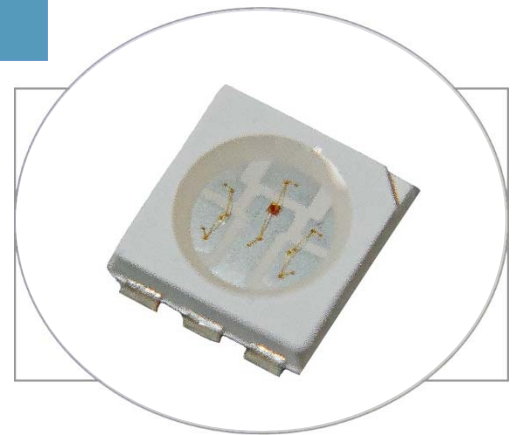


## PLCC6 SMD Top View Package LED SMTL6-RGB-1, RED/GREEN/BLUE

### SMTL6-RGB-1

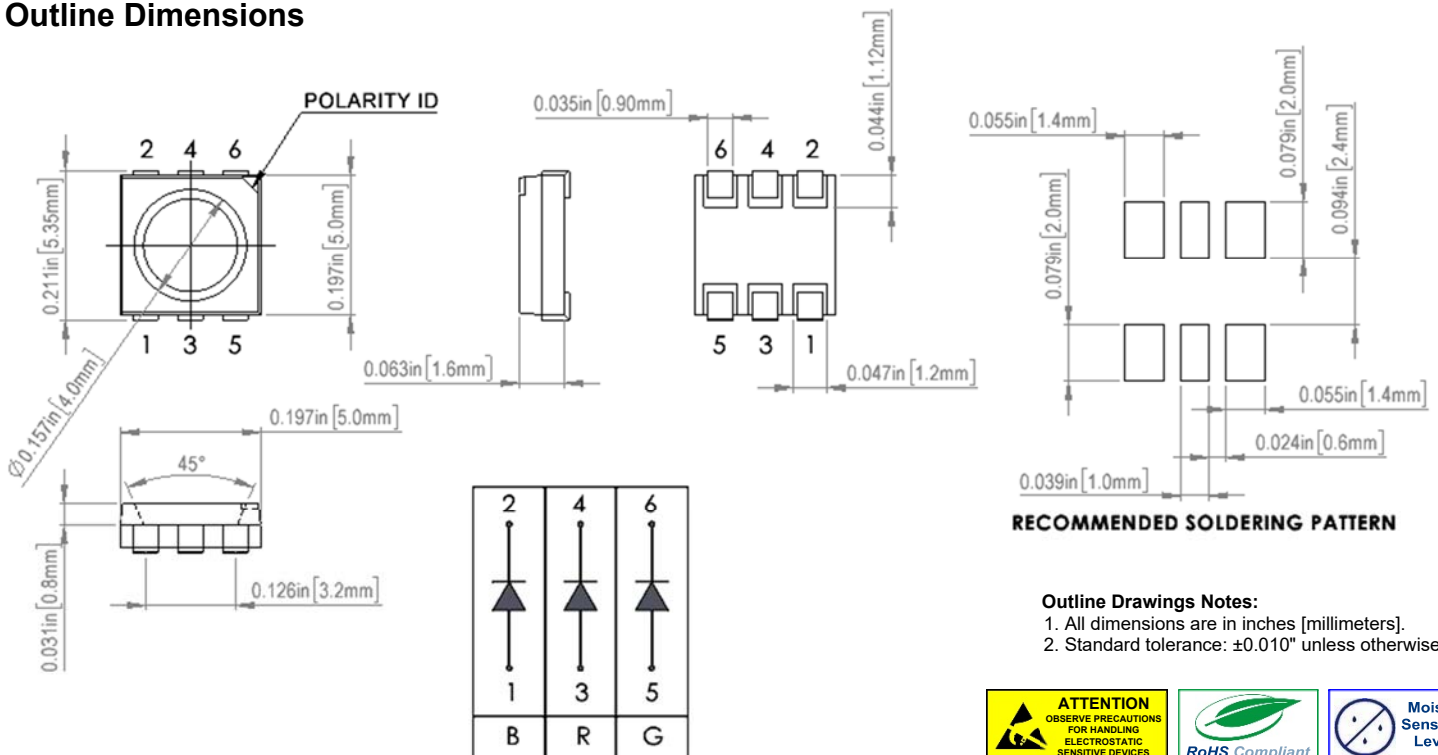
- ◆ Industry Standard PLCC6 Package
- ◆ 3 Chips in One Low Profile Package
- ◆ High Luminous Intensity
- ◆ Wide Viewing Angle
- ◆ High Power Efficiency



Bivar SMTL6-RGB-1 LED is offered in an industry standard PLCC6 package with high luminous intensity and wide viewing angles. The miniature package is ideal for small scale applications such as illumination, general indication, and backlighting. Low power consumption and excellent long-life reliability are suitable for battery powered equipment. The flexible three chip design allows for a wide variety of lighting options where the chips can be individually driven or mixed to create numerous color and intensity combinations. Bivar SMTL6 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
SMTL6-RGB-1	AlGaInP	Red	900	Water Clear	120°
	InGaN	Green	1500		
	InGaN	Blue	300		

### Outline Dimensions



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

# PLCC6 SMD Top View Package LED SMTL6-RGB-1, RED/GREEN/BLUE



## Absolute Maximum Ratings

T<sub>A</sub> = 25°C unless otherwise noted

Power Dissipation	70 mW
Continuous Forward Current	(R) 30 mA; (G) 20mA; (B) 20mA
Peak Forward Current <sup>1</sup>	100 mA
Electrostatic Discharge Classification (HBM) <sup>2</sup>	2000 V
Reverse Voltage (<10uA )	5 V
Derating Linear from 25°C	0.4 mA/°C
Operating Temperature Range	-40C - +105°C
Storage Temperature Range	-40C - +105°C

Notes: 1. 10% Duty Cycle, Pulse Width ≤ 0.1 msec. 2. HBM EST Test, Pass Rate >85%

## Electrical / Optical Characteristics

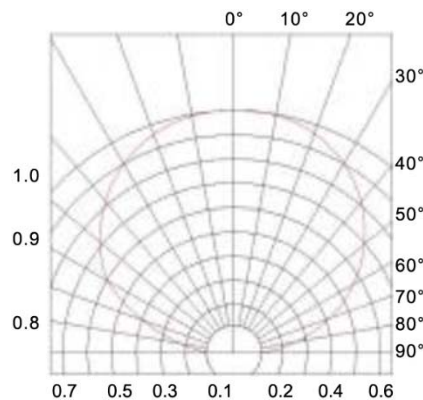
T<sub>A</sub> = 25°C & I<sub>F</sub> = 20 mA unless otherwise noted

Emitting Color	Forward Voltage (V) <sup>1</sup>			Recommend Forward Current (mA)			Reverse Current (μA)	Dominant Wavelength (nm) <sup>2</sup>			Luminous Intensity I <sub>v</sub> (mcd) <sup>3</sup>			Viewing Angle 2Θ ½ (deg)
	MIN	TYP	MAX	MIN	TYP	MAX	MAX	MIN	TYP	MAX	MIN	TYP	MAX	TYP
Red	1.8	2.2	2.4	/	20	/	10	618	/	630	800	/	1400	120
Green	2.8	3.0	3.4	/	20	/	10	520	/	530	1400	/	2000	120
Blue	2.8	3.0	3.4	/	20	/	10	465	/	475	200	/	600	120

Notes: 1. Tolerance of forward voltage : ±0.1V. 2. Tolerance of dominant wavelength : ±1.0nm. 3. Tolerance of luminous intensity : ±10%

## Directivity Radiation

T<sub>A</sub> = 25°C unless otherwise noted



Radiation Diagram

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

## Typical Electrical / Optical Characteristics

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

Relative Spectrum Emission  $I_{rel} = f(\lambda)$ ,  $T_A = 25^\circ\text{C}$ ,  $I_F = 5\text{ mA}$   
 $V(\lambda) = \text{Standard eye response curve}$

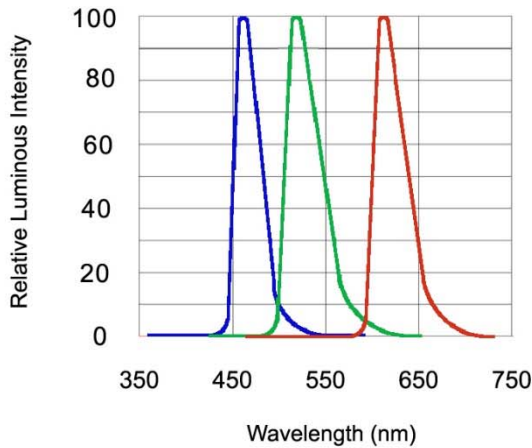


Fig.1 Relative Luminous Intensity vs. Wavelength

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

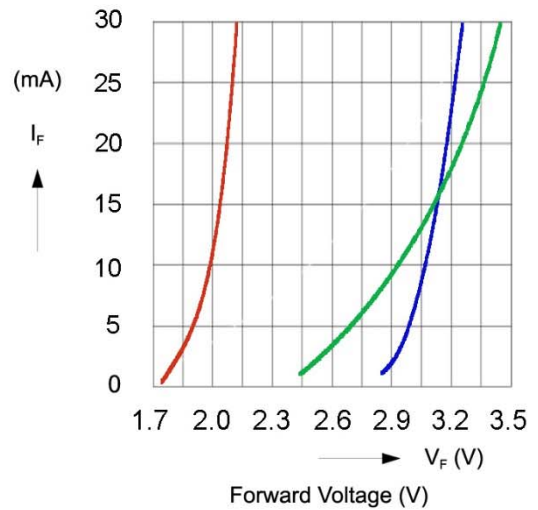


Fig.2 Forward Current vs. Forward Voltage

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

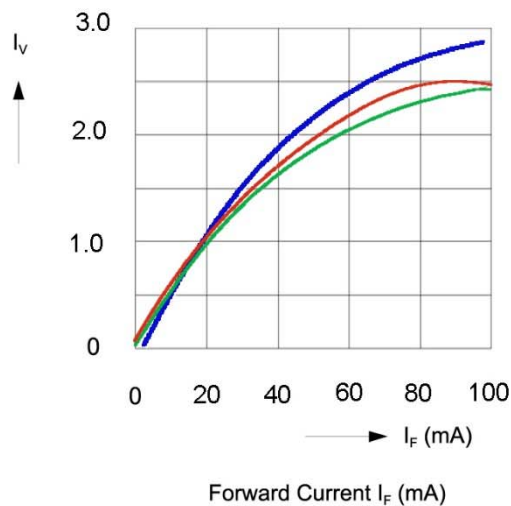
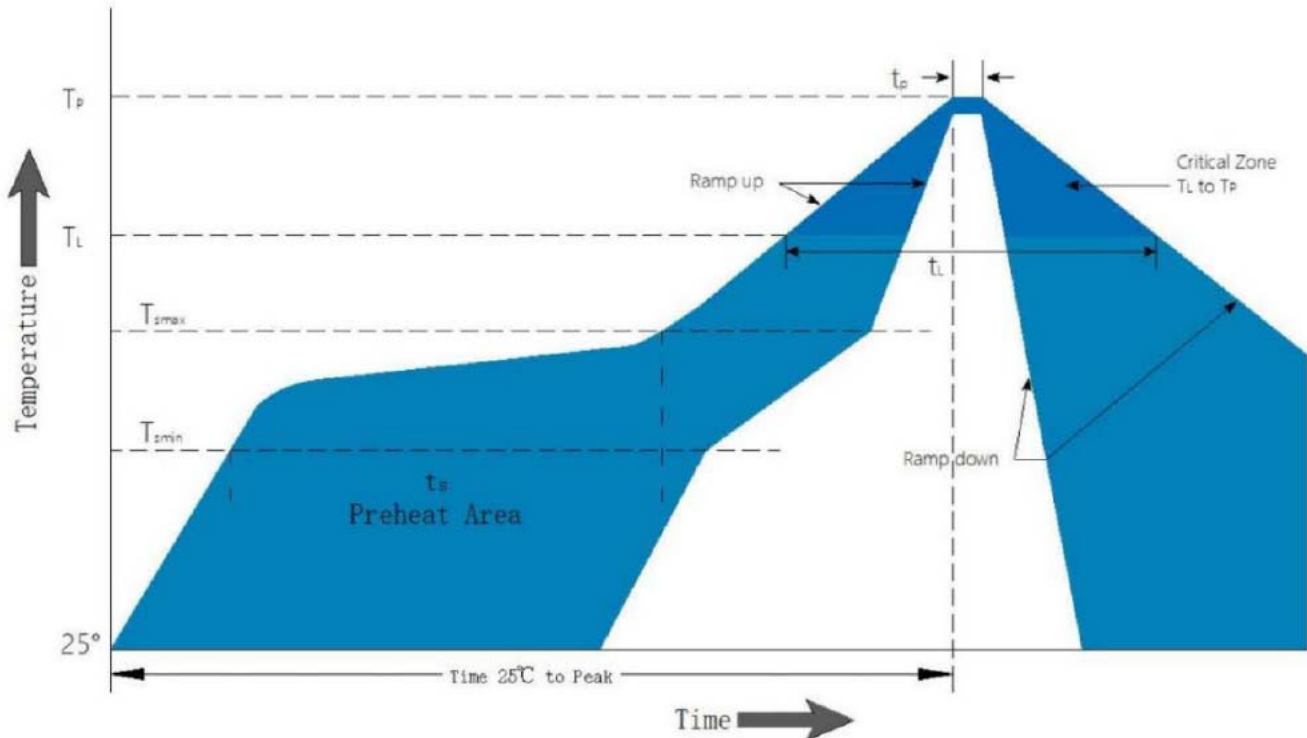


Fig.3 Relative Luminous Intensity vs. Forward Current

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

## Recommended Soldering Conditions

### Reflow Soldering



$T_P = 250\text{ }^\circ\text{C}$	$t_P: 2 - 4\text{ sec}$
$T_L = 217\text{ }^\circ\text{C}$	$t_L: 150\text{ sec max}$
$T_{SMAX} = 200\text{ }^\circ\text{C}$	
$T_{SMIN} = 150\text{ }^\circ\text{C}$	$t_S: 120\text{ sec min}$
Time 25 °C to Peak:	8 minutes max.
Ramp up:	4 °C/sec max.
Ramp down:	4 °C/sec max.

We recommend the reflow temperature of 245°C ( $\pm 5^\circ\text{C}$ ). The maximum soldering temperature should be limited to 260°C. Stress on the LED should be avoided during heating in the soldering process. After soldering, do not deal with the product before its temperature drops down to room temperature.

### Soldering Iron

1. Temperature at tip of iron: 360 °C Max. (20W Max.)
  2. Soldering time: 3 sec  $\pm$  1. (One Time Only)
- Caution: Damage to product often starts at the time of hand soldering.

# PLCC6 SMD Top View Package LED SMTL6-RGB-1, RED/GREEN/BLUE

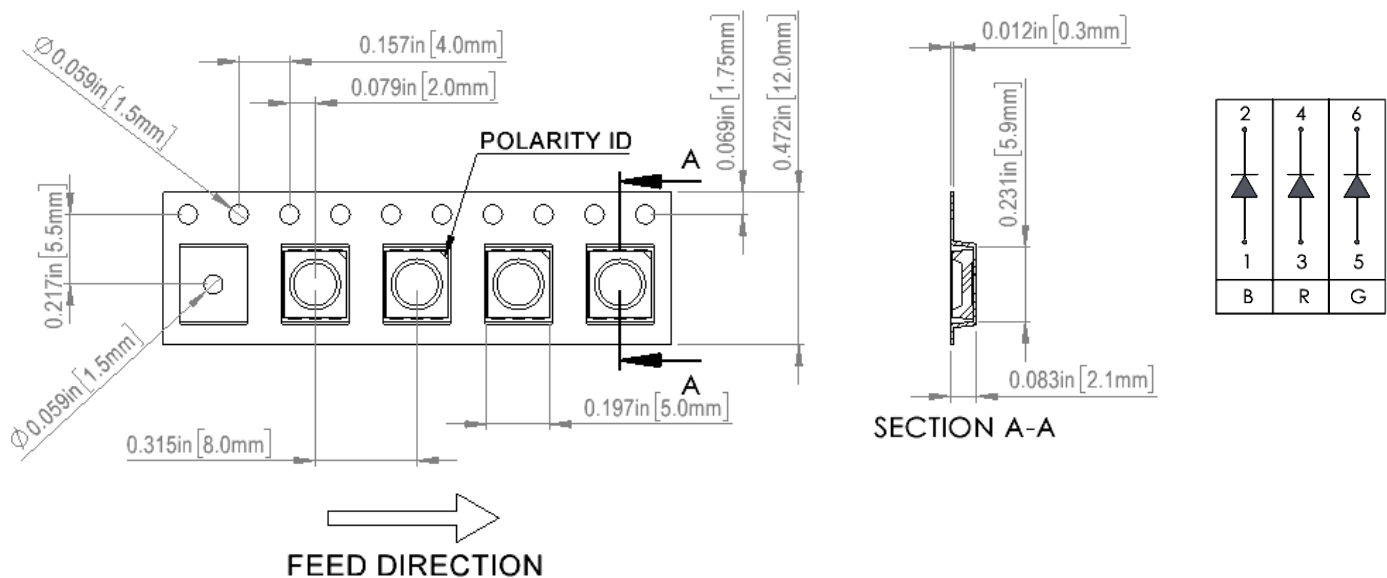


## Storage

1. The storage temperature and R.H. are 5°C ~30°C, R.H. 60% Max.
2. Once the package is opened, the products should be used within 24 hrs. Otherwise, they should be kept in a dampproof box with a desiccating agent.
3. It is recommended to bake at 60°C ± 3°C for 48 hrs before soldering them after the package is unsealed for 24 hrs.

## Tape and Reel Dimensions

Note: 1000 pcs/Reel

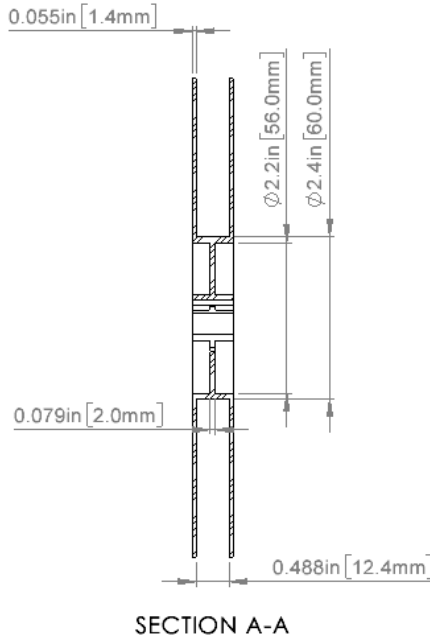
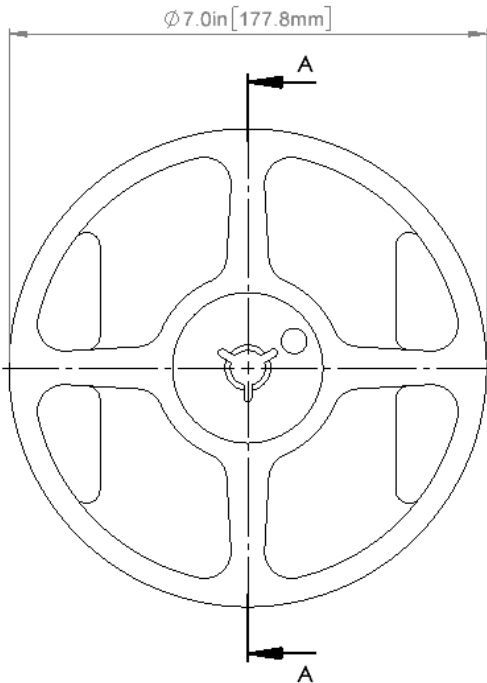


### Outline Drawings Notes:

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

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# PLCC6 SMD Top View Package LED SMTL6-RGB-1, RED/GREEN/BLUE

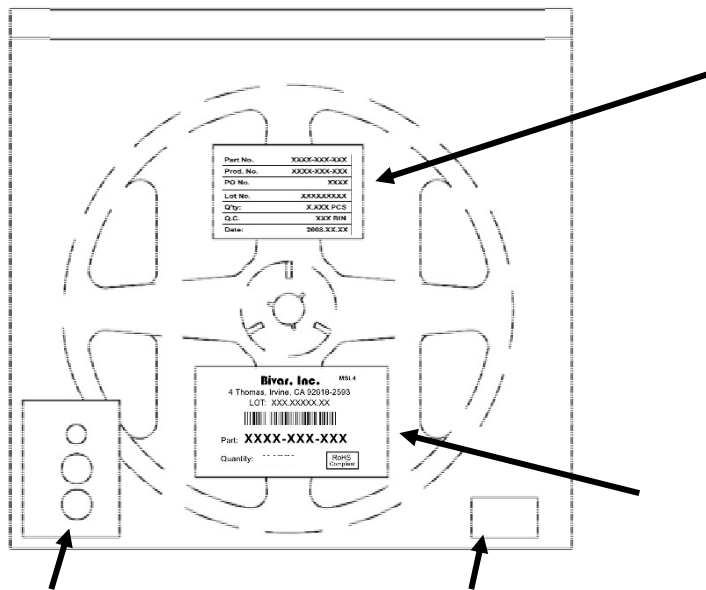


Outline Drawing Notes:  
 All Dimensions are in inches [millimeters]  
 Standard tolerance unless otherwise noted:  
 X.XXX ±.010"  
 X.XX ±.020"  
 X.X ±.1"

## 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, Inc.** MSL3

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



Part: **XXXX-XXX-XXX**

Quantity: **X.XXX** RoHS  
Compliant

Bivar Standard Packaging Label

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