



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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!



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PLCC4 SMD Top View Package LED SMP4-SRYB, RED/YELLOW/BLUE

BIVAR

SMP4-SRYB

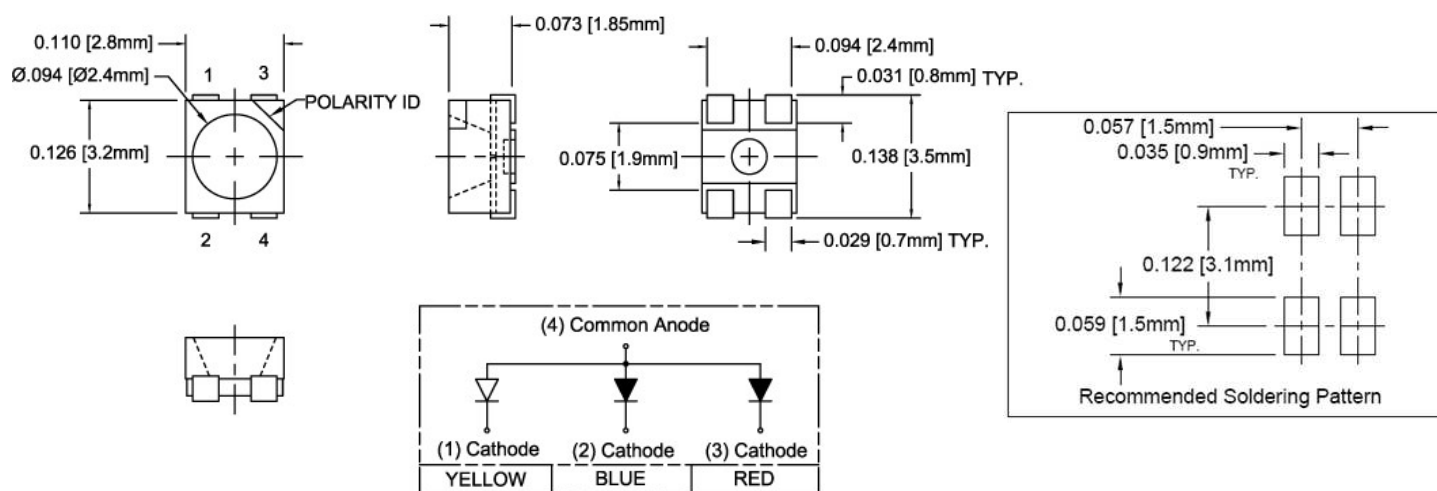
- ◆ Industry Standard PLCC4 Footprint
- ◆ 3 Super Bright Chips in One Low Profile Package
- ◆ High Luminous Intensity
- ◆ Wide Viewing Angle
- ◆ High Power Efficiency



Bivar SMP4 Super Bright Tri-Color LED combines three chips in a single package and is offered in an industry standard PLCC4 footprint. The SMP4 LED has a water clear lens for high luminous intensity and wide viewing angle making them ideal for outdoor illumination applications where higher ambient lighting conditions exist. 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 SMP4 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 |
|-------------|----------|---------------|----------------|-------------|---------------|
| SMP4-SRYB | AlGaInP | Red | 180 | Water Clear | 120° |
| | AlGaInP | Yellow | 180 | | |
| | InGaN | Blue | 285 | | |

Outline Dimensions



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



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, Yellow - 78 mW Blue - 100 mW |
| Continuous Forward Current | Red, Yellow - 30 mA 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

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

| Emitting Color | Forward Voltage (V) ¹ | | Recommend Forward Current (mA) | Reverse Current (μA) $V_R=5\text{V}$ | Dominant Wavelength (nm) ² | Luminous Intensity (mcd) ³ | | Viewing Angle $2\theta_{1/2}$ (deg) |
|----------------|----------------------------------|-----|--------------------------------|--|---------------------------------------|---------------------------------------|-----|--|
| | TYP | MAX | TYP | MAX | TYP | MIN | TYP | TYP |
| Red | 1.9 | 2.4 | 20 | 10 | 631 | 115 | 180 | 120 |
| Yellow | 1.9 | 2.4 | 20 | 10 | 591 | 115 | 180 | |
| Blue | 3.2 | 3.5 | 20 | 10 | 470 | 115 | 285 | |

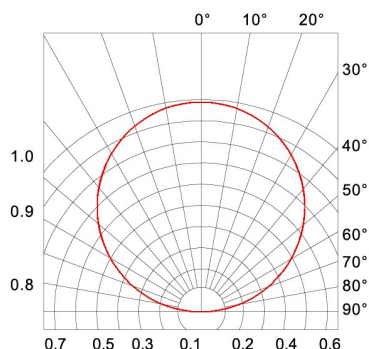
Notes: 1. Tolerance of Forward Voltage : $\pm 0.05\text{V}$.

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

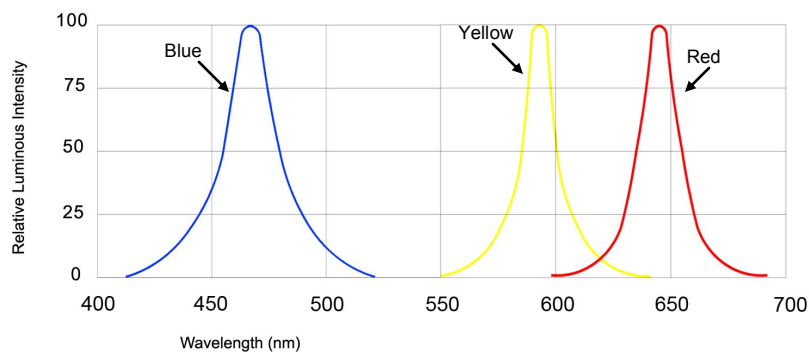
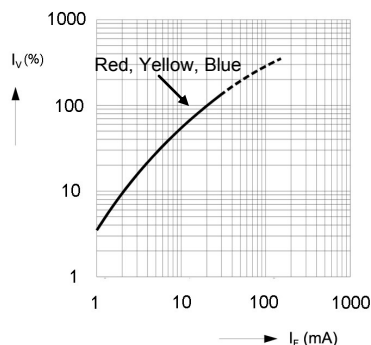


Fig.1 Relative Luminous Intensity vs. Wavelength

Relative Luminous Intensity $I_V/I_V(20\text{ mA}) = f(I_F)$

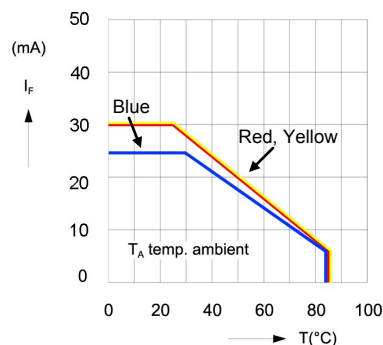
$T_A = 25^\circ\text{C}$



Forward Current I_F (mA)

Fig.2 Relative Luminous Intensity vs. Forward Current

Ambient Temperature vs. Allowable Forward Current

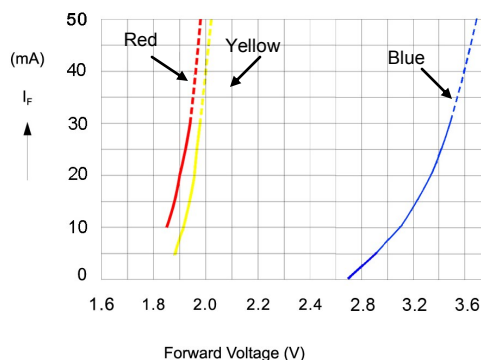


Ambient Temperature T_A ($^\circ\text{C}$)

Fig.3 Forward Current vs. Ambient Temperature

Forward Current $I_F = f(V_F)$

$T_A = 25^\circ\text{C}$



Forward Voltage (V)

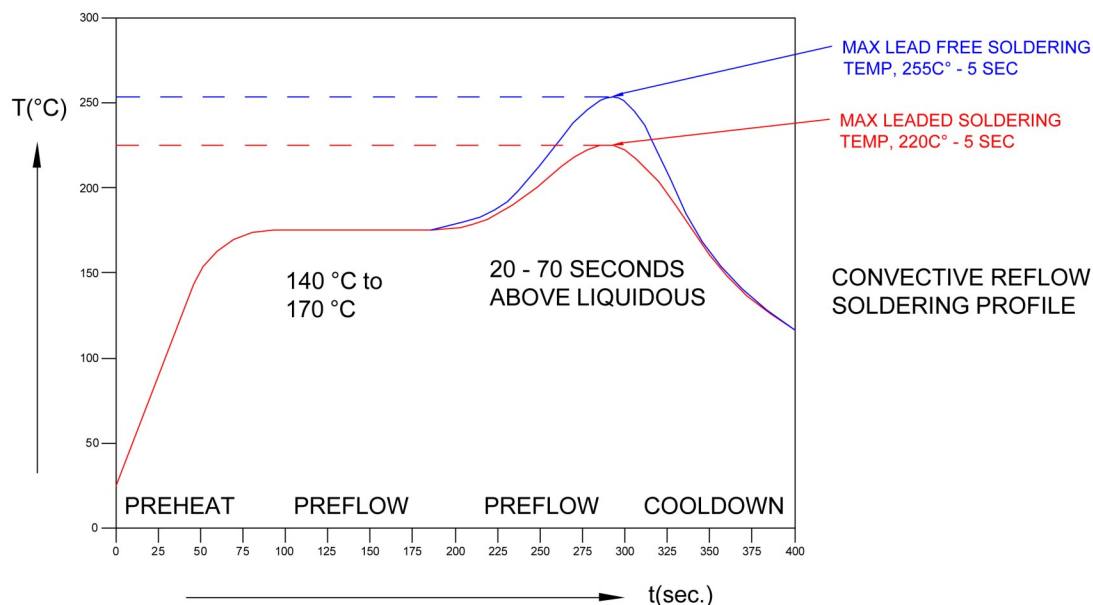
Fig.4 Forward Current vs. Forward Voltage

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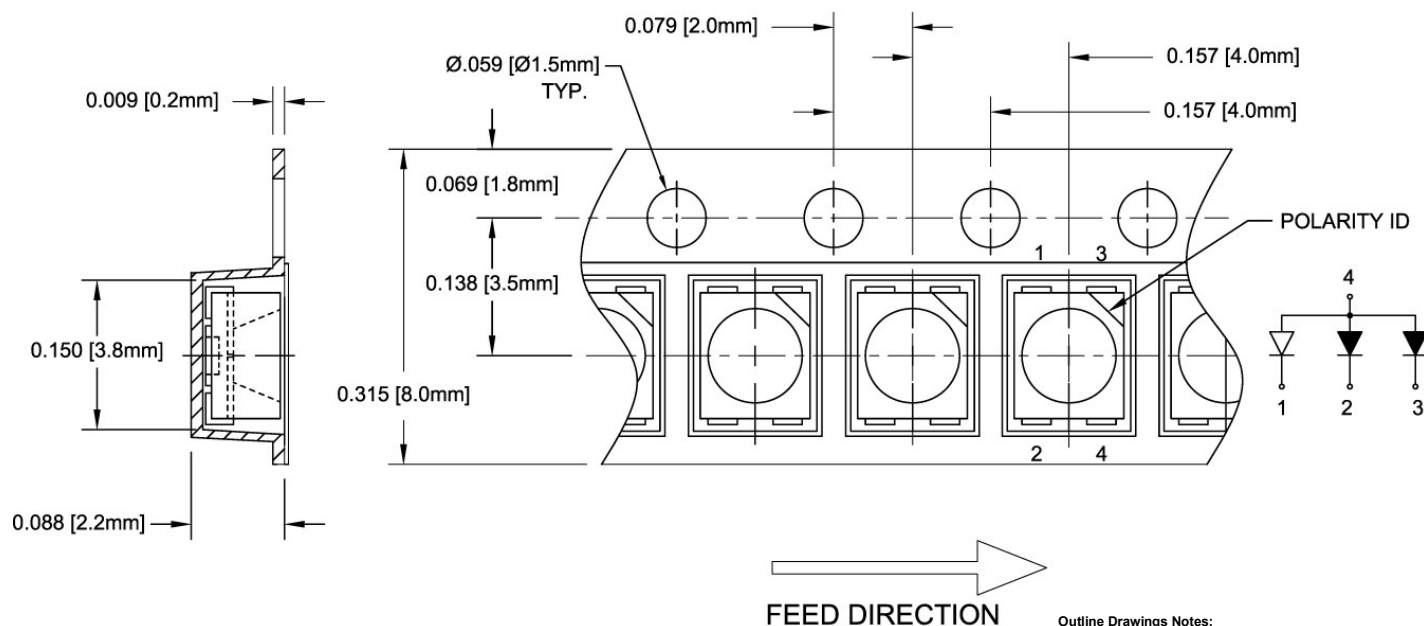


Recommended Soldering Conditions



Tape and Reel Dimensions

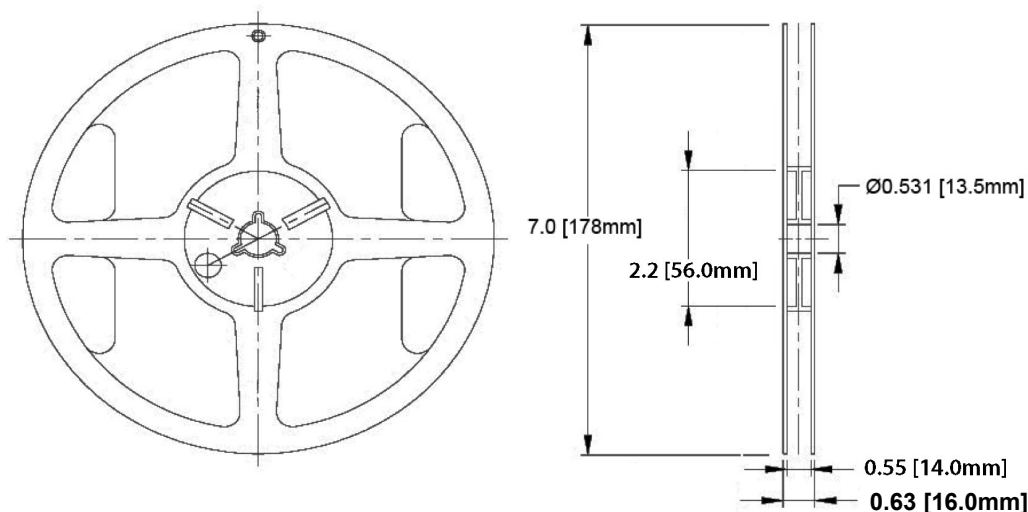
Note: 2000 pcs/Reel



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

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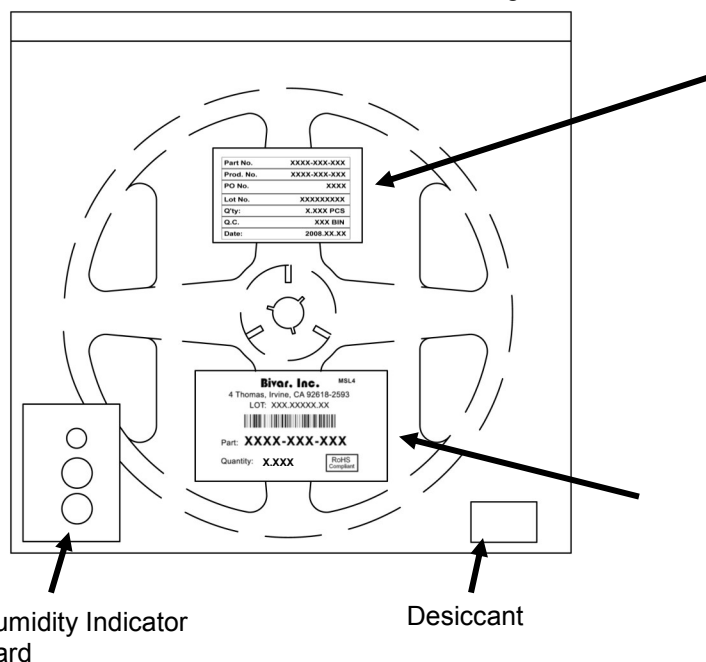
Outline Drawings Notes:

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

Packaging and Labeling Plan

Note: 1 Reel / Bag

Sealed ESD and Moisture Barrier Bag



| | |
|-----------|--------------|
| 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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