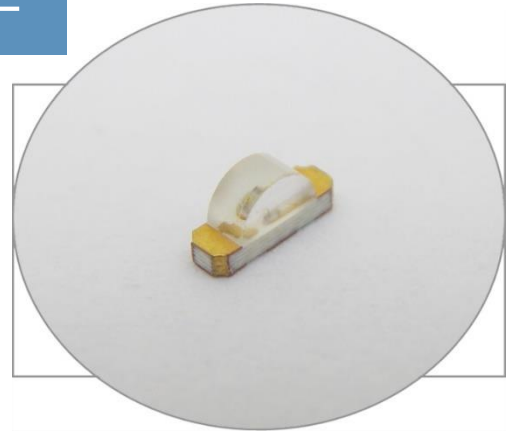


# SURFACE MOUNT LED RED/GREEN/BLUE, 1204 PACKAGE

# BIVAR

## SM1204RGB

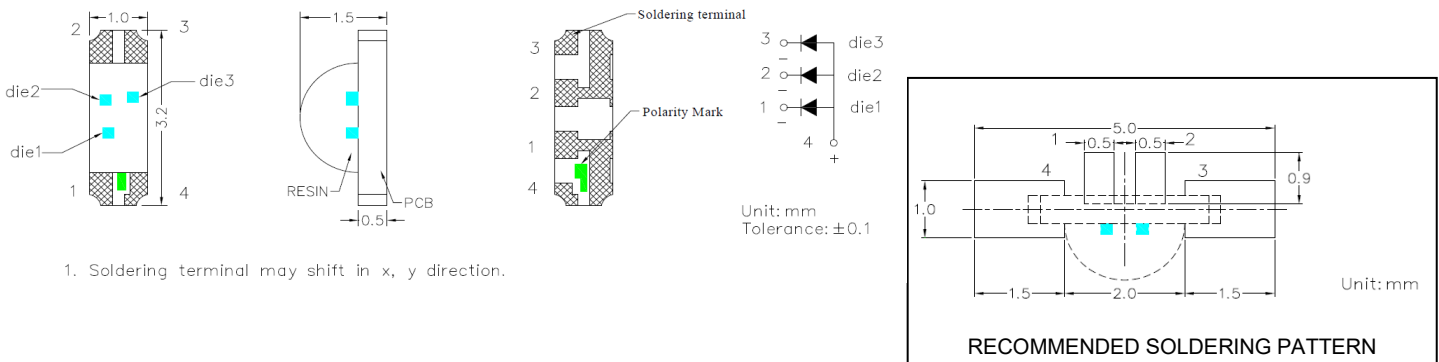
- ◆ Industry Standard 1204 Package
- ◆ RoHS Compliant
- ◆ Right Angle Mounting
- ◆ Three Chips in One Package
- ◆ Water Clear Lens
- ◆ Wide Viewing Angle
- ◆ Ideal for Status Indication and Backlighting



Bivar Surface Mount SM1204 RGB LED is offered in an industry standard package with high luminous intensity and wide viewing angles. The miniature package is ideal for reduced space applications such as 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 SM1204 LED is packaged in standard tape and reels for pick and place assemblies.

| Part Number | Emitted Color  | Peak Wavelength<br>$\lambda P$ (nm) TYP. | Dominant Wavelength<br>$\lambda D$ (nm) TYP. | Lens Appearance | Luminous Intensity<br>(mcd) TYP. | Viewing Angle |
|-------------|----------------|--|--|-----------------|----------------------------------|---------------|
| SM1204RGB   | ULTRA HIGH RED | 645                                      | 631  | Water Clear     | 100                              | 110°          |
|             | GREEN          | 523                                      | 525  |                 | 550                              |               |
|             | BLUE           | 468                                      | 470  |                 | 225                              |               |

## Outline Dimensions



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

# SURFACE MOUNT LED RED/GREEN/BLUE, 1204 PACKAGE



## Absolute Maximum Ratings

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

| Item                              | Symbol    | Maximum   | Unit  |
|-----------------------------------|-----------|-----------|-------|
| Peak Forward Current <sup>1</sup> | $I_{FP}$  | 100       | mA    |
| Reverse Voltage                   | $V_R$     | 5         | V     |
| Derating Linear from 25°C         | -         | 0.4       | mA/°C |
| Operating Temperature Range       | $T_{opr}$ | -30 to 80 | °C    |
| Storage Temperature Range         | $T_{stg}$ | -40 to 85 | °C    |

Notes: 1. 10% Duty Cycle, Pulse Width  $\leq 0.1$  msec.

## Electrical/Optical Characteristics

( $T_a = 25^\circ\text{C}$ )

| Chip                      |                     |                     | Lens Appearance | Absolute Maximum Rating |               |               | Electro-Optical Data (at 20mA) |      |             |      | Viewing Angle<br>20 ½ (deg) |
|---------------------------|---------------------|---------------------|-----------------|-------------------------|---------------|---------------|--------------------------------|------|-------------|------|-----------------------------|
| Emitted Color             | $\lambda_p$<br>(nm) | $\lambda_D$<br>(nm) |                 | $\Delta\lambda$<br>(nm) | $P_d$<br>(mW) | $I_f$<br>(mA) | $V_f$ (V)                      |      | $I_v$ (mcd) |      |                             |
|                           |                     |                     |                 |                         |               |               | Typ.                           | Max. | Min.        | Typ. |                             |
| Ultra High Red<br>(Die 1) | 645                 | 631                 | Water Clear     | 20                      | 78            | 30            | 2.1                            | 2.6  | 72          | 100  | 110°                        |
| Green<br>(Die 2)          | 523                 | 525                 |                 | 30                      | 84            | 20            | 3.1                            | 4.2  | 360         | 550  |                             |
| Blue<br>(Die 3)           | 468                 | 470                 |                 | 25                      | 84            | 20            | 2.9                            | 4.2  | 145         | 225  |                             |

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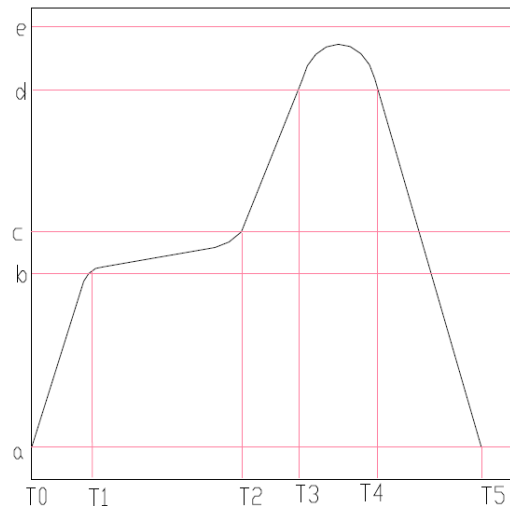
## Soldering Iron:

1. Temperature at tip of iron: 300°C Max. (25W Max)
2. Soldering Time: 5 ± 1 sec.

## Recommended Reflow Temp/Time:

Please refer to the figure on the right:

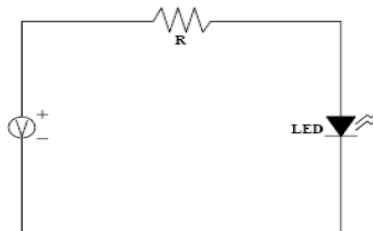
| Temp. (°C) |     | Time (sec)   |                |
|------------|-----|--------------|----------------|
| a          | 25  | T0~T1        | Max. 3°C/sec   |
| b          | 150 | T1~T2        | 90~130 sec     |
| c          | 200 | T2~T3        | Max. 3°C/sec   |
| d          | 220 | T3~T4        | Max. 30~50 sec |
| e          | 250 |              |                |
|            |     | T4~T5        | Max. -3°C/sec  |
| Belt Speed |     | 70~90 cm/min |                |



Note: Will vary based on equipment and process used.

## Precautions for Use:

- Over – current – proof  
Customer must use apply resistors for protection otherwise slight voltage shift will cause a large current change, causing burnout.



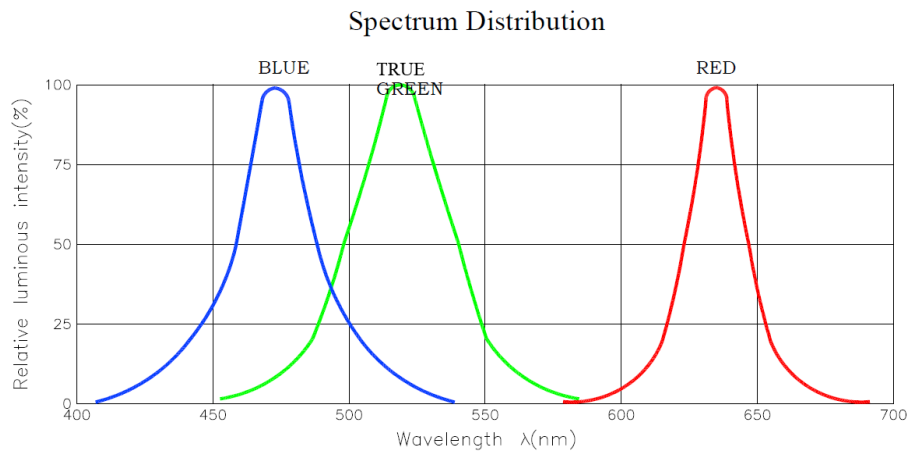
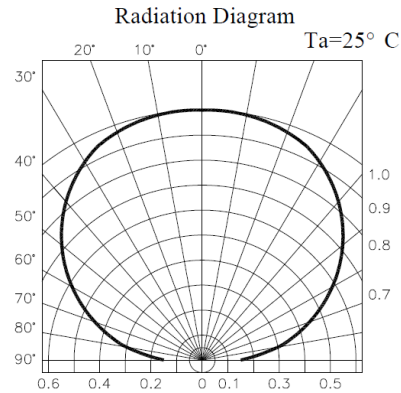
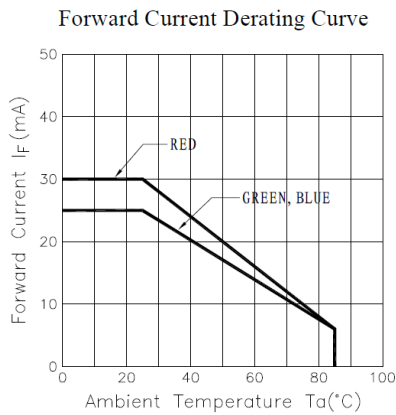
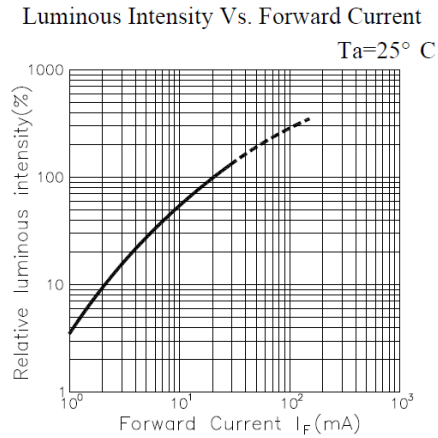
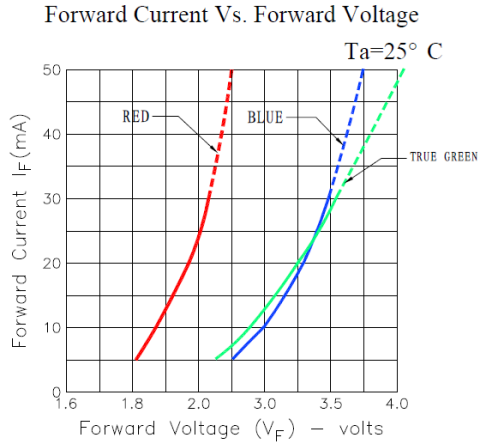
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# SURFACE MOUNT LED RED/GREEN/BLUE, 1204 PACKAGE



## Typical Electrical/Optical Characteristics

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



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# SURFACE MOUNT LED RED/GREEN/BLUE, 1204 PACKAGE

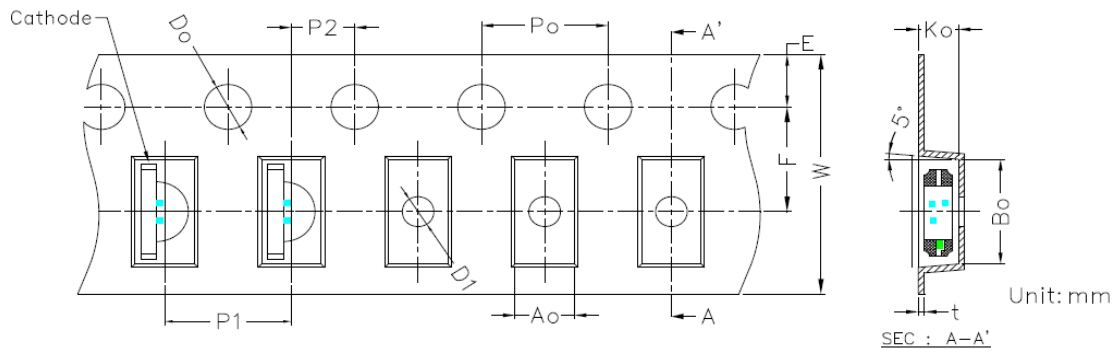


## Storage:

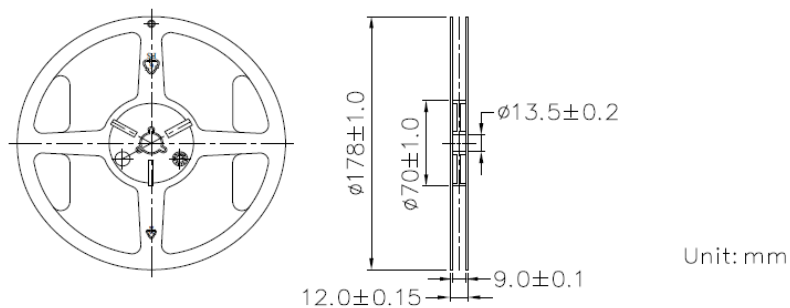
1. The storage temperature and relative humidity range are: 5°C ~ 30°C, R.H. 60 % max
2. Once the package is opened, products should be used within 72 hrs. Otherwise, they should be kept in a dampproof box with a desiccating agent. Considering the tape life, we suggest using product within 1 year of production date.
3. It's recommended to bake at 80°C ± 5°C for 24 hrs before soldering them when the package is unsealed for 72 hrs.

## Tape Specification: 3000 pcs per Reel

| Packing Size   |       |       |       |       |                 |       |       |       |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Item           | W     | P1    | E     | F     | Do              | D1    | Po    | 10Po  | P2    | Ao    | Bo    | Ko    | t     |
| Spec. (mm)     | 8.00  | 4.00  | 1.75  | 3.5   | 1.5             | 1.00  | 4.00  | 40.00 | 2.00  | 1.60  | 3.35  | 1.15  | 0.22  |
| Tolerance (mm) | ±0.20 | ±0.10 | ±0.10 | ±0.05 | +0.10<br>-0.000 | ±0.05 | ±0.05 | ±0.20 | ±0.05 | ±0.10 | ±0.10 | ±0.10 | ±0.05 |



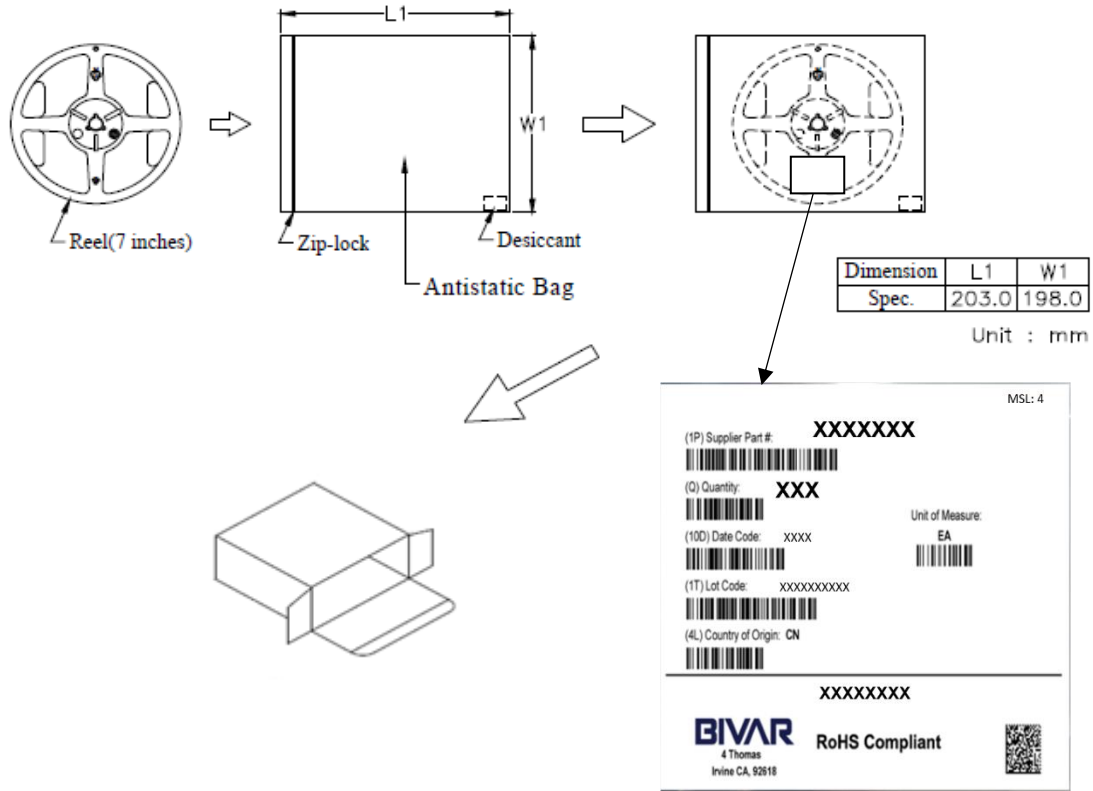
## Dimensions of Reel and Packaging:



1 reel per bag.

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