction Capacitance    | $C_J$    | -                                     | 4.0  | pF   |               |
| Reverse Recovery Time   | $t_{rr}$ | -                                     | 4.0  | ns   |               |

Notes 1: Test Condition : 8.3ms Single half Sine-Wave Superimposed on Rated Load

 Notes 2: Reverse Recovery Test Conditions :  $I_F=10\text{mA}$ ,  $I_R=60\text{mA}$ ,  $R_L=100\Omega$ ,  $I_{RR}=1\text{mA}$

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**RATINGS AND CHARACTERISTICS CURVES**

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

Fig.1 Typical Forward Characteristics

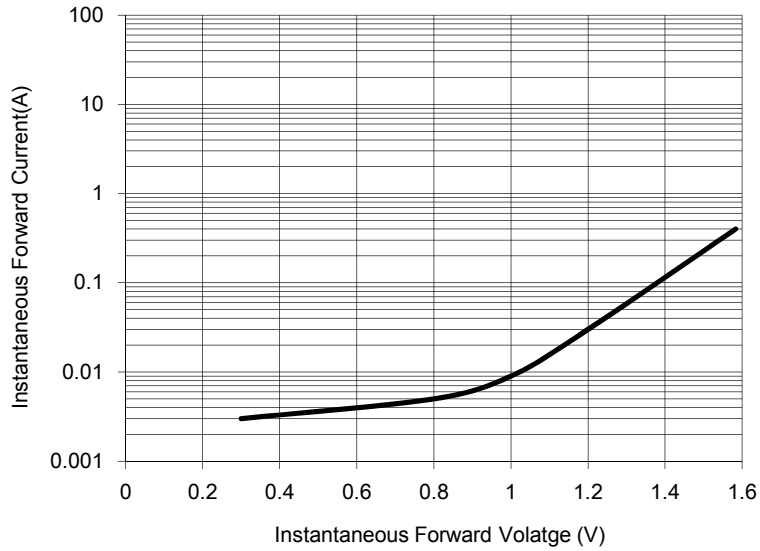


Fig. 2 Reverse Current vs Reverse Voltage

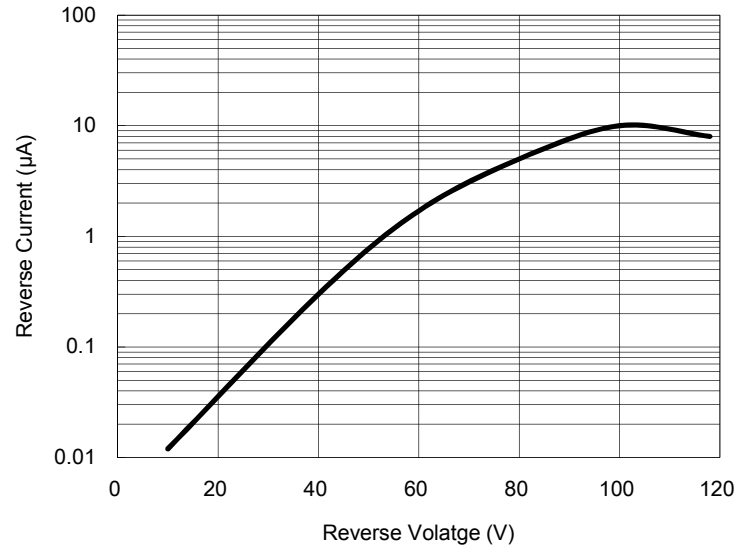


Fig. 3 Admissible Power Dissipation

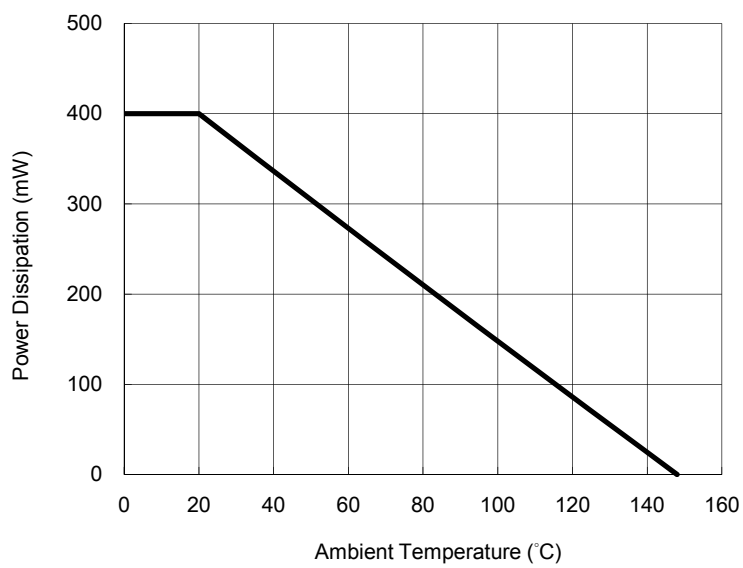


Fig. 4 Typical Junction Capacitance

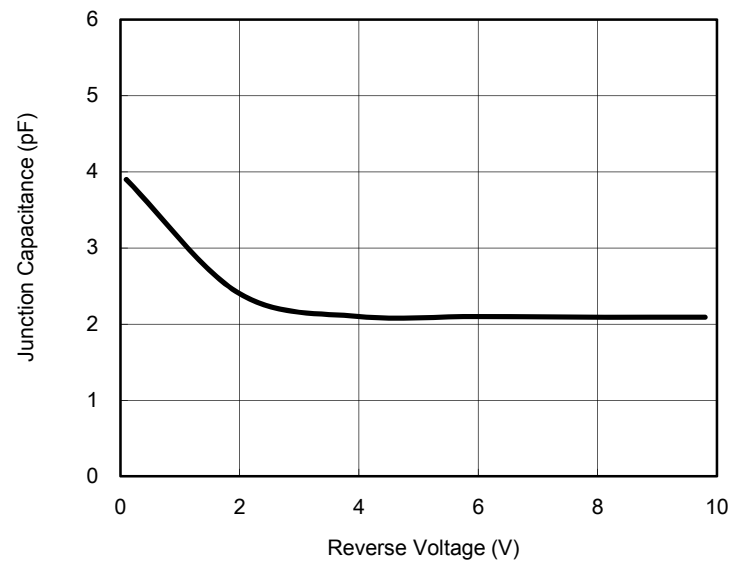
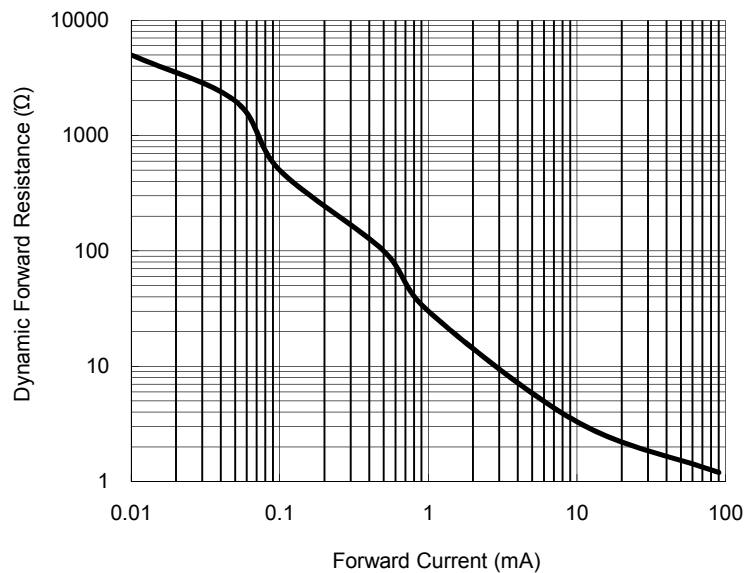


Fig. 5 Forward Resistance vs. Forward Current



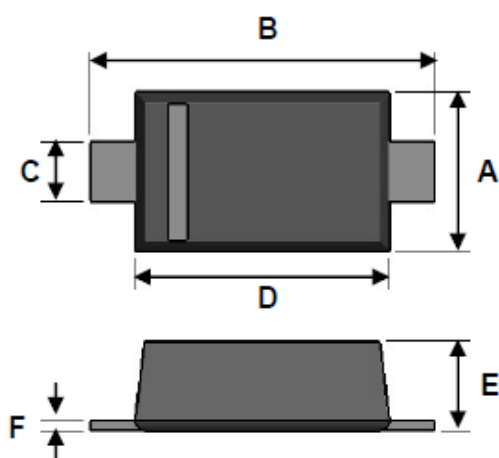
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| ORDERING INFORMATION |                 |              |                     |          |              |
|----------------------|-----------------|--------------|---------------------|----------|--------------|
| PART NO.             | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | PACKAGE  | PACKING      |
| 1NxxxxW<br>(Note 1)  | -xx<br>(Note 2) | RH           | G                   | SOD-123F | 3K / 7" Reel |

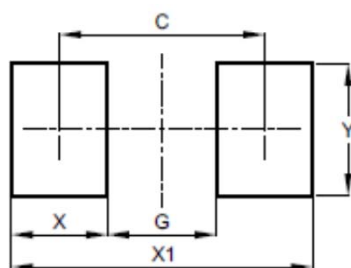
Note 1: "xxxx" is device code from 1N4148W to 1N914BW

Note 2: Part No. Suffix „-xx “ would be used for special requirement

| EXAMPLE        |          |                 |              |                     |   |
|----------------|----------|-----------------|--------------|---------------------|---|
| PREFERRED P/N  | PART NO. | PART NO. SUFFIX | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION                                   |
| 1N4148W RH     | 1N4148W  |                 | RH           |                     | Multiple manufacture source                   |
| 1N4148W RHG    | 1N4148W  |                 | RH           | G                   | Multiple manufacture source<br>Green compound |
| 1N4148W-B0 RHG | 1N4148W  | -B0             | RH           | G                   | Defined manufacture source<br>Green compound  |
| 1N4148W-L0 RHG | 1N4148W  | -L0             | RH           | G                   | Defined manufacture source<br>Green compound  |

**PACKAGE OUTLINE DIMENSIONS**
**SOD-123F**


| 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       |

**MARKING CODE**

|         |    |
|---------|----|
| 1N4148W | D1 |
| 1N4448W | D2 |
| 1N914BW | D3 |

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