

PLCC6 SMD Top View Package LED SMTL6-RC, RED

BIVAR

SMTL6-RC

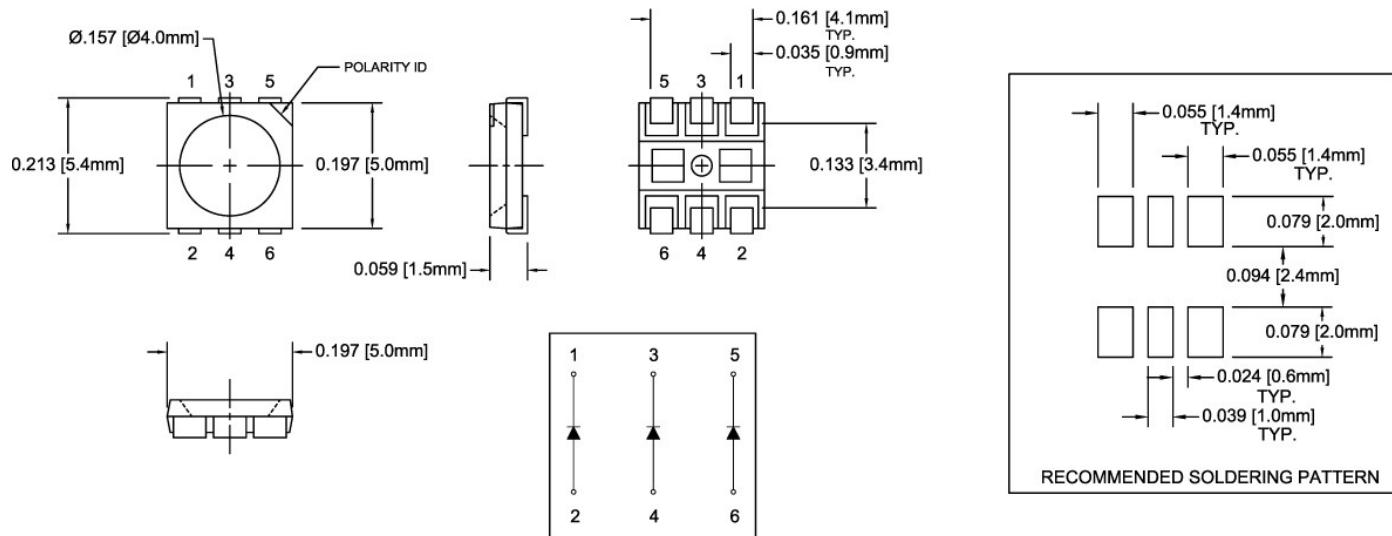
- ♦ Industry Standard PLCC6 Footprint
- ♦ Low Profile Package
- ♦ High Luminous Intensity
- ♦ Wide Viewing Angle
- ♦ High Power Efficiency



Bivar SMTL6 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 in combinations. Bivar SMTL6 LED is packaged in standard tape and reels for pick and place assemblies.

| Part Number | Material | Emitted Color | Luminous Intensity Typ. mcd | Lens Color | Viewing Angle |
|-------------|----------|---------------|--------------------------------|-------------|---------------|
| SMTL6-RC | AlGaInP | Red | 2100 | Water Clear | 120° |

Outline Dimensions



Outline Drawings Notes:

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



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Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

| | |
|--|--------------|
| Power Dissipation | 195 mW |
| Continuous Forward Current | 75 mA |
| Peak Forward Current ¹ | 100 mA |
| Electrostatic Discharge Classification (HBM) | 2000 V |
| Reverse Voltage | 5 V |
| Derating Linear from 25°C | 0.4 mA/°C |
| Operating Temperature Range | -40 - +105°C |
| Storage Temperature Range | -40 - +105°C |
| Lead Soldering Temperature (3 mm from the base of the epoxy bulb) ² | 250°C |

Notes: 1. 10% Duty Cycle, Pulse Width \leq 0.1 msec. 2. Solder time less than 4 seconds at temperature extreme.

Handling: Reflow soldering must not be performed more than twice. Hand soldering must not be performed more than once.

Sensitive to static electricity or surge voltage. Proper handling required to avoid ESD damage and impair LED reliability.

Electrical / Optical Characteristics

T_A = 25°C & I_F = 60 mA unless otherwise noted

| Emitting Color | Forward Voltage (V) ¹ | | | Recommend Forward Current (mA) | | | Reverse Current (μA) | Dominant Wavelength (nm) ² | | | Luminous Intensity I _V (mcd) ³ | | | Viewing Angle 2 Θ ½ (deg) |
|----------------|----------------------------------|-----|-----|--------------------------------|-----|-----|----------------------|---------------------------------------|-----|-----|--|------|------|---------------------------|
| | MIN | TYP | MAX | MIN | TYP | MAX | | MAX | MIN | TYP | MAX | MIN | TYP | MAX |
| Red | 2.0 | 2.3 | 2.6 | / | 60 | / | 10 | 620 | 625 | 629 | 1800 | 2100 | 2300 | 120° |

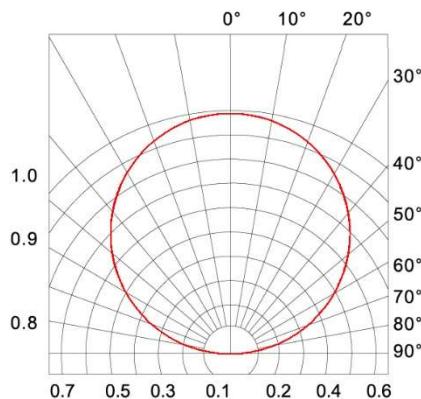
Notes: 1. Tolerance of forward voltage: $\pm 0.05V$.

2. Tolerance of dominant wavelength: -1.0nm of MIN & +1.0nm of MAX.

3. Tolerance of luminous intensity: $\pm 15\%$

Directivity Radiation

T_A = 25°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 $I_{\text{rel}} = f(I)$, $T_A = 25^\circ\text{C}$, $I_F = 60 \text{ mA}$
 $V(I)$ = Standard eye response curve

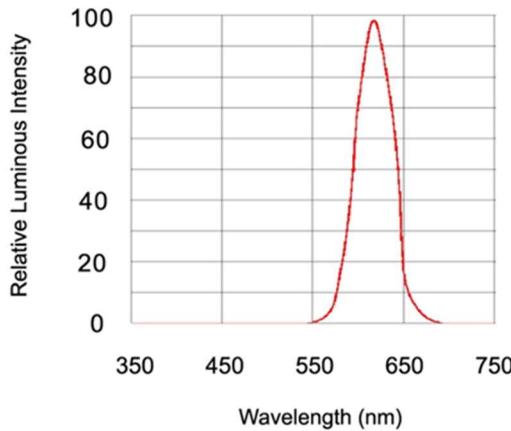


Fig.1 Relative Luminous Intensity vs. Wavelength

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

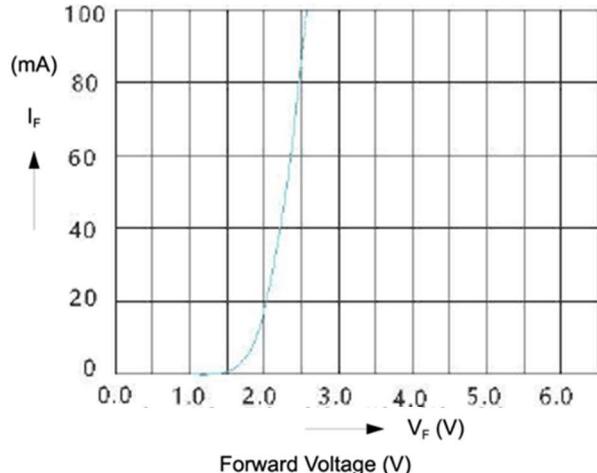
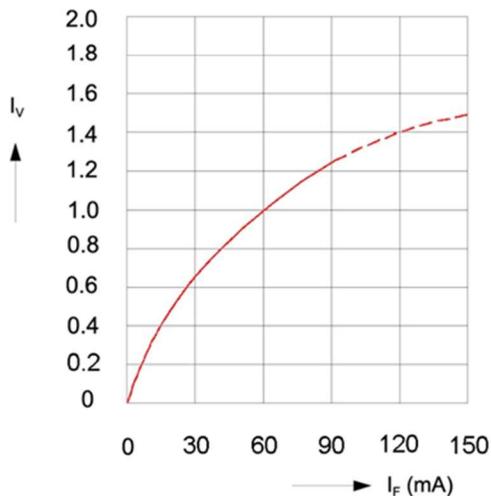


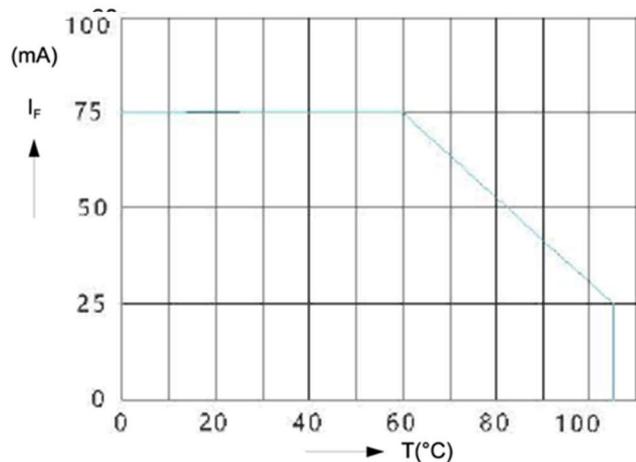
Fig.2 Forward Current vs. Forward Voltage

Relative Luminous Intensity $I_V/I_V(60 \text{ mA}) = f(I_F)$
 $T_A = 25^\circ\text{C}$



Forward Current I_F (mA)

Ambient Temperature vs. Allowable Forward Current



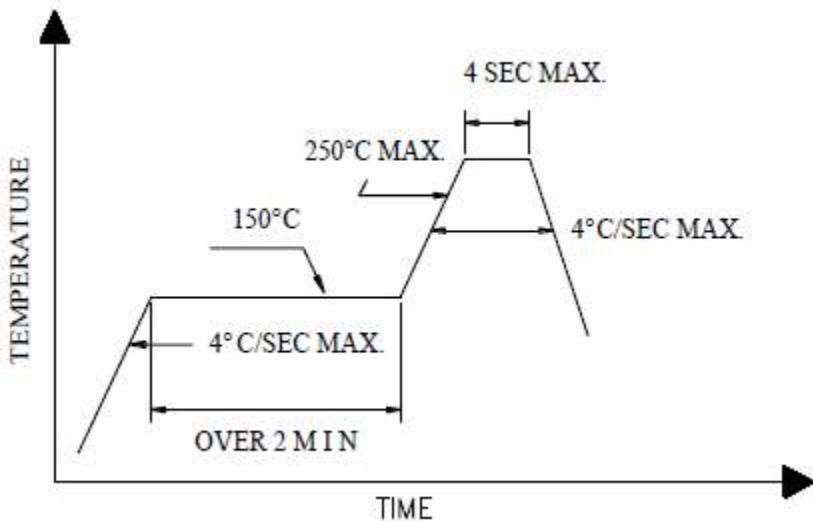
Ambient Temperature T_A (°C)

Fig.3 Relative Luminous Intensity vs. Forward Current

Fig.4 Forward Current vs. Ambient Temperature

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Recommended Soldering Conditions



Reflow temperature at 245°C with Max. limited at 250°C.

Mechanical and thermal stress should be avoided when handling and heating during soldering process.

No further handling immediately following soldering, until reaching room temperature.

Soldering Iron

1. Temperature at tip of iron: 360 °C Max. (20W Max.)
2. Soldering time: 3 sec \pm 1s per terminal

Heat Management

Heat generation must be controlled during LED use. The temperature of the chips is affected by the thermal resistance of the PCB and LED density configuration.

Attention should be given to circuit board design for effective heat dispersion and therefore, not allowing the LED joint temperature exceeds the absolute maximum rated value.

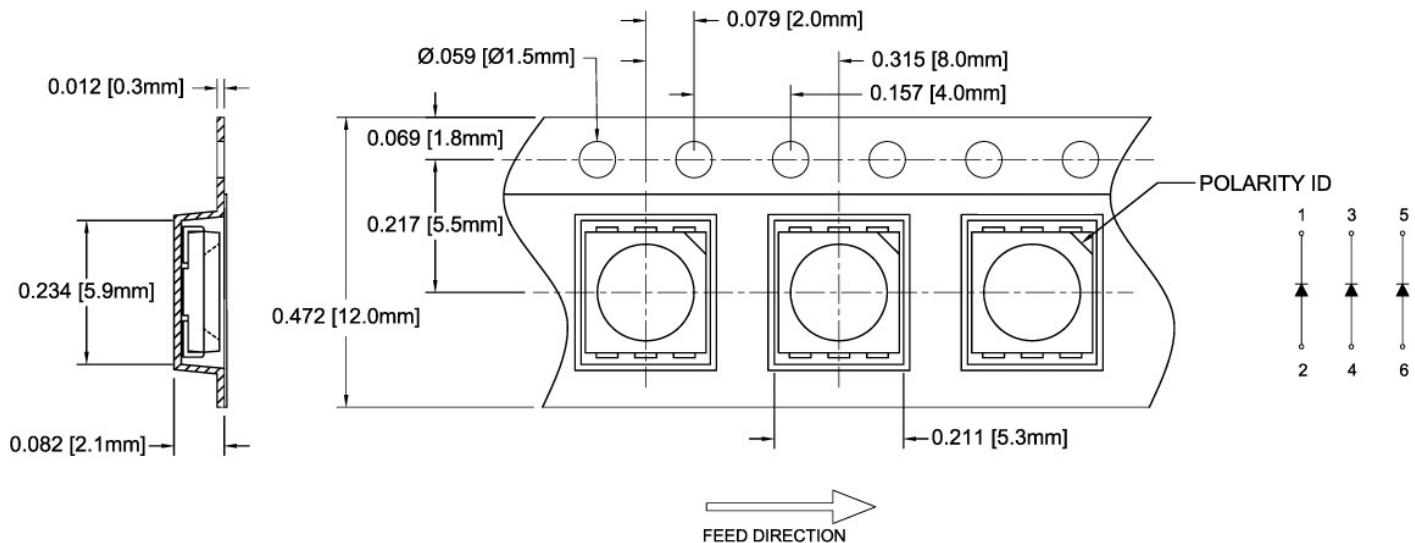
In addition, the current shall be determined based on the Ambient Temperature surrounding the LED, and appropriate heat dissipation shall be implemented.

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 damp proof box with a desiccating agent.
3. It is recommended to bake at 70°C ± 3°C for 48 hrs. before soldering after the package is unsealed for 24 hrs.

Tape and Reel Dimensions

Note: 1000 pcs/Reel



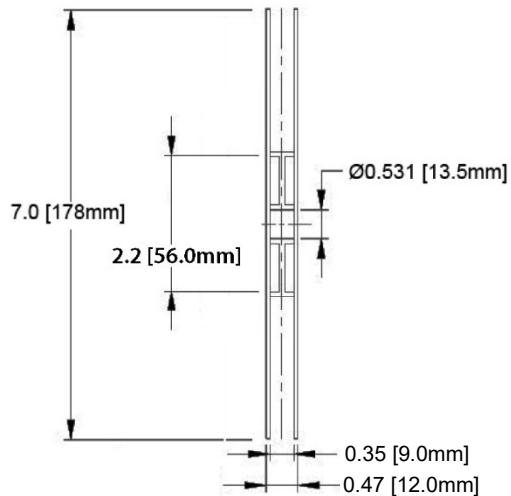
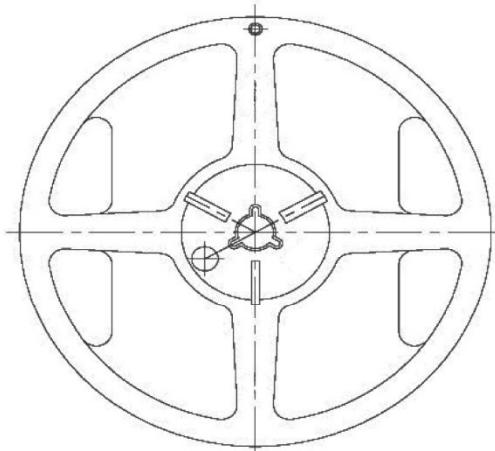
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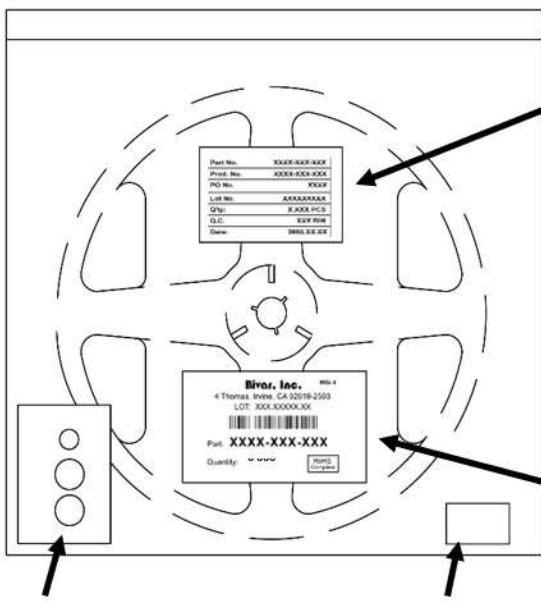
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 $X.X \pm 0.1"$

Packaging and Labeling Plan

Note: 1 Reel / Bag

Sealed ESD and Moisture Barrier Bag



Humidity Indicator Card

Desiccant

| | |
|----------|---------------|
| Part No. | XXXX-XXX-XXXX |
| PO No. | XXXX |
| Lot No. | XXXXXXXXXX |
| O'ty: | XXXX PCS |
| Q.C. | |
| Date: | 2025.XX.XX |

Internal Quality Control Label



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