BRIGHTEK

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Brighten Up The World With LED !

ISO/TS 16949:2009 BS EN ISO 14001:2004 QC 080000 IECQ HSPM

# PRODUCT DATASHEET


- ► EMC SMD
- ► 3030 0.65t Series
- ► W/R/G/B 4-in-1

Release Date: 13 February 2025 Version: A1.1

# N0M62S15

3030 0.65t Series

## 3030 0.65t Series

RoHS Compliant

## FEATURES:

- **Package:** TOP View EMC WRGB SMT Package
- **Forward Current:** 100/100/100/100mA*
- **Forward Voltage (typ.):** 3.1/2.3/2.9/3.1V
- **Luminous Flux (typ.):** 40/16/27/7lm@100mA
- **Colour:** Warm White/Red/Green/Blue
- **CCT/Wavelength:** 3000K/622/527/461nm
- **Viewing Angle:** 120°
- **Materials:**
  - Resin: Silicon
  - L/T Finish: Ag plated
- **Operating Temperature:** -40~+70°C
- **Storage Temperature:** -40~+70°C
- **Grouping Parameters:**
  - Forward Voltage
  - Luminous Flux
  - CCT/Dominant Wavelength
- **Soldering Methods:** Reflow
- **MSL Level:** 3 according to J-STD020
- **Packing:** 8mm tape with max.5000/reel, ø178mm (7'')

* in order of White/Red/Green/Blue

## APPLICATIONS:

- Decorative Lighting
- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Architectural Lighting
- Home Appliance
- Led Torch
- Mini Projector

## CHARACTERISTICS:

### Absolute Maximum Characteristics ($T_a$=25°C)

| Parameter | Symbol | Ratings | Unit |
|---|---|---|---|
| DC Forward Current | $I_F$ | 150 | mA |
| Pulse Forward Current (width≤100μS; duty≤1/10) | $I_{FP}$ | 225 | mA |
| Power Dissipation | $P_D$ | 525/375/495/525* | mW |
| Reverse Voltage | $V_R$ | 5 | V |
| Reverse Current @5V | $I_R$ | 10 | μA |
| Junction Temperature | $T_j$ | 110 | °C |
| Operating Temperature | $T_{OPR}$ | -40~+70 | °C |
| Storage Temperature | $T_{STG}$ | -40~+70 | °C |
| Soldering Temperature | $T_{SOL}$ | 230 or 260 for 10S | °C |

* in order of White/Red/Green/Blue

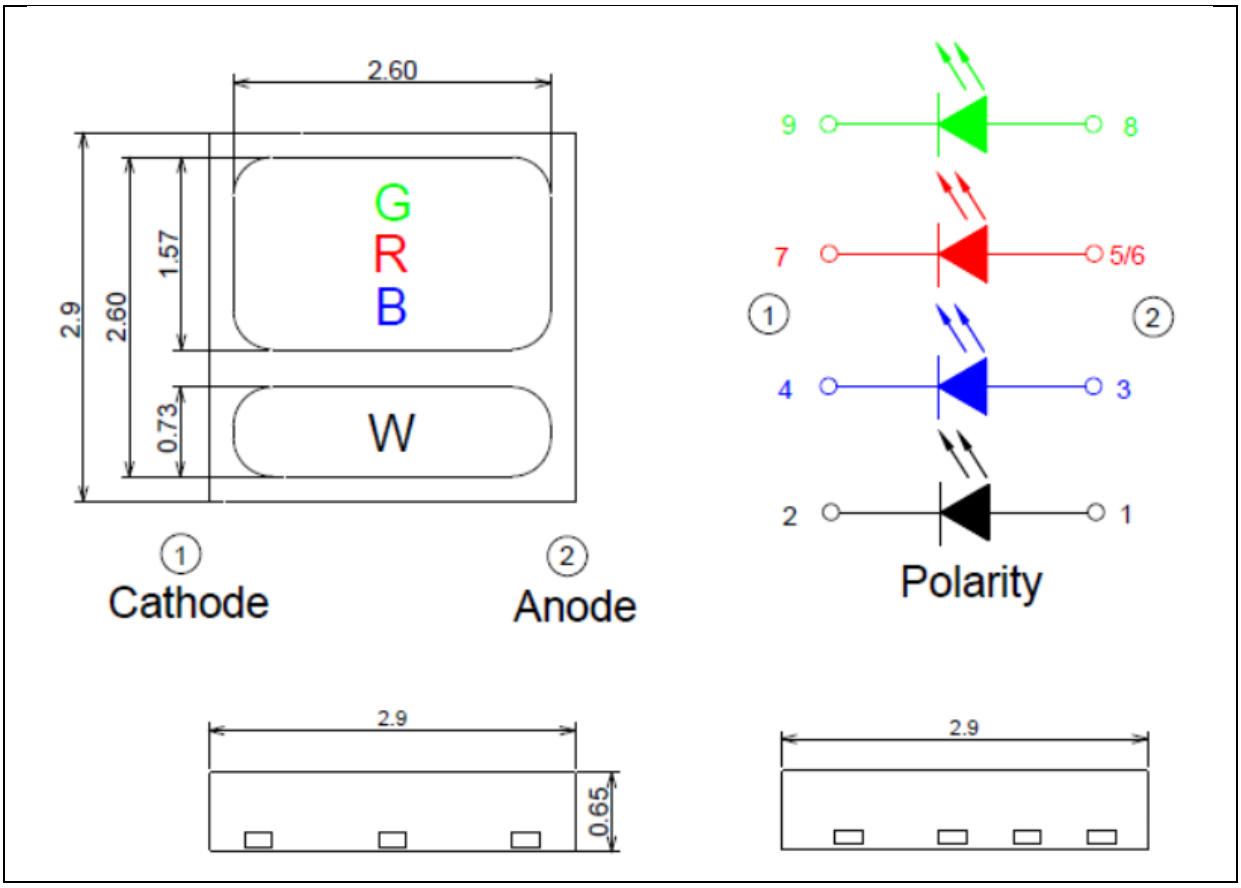
### Electrical & Optical Characteristics ($T_a$=25°C)

| Parameter | Symbol | Values | | | Unit | Test Condition |
|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | | |
| Forward Voltage | $V_F$ | 2.9/1.9/2.7/2.9* | 3.1/2.3/2.9/3.1 | 3.5/2.5/3.3/3.5 | V | $I_F$=100mA |
| Luminous Flux | $\Phi_V$ | 35/13/23/5 | 40/16/27/7 | 45/25/39/12 | lm | $I_F$=100mA |
| White Colour Temperature | CCT | --- | 3000 | --- | K | $I_F$=100mA |
| R/G/B Dominant Wavelength | $\lambda_D$ | 617/522/452 | --- | 626/531/470 | nm | $I_F$=100mA |
| Viewing Angle | $2\theta_{1/2}$ | --- | 120 | --- | deg | $I_F$=100mA |

1. Luminous flux ($\Phi_V$) ±10%, Forward Voltage ($V_F$) ±0.1V
2. * in order of White/Red/Green/Blue

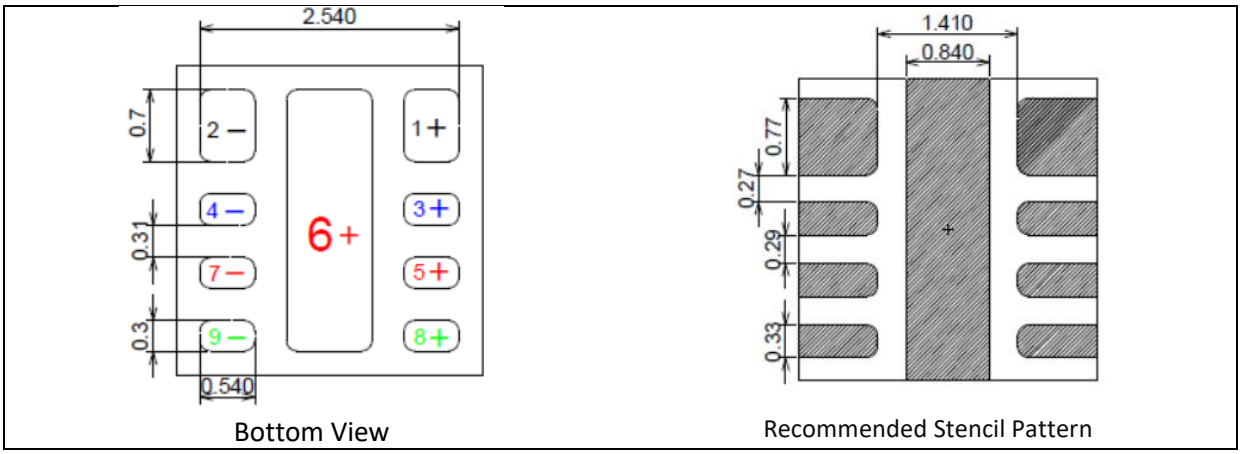
## OUTLINE DIMENSION:

Package Dimension:




1. All dimensions are in millimetre (mm).
2. Tolerance ±0.2mm, unless otherwise noted.

Recommended Soldering Pad Dimension:




1. Dimensions are in millimetre (mm).
2. Tolerance ±0.1mm with angle tolerance ±0.5°.

## BINNING GROUPS:

Forward Voltage Classifications ($I_F$ = 100mA):

| Code | | Min. | Max. | Unit |
|---|---|---|---|---|
| White | BB1 | 2.9 | 3.5 | V |
| Red | RA1 | 1.9 | 2.5 | V |
| Green | GB1 | 2.9 | 3.5 | V |
| Blue | BB1 | 2.9 | 3.5 | V |

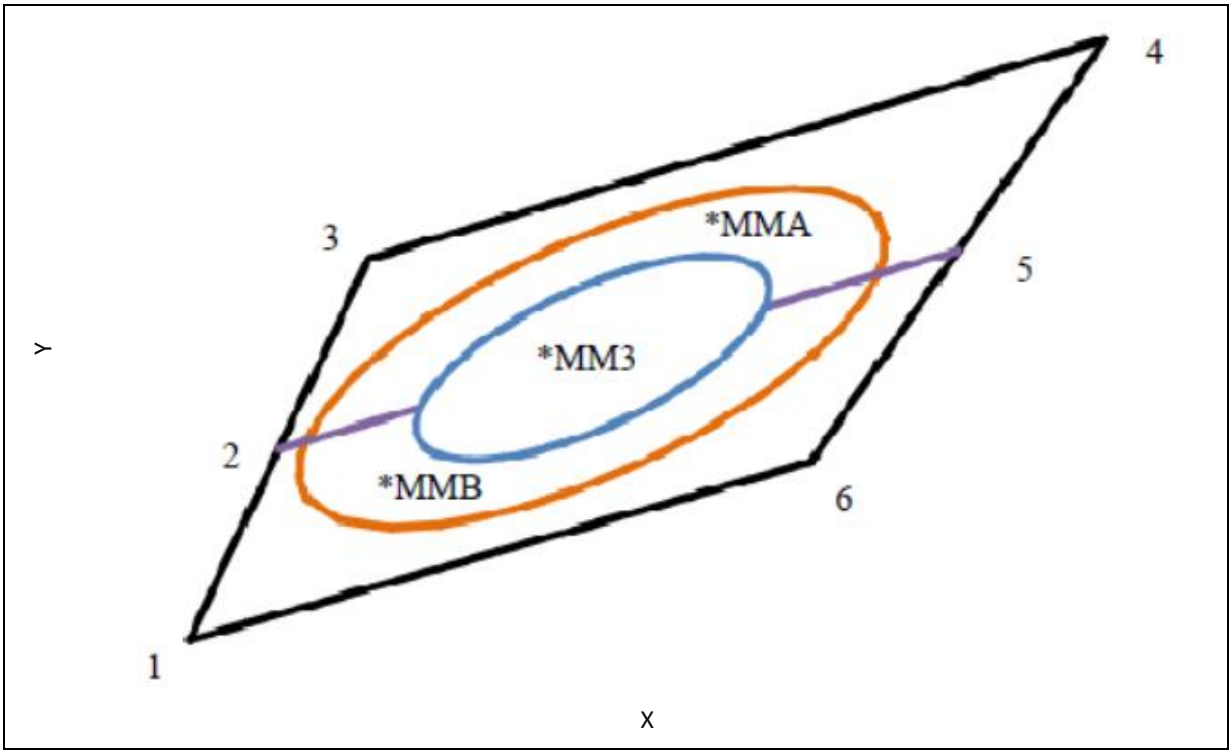
Luminous Flux Classifications ($I_F$ = 100mA):

| Code | | Min. | Max. | Unit |
|---|---|---|---|---|
| White | WN3 | 35 | 45 | lm |
| Red | RN1 | 13 | 19 | lm |
| | RN2 | 19 | 25 | |
| Green | GN1 | 23 | 31 | lm |
| | GN2 | 31 | 39 | |
| Blue | BN2 | 5 | 12 | lm |

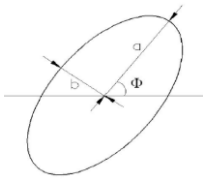
Dominant Wavelength Classifications ($I_F$ = 100mA):

| Code | | Min. | Max. | Unit |
|---|---|---|---|---|
| Red | RE1 | 617 | 620 | nm |
| | RE2 | 620 | 623 | |
| | RE3 | 623 | 626 | |
| Green | GE2 | 522 | 525 | nm |
| | GE3 | 525 | 528 | |
| | GE4 | 528 | 531 | |
| Blue | BE2 | 452 | 455 | nm |
| | BE3 | 455 | 458 | |
| | BE4 | 458 | 461 | |
| | BE5 | 461 | 464 | |
| | BE6 | 464 | 467 | |
| | BE7 | 467 | 470 | |

## CIE CHROMATICITY DIAGRAM:




Chromaticity Coordinates Classifications ($I_F$ = 100mA):



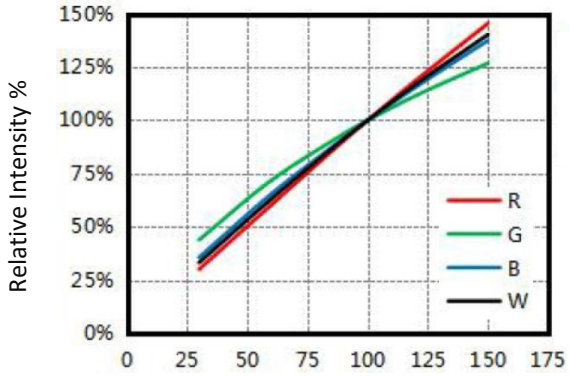

| Code | Centre | | Radius | | Angle |
|---|---|---|---|---|---|
| | X | Y | a | b | Φ |
| 7MM-3STEP | 0.4342 | 0.4028 | 0.008340 | 0.004080 | 53.13 |
| 7MM-5STEP | 0.4342 | 0.4028 | 0.013900 | 0.006800 | 53.13 |

Chromaticity Coordinates Classifications ($I_F$ = 20mA):

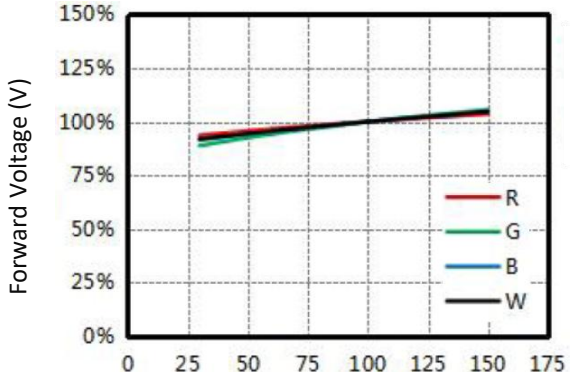
| | 1 | | 2 | | 3 | | 4 | |
|---|---|---|---|---|---|---|---|---|
| | X | Y | X | Y | X | Y | X | Y |
| 1256 | 0.4151 | 0.3812 | 0.4227 | 0.3989 | 0.4472 | 0.4075 | 0.4377 | 0.3891 |
| 2345 | 0.4227 | 0.3989 | 0.4303 | 0.4166 | 0.4566 | 0.4258 | 0.4472 | 0.4075 |

## ELECTRO-OPTICAL CHARACTERISTICS:

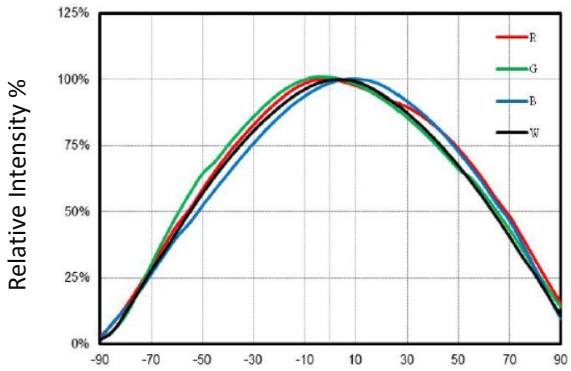
### Relative Intensity v.s. Forward Current



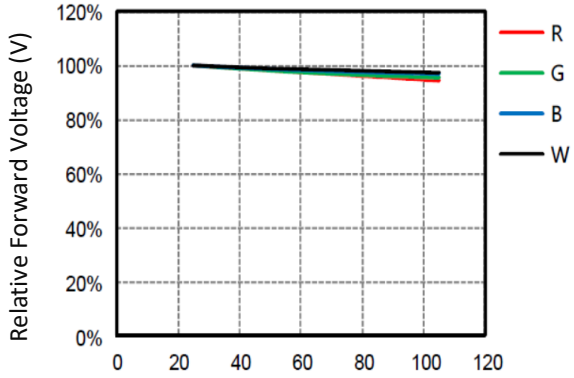

### Forward Current v.s. Forward Voltage



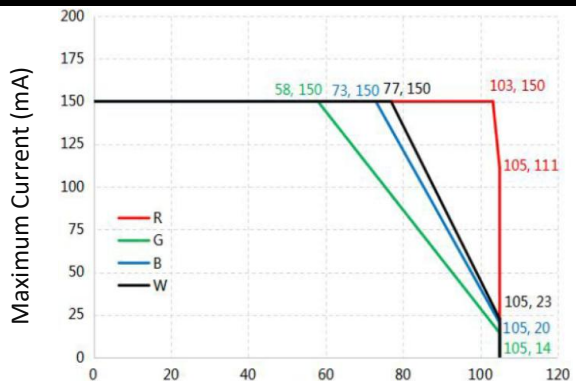

### Relative Intensity v.s. Angular Displacement



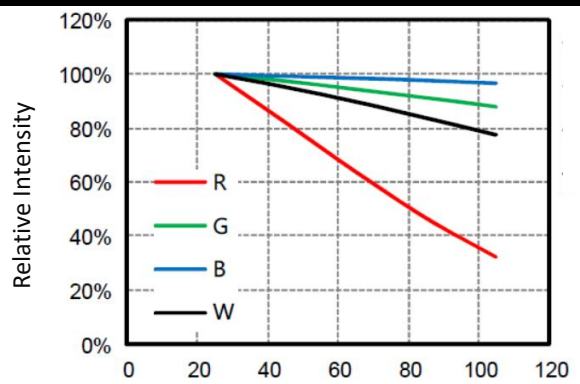

### Relative Forward Voltage v.s. Temperature



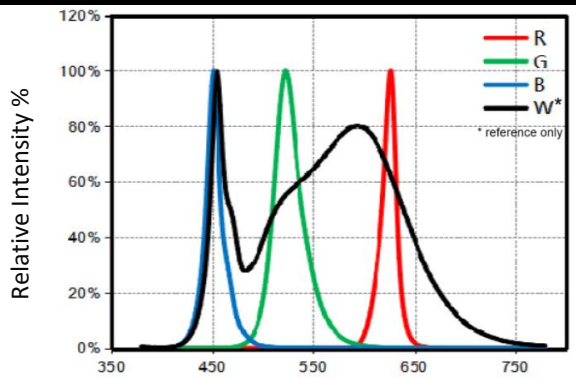

### Temperature Derating Chart




### Relative Intensity Flux v.s. Temperature

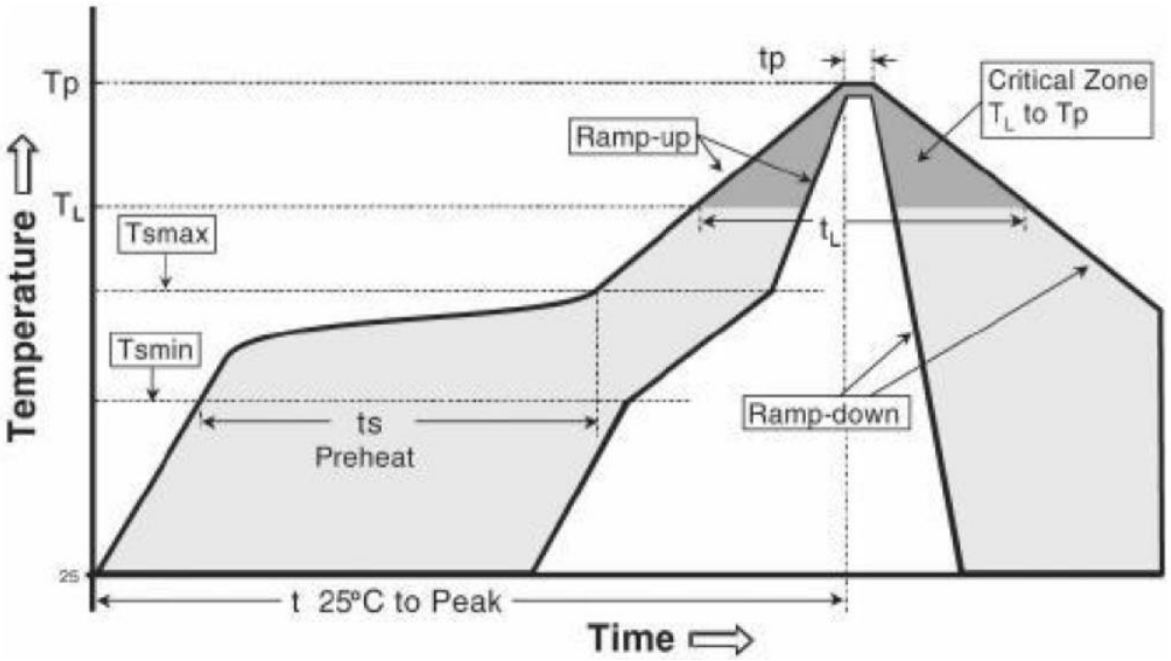


Relative Intensity v.s. Wavelength



## RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:




| | |
|---|---|
| Temperature Min. ($T_{smin}$) | 150°C |
| Temperature Max. ($T_{smax}$) | 200°C |
| Period from $T_{smin}$ to $T_{smax}$ | 60-120 seconds |
| Ramp-up Rate ($T_L$ to $T_P$) | Max. 3°C/second |
| Liquidous Temperature ($T_L$) | 217°C |
| Time Maintained above $T_L$ | 60-150 seconds |
| Peak Package Temperature ($T_P$) | Max. 260°C |
| Time within 5°C of the Specified Classification Temperature $T_C$ | Max. 30 seconds |
| Ramp-down Rate ($T_P$ to $T_L$) | Max. 6°C/second |
| Time from 25°C to Peak Temperature | Max. 8 mins |

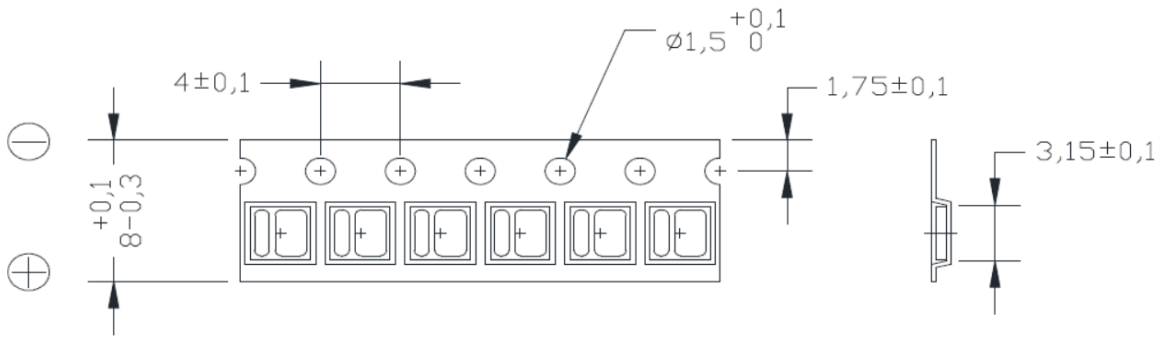
Note:

1. Die slug is to be soldered.
2. Maximum reflow soldering: 2 times. Between two soldering it should not be longer than 24 hours.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.
4. Recommended soldering temperature: 240°C. The maximum soldering temperature should be limited to 260°C for max. 10seconds.

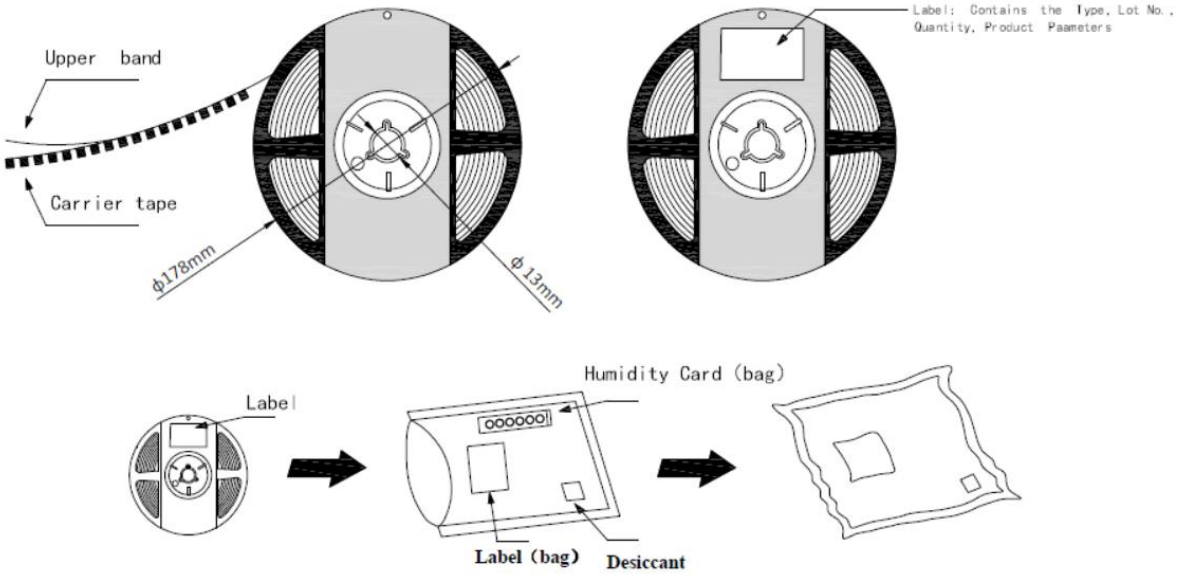
## PACKING SPECIFICATION:

Reel Dimension:

Max.5000pcs/reel




1. Cumulative Tolerance: Cumulative Tolerance/10 pitches to be ±0.2mm



## PRECAUTIONS OF USE:

### Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 months at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with descanting agent <10% R.H. and apply baking before use.

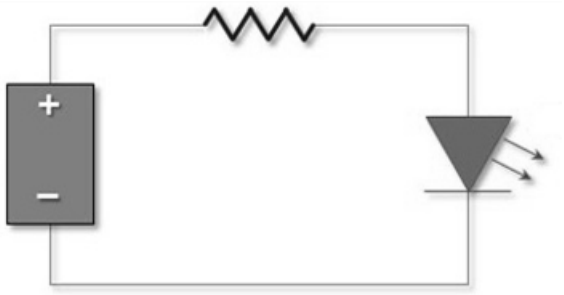
### Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs. The suggested baking conditions are as followings:

- 60±5°C x 24hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

### Testing Circuit:




Must apply resistor(s) for protection (over current proof).

### Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

### ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

## REVISION RECORD:

| Version | Date | Summary of Revision |
|---|---|---|
| A1.0 | 04/09/2022 | Datasheet set-up. |
| A1.1 | 13/02/2025 | Update sorting current to 100mA and add characteristics curves. |