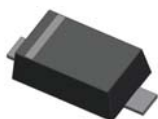


### Small Signal Diode



### Features

- ✧ Fast switching device ( $T_{rr} < 4.0\text{ns}$ )
- ✧ Surface device type mounting
- ✧ Moisture sensitivity level 1
- ✧ Matte Tin (Sn) lead finish with Nickel (Ni) underplate
- ✧ Pb free version and RoHS compliant
- ✧ Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

### Mechanical Data

- ✧ Case : Flat lead SOD-123 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 :  $8.85 \pm 0.5\text{ mg}$
- ✧ Marking Code : D1, D2, D3

### Ordering Information

| Package  | Part No.    | Packing      | Marking |
|----------|-------------|--------------|---------|
| SOD-123F | 1N4148W RH  | 3K / 7" Reel | D1      |
| SOD-123F | 1N4448W RH  | 3K / 7" Reel | D2      |
| SOD-123F | 1N9148B RH  | 3K / 7" Reel | D3      |
| SOD-123F | 1N4148W RHG | 3K / 7" Reel | D1      |
| SOD-123F | 1N4448W RHG | 3K / 7" Reel | D2      |
| SOD-123F | 1N9148B RHG | 3K / 7" Reel | D3      |

### Maximum Ratings and Electrical Characteristics

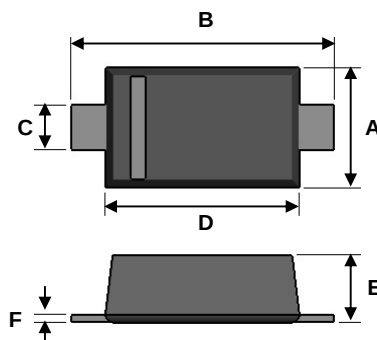
Rating at  $25^{\circ}\text{C}$  ambient temperature unless otherwise specified.

#### Maximum Ratings

| Type Number                                       | Symbol          | Value        | Units                       |
|---------------------------------------------------|-----------------|--------------|-----------------------------|
| Power Dissipation                                 | $P_D$           | 400          | mW                          |
| Non-Repetitive Peak Reverse Voltage               | $V_{RSM}$       | 100          | V                           |
| Repetitive Peak Reverse Voltage                   | $V_{RRM}$       | 100          | V                           |
| Repetitive Peak Forward Current                   | $I_{FRM}$       | 300          | mA                          |
| Mean Forward Current                              | $I_O$           | 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 | $^{\circ}\text{C}$          |

Notes: 1. Test Condition : 8.3ms Single half Sine-Wave Superimposed on Rated Load (JEDEC Method)

#### SOD-123

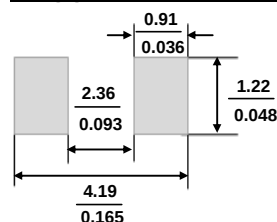


| Dimensions | Unit (mm) |      | Unit (inch) |       |
|------------|-----------|------|-------------|-------|
|            | Min       | Max  | Min         | Max   |
| A          | 1.5       | 1.7  | 0.059       | 0.067 |
| B          | 3.3       | 3.7  | 0.130       | 0.146 |
| C          | 0.5       | 0.7  | 0.020       | 0.028 |
| D          | 2.5       | 2.7  | 0.098       | 0.106 |
| E          | 0.8       | 1.15 | 0.031       | 0.039 |
| F          | 0.05      | 0.2  | 0.002       | 0.008 |

### Pin Configuration



### Suggested PAD Layout



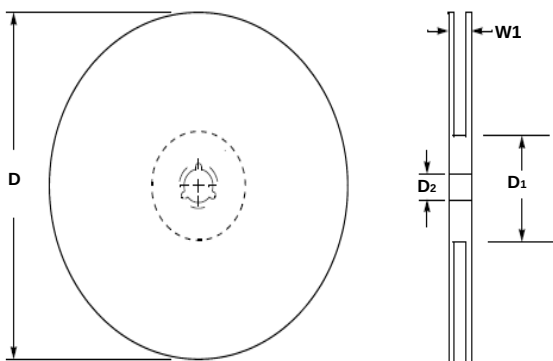
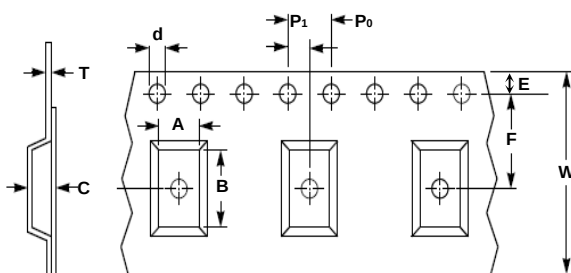
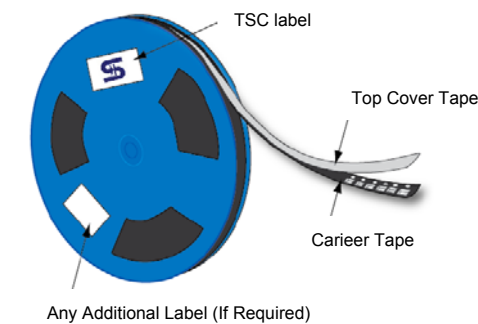
## Small Signal Diode

## Electrical Characteristics

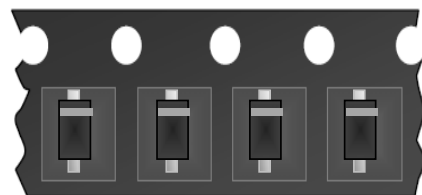
| Type Number                    |                       | Symbol     | Min  | Max  | Units   |
|--------------------------------|-----------------------|------------|------|------|---------|
| Reverse Breakdown Voltage      | $I_R = 100\mu A$      | $V_{(BR)}$ | 100  | -    | V       |
|                                | $I_R = 5\mu A$        |            | 75   | -    |         |
| Forward Voltage                | 1N4448W, 1N914BW      | $V_F$      | 0.62 | 0.72 | V       |
|                                | 1N4148W               |            | -    | 1.0  |         |
|                                | 1N4448W, 1N914BW      |            | -    | 1.0  |         |
|                                |                       |            | -    | -    |         |
| Reverse Leakage Current        | $V_R = 20V$           | $I_R$      | -    | 25   | nA      |
|                                | $V_R = 75V$           |            | -    | 5.0  | $\mu A$ |
| Junction Capacitance           | $V_R = 0, f = 1.0MHz$ | $C_J$      | -    | 4.0  | pF      |
| Reverse Recovery Time (Note 2) |                       | $T_{rr}$   | -    | 4.0  | ns      |

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

## Tape & Reel specification



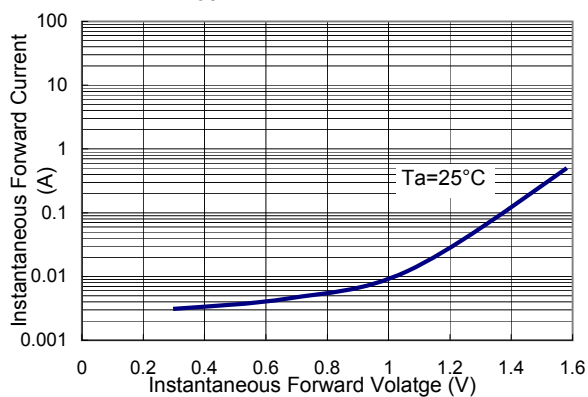
| Item                   | Symbol | Dimension       |
|------------------------|--------|-----------------|
| Carrier width          | A      | $1.85 \pm 0.10$ |
| Carrier length         | B      | $3.94 \pm 0.10$ |
| Carrier depth          | C      | $1.50 \pm 0.10$ |
| Sprocket hole          | d      | $1.5 \pm 0.1$   |
| Reel outside diameter  | D      | $178 \pm 1$     |
| Reel inner diameter    | D1     | 55 Min          |
| Feed hole width        | D2     | $13.0 \pm 0.20$ |
| Sprocket hole position | E      | $1.75 \pm 0.10$ |
| Punch hole position    | F      | $3.50 \pm 0.05$ |
| Sprocket hole pitch    | P0     | $4.00 \pm 0.10$ |
| Embossment center      | P1     | $2.00 \pm 0.05$ |
| Overall tape thickness | T      | $0.23 \pm 0.05$ |
| Tape width             | W      | $8.00 \pm 0.20$ |
| Reel width             | W1     | 14.4 Max        |



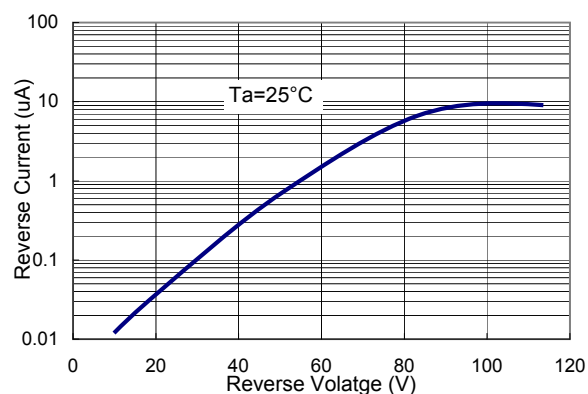
**Small Signal Diode**

**Rating and Sharacteristic Curves**

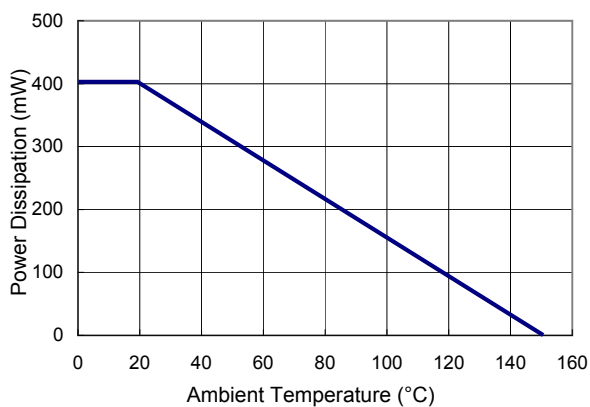
**FIG 1 Typical Forward Characteristics**



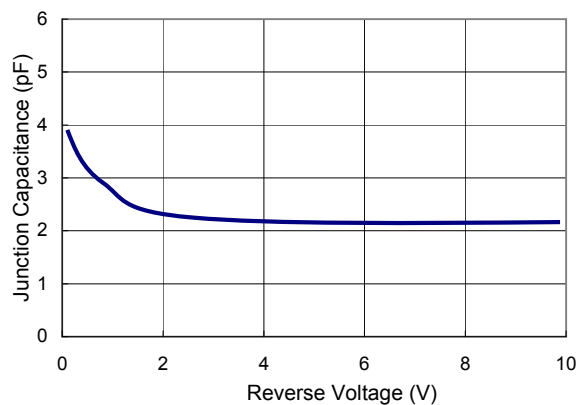
**FIG 2 Reverse Current vs Reverse Voltage**



**FIG 3 Admissible Power Dissipation Curve**



**FIG 4 Typical Junction Capacitance**



**FIG 5 Forward Resistance vs. Forward Current**

