PLCC4 SMD Top View Package LED SMP4-SRGB, RED/GREEN/BLUE

BIVAR

SMP4-SRGB
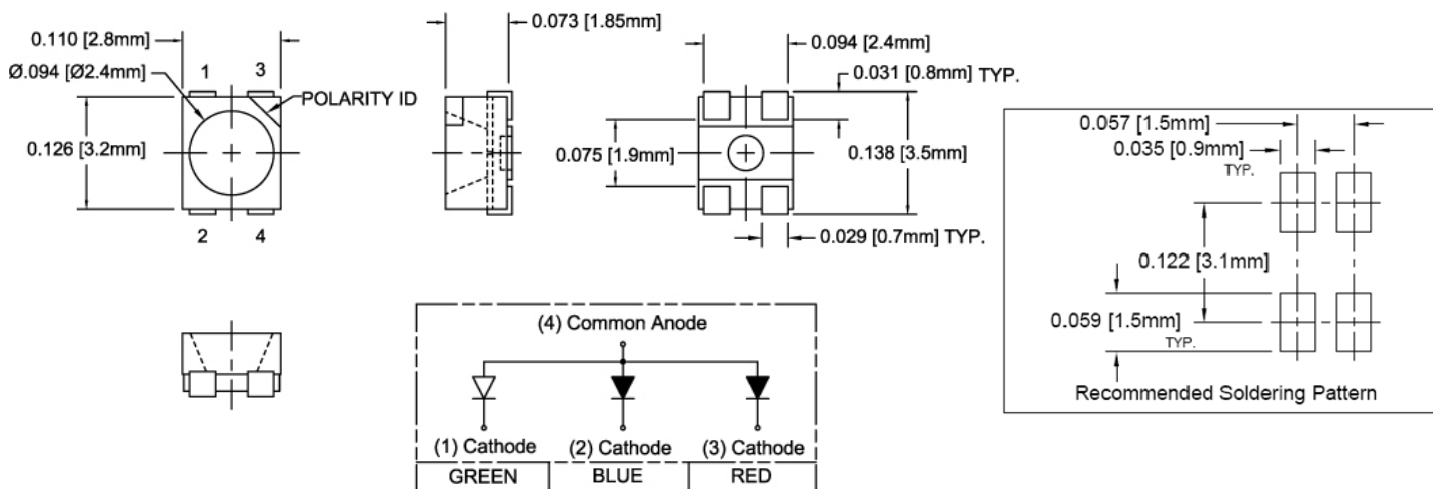
♦ **Industry Standard PLCC4 Footprint**
♦ **3 Super Bright Chips in One Low Profile Package**
♦ **High Luminous Intensity**
♦ **Wide Viewing Angle**
♦ **High Power Efficiency**

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-SRGB	AlGaInP	Red	180	Water Clear	120°
	InGaN	Green	1450		
	InGaN	Blue	285		

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, Green - 78 mW Blue - 80 mW
Continuous Forward Current	Red, Green - 30 mA Blue - 25 mA
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.
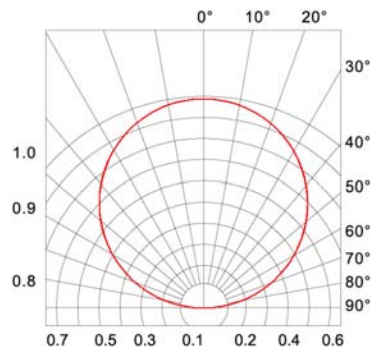
Electrical Characteristics
T_A = 25°C & I_F = 20 mA unless otherwise noted

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	1.9	2.6	20	10	625	115	180	
Green	3.3	4.5	20	10	525	1050	1450	120
Blue	3.3	4.3	20	10	470	115	285	

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 (I), T_A = 25°C , I_F = 20 mA
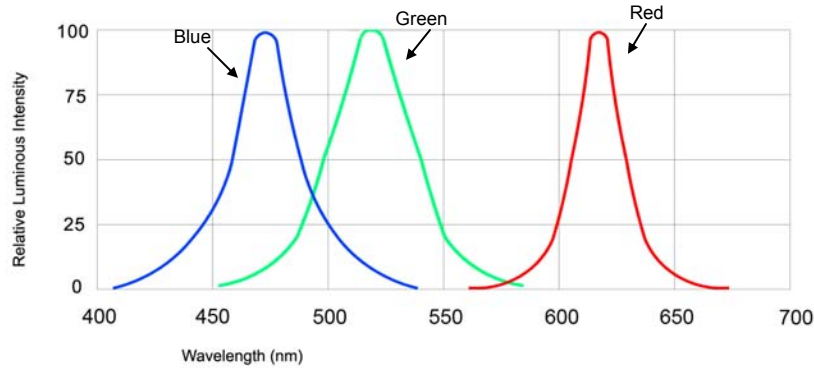V(I) = Standard eye response curve

Blue   Green   Red

Fig.1 Relative Luminous Intensity vs. Wavelength

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

Red, Green, Blue
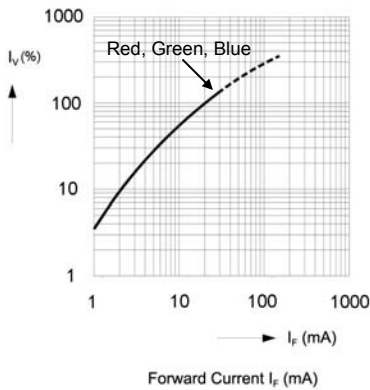
Fig.2 Relative Luminous Intensity vs. Forward Current
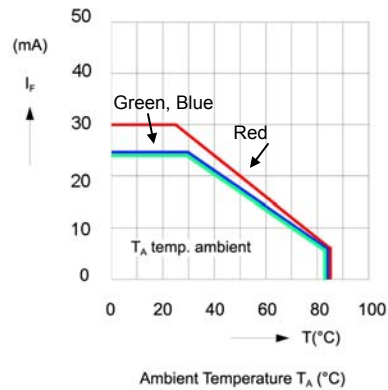
Ambient Temperature vs. Allowable Forward Current

Green, Blue   Red

T_A temp. ambient

Fig.3 Forward Current vs. Ambient Temperature

Forward Current I_F = f (V_F)
T_A = 25°C
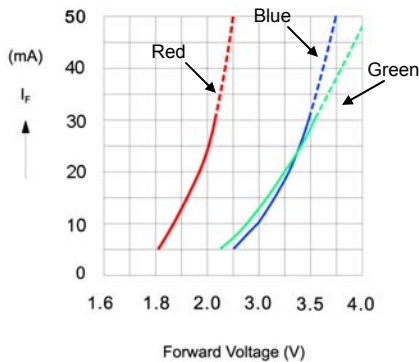
Blue   Red   Green

Fig.4 Forward Current vs. Forward Voltage

Recommended Soldering Conditions
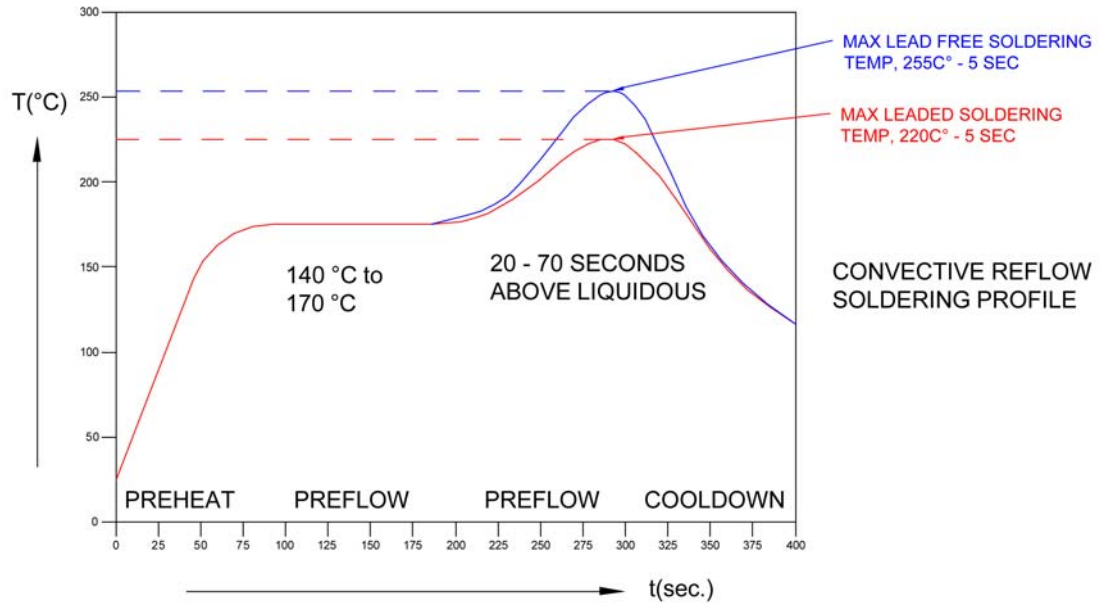
Tape and Reel Dimensions

Note: 2000 pcs/Reel
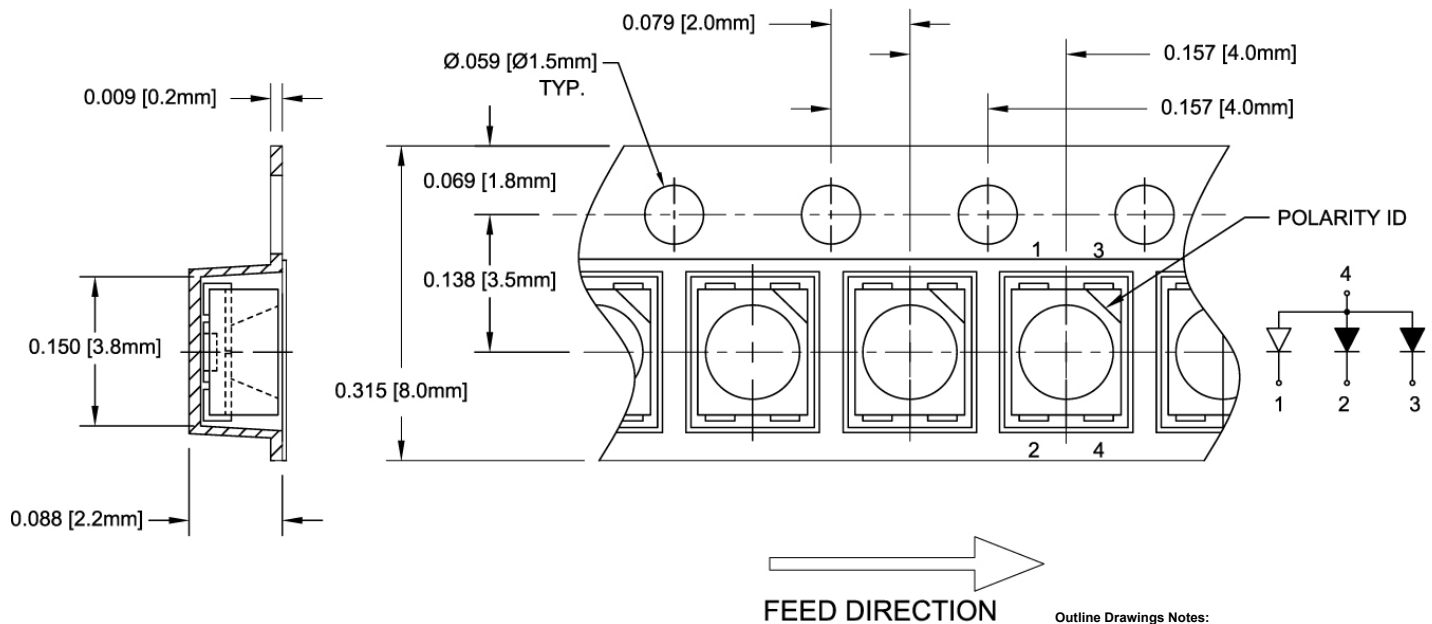
FEED DIRECTION

Outline Drawings Notes:
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Ø0.531 [13.5mm]
7.0 [178mm]
2.2 [56.0mm]
0.55 [14.0mm]
0.63 [16.0mm]

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

Internal Quality Control Label

Bivar. Inc. MSL4
4 Thomas, Irvine, CA 92618-2593
LOT: XXX.XXXXX.XX

Part: **XXXX-XXX-XXX**

Quantity: **X.XXX**

RoHS Compliant

Bivar Standard Packaging Label