



**BRIGHTTEK**  
**BRIGHTTEK (EUROPE) LIMITED**

*Brighten Up The World With LED!*



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

## PRODUCT DATASHEET



- ▶ NCSP CHIP LED
- ▶ 2030 0.9t Series
- ▶ Cool White (5800K) / Gold White (1900K)

N0D53S27PC



Release Date: 25 November 2021 Version: A1.1



### 2030 0.9t Series

**RoHS**  
Compliant



#### FEATURES:

- **Package:** Ceramic High Power CSP Package
- **Forward Current:** 350~700mA per colour
- **Forward Voltage (typ.):** 3/3V\*
- **Luminous Flux (typ.):** 160/95lm@350mA
- **Colour:** Cool White/Gold White
- **CCT/Colour Temperature (typ.):** 5800/1900K
- **Viewing angle:** 120°
- **Materials:**
  - Die: Flip-Chip InGaN
  - Resin: Silicon (Yellow Diffused)
  - L/T Finish: Au plated AlN
- **Operating Temperature:** -40~+125°C
- **Storage Temperature:** -40~+125°C
- **Grouping parameters:**
  - Forward Voltage
  - Luminous Flux
  - CIE Chromaticity
- **Soldering methods:** IR Reflow
- **Preconditioning:** MSL2 according to J-STD020
- **Packing:** 8mm tape with Max.2000pcs /reel, ø180mm (7")

\* in order of Cool White/Gold White

#### APPLICATIONS:

- Decorative Lighting
- Portable Lighting
- Outdoor Lighting
- Commercial Lighting
- Indoor Lighting
- Industrial Lighting
- Automotive Lighting

## CHARACTERISTICS:

### Absolute Maximum Characteristics (Ta=25°C)

| Parameter                                   | Symbol               | Ratings  | Unit            |
|---|----------------------|----------|-----------------|
| DC Forward Current                          | I <sub>F</sub>       | 350/350* | mA              |
| Maximum Forward Current                     | I <sub>MAX</sub>     | 700/700  | mA              |
| Junction Temperature                        | T <sub>J</sub>       | 150      | °C              |
| Thermal Resistance Junction to Solder Point | R <sub>th(J-S)</sub> | 10       | °C/W            |
| Radiating Surface                           | ---                  | 1.44     | mm <sup>2</sup> |
| Operating Temperature                       | T <sub>OPR</sub>     | -40~+125 | °C              |
| Storage Temperature                         | T <sub>STG</sub>     | -40~+125 | °C              |

\* in order of Cool White/Gold White

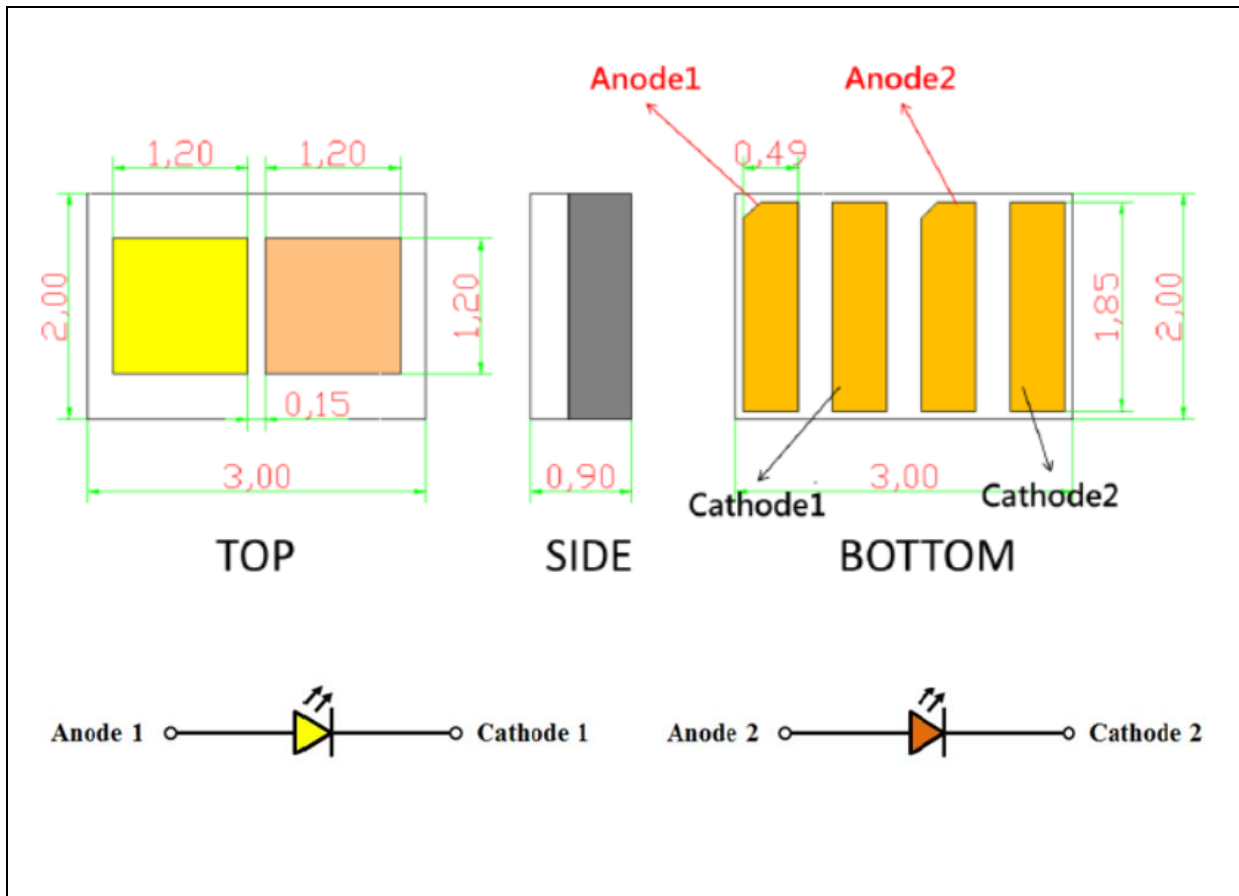
### Electrical & Optical Characteristics (Ta=25°C)

| Parameter       | Symbol            | Values    |           |           | Unit | Test Condition        |
|-----------------|-------------------|-----------|-----------|-----------|------|-----------------------|
|                 |                   | Min.      | Typ.      | Max.      |      |                       |
| Forward Voltage | V <sub>F</sub>    | 2.9/2.9*  | 3.0/3.0   | 3.2/3.2   | V    | I <sub>F</sub> =350mA |
| Luminous Flux   | Φ <sub>V</sub>    | 140/80    | ---/---   | 180/110   | lm   | I <sub>F</sub> =350mA |
| CCT             | ---               | 5200/1700 | 5800/1900 | 6500/2100 | K    | I <sub>F</sub> =350mA |
| Viewing Angle   | 2θ <sub>1/2</sub> | ---       | 120       | ---       | deg  | I <sub>F</sub> =350mA |

- Luminous flux (Φ<sub>V</sub>) ±7%, Forward Voltage (V<sub>F</sub>) ±0.05V, Viewing angle(2θ<sub>1/2</sub>) ±10°, CRI ±2
- \* in order of Cool White/Gold White

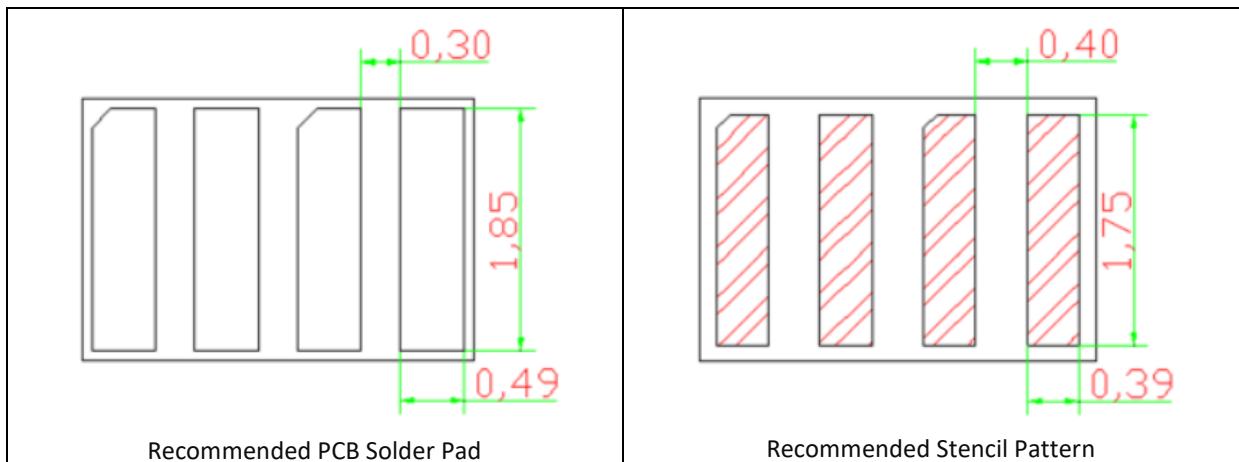
## OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.13\text{mm}$ , unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.12\text{mm}$  with angle tolerance  $\pm 0.5^\circ$ .

**BINNING GROUPS:**


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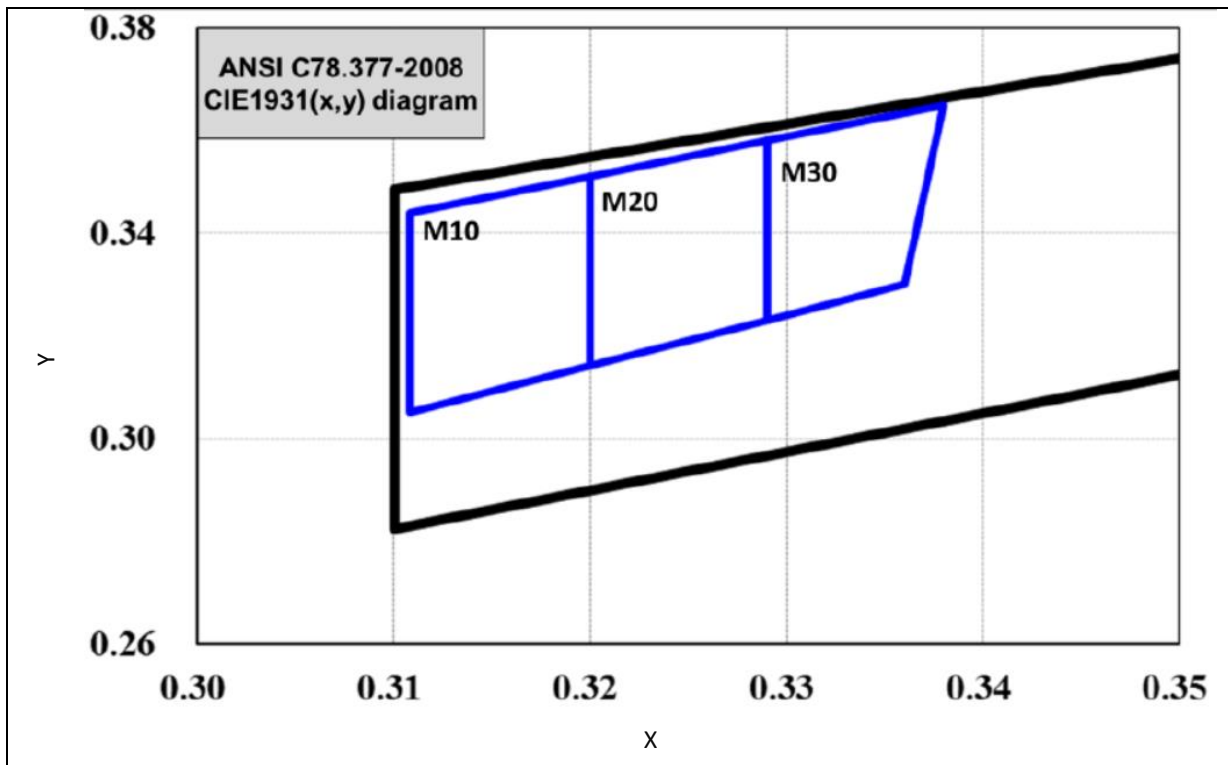
 Forward Voltage Classifications ( $I_F = 350\text{mA}$ ):

| Code |            | Min. | Max. | Unit |
|------|------------|------|------|------|
| □    | Cool White | 2.9  | 3.2  | V    |
|      | Gold White | 2.9  | 3.2  | V    |

 Luminous Flux Classifications ( $I_F = 350\text{mA}$ ):

| Code       |    | Min. | Max. | Unit |
|------------|----|------|------|------|
| Cool White | DE | 140  | 150  | lm   |
|            | DF | 150  | 160  |      |
|            | DG | 160  | 170  |      |
|            | DH | 170  | 180  |      |
| Gold White | 8  | 80   | 90   | lm   |
|            | 9  | 90   | 100  |      |
|            | A  | 100  | 110  |      |

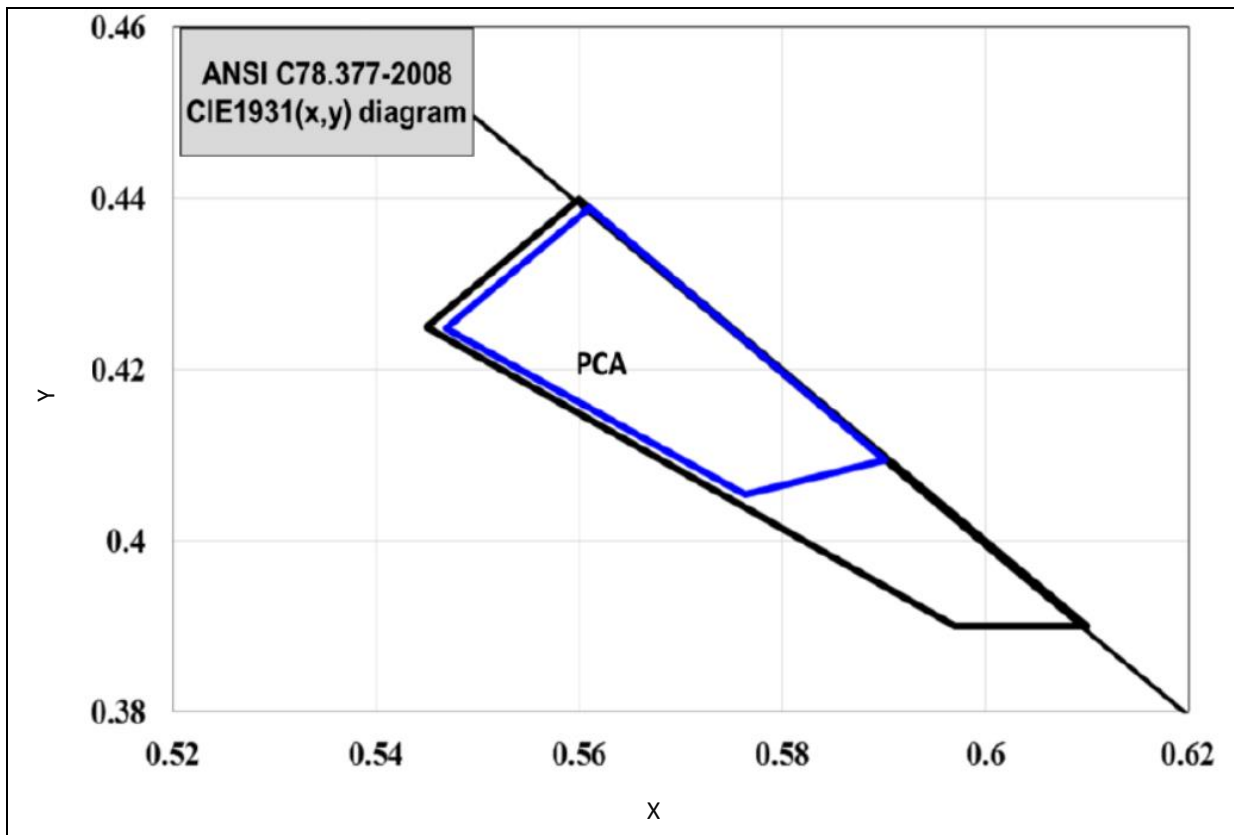
## CIE CHROMATICITY DIAGRAM (Cool White):



Chromaticity Coordinates Classifications ( $I_F = 350\text{mA}$ ):

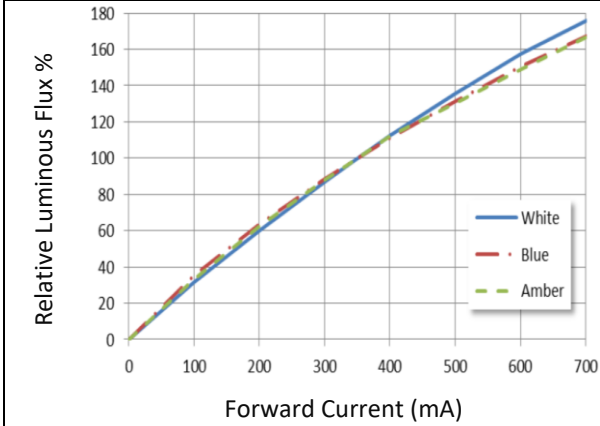
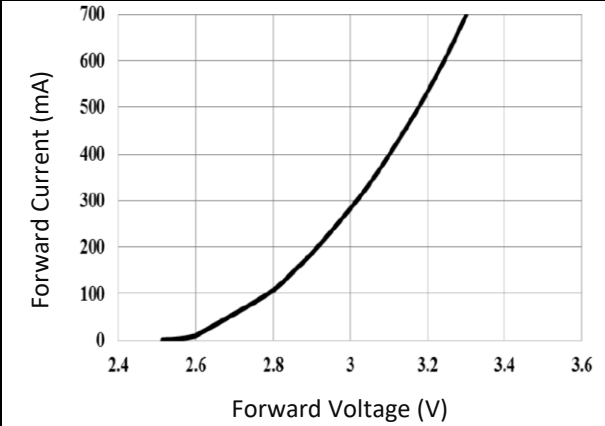
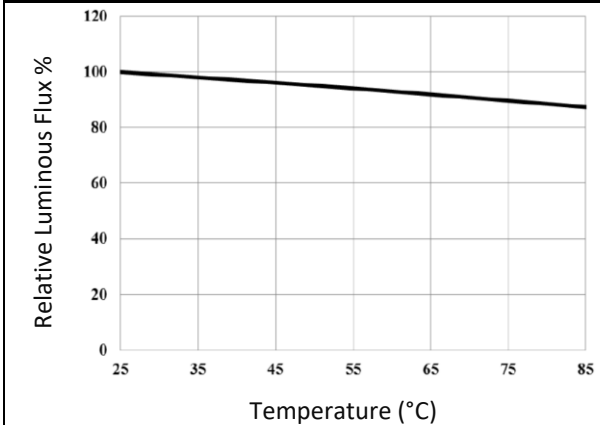
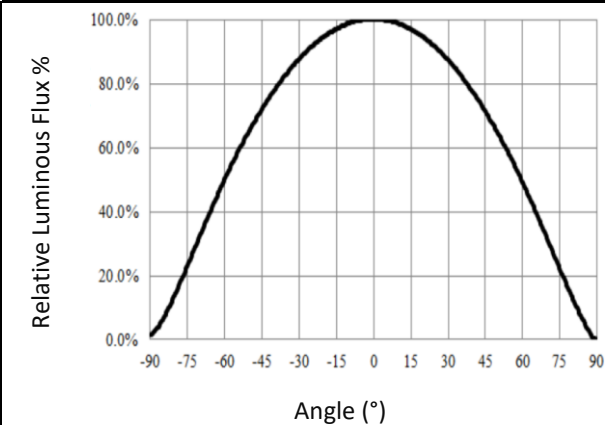
|     | 1      |        | 2      |        | 3      |        | 4      |        |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|
|     | X      | Y      | X      | Y      | X      | Y      | X      | Y      |
| M10 | 0.3200 | 0.3511 | 0.3108 | 0.3440 | 0.3108 | 0.3050 | 0.3200 | 0.3141 |
| M20 | 0.3200 | 0.3511 | 0.3290 | 0.3581 | 0.3290 | 0.3231 | 0.3200 | 0.3141 |
| M30 | 0.3290 | 0.3581 | 0.3380 | 0.3650 | 0.3360 | 0.3300 | 0.3290 | 0.3231 |

### CIE CHROMATICITY DIAGRAM (Gold White):



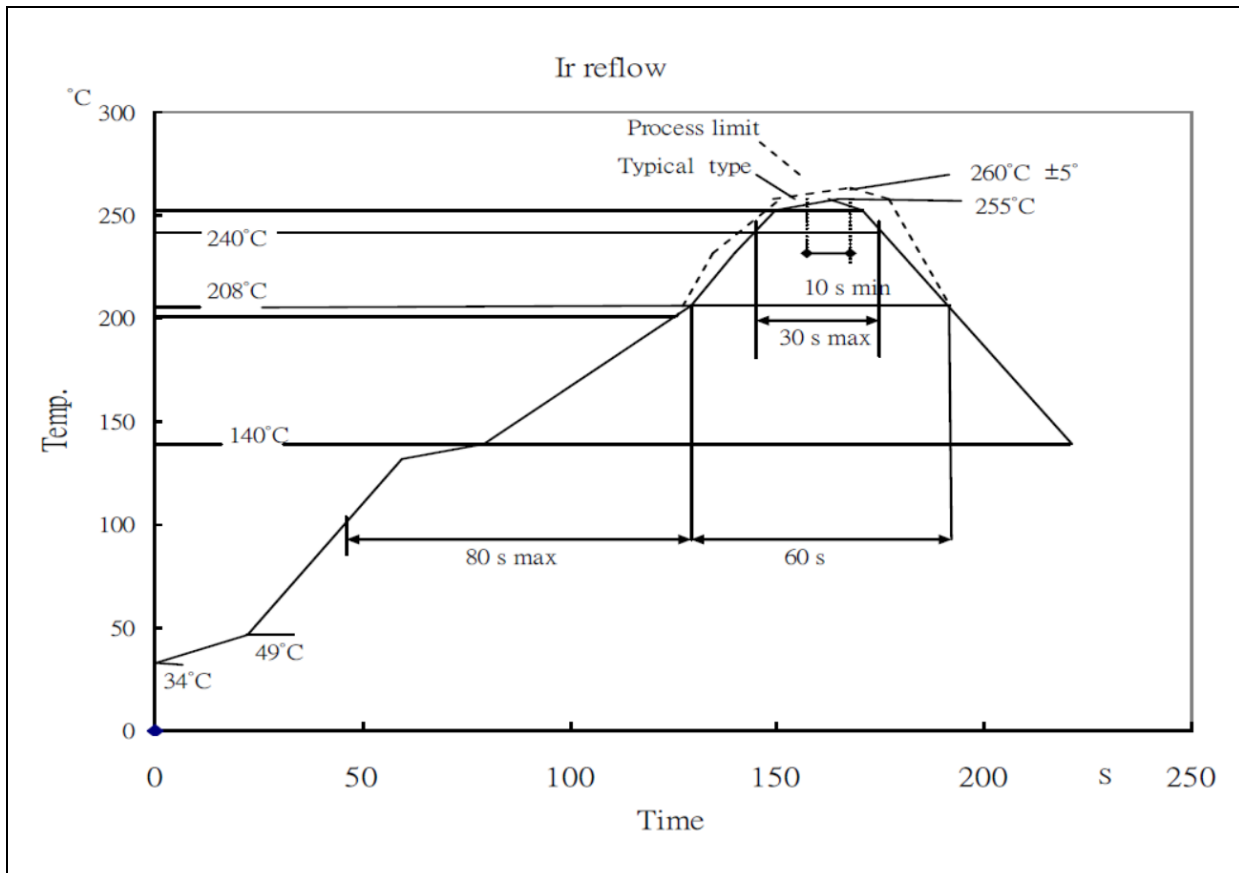
### Chromaticity Coordinates Classifications ( $I_F = 350\text{mA}$ ):

|     | 1      |        | 2      |        | 3      |        | 4      |        |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|
|     | X      | Y      | X      | Y      | X      | Y      | X      | Y      |
| PCA | 0.5763 | 0.4054 | 0.5901 | 0.4094 | 0.4601 | 0.4390 | 0.5469 | 0.4249 |

**ELECTRO-OPTICAL CHARACTERISTICS:**
**Relative Luminous Flux v.s. Forward Current**

**Forward Current v.s. Forward Voltage**

**Relative Flux v.s. Temperature**

**Directive Radiation**


## RECOMMENDED SOLDERING PROFILE:

Reflow Lead-free Solder:



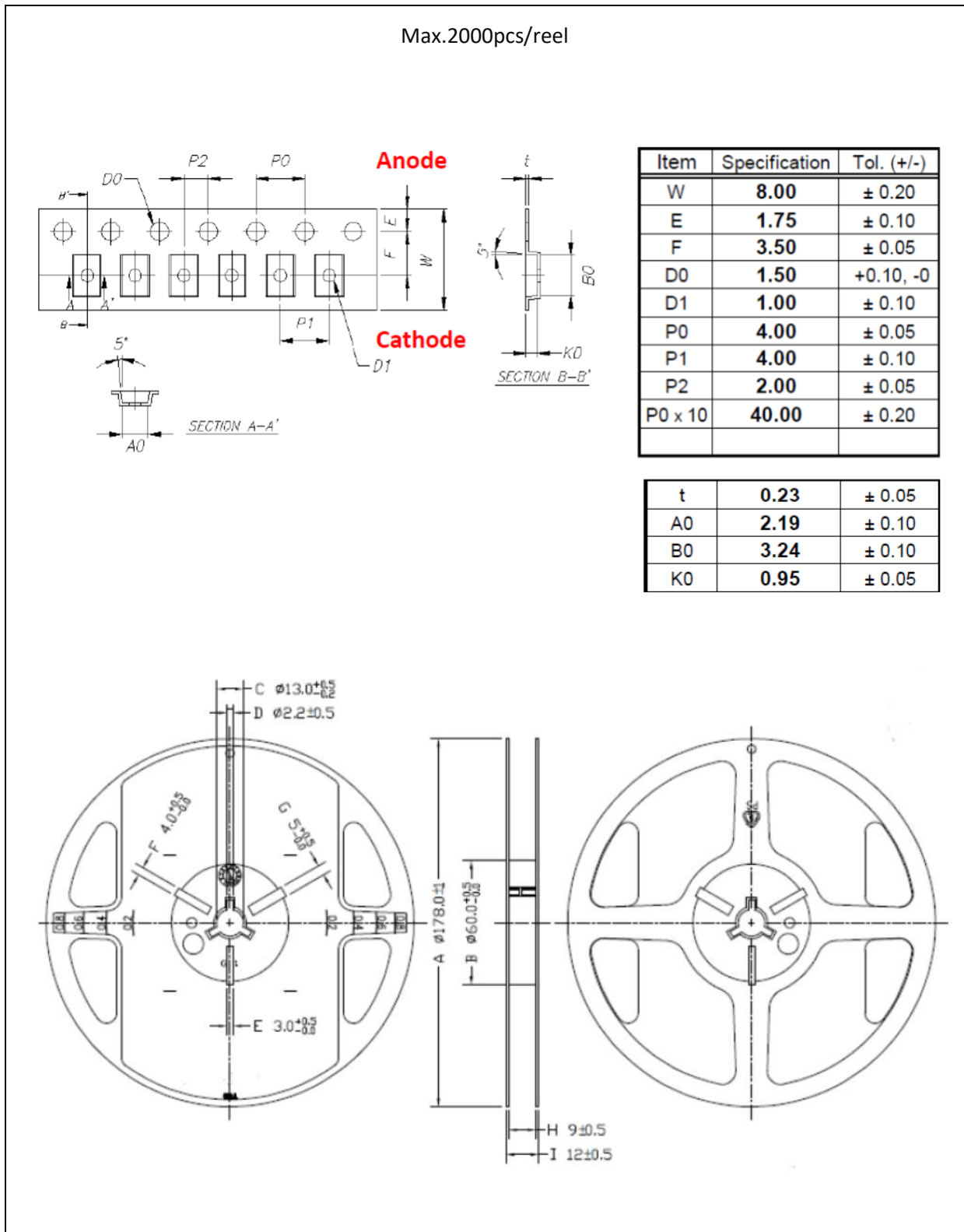
Note:

1. Maxima reflow soldering: 1 time.
2. The recommended reflow temperature is 240°C. The maximum soldering temperature should be limited to 260°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.



**PACKING SPECIFICATION:**

Reel Dimension:



## PRECAUTIONS OF USE:

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### 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 desiccating 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±3°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 handling 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:**

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| Version | Date       | Summary of Revision      |
|---------|------------|--------------------------|
| A1.0    | 12/07/2021 | Datasheet set-up.        |
| A1.1    | 25/11/2021 | Update typ. lumen value. |