

SMP4-RGB Datasheet

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DiGi Electronics Part Number	SMP4-RGB-DG
Manufacturer	Bivar Inc.
Manufacturer Product Number	SMP4-RGB
Description	LED RGB CLEAR 4PLCC SMD
Detailed Description	Red, Green, Blue (RGB) 640nm Red, 570nm Green, 466nm Blue LED Indication - Discrete 1.85V Red, 1.9V Green, 3.3V Blue 4-PLCC

This model SMP4-RGB is available at DiGi Electronics.

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DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

SMP4-RGB

Series:

-

Color:

Red, Green, Blue (RGB)

Lens Color:

Colorless

Millicandela Rating:

36mcd Red, 40mcd Green, 50mcd Blue

Lens Size:

2.40mm Dia

Current - Test:

20mA Red, 20mA Green, 20mA Blue

Mounting Type:

Surface Mount

Wavelength - Peak:

-

Package / Case:

4-PLCC

Size / Dimension:

3.20mm L x 2.80mm W

Manufacturer:

Bivar Inc.

Product Status:

Obsolete

Configuration:

Common Anode

Lens Transparency:

Clear

Lens Style:

Round with Flat Top

Voltage - Forward (Vf) (Typ):

1.85V Red, 1.9V Green, 3.3V Blue

Viewing Angle:

120°

Wavelength - Dominant:

640nm Red, 570nm Green, 466nm Blue

Features:

-

Supplier Device Package:

4-PLCC

Height (Max):

1.85mm

Environmental & Export classification

Moisture Sensitivity Level (MSL):

4 (72 Hours)

HTSUS:

8541.41.0000

ECCN:

EAR99

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

BIVAR

SMP4-RGB

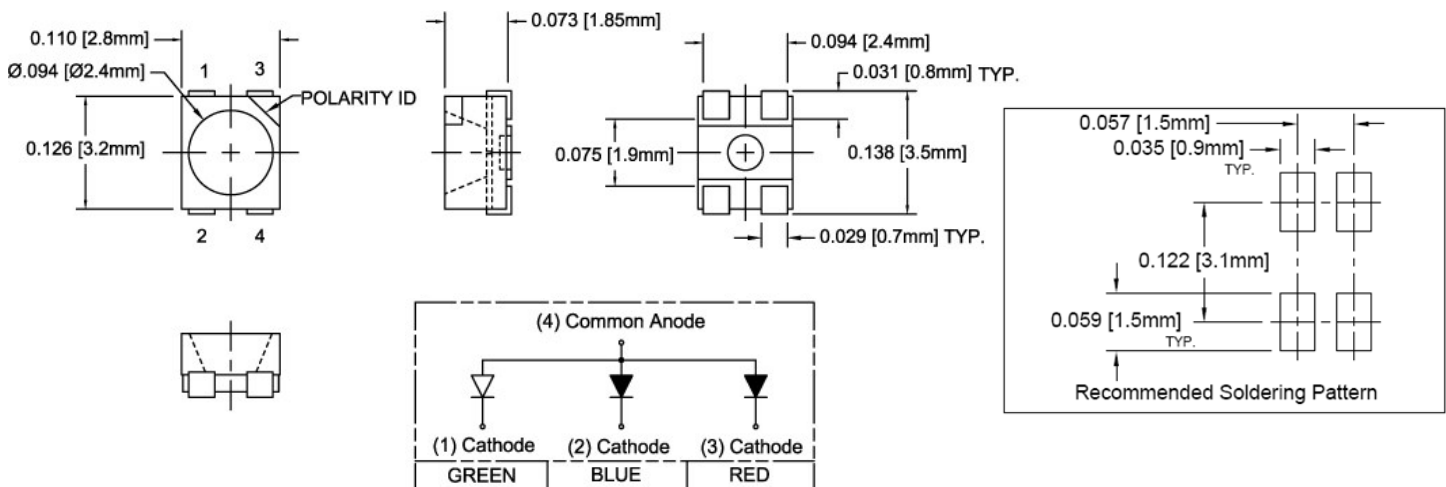
- ◆ Industry Standard PLCC4 Footprint
- ◆ 3 Chips in One Low Profile Package
- ◆ High Luminous Intensity
- ◆ Wide Viewing Angle
- ◆ High Power Efficiency



Bivar SMP4 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 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 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-RGB	AlGaAs	Red	36	Water Clear	120°
	GaP	Green	40		
	GaN	Blue	50		

Outline Dimensions



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



CAUTION: LOOKING DIRECTLY AT LED WITHOUT SHIELDED EYES MAY CAUSE DAMAGE TO RETINA.

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

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

Absolute Maximum Ratings

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

Power Dissipation	Red, Green - 72 mW Blue - 100mW
Continuous Forward Current	Red, Green - 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

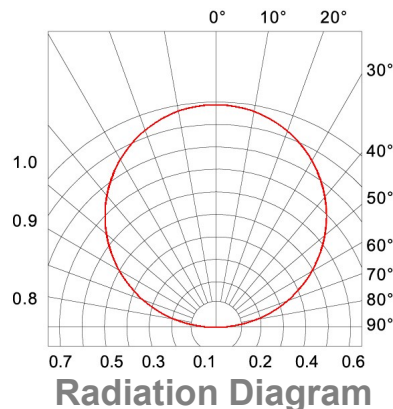
$T_A = 25^\circ\text{C}$ & $I_F = 20$ mA unless otherwise noted

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		MIN	TYP	
Red	1.85	2.3	20	10	640	18	36	120	
Green	1.9	2.4	20	10	570	20	40		
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



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



Typical Electrical / Optical Characteristics Curves

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

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

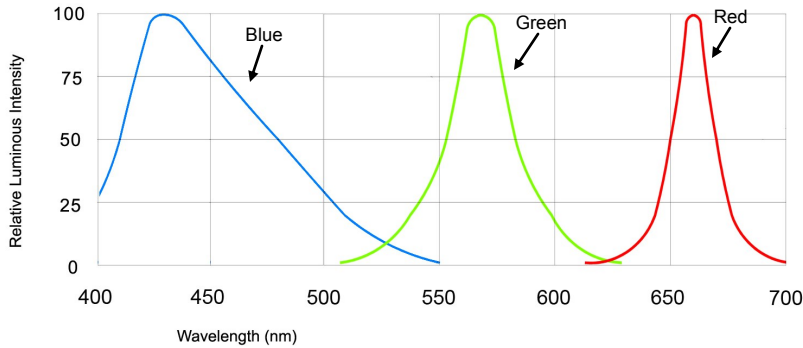


Fig.1 Relative Luminous Intensity vs. Wavelength

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

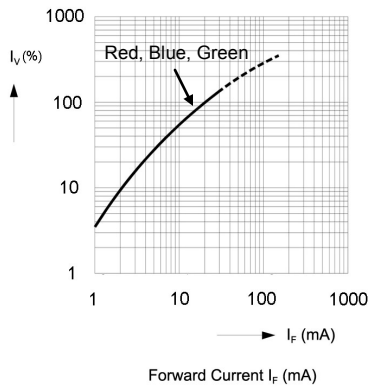


Fig.2 Relative Luminous Intensity vs. Forward Current

Ambient Temperature vs. Allowable Forward Current

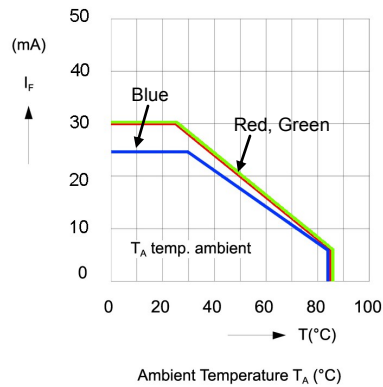


Fig.3 Forward Current vs. Ambient Temperature

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

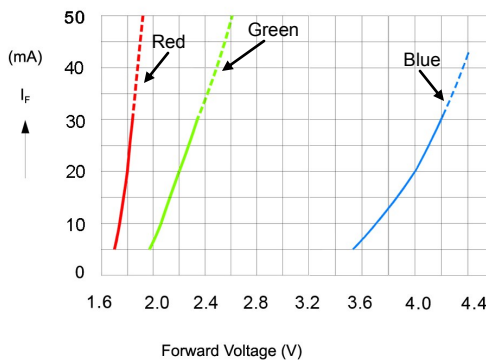


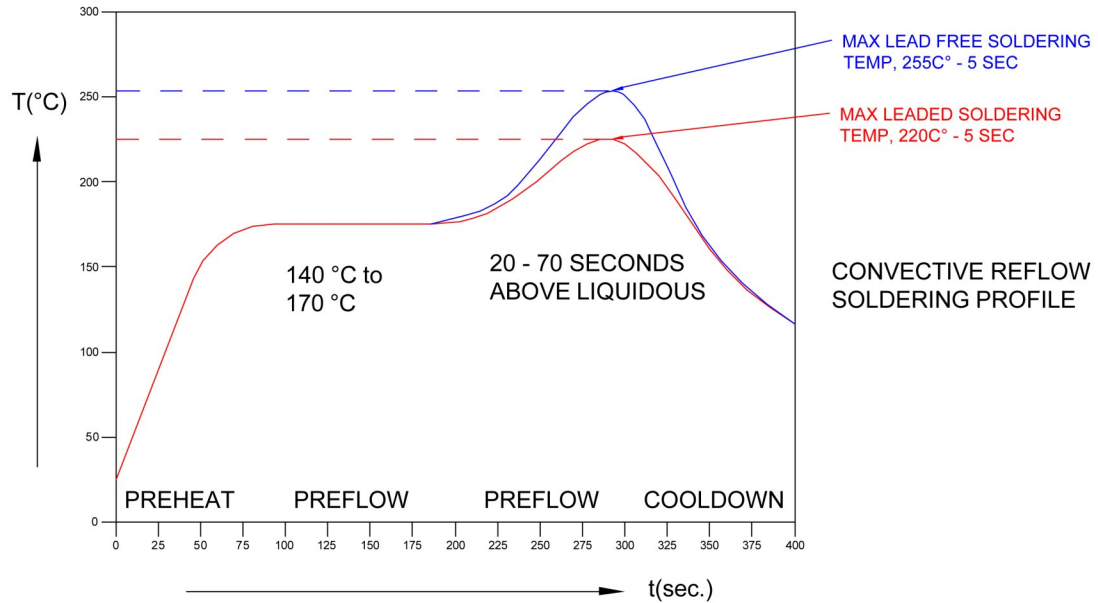
Fig.4 Forward Current vs. Forward Voltage

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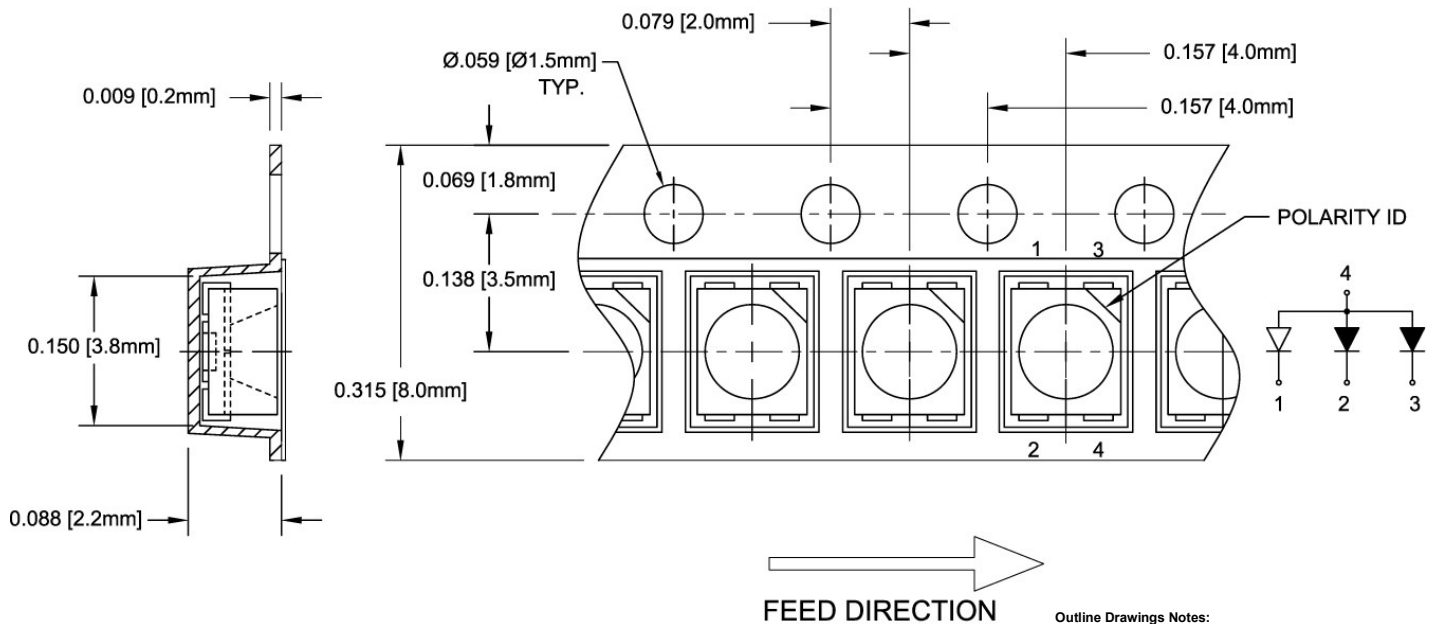
PLCC4 SMD Top View Package LED SMP4-RGB, RED/GREEN/BLUE

Recommended Soldering Conditions



Tape and Reel Dimensions

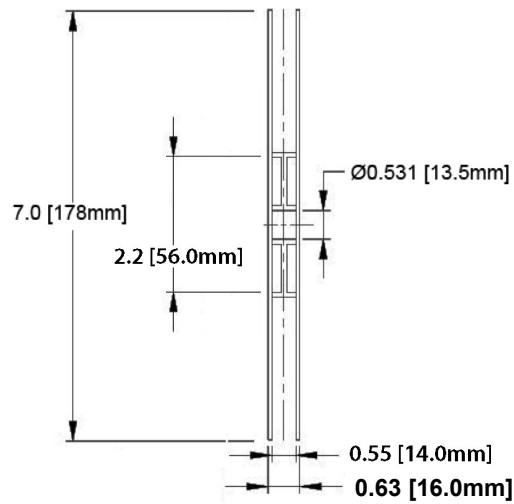
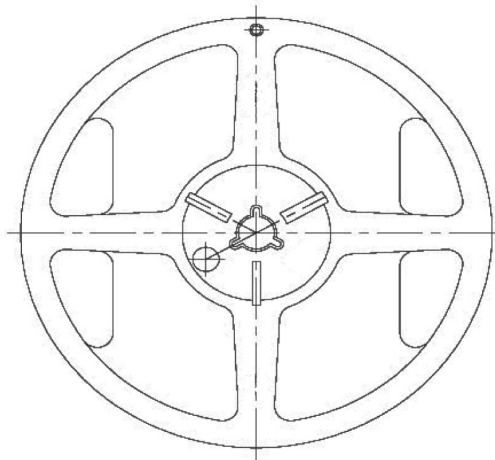
Note: 2000 pcs/Reel



Outline Drawings Notes:
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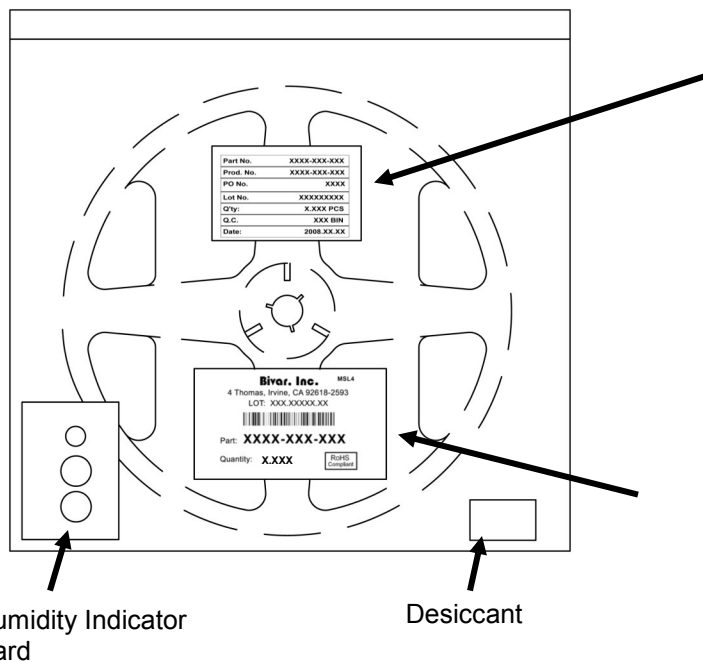
Outline Drawings Notes:

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



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, 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

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