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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# PLCC4 SMD Top View Package LED SMTL4-BC-RB, RED/BLUE

# BIVAR

## SMTL4-BC-RB

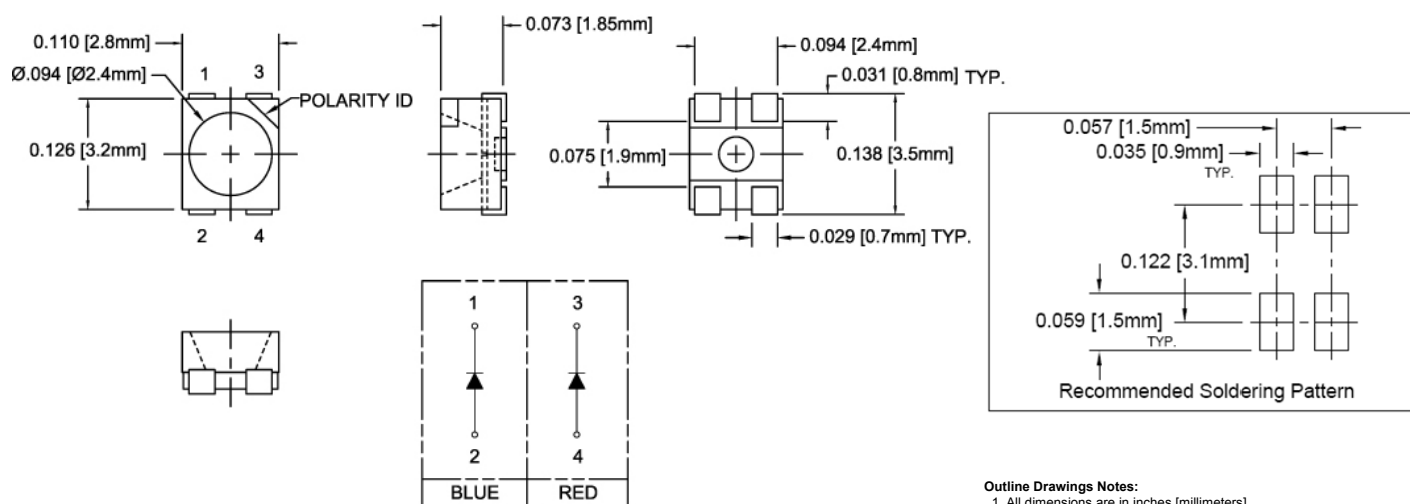
- ◆ Industry Standard PLCC4 Footprint
- ◆ 2 Chips in One Low Profile Package
- ◆ High Luminous Intensity
- ◆ Wide Viewing Angle
- ◆ High Power Efficiency



Bivar SMTL4 Bi-Color LED combines two chips in a single package and is offered in an industry standard PLCC4 footprint. The SMTL4 LED has a water clear lens for high luminous intensity and wide viewing angle making them ideal for small scale applications such as illumination, general indication, and backlighting. The robust package is ideal for harsh working environments and can be clustered in LED arrays for high luminous applications. Low power consumption and excellent long life reliability are suitable for battery powered equipment. Bivar SMTL4 LED is packaged in standard tape and reels for pick and place assemblies.

| Part Number | Material | Emitted Color | Lumen Typ. mcd | Lens Color  | Viewing Angle |
|-------------|----------|---------------|----------------|-------------|---------------|
| SMTL4-BC-RB | AlGaAs   | Red           | 36             | Water Clear | 120°          |
|             | GaN      | Blue          | 50             |             |               |

## Outline Dimensions



Bivar reserves the right to make changes at any time without notice.

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## Absolute Maximum Ratings

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

|                                              |                              |
|----------------------------------------------|------------------------------|
| Power Dissipation                            | Red - 72 mW<br>Blue - 100 mW |
| Continuous Forward Current                   | Red - 30 mA<br>Blue - 25 mA  |
| Peak Forward Current <sup>1</sup>            | 100 mA                       |
| Reverse Voltage                              | 5 V                          |
| Electrostatic Discharge Classification (HBM) | 2000 V                       |
| Derating Linear From 25°C                    | 0.4 mA/°C                    |
| Operating Temperature Range                  | -40 ~ +85°C                  |
| Storage Temperature Range                    | -40 ~ +100°C                 |
| Soldering Temperature <sup>2</sup>           | 260°C                        |

Notes: 1. 10% Duty Cycle, Pulse Width  $\leq 0.1$  msec.

2. Solder time less than 5 seconds at temperature extreme.

## Electrical Characteristics

$T_A = 25^\circ\text{C}$  &  $I_F = 20$  mA unless otherwise noted

| Emitting Color | Forward Voltage (V) <sup>1</sup> |     | Recommend Forward Current (mA) | Reverse Current ( $\mu\text{A}$ )<br>$V_R=5\text{V}$ | Dominant Wavelength (nm) <sup>2</sup> | Luminous Intensity (mcd) <sup>3</sup> |     | Viewing Angle<br>$2\theta_{1/2}$ (deg) |
|----------------|----------------------------------|-----|--------------------------------|------------------------------------------------------|---------------------------------------|---------------------------------------|-----|----------------------------------------|
|                | TYP                              | MAX | TYP                            | MAX                                                  | TYP                                   | MIN                                   | TYP | TYP                                    |
| Red            | 1.85                             | 2.3 | 20                             | 10                                                   | 640                                   | 18                                    | 36  | 120                                    |
| Blue           | 3.3                              | 4.2 | 20                             | 10                                                   | 466                                   | 20                                    | 50  |                                        |

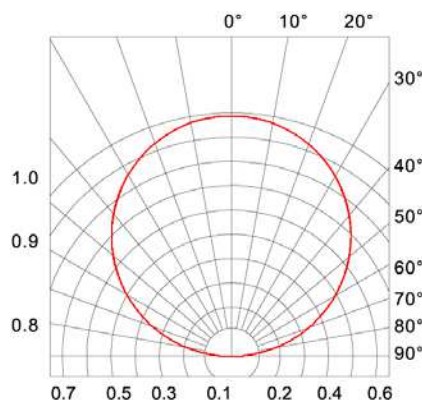
Notes: 1. Tolerance of Forward Voltage :  $\pm 0.05\text{V}$ .

2. Tolerance of Dominant Wavelength :  $\pm 0.1\text{nm}$ .

3. Tolerance of Luminous Intensity :  $\pm 15\%$ .

## Directivity Radiation

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



Radiation Diagram

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## Typical Electrical / Optical Characteristics Curves

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

Relative Spectrum Emission  $I_{rel} = f(\lambda)$ ,  $T_A = 25^\circ\text{C}$ ,  $I_F = 20\text{ mA}$   
 $V(\lambda)$  = Standard eye response curve

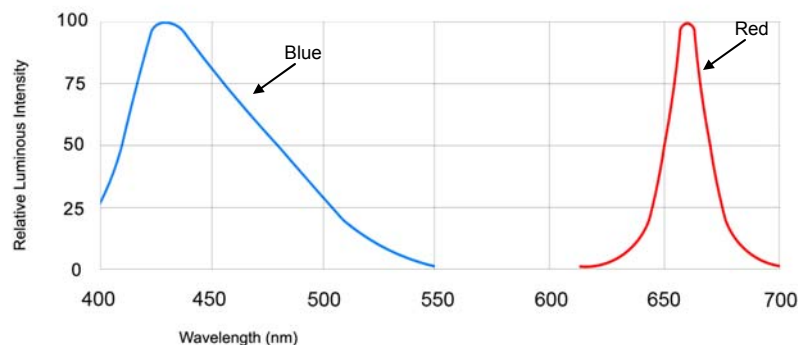


Fig.1 Relative Luminous Intensity vs. Wavelength

Relative Luminous Intensity  $I_V/I_V(20\text{ mA}) = f(I_F)$   
 $T_A = 25^\circ\text{C}$

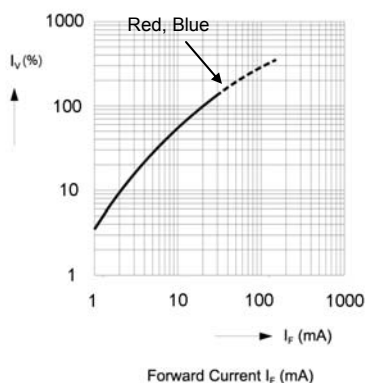


Fig.2 Relative Luminous Intensity vs. Forward Current

Ambient Temperature vs. Allowable Forward Current

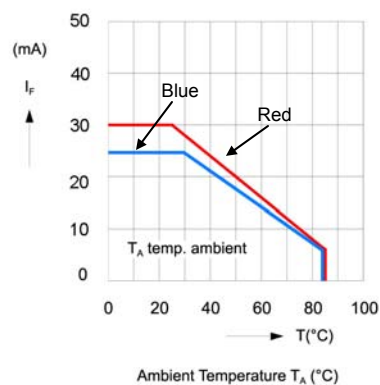


Fig.3 Forward Current vs. Ambient Temperature

Forward Current  $I_F = f(V_F)$   
 $T_A = 25^\circ\text{C}$

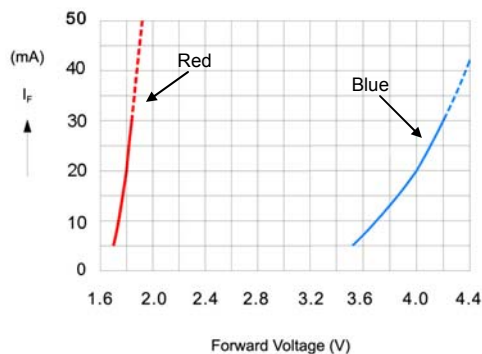


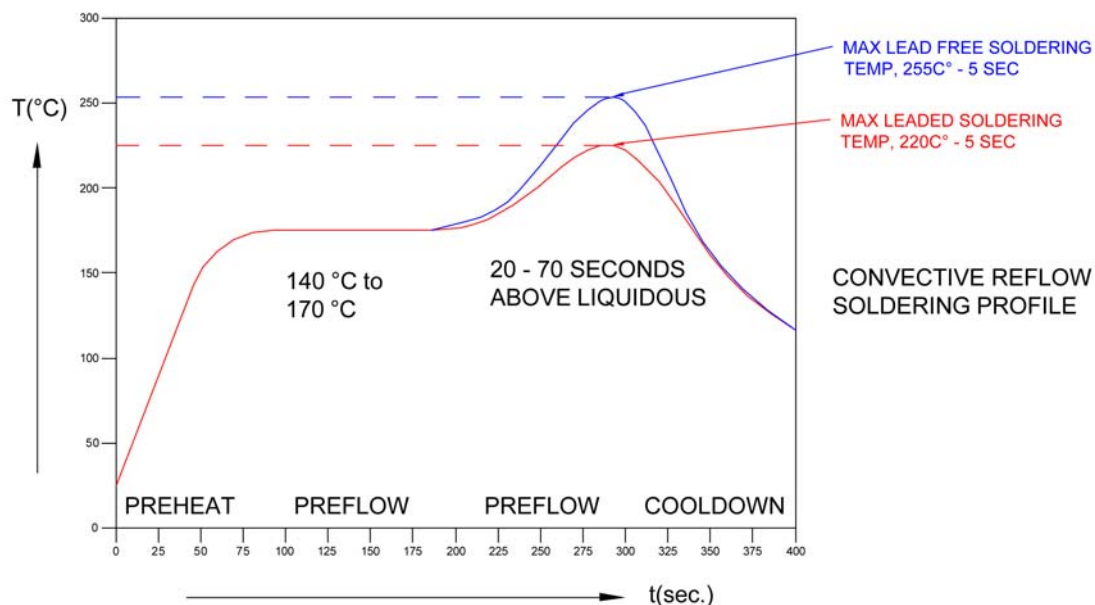
Fig.4 Forward Current vs. Forward Voltage

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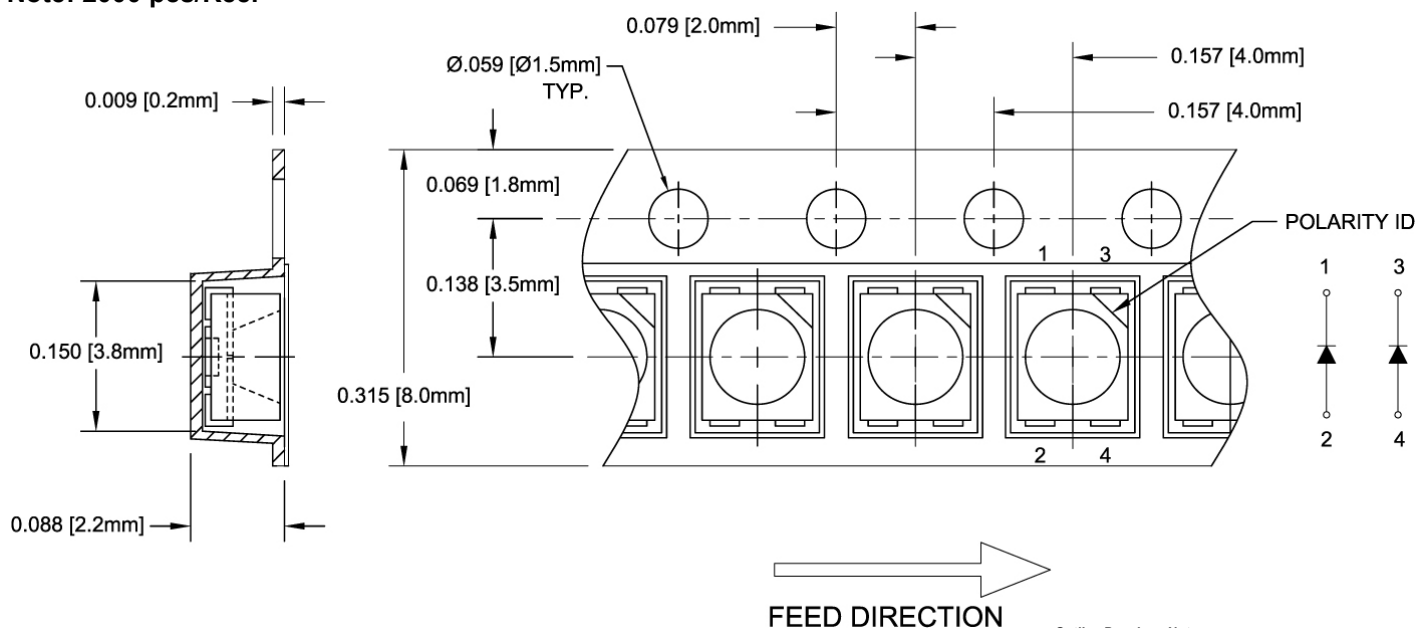


## Recommended Soldering Conditions



## Tape and Reel Dimensions

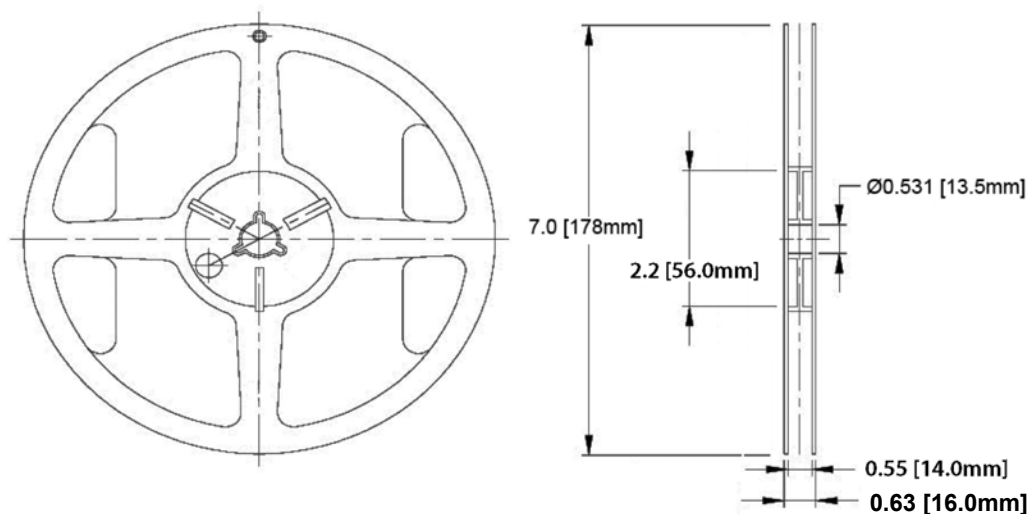
Note: 2000 pcs/Reel



Outline Drawings Notes:  
1. All dimensions are in inches [millimeters].  
2. Standard tolerance:  $\pm 0.010$  unless otherwise noted.

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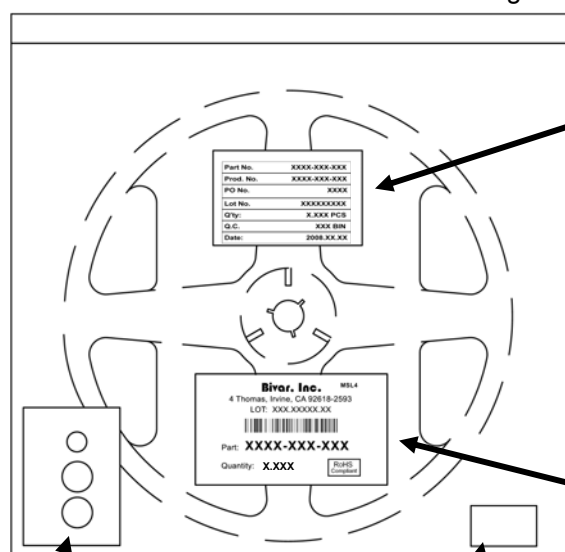
## Outline Drawings Notes:

1. All dimensions are in inches [millimeters].
2. Standard tolerance unless otherwise noted: X.XXX ± 0.010"  
X.X ± 0.1"

## Packaging and Labeling Plan

Note: 1 Reel / Bag

Sealed ESD and Moisture Barrier Bag



Humidity Indicator Card

Desiccant

|           |              |
|-----------|--------------|
| Part No.  | XXXX-XXX-XXX |
| Prod. No. | XXXX-XXX-XXX |
| PO No.    | XXXX         |
| Lot No.   | XXXXXXXXXX   |
| Q'ty:     | X.XXX PCS    |
| Q.C.      | XXX BIN      |
| Date:     | 2008.XX.XX   |

Internal Quality Control Label



Bivar Standard Packaging Label

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