**Part Number: XZFRA45SVF**

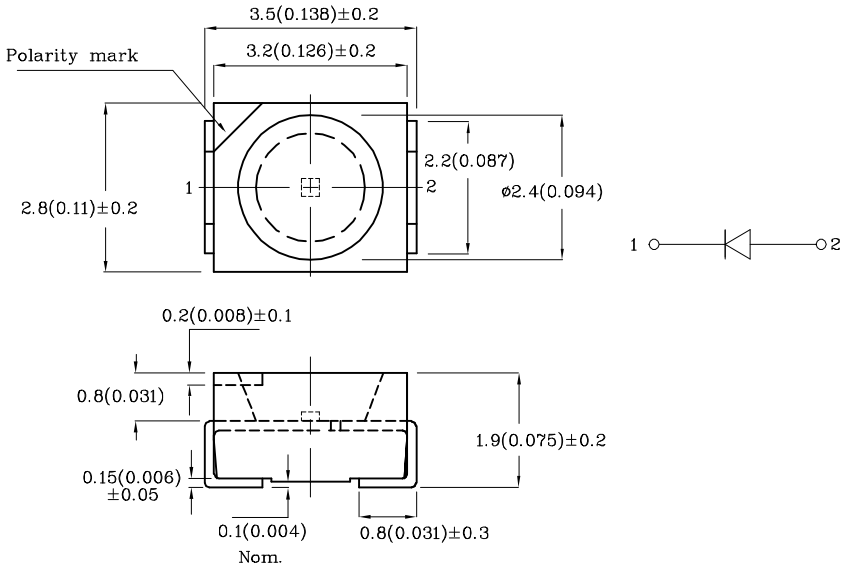
3.5 x 2.8 mm PLCC2 SMD LED

## Features

- Ideal for indication light on hand held products
- Long life and robust package
- Standard Package: 2000 pcs / Reel
- MSL (Moisture Sensitivity Level): 3
- Halogen-free
- RoHS compliant

**ATTENTION**
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DISCHARGE SENSITIVE DEVICES

## Package Schematics




Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. Specifications are subject to change without notice.

| **Absolute Maximum Ratings ($T_A$=25°C)** | | **Cosmic Violet (InGaN)** | **Unit** |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 5 | V |
| Forward Current | $I_F$ | 30 | mA |
| Forward Current (Peak) 1/10 Duty Cycle 0.1ms Pulse Width | $I_{FP}$ | 100 | mA |
| Power Dissipation | $P_D$ | 120 | mW |
| Electrostatic Discharge Threshold (HBM) | | 250 | V |
| Operating Temperature | $T_A$ | -40 ~ +85 | °C |
| Storage Temperature | Tstg | -40 ~ +85 | |

A Relative Humidity between 40% and 60% is recommended in ESD-protected work areas to reduce static build up during assembly process (Reference JEDEC/JESD625-A and JEDEC/J-STD-033)

| **Operating Characteristics ($T_A$=25°C)** | | **Cosmic Violet (InGaN)** | **Unit** |
|---|---|---|---|
| Forward Voltage (Typ.) ($I_F$=20mA) | $V_F$ | 3.3 | V |
| Forward Voltage (Max.) ($I_F$=20mA) | $V_F$ | 4.0 | V |
| Reverse Current (Max.) ($V_R$=5V) | $I_R$ | 50 | µA |
| Chromaticity Coordinates (Typ.) | x | 0.19 | - |
| | y | 0.05 | - |

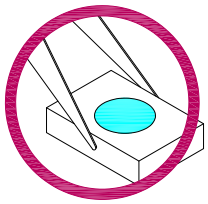
| Part Number | Emitting Color | Emitting Material | Luminous Intensity CIE127-2007* ($I_F$=20mA) mcd | | Viewing Angle 2θ 1/2 |
|---|---|---|---|---|---|
| | | | min. | typ. | |
| XZFRA45SVF | Cosmic Violet | InGaN | 120* | 248* | 120° |

*Luminous intensity value is in accordance with CIE127-2007 standards.

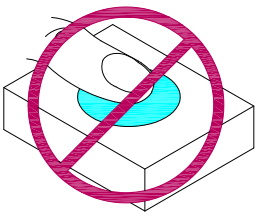
## Handling Precautions

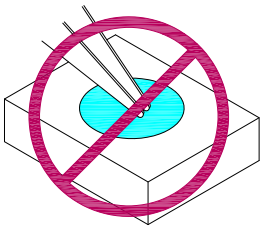
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.
As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

1. Handle the component along the side surfaces by using forceps or appropriate tools.

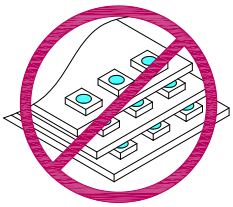


2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.

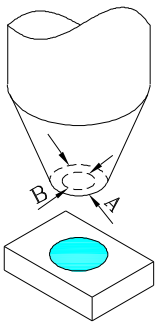




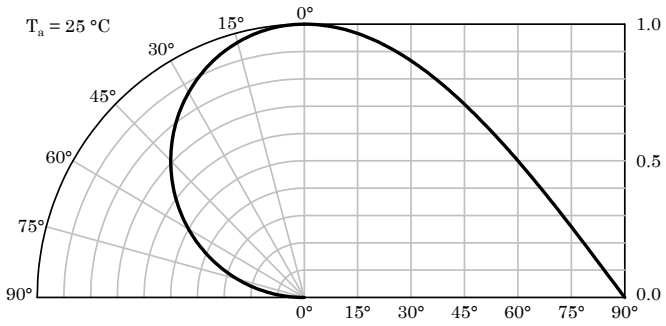
3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



4.1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.
4.2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
4.3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.

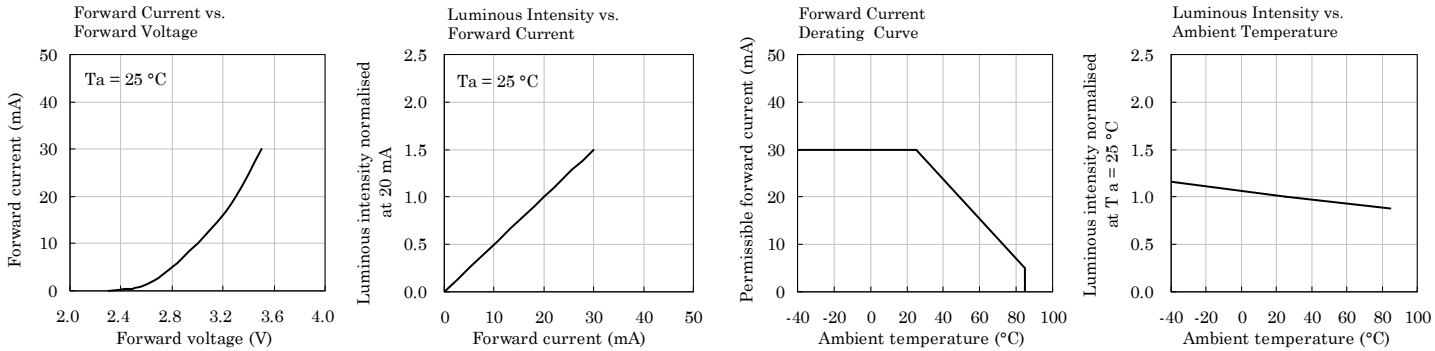



5. As silicone encapsulation is permeable to gases, some corrosive substances such as $H_2S$ might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.

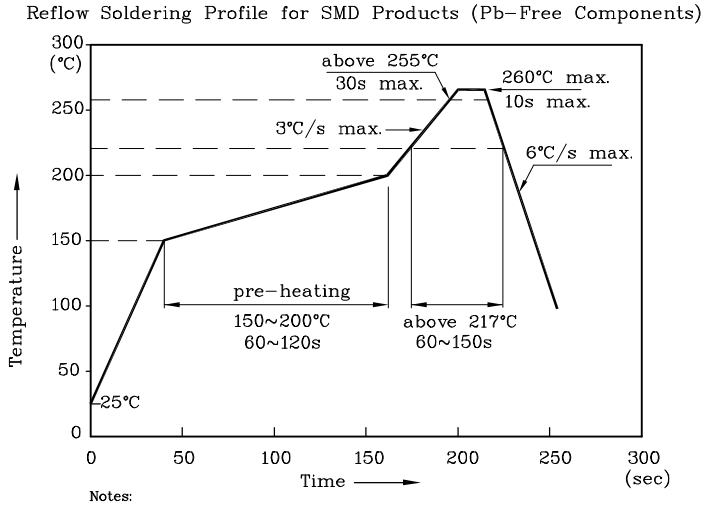


Spatial Distribution

## ❖ Cosmic Violet



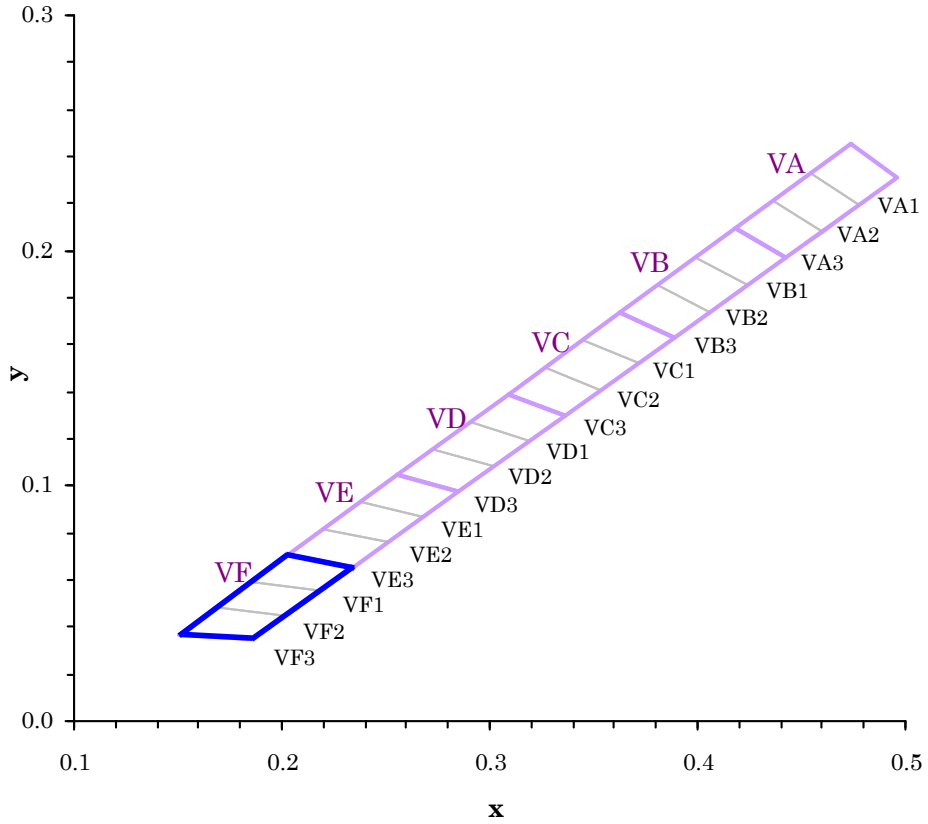

**LED is recommended for reflow soldering and soldering profile is shown below.**




Notes:
1. All temperatures refer to the center of the package, measured on the package body surface facing up during reflow.
2. Do not apply any stress to the LED during high temperature conditions.
3. Maximum number of soldering passes: 2

**XZFRA45SVF**

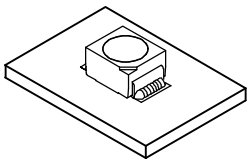
## Cosmic Violet CIE



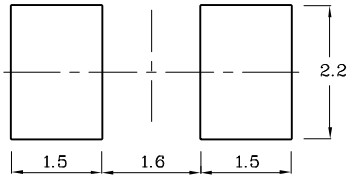

| Bin code | x | y | Bin code | x | y | Bin code | x | y |
|---|---|---|---|---|---|---|---|---|
| **VA1** | 0.4735 | 0.2451 | **VC1** | 0.3629 | 0.1737 | **VE1** | 0.2556 | 0.1044 |
| | 0.4548 | 0.2330 | | 0.3448 | 0.1620 | | 0.2380 | 0.0931 |
| | 0.4783 | 0.2194 | | 0.3713 | 0.1518 | | 0.2682 | 0.0867 |
| | 0.4964 | 0.2309 | | 0.3888 | 0.1629 | | 0.2850 | 0.0973 |
| **VA2** | 0.4548 | 0.2330 | **VC2** | 0.3448 | 0.1620 | **VE2** | 0.2380 | 0.0931 |
| | 0.4363 | 0.2211 | | 0.3267 | 0.1504 | | 0.2205 | 0.0818 |
| | 0.4602 | 0.2080 | | 0.3538 | 0.1408 | | 0.2514 | 0.0761 |
| | 0.4783 | 0.2194 | | 0.3713 | 0.1518 | | 0.2682 | 0.0867 |
| **VA3** | 0.4363 | 0.2211 | **VC3** | 0.3267 | 0.1504 | **VE3** | 0.2205 | 0.0818 |
| | 0.4178 | 0.2091 | | 0.3088 | 0.1388 | | 0.2030 | 0.0705 |
| | 0.4422 | 0.1966 | | 0.3364 | 0.1298 | | 0.2347 | 0.0656 |
| | 0.4602 | 0.2080 | | 0.3538 | 0.1408 | | 0.2514 | 0.0761 |
| **VB1** | 0.4178 | 0.2091 | **VD1** | 0.3088 | 0.1388 | **VF1** | 0.2030 | 0.0705 |
| | 0.3994 | 0.1973 | | 0.2910 | 0.1273 | | 0.1857 | 0.0593 |
| | 0.4243 | 0.1853 | | 0.3192 | 0.1189 | | 0.2182 | 0.0551 |
| | 0.4422 | 0.1966 | | 0.3364 | 0.1298 | | 0.2347 | 0.0656 |
| **VB2** | 0.3994 | 0.1973 | **VD2** | 0.2910 | 0.1273 | **VF2** | 0.1857 | 0.0593 |
| | 0.3811 | 0.1855 | | 0.2732 | 0.1158 | | 0.1683 | 0.0481 |
| | 0.4065 | 0.1741 | | 0.3021 | 0.1081 | | 0.2018 | 0.0448 |
| | 0.4243 | 0.1853 | | 0.3192 | 0.1189 | | 0.2182 | 0.0551 |
| **VB3** | 0.3811 | 0.1855 | **VD3** | 0.2732 | 0.1158 | **VF3** | 0.1683 | 0.0481 |
| | 0.3629 | 0.1737 | | 0.2556 | 0.1044 | | 0.1510 | 0.0369 |
| | 0.3888 | 0.1629 | | 0.2850 | 0.0973 | | 0.1856 | 0.0345 |
| | 0.4065 | 0.1741 | | 0.3021 | 0.1081 | | 0.2018 | 0.0448 |

Notes:
1. Shipment may contain more than one chromaticity regions.
2. Orders for single chromaticity region are generally not accepted.
3. Measurement tolerance of the chromaticity coordinates is ±0.01.
4. This device utilizes S/CASN phosphor technology licensed by NIMS. For more information please refer to https://www.sunledusa.com/newsNIMS.aspx

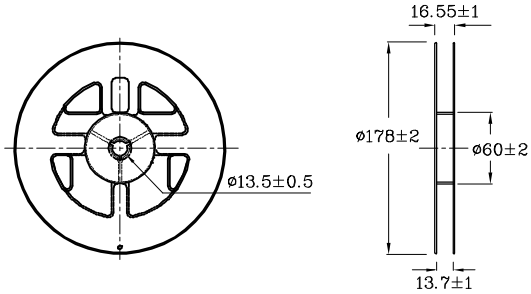
❖ **The device has a single mounting surface. The device must be mounted according to the specifications.**



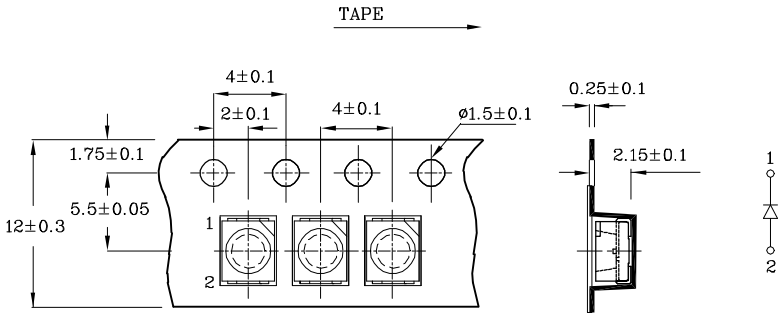
❖ **Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)**




❖ **Reel Dimension (Units : mm)**




❖ **Tape Specification (Units : mm)**



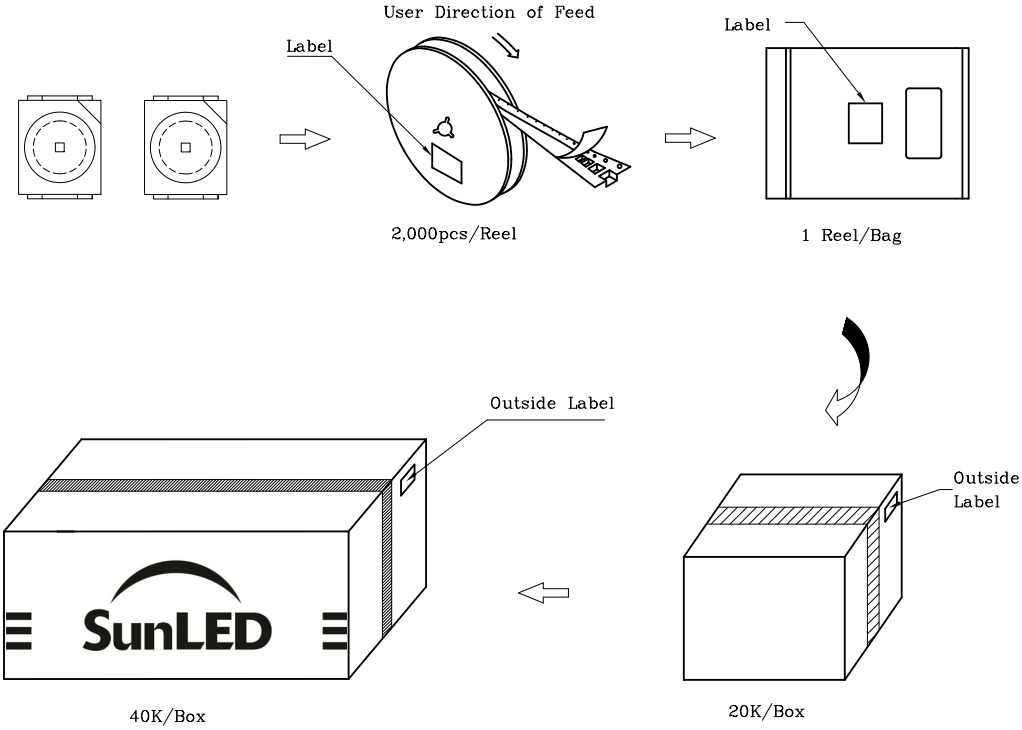

Remarks:

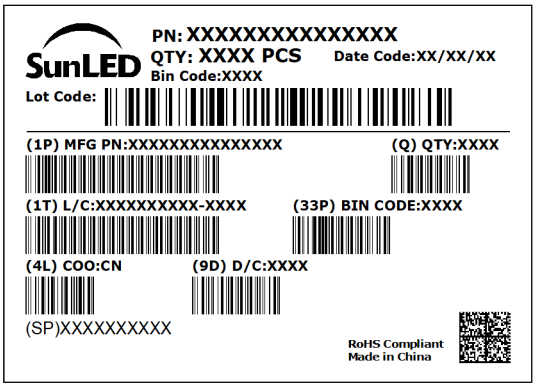
If special sorting is required (e.g. binning based on forward voltage, luminous intensity / luminous flux or chromaticity), the typical accuracy of the sorting process is as follows:

1. Measurement tolerance of the chromaticity coordinates is ±0.01.
2. Luminous Intensity / Luminous Flux: +/-15%
3. Forward Voltage: +/-0.1V

Note: Accuracy may depend on the sorting parameters.

## PACKING & LABEL SPECIFICATIONS

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