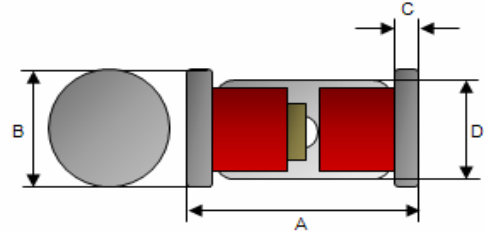


## Small Signal Diode



**Mini-MELF (LL34)**  
**HERMETICALLY SEALED GLASS**



### Features

- ✧ Fast switching device ( $T_{rr} < 4.0\text{ns}$ )
- ✧ Surface device type mounting
- ✧ Moisture sensitivity level 1
- ✧ Matte Tin (Sn) Terminal Finish
- ✧ Pb free version and RoHS compliant
- ✧ All External Surfaces are Corrosion Resistant and Leads are Readily Solderable

### Mechanical Data

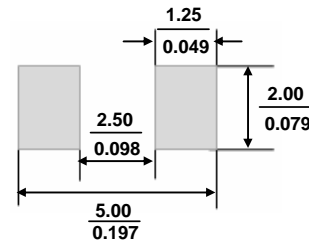
- ✧ Case : Mini-MELF Package (JEDEC DO-213AC)
- ✧ High temperature soldering guaranteed :  $270^{\circ}\text{C}/10\text{s}$
- ✧ Polarity : Indicated by cathode band
- ✧ Weight : approx. 31 mg

| Dimensions | Unit (mm) |      | Unit (inch) |       |
|------------|-----------|------|-------------|-------|
|            | Min       | Max  | Min         | Max   |
| A          | 3.30      | 3.70 | 0.130       | 0.146 |
| B          | 1.40      | 1.60 | 0.055       | 0.063 |
| C          | 0.25      | 0.40 | 0.010       | 0.016 |
| D          | 1.25      | 1.40 | 0.049       | 0.055 |

### Ordering Information

| Package | Part No.  | Packing        |
|---------|-----------|----------------|
| LL34    | LL4148 L0 | 10K / 13" Reel |
| LL34    | LL4448 L0 | 10K / 13" Reel |
| LL34    | LL914B L0 | 10K / 13" Reel |
| LL34    | LL4148 L1 | 2.5K / 7" Reel |
| LL34    | LL4448 L1 | 2.5K / 7" Reel |
| LL34    | LL914B L1 | 2.5K / 7" Reel |

### Suggested PAD Layout



### 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                                      | $P_D$           | 500          | mW                          |
| Repetitive Peak Reverse Voltage                        | $V_{RRM}$       | 100          | V                           |
| Reverse Voltage  | $V_R$           | 75           | V                           |
| Peak Forward Surge Current (Note 1) $t_p=1\mu\text{s}$ | $I_{FSM}$       | 2            | A                           |
| Non-Repetitive Peak Forward Current                    | $I_{FM}$        | 450          | mA                          |
| Mean Forward Current                                   | $I_{F(AV)}$     | 150          | mA                          |
| Forward Continuous Current                             | $I_F$           | 300          | mA                          |
| Repetitive peak Forward Current                        | $I_{FRM}$       | 500          | mA                          |
| Thermal Resistance (Junction to Ambient) (Note 2)      | $R_{\theta JA}$ | 300          | $^{\circ}\text{C}/\text{W}$ |
| Junction and Storage Temperature Range                 | $T_J, T_{STG}$  | -65 to + 200 | $^{\circ}\text{C}$          |

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

Notes:2. Valid provided that electrodes are kept at ambient temperature

Small Signal Diode

**Maximum Ratings and Electrical Characteristics**

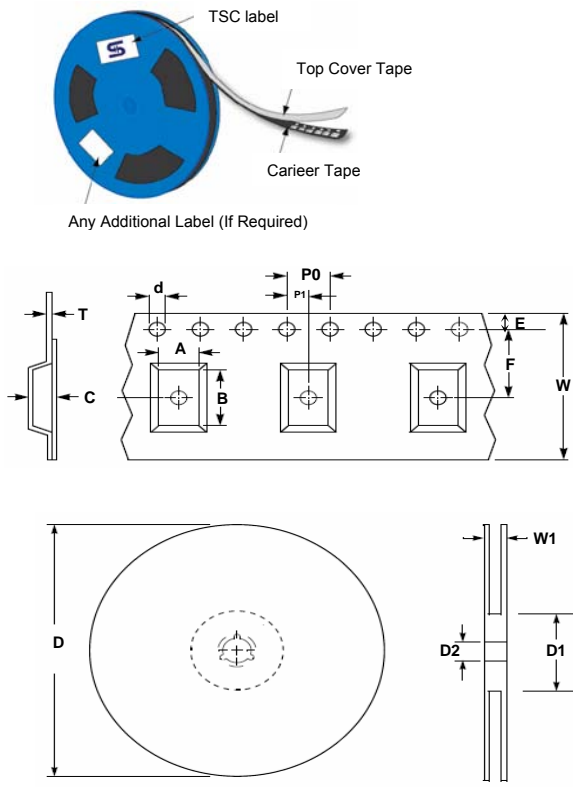
Rating at 25°C ambient temperature unless otherwise specified.

**Electrical Characteristics**

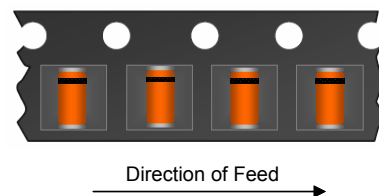
| Type Number                    |                   | Symbol     | Min  | Max  | Units   |
|--------------------------------|-------------------|------------|------|------|---------|
| Reverse Breakdown Voltage      | $I_R=100\mu A$    | $V_{(BR)}$ | 100  |      | V       |
|                                | $I_R=5\mu A$      |            | 75   |      |         |
| Forward Voltage                | LL4448, LL914B    | $V_F$      | 0.62 | 0.72 | V       |
|                                | LL4148            |            |      | 1.0  |         |
|                                | LL4448, LL914B    |            |      | 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 3) |                   | $T_{rr}$   |      | 4.0  | ns      |

Notes:3. Reverse Recovery Test Conditions:  $I_F=I_R=10mA, R_L=100\Omega, I_{RR}=1mA$

**Tape & Reel specification**



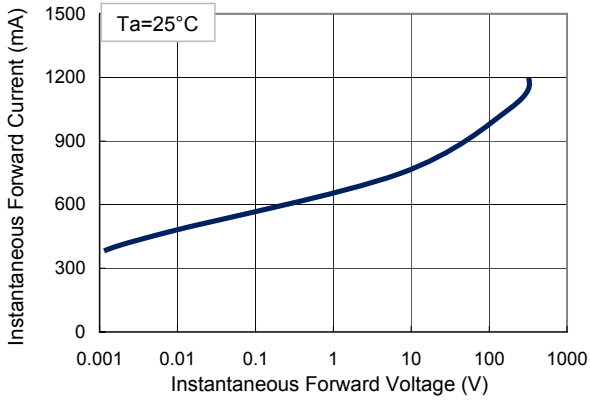
| Item                   | Symbol | Dimension(mm)     |
|------------------------|--------|-------------------|
| Carrier width          | A      | 1.83 ± 0.10       |
| Carrier length         | B      | 3.73 ± 0.10       |
| Carrier depth          | C      | 1.80 ± 0.10       |
| Sprocket hole          | d      | 1.50 ± 0.10       |
| Reel outside diameter  | D      | 178 ± 1   330 ± 1 |
| Reel inner diameter    | D1     | 55 Min   100Min   |
| Feed hole width        | D2     | 13.0 ± 0.20       |
| Sprocket hole position | E      | 1.75 ± 0.10       |
| Punch hole position    | F      | 3.50 ± 0.05       |
| Sprocket hole pitch    | P0     | 4.00 ± 0.10       |
| Embossment center      | P1     | 2.00 ± 0.05       |
| Overall tape thickness | T      | 0.23±0.005        |
| Tape width             | W      | 8.00 ± 0.30       |
| Reel width             | W1     | 14.4max           |



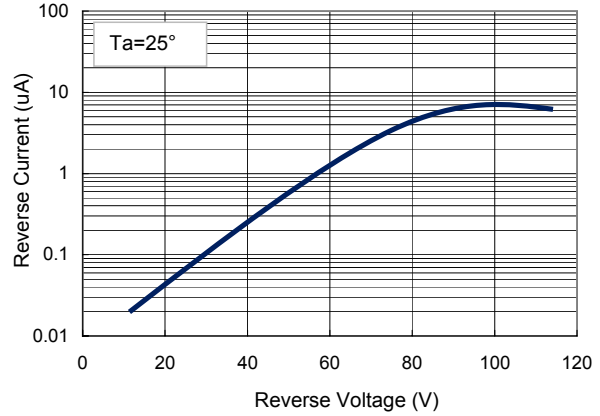
**Small Signal Diode**

**Rating and Sharacteristic Curves**

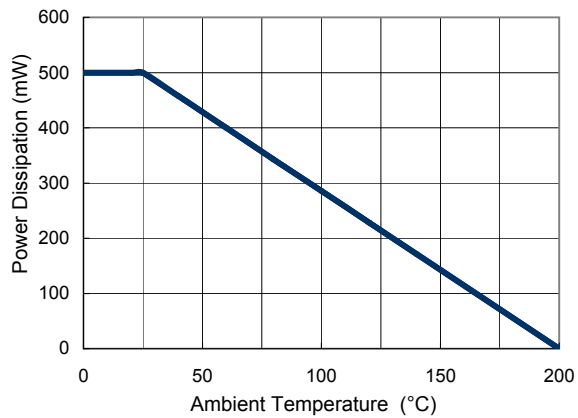
**FIG 1 Typical Forward Characteristics**



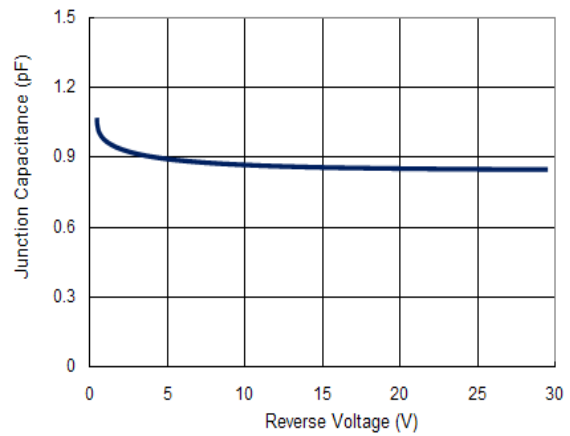
**FIG 2 Reverse Current vs Reverse Voltage**



**FIG 3 Admissible Power Dissipation Curve**



**FIG 4 Typical Junction Capacitance**



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

