

# TX-5060RGBW20FC120-NUVCNG-02A

## PRODUCT SPECIFICATION

### Features:

- ◆ Provide uniform cross distribution of positive white and warm white dual color scheme, mixed pure.
- ◆ High luminous output.
- ◆ No UV.
- ◆ Encapsulated materials are environmentally certified and meet environmental requirements.

### Chip Material:

- ◆ Red: AlInGaP
- ◆ Green: GaInN
- ◆ Blue: GaInN
- ◆ White: GaInN

### Emitting Color:

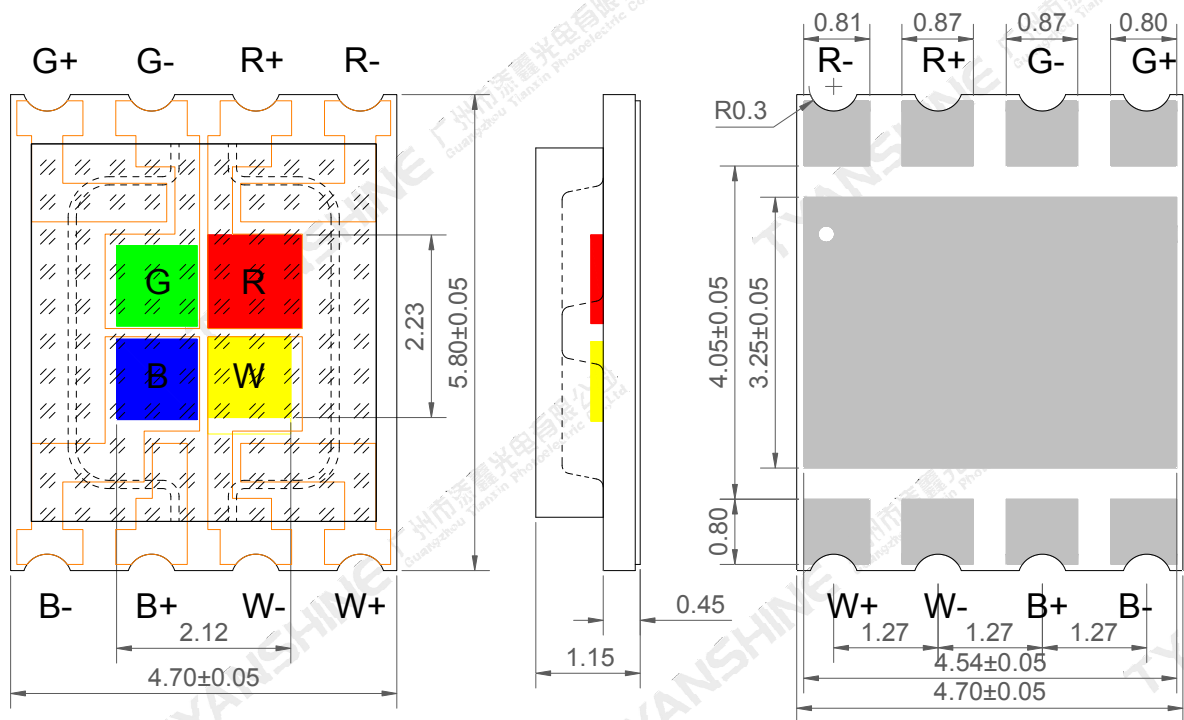
- ◆ Red (R)
- ◆ Green (G)
- ◆ Blue (B)
- ◆ White (W)

### Applications:

- ◆ Auxiliary lighting
- ◆ Ambient lighting
- ◆ Architectural lighting
- ◆ Entertainment lighting

|          |                               |          |            |      |        |
|----------|-------------------------------|----------|------------|------|--------|
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Package Dimensions:



Notes:

- 1.All dimensions are in millimeters .
- 2.Tolerances unless otherwise mentioned are ±0.1mm .

## Absolute Maximum Ratings (Tc=25℃)

| Parameter                               | Symbol |   | Ratings                            | Unit |
|-----------------------------------------|--------|---|------------------------------------|------|
| Forward Current                         | IF     | R | 1.5                                | A    |
|                                         |        | G | 1.5                                |      |
|                                         |        | B | 1.5                                |      |
|                                         |        | W | 2.0                                |      |
| Reverse Voltage                         | VR     |   | Not designed for reverse operation | V    |
| Power Dissipation                       | PD     | R | 4.6                                | W    |
|                                         |        | G | 6.5                                |      |
|                                         |        | B | 5.4                                |      |
|                                         |        | W | 7.6                                |      |
| Junction Temperature                    | Tj     | R | 115                                | ℃    |
|                                         |        | G | 150                                |      |
|                                         |        | B | 150                                |      |
|                                         |        | W | 150                                |      |
| Electrostatic Discharge Threshold (ESD) | ESD    |   | 2000                               | V    |
| Storage Temperature                     | Tstg   |   | -40~+70                            | ℃    |
| Operation Temperature                   | Topr   |   | -30~+85                            |      |

**Notes:**

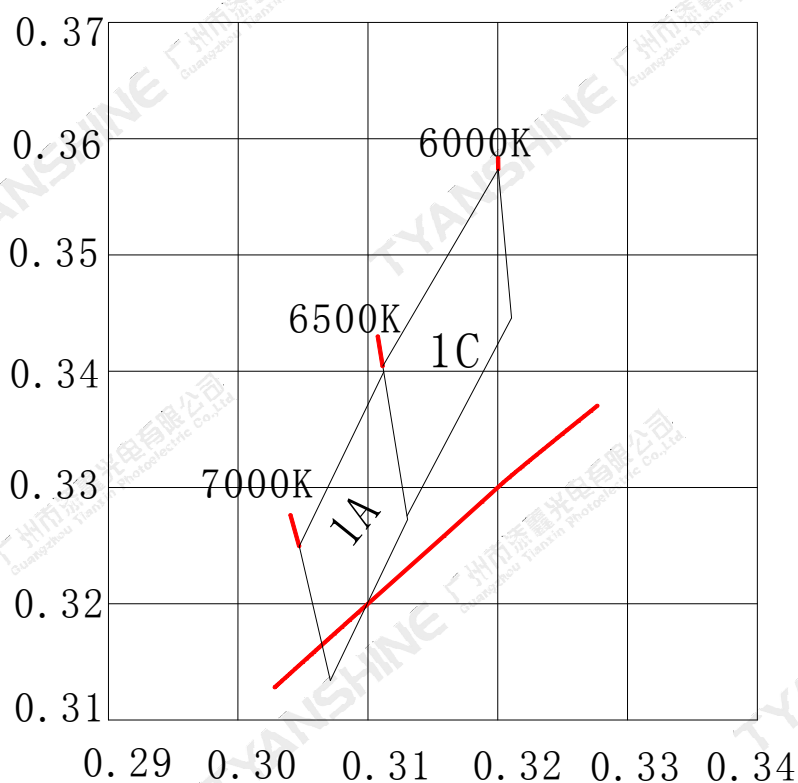
- Specifications are subject to change without notice.
- The data on this specification is for reference only and the actual data is in accordance with the acknowledgment.
- Precautions for ESD:  
STATIC SHIELD Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.

## Electrical Optical Characteristics (Tc=25°C)

| Parameter                           | Symbol          | Condition | Emitting color | Min.                               | Typ.  | Max. | Units   |
|-------------------------------------|-----------------|-----------|----------------|------------------------------------|-------|------|---------|
| Luminous Flux                       | $\varphi_v$     | If=1.0A   | R              | 80                                 | —     | 110  | lm      |
|                                     |                 | If=1.0A   | G              | 185                                | —     | 235  |         |
|                                     |                 | If=1.0A   | B              | 30                                 | —     | 40   |         |
|                                     |                 | If=1.0A   | W              | 270                                | —     | 320  |         |
|                                     |                 | If=1.2A   | R              | 100                                | —     | 140  |         |
|                                     |                 | If=1.5A   | G              | 240                                | —     | 310  |         |
|                                     |                 | If=1.5A   | B              | 50                                 | —     | 60   |         |
|                                     |                 | If=1.5A   | W              | 400                                | —     | 450  |         |
| Forward Voltage                     | $V_f$           | If=1.0A   | R              | 2.0                                | —     | 3.0  | V       |
|                                     |                 | If=1.0A   | G              | 3.2                                | —     | 4.0  |         |
|                                     |                 | If=1.0A   | B              | 3.0                                | —     | 4.0  |         |
|                                     |                 | If=1.0A   | W              | 3.0                                | —     | 4.0  |         |
|                                     |                 | If=1.2A   | R              | 2.2                                | —     | 3.2  |         |
|                                     |                 | If=1.5A   | G              | 3.2                                | —     | 4.2  |         |
|                                     |                 | If=1.5A   | B              | 3.2                                | —     | 4.2  |         |
|                                     |                 | If=1.5A   | W              | 3.1                                | —     | 4.2  |         |
| Dominant Wavelength                 | $\lambda_d$     | If=1.0A   | R              | 618                                | 622   | 628  | nm      |
|                                     |                 | If=1.0A   | G              | 522                                | 527   | 532  |         |
|                                     |                 | If=1.0A   | B              | 448                                | 452   | 458  |         |
| Peak-emission Wavelength            | $\lambda_p$     | If=1.0A   | R              | 625                                | 630   | 635  | nm      |
|                                     |                 | If=1.0A   | G              | 516                                | 521   | 526  |         |
|                                     |                 | If=1.0A   | B              | 442                                | 447   | 452  |         |
| Correlated Colour Temperature       | CCT             | If=1.0A   | W              | 6000                               | —     | 7000 | K       |
| Color Rendering Index               | Ra              | —         | W              | —                                  | —     | —    | —       |
| Viewing Angle at 50 % IV            | $2\theta_{1/2}$ | —         | —              | —                                  | 120   | —    | Deg     |
|                                     |                 | —         |                | —                                  | 120   | —    |         |
| Reverse Current                     | $V_R=5V$        | —         | R              | —                                  | —     | 2    | $\mu A$ |
|                                     |                 | —         | G              | —                                  | —     | 2    |         |
|                                     |                 | —         | B              | —                                  | —     | 2    |         |
|                                     | —               | —         | W              | Not designed for reverse operation |       |      |         |
| Thermal Resistance Junction to Case | $R\theta_{J-C}$ | —         | —              | —                                  | 0.8   | —    | K/W     |
| Temperature Coefficient of Voltage  | $V\Delta F/T$   | If=1.0A   | R              | —                                  | -3.12 | —    | mV/℃    |
|                                     |                 | If=1.0A   | G              | —                                  | -4.5  | —    |         |
|                                     |                 | If=1.0A   | B              | —                                  | -2.52 | —    |         |
|                                     |                 | If=1.0A   | W              | —                                  | -4.15 | —    |         |

**Notes:**

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2.  $\theta_{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3. Luminous flux measurement tolerance:  $\pm 10\%$ .
4. Forward voltage measurement tolerance:  $\pm 3\%$ .
5. Ra measurement tolerance:  $\pm 2$ .

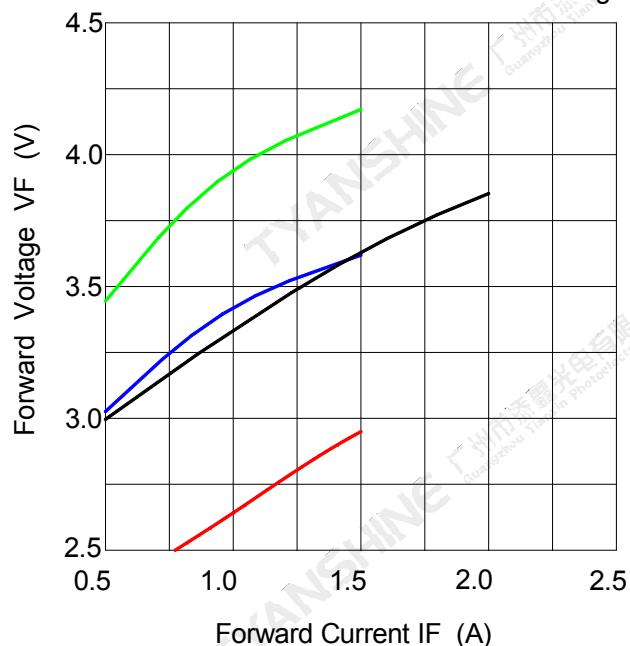
**White light Color coordinate filing  $T_c=25^\circ\text{C}, I_F=1.0\text{A}$** 

| Region | CCT Range |       | X1     | Y1     | X2     | Y2     | X3     | Y3     | X4     | Y4     |
|--------|-----------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
|        | Min       | Max   |        |        |        |        |        |        |        |        |
| 1C     | 6000K     | 6500K | 0.3211 | 0.3446 | 0.32   | 0.3574 | 0.3111 | 0.3404 | 0.313  | 0.3276 |
| 1A     | 6500K     | 7000K | 0.3131 | 0.3272 | 0.3112 | 0.3399 | 0.3047 | 0.325  | 0.3071 | 0.3134 |

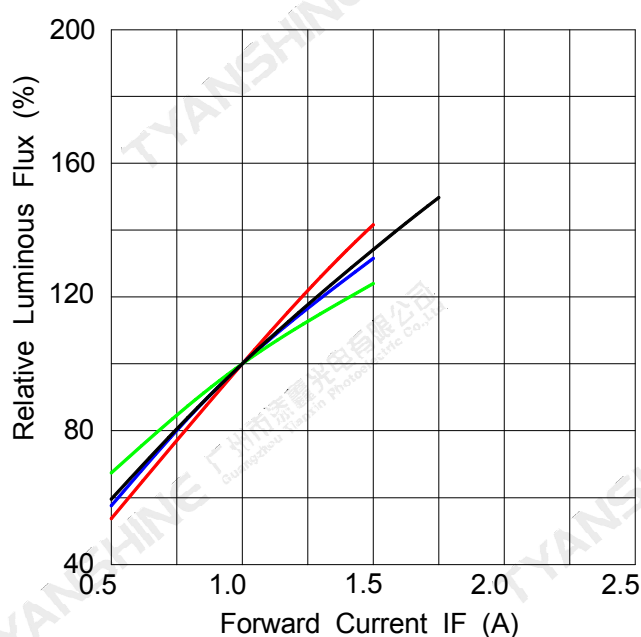
# Typical Electrical/Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

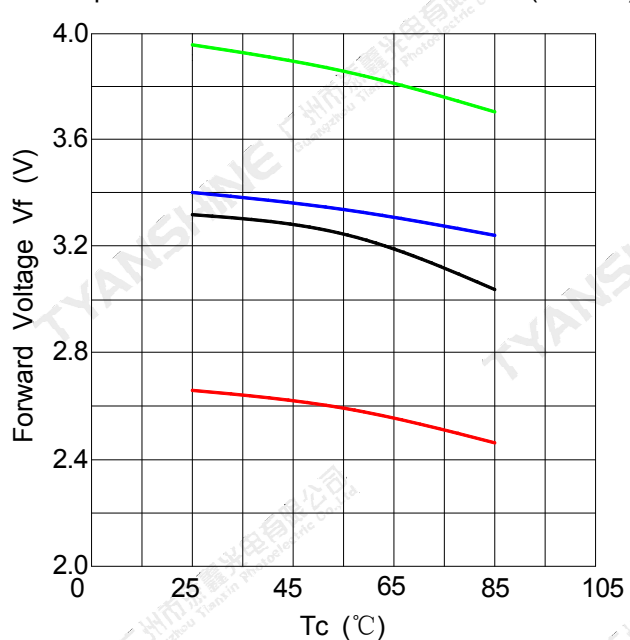
Forward Current VS. Relative Forward Voltage



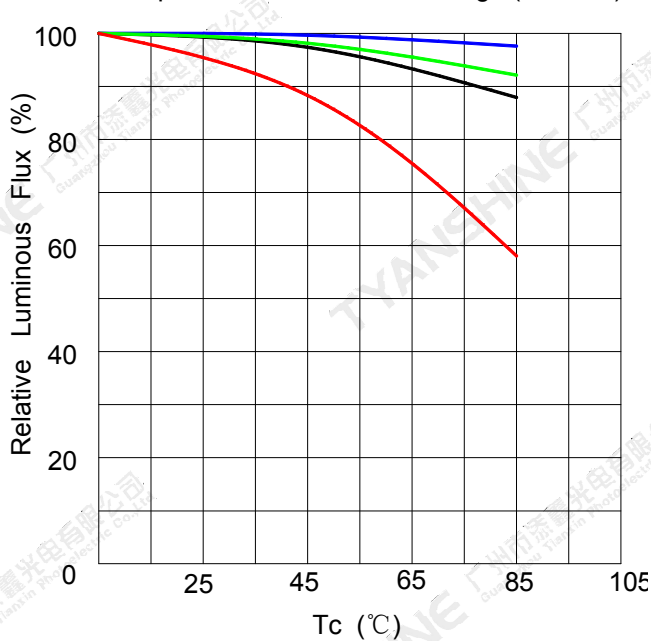
Forward Current VS. Relative Luminous Flux



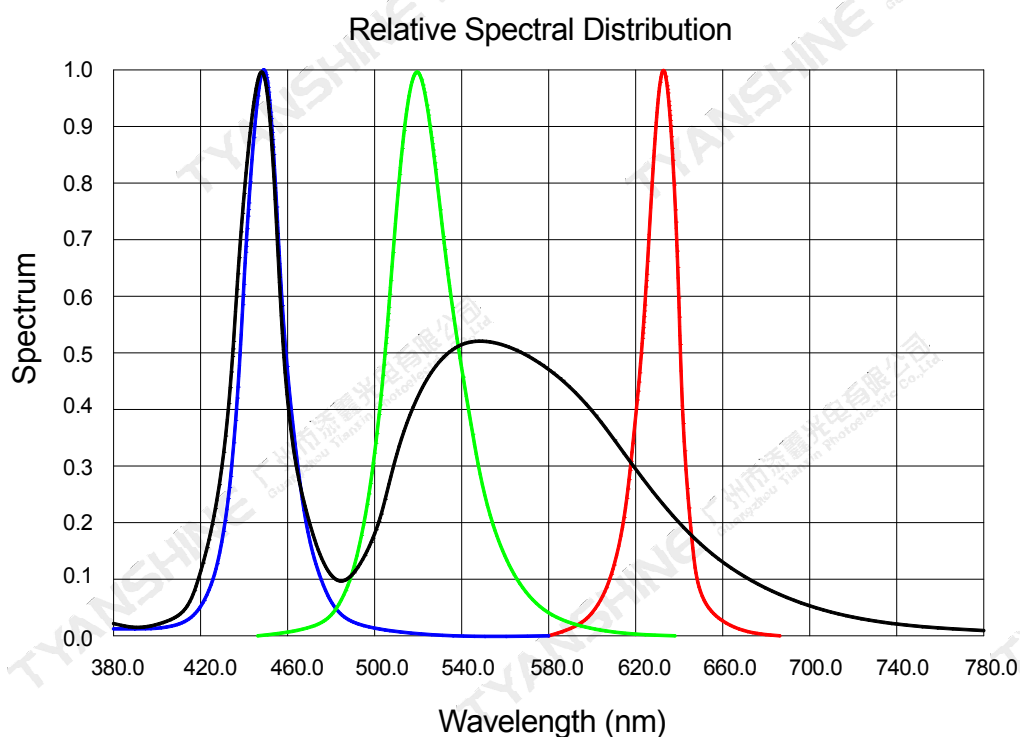
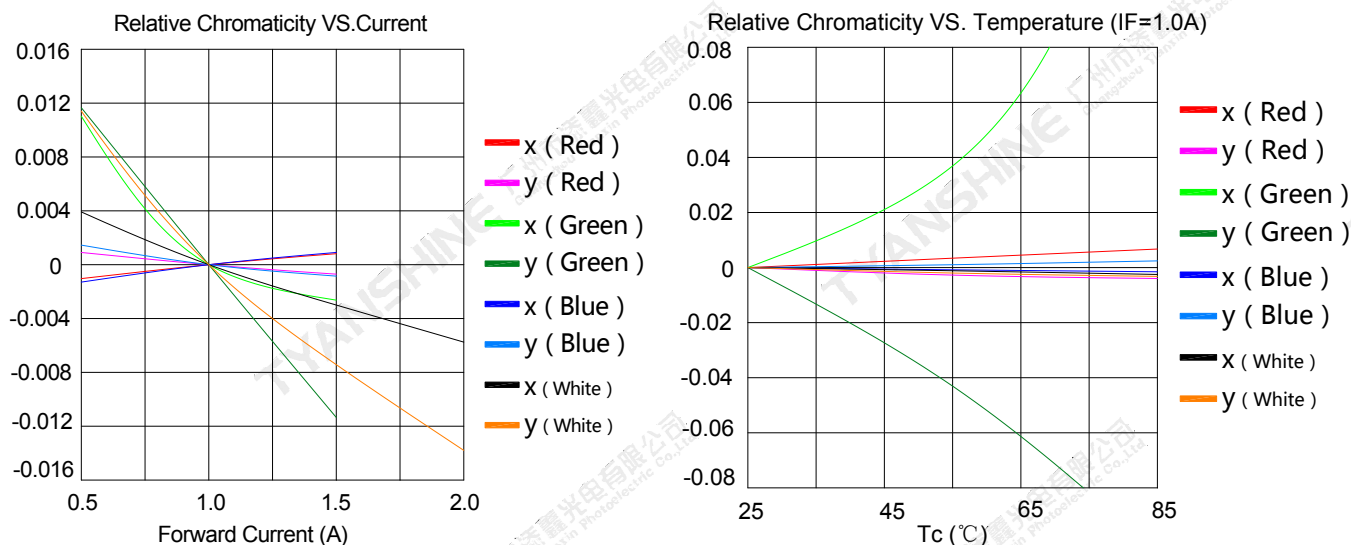
Temperature VS. Relative Luminous FLux (IF=1.0A)



Temperature VS. Forward Voltage (IF=1.0A)



**Notes:** — Red (R) ; — Green (G) ; — Blue (B) ; — White (W) ;



**Notes:** — Red (R) ; — Green (G) ; — Blue (B) ; — White (W) ;

**Notes:**

1.  $2\theta_{1/2}$  is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. View angle tolerance is  $\pm 5^\circ$ .

## Usage Precautions

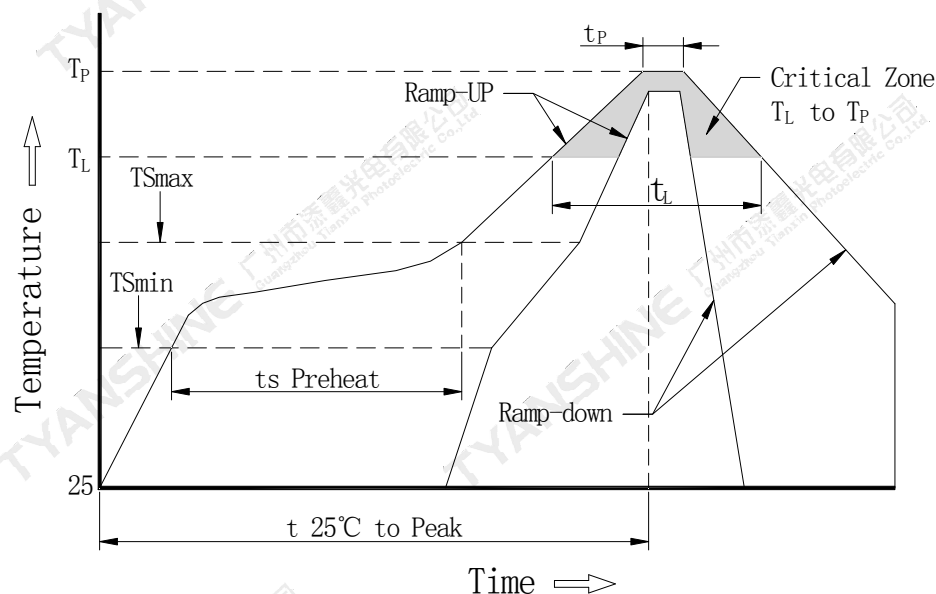
### Storage Environment Condition

Temperature: 5°C ~ 30°C (41°F ~ 86°F)

Humidity: 60% RH Max.

### Soldering Condition

Use the conditions shown to the under figure.



| Profile Feature                                      | Lead-Based Solder |
|------------------------------------------------------|-------------------|
| Average Ramp-Up Rate ( $T_{Smax}$ to $T_P$ )         | 3°C/second max.   |
| Preheat: Temperature Min ( $T_{Smin}$ )              | 100°C             |
| Preheat: Temperature Max ( $T_{Smax}$ )              | 150°C             |
| Preheat: Time ( $T_{Smin}$ to $T_{Smax}$ )           | 60-120 seconds    |
| Time Maintained Above: Temperature ( $T_L$ )         | 183°C             |
| Time Maintained Above: Time ( $T_L$ )                | 60-150 seconds    |
| Peak/Classification Temperature ( $T_P$ )            | 225°C             |
| Time Within 5°C of Actual Peak Temperature ( $T_P$ ) | 10-30 seconds     |
| Ramp-Down Rate                                       | 6°C/second max.   |
| Time 25°C to Peak Temperature                        | 6 minutes max.    |

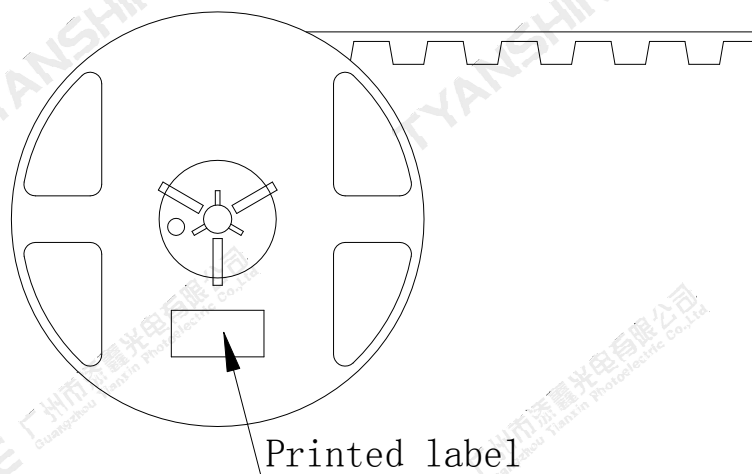
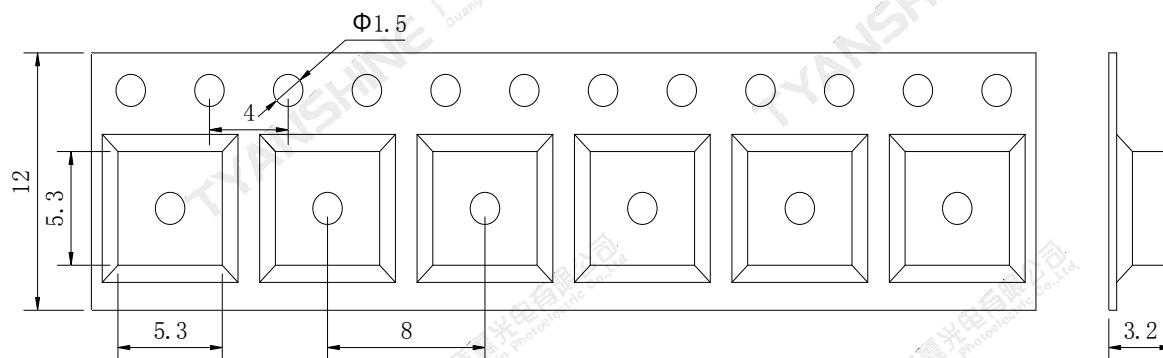
#### Note:

All temperatures refer to topside of the package, measured on the package body surface.



## Dimensions For Cannulation And Packaging

Quantity:500PCS

**Notes:**

1. All dimensions are in millimeters.
2. Tolerances are  $\pm 2.0$  mm unless otherwise noted.
3. The products are packaged together with silica gel, Transport, not to the weight of welding LED light-emitting area, As a result of the weight of LED light-emitting zone in the quality of, Irresponsible of the Company.

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