

# SURFACE MOUNT LED RED/GREEN, 1210 PACKAGE

# BIVAR



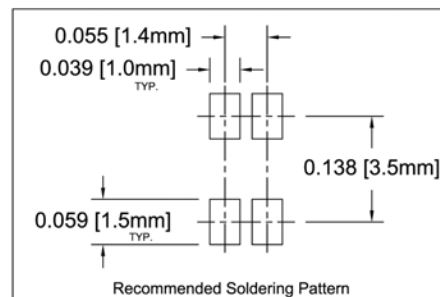
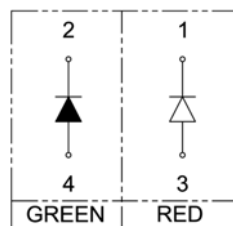
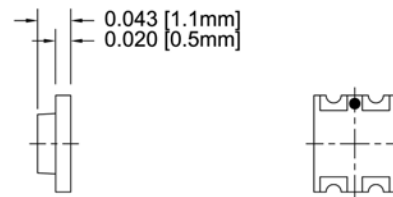
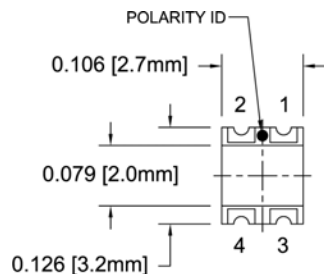
## SM1210BC

- ◆ Industry Standard Package
- ◆ RoHS Compliant
- ◆ Two Chips in One Package
- ◆ Water Clear Lens
- ◆ Wide Viewing Angle
- ◆ Ideal for Status Indication and Lighting

Bivar Surface Mount 1210 package Bi-Color LED combines two chips in a single package. They are ideal for small scale applications where multiple signals need to be displayed. When needed, the third color can be created by powering up both chips together. Bivar offers water clear LED lens for high luminous intensity and wide viewing angles. Wide variety of color and intensity combinations are available to meet any illumination need. The SM1210 LED is packaged in standard tape and reels for pick and place assemblies.

| Part Number | Material | Emitted Color | Peak Wavelength $\lambda_p$ (nm) TYP. | Lens Appearance | Luminous Intensity (mcd) TYP. | Viewing Angle |
|-------------|----------|---------------|---------------------------------------|-----------------|-------------------------------|---------------|
| SM1210BC    | AlGaAs   | RED           | 660                                   | Water Clear     | 15                            | 130°          |
|             | GaP      | GREEN         | 568                                   |                 | 15                            |               |

## 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 - 69 mW<br>Yellow - 78 mW |
| Forward Current ( DC )   | 30 mA                         |
| Peak Forward Current <sup>1</sup>  | 100 mA                        |
| Reverse Voltage  | 5 V                           |
| Operating Temperature Range  | -30 ~ +80°C                   |
| Storage Temperature Range  | -40 ~ +85°C                   |
| Lead Soldering Temperature ( 3 mm from the base of the epoxy bulb ) <sup>2</sup> | 260°C                         |

Notes: 1. 10% Duty Cycle, Pulse Width  $\leq 0.1$  msec. 2. Solder time less than 5 seconds at temperature extreme.

## Electrical / Optical Characteristics

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

| Part Number | Emitted color | Forward Voltage (V) <sup>1</sup> |      |     | Recommend Forward Current (mA) |     |     | Reverse Current ( $\mu\text{A}$ ) | Dominant Wavelength (nm) <sup>2</sup> |     |     | Luminous Intensity $I_v$ (mcd) |     |     | Viewing Angle $2\theta_{1/2}$ (deg) |
|-------------|---------------|----------------------------------|------|-----|--------------------------------|-----|-----|-----------------------------------|---------------------------------------|-----|-----|--------------------------------|-----|-----|-------------------------------------|
|             |               | MIN                              | TYP  | MAX | MIN                            | TYP | MAX | MAX                               | MIN                                   | TYP | MAX | MIN                            | TYP | MAX | TYP                                 |
| SM1210BC    | RED           | /                                | 1.85 | 2.3 | /                              | 20  | /   | 10                                | /                                     | 643 | /   | 6                              | 15  | /   | 130                                 |
|             | GREEN         | /                                | 2.3  | 2.6 | /                              | 20  | /   | 10                                | /                                     | 570 | /   | 8                              | 15  | /   | 130                                 |

Notes: 1. Tolerance of forward voltage :  $\pm 0.05\text{V}$ . 2. Tolerance of dominant wavelength :  $\pm 1.0\text{nm}$ .

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## Typical Electrical / Optical Characteristics

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

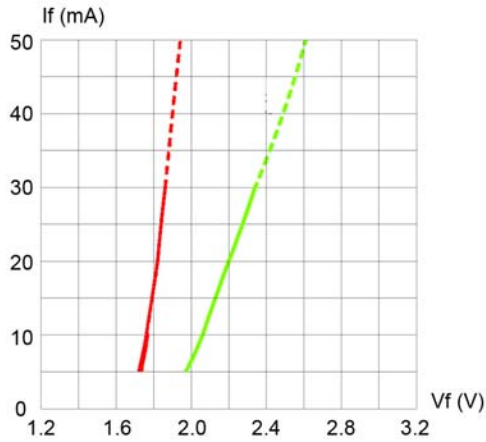


Fig. 1 Forward Current vs. Forward Voltage

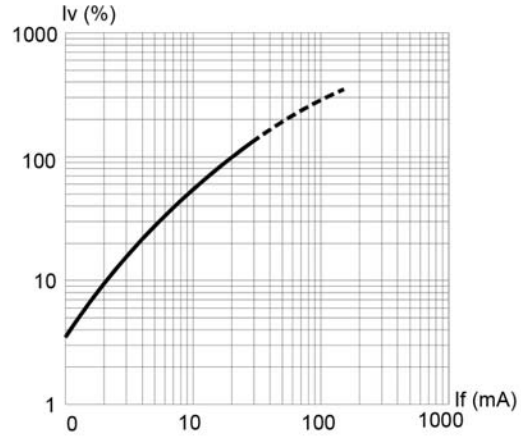


Fig. 2 Relative Luminous Intensity vs. Forward Current

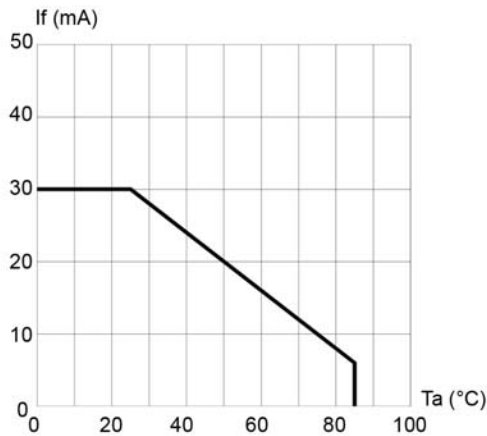


Fig. 3 Forward Current vs. Temperature

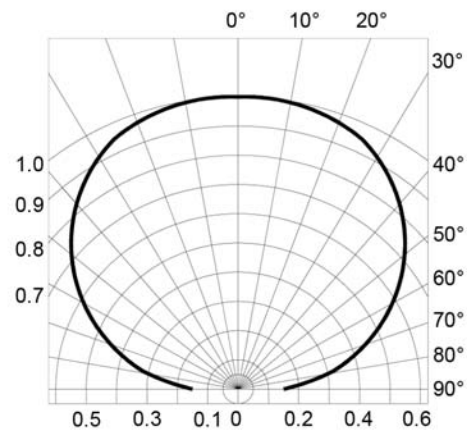


Fig. 4 Directivity Radiation Diagram

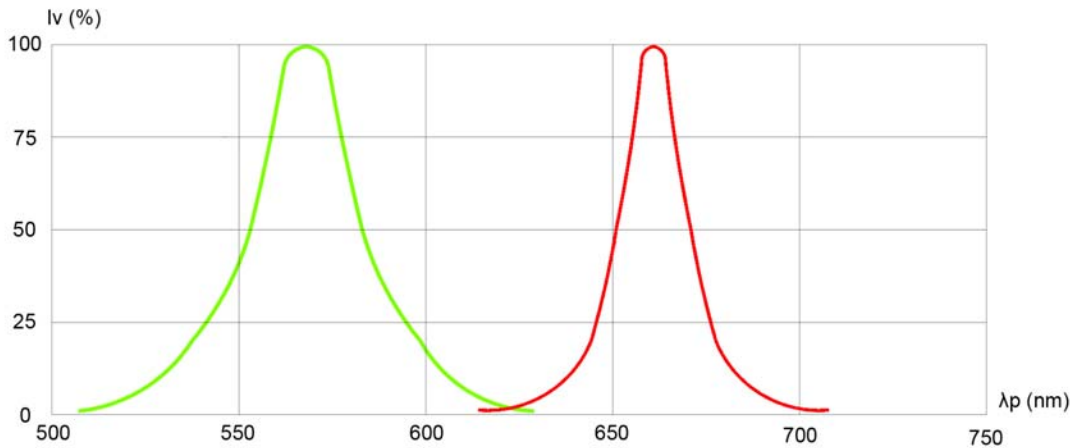


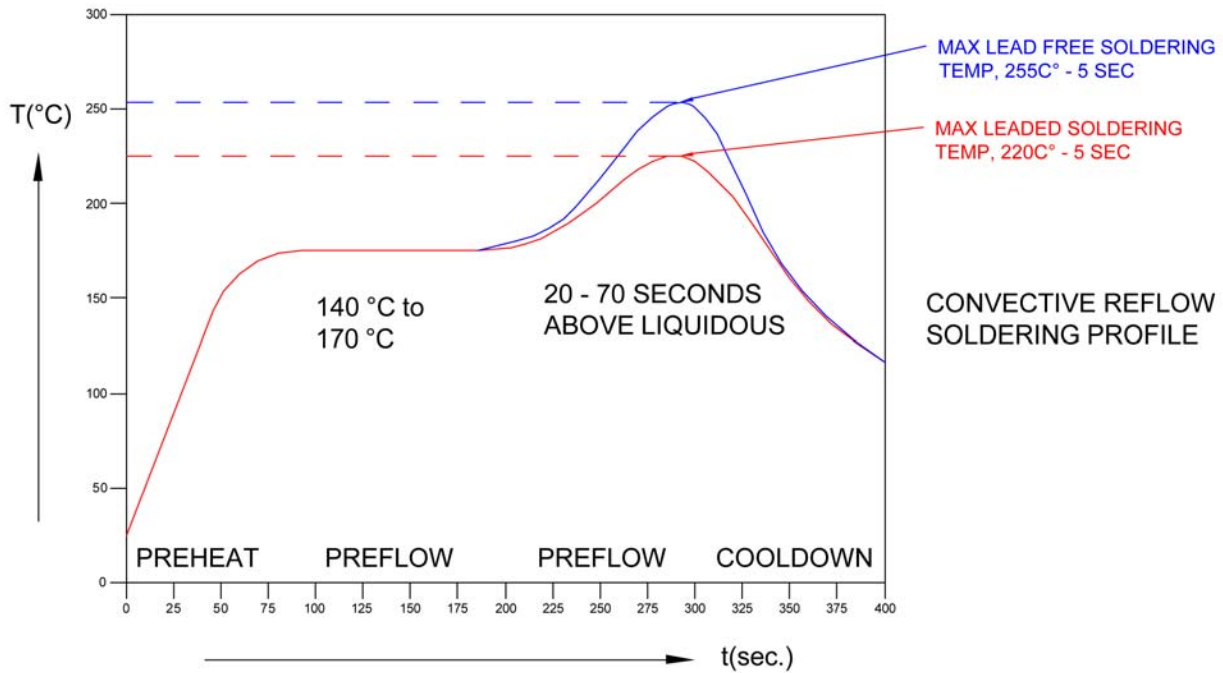
Fig. 5 Relative Luminous Intensity vs. Peak Wavelength

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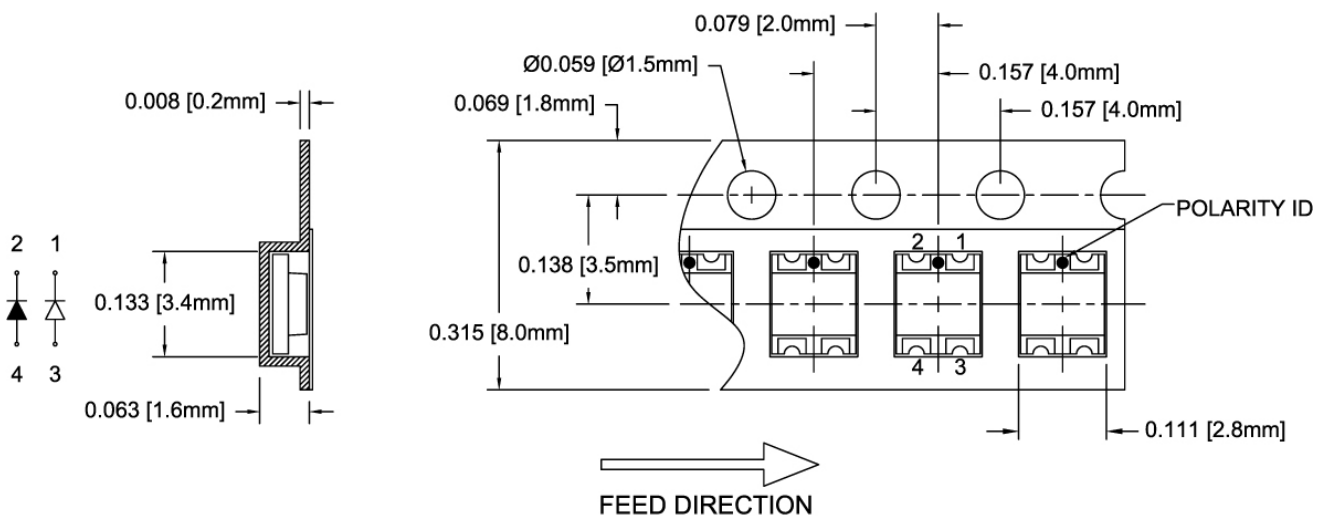


## Recommended Soldering Conditions



## Tape and Reel Dimensions

Note: 3000 pcs/Reel



### Outline Drawings Notes:

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

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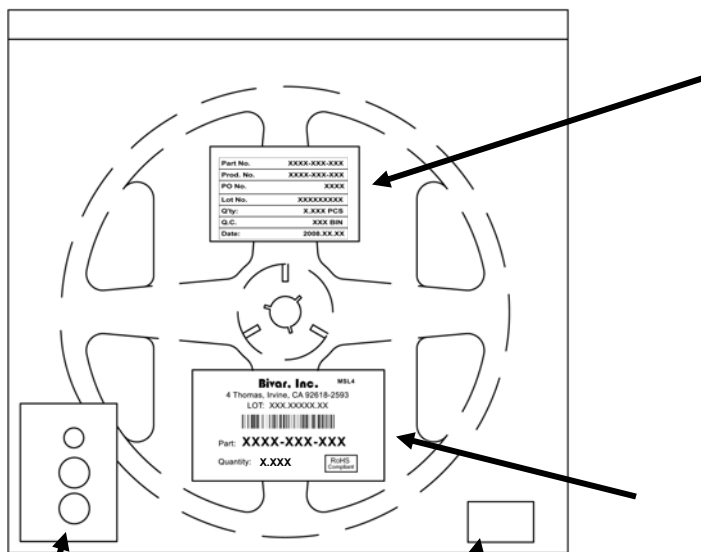
### Outline Drawings Notes:

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

## Packaging and Labeling Plan

Note: 1 Reel / Bag

Sealed ESD and Moisture Barrier Bag



Humidity Indicator Card

Desiccant Card

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