# PLCC4 SMD Top View Package LED SMTL4-RYB, RED/YELLOW/BLUE

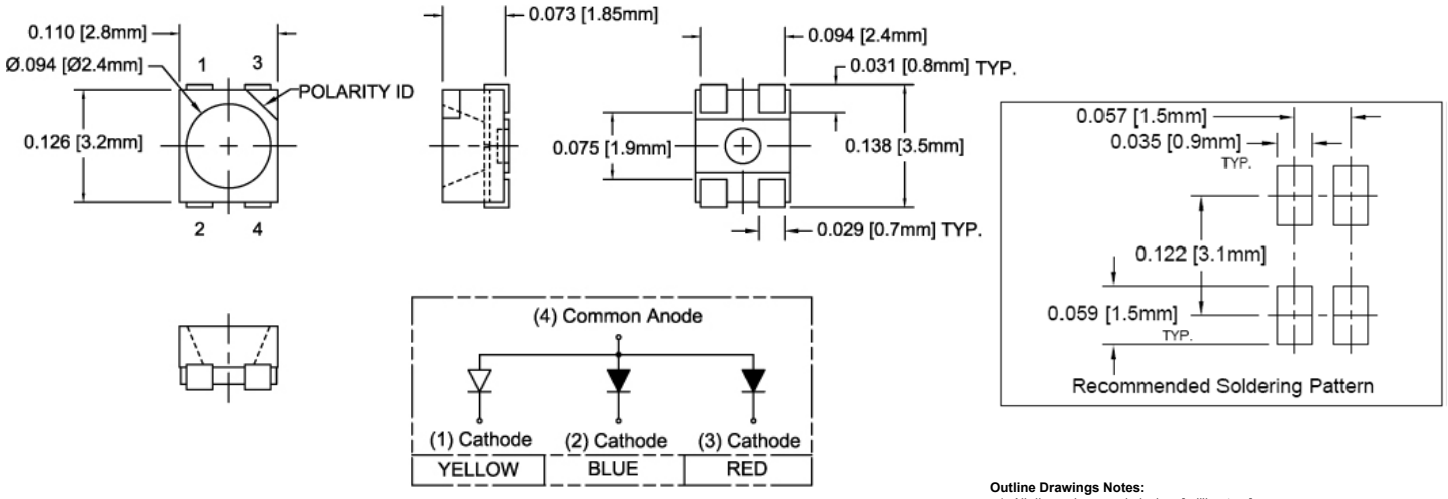
**SMTL4-RYB**

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

Bivar SMTL4 Tri-Color LED combines three 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 flexible three chip design allows for a wide variety of lighting options where the chips can be individually driven or mixed to create different color combinations. 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-RYB | AlGaAs | Red | 36 | Water Clear | 120° |
| | GaAsP | Yellow | 16 | | |
| | GaN | Blue | 50 | | |

## Outline Dimensions




**Outline Drawings Notes:**
1. All dimensions are in inches [millimeters].
2. Standard tolerance: ±0.010" unless otherwise noted.

ATTENTION OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

RoHS Compliant

Moisture Sensitivity Levels 4

## Absolute Maximum Ratings

$T_A$ = 25°C unless otherwise noted

| | |
|---|---|
| Power Dissipation | Red, Yellow - 72 mW<br>Blue - 100 mW |
| Continuous Forward Current | Red, Yellow - 30 mA<br>Blue - 25mA |
| Peak Forward Current [1] | 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[2] | 260°C |

Notes: 1. 10% Duty Cycle, Pulse Width ≤ 0.1 msec.
2. Solder time less than 5 seconds at temperature extreme.

## Electrical Characteristics

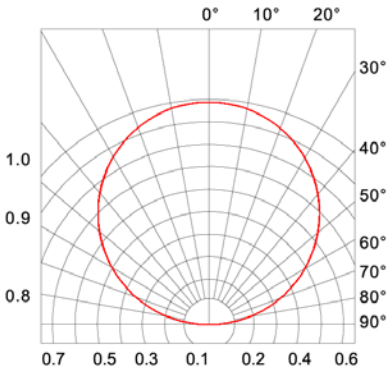
$T_A$ = 25°C & $I_F$ = 20 mA unless otherwise noted

| Emitting Color | Forward Voltage (V)[1] | | Recommend Forward Current (mA) | Reverse Current (μA) $V_R$=5V | Dominant Wavelength (nm)[2] | Luminous Intensity (mcd)[3] | | Viewing Angle 2 Θ ½ (deg) |
|---|---|---|---|---|---|---|---|---|
| | TYP | MAX | TYP | MAX | TYP | MIN | TYP | TYP |
| Red | 1.85 | 2.3 | 20 | 10 | 640 | 18 | 36 | 120 |
| Yellow | 1.9 | 2.4 | 20 | 10 | 585 | 10 | 16 | |
| Blue | 3.3 | 4.2 | 20 | 10 | 466 | 20 | 50 | |

Notes: 1. Tolerance of Forward Voltage : ±0.05V.
2. Tolerance of Dominant Wavelength : ±0.1nm.
3. Tolerance of Luminous Intensity : ±15%.

## Directivity Radiation

$T_A$ = 25°C unless otherwise noted




Radiation Diagram

## Typical Electrical / Optical Characteristics Curves

$T_A$ = 25°C unless otherwise noted

Relative Spectrum Emission $I_{rel}$ = f (l), $T_A$ = 25°C , $I_F$ = 20 mA
V(l) = Standard eye response curve

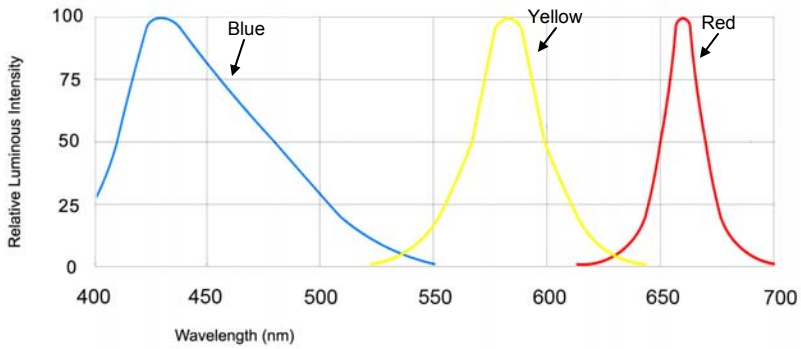



Fig.1 Relative Luminous Intensity vs. Wavelength

Relative Luminous Intensity $I_V/I_V$ (20 mA) = f ($I_F$)
$T_A$ = 25°C

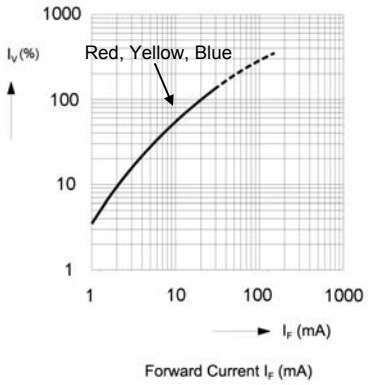



Fig.2 Relative Luminous Intensity vs. Forward Current

Ambient Temperature vs. Allowable Forward Current

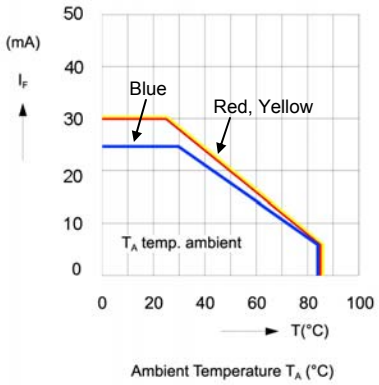



Fig.3 Forward Current vs. Ambient Temperature

Forward Current $I_F$ = f ( $V_F$ )
$T_A$ = 25°C

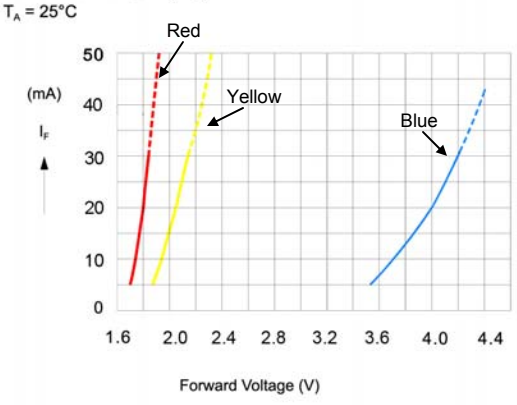
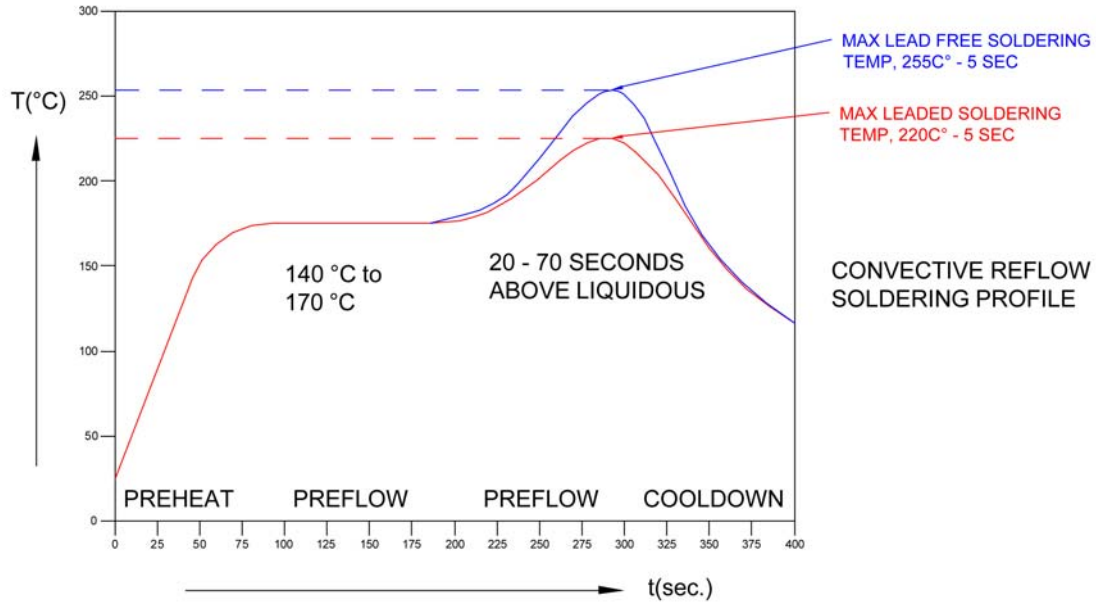


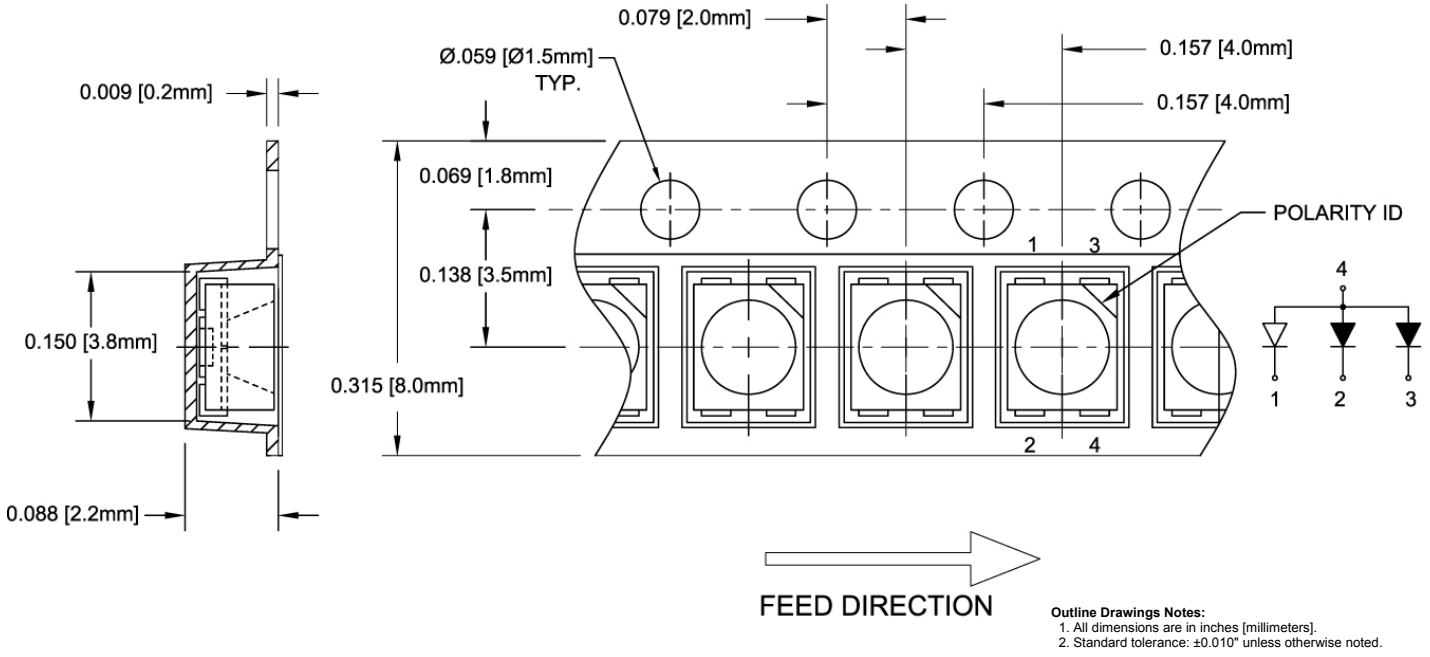

Fig.4 Forward Current vs. Forward Voltage

## Recommended Soldering Conditions




## Tape and Reel Dimensions

**Note: 2000 pcs/Reel**

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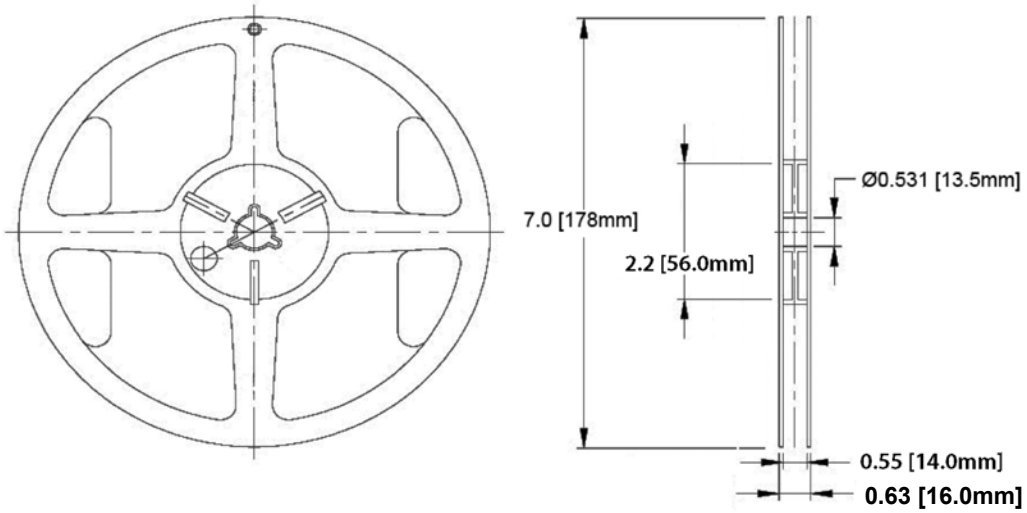


**Outline Drawings Notes:**
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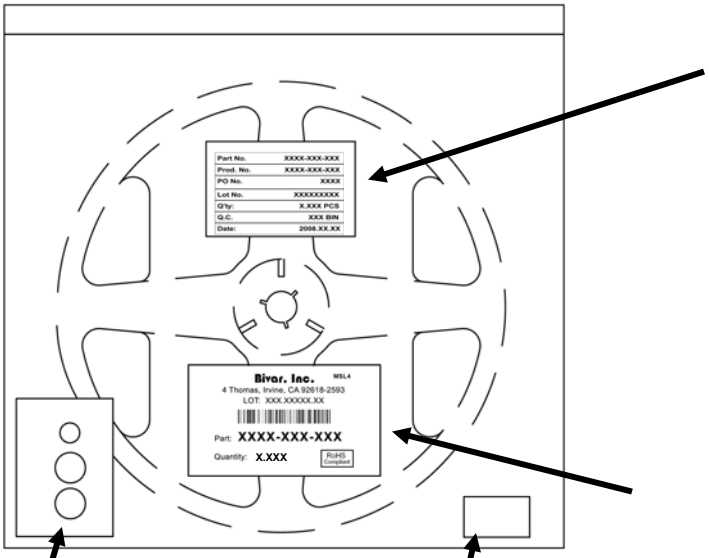
2. Standard tolerance unless otherwise noted: X.XXX ± 0.010"
   X.X ± 0.1"

## 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. | XXXXXXXXX |
| Q'ty: | X.XXX PCS |
| Q.C. | XXX BIN |
| Date: | 2008.XX.XX |

Internal Quality Control Label


Bivar Standard Packaging Label