



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

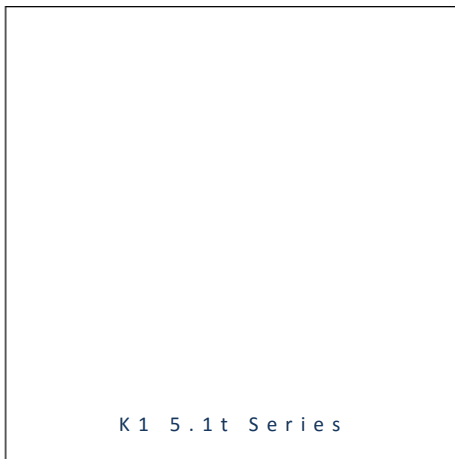


- ▶ PLCC2 Top View
- ▶ K1 5.1t Series
- ▶ UV (390-400nm)

NOQ06S23 (Tube)
NOQ06S23RL (Reel)



Release Date: 21 September 2016 Version: A1.0



K1 5.1t Series

Isaac



FEATURES:

- **Package:** PLCC White SMT Package Top View
- **Forward Current:** 500mA
- **Forward Voltage (typ.):** 3.4V
- **Luminous Flux (typ.):** 420mW@500mA
- **Colour:** Ultraviolet (UV)
- **Wavelength:** 390-400nm
- **Viewing angle:** 135°
- **Materials:**
 - Die: InGaN
 - Resin: Silicon (Water Clear)
- **Operating Temperature:** -40~+105°C
- **Storage Temperature:** -40~+120°C
- **Grouping parameters:**
 - Forward voltage
 - Radiometric Power
 - Wavelength
- **Soldering methods:** Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 2000pcs/carton (40 tubes); 50pcs/tube or 24mm tape with 1000pcs/reel, ø330mm (13")

APPLICATIONS:

- Medical Lamp
- Curing
- Defect Detection Lamp
- Counterfeit Detection Lamp

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

| Parameter | Symbol | Ratings | Unit |
|--------------------------------------|-----------|----------|------|
| Forward Current | I_F | 500 | mA |
| Peak Forward Current Duty 1/10@10KHz | I_{FP} | 700 | mA |
| Operating Temperature | T_{OPR} | -40~+105 | °C |
| Storage Temperature | T_{STG} | -40~+120 | °C |
| Junction Temperature | T_j | 120 | °C |
| Electrostatic Discharge (HBM) | ESD | 5000 | V |

1. Not suitable to be driven in reverse bias.

Electrical & Optical Characteristics (Ta=25°C)

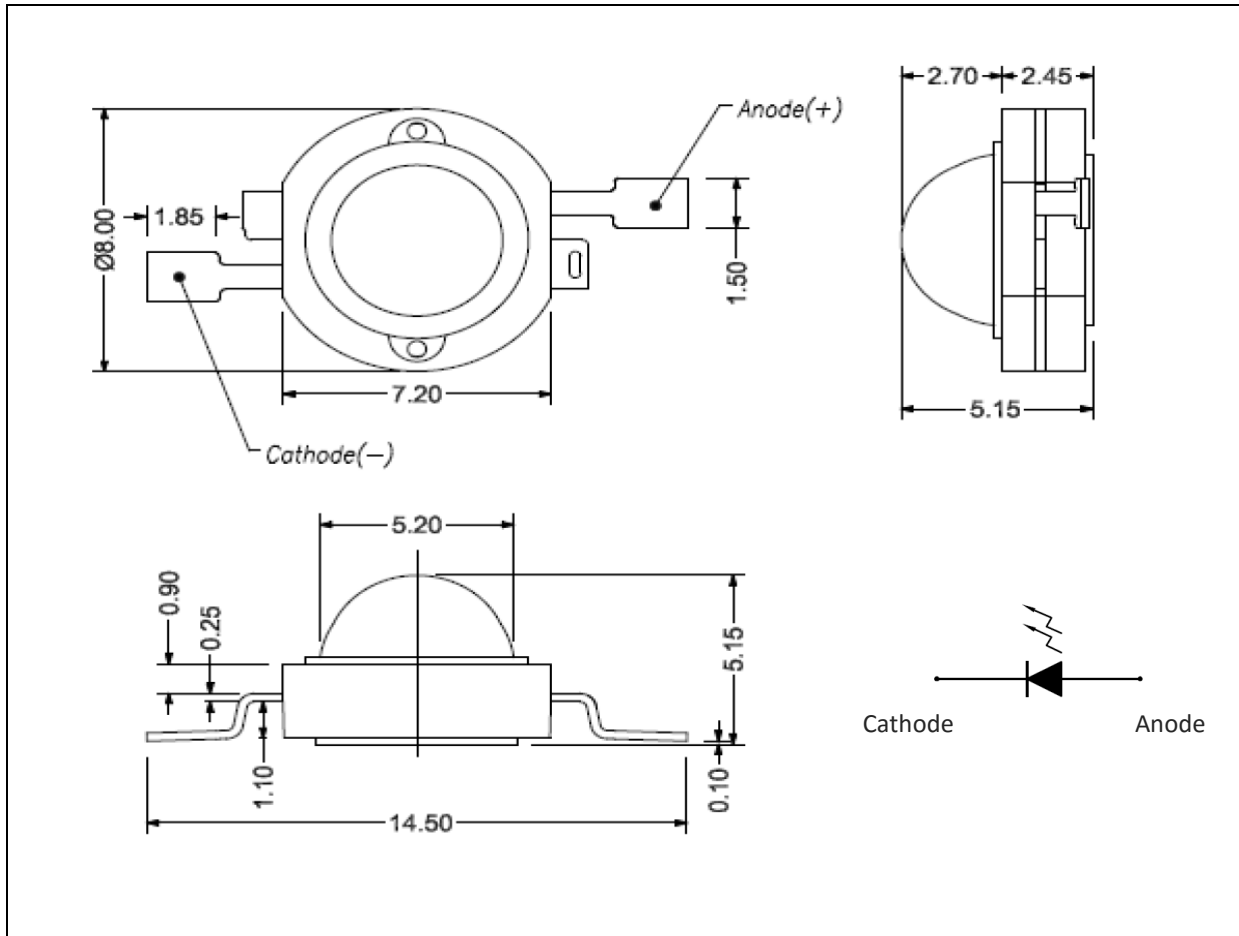
| Parameter | Symbol | Values | | | Unit | Test Condition |
|---------------------|-----------------|--------|------|------|------|----------------|
| | | Min. | Typ. | Max. | | |
| Forward Voltage | V_F | 3.2 | --- | 3.7 | V | $I_F=350mA$ |
| Radiometric Power | P_O | 380 | 420 | --- | mW | $I_F=350mA$ |
| Dominant Wavelength | λ_d | 390 | --- | 400 | nm | $I_F=350mA$ |
| Viewing Angle | $2\theta_{1/2}$ | --- | 135 | --- | deg | $I_F=350mA$ |

2. Luminous intensity (I_v) $\pm 15\%$, Forward Voltage (V_f) $\pm 0.1V$, Viewing angle($2\theta_{1/2}$) $\pm 5\%$



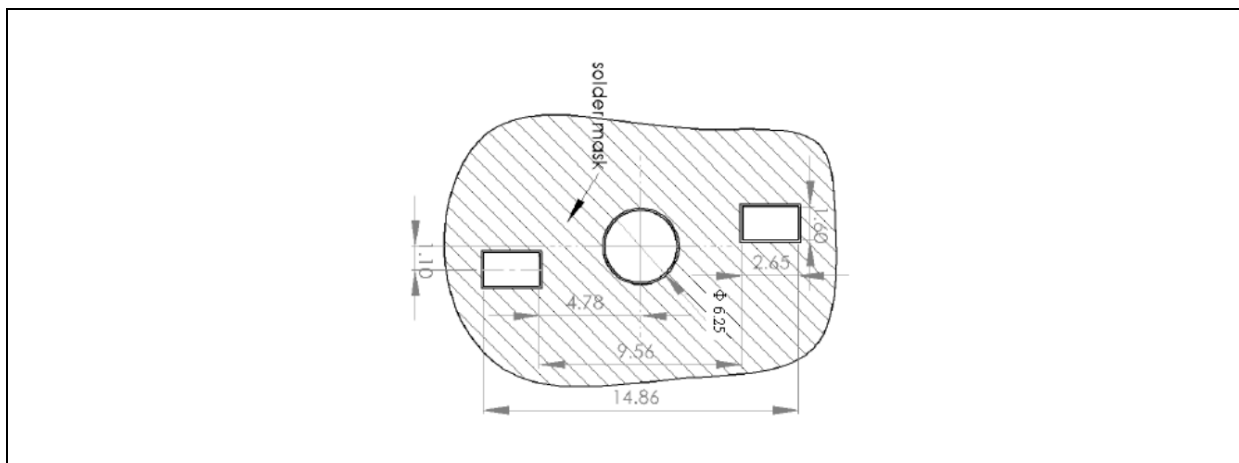
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.2\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance $\pm 0.1\text{mm}$ with angle tolerance $\pm 0.5^\circ$.

BINNING GROUPS:

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

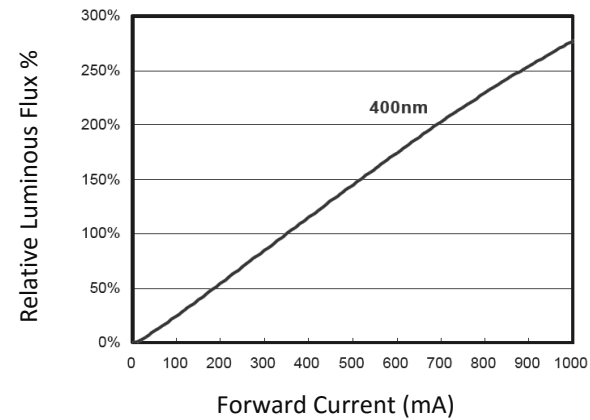
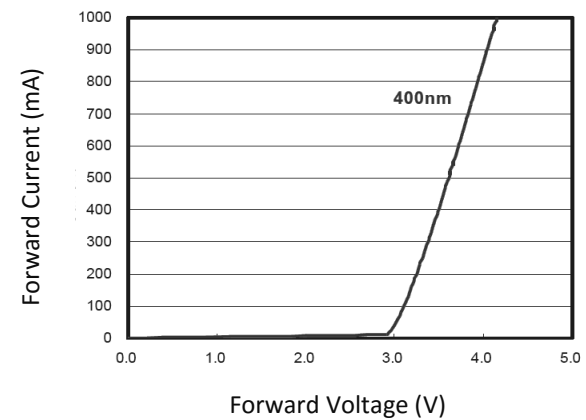
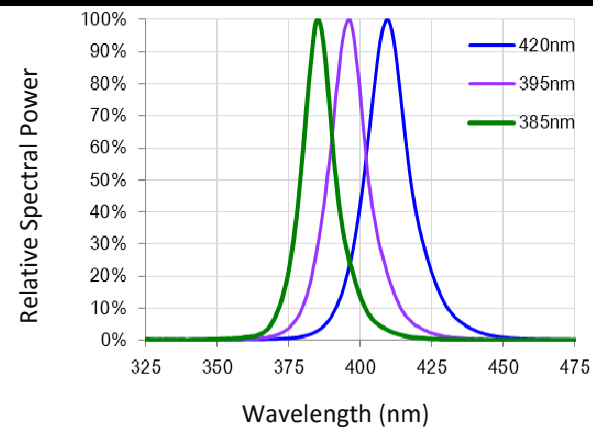
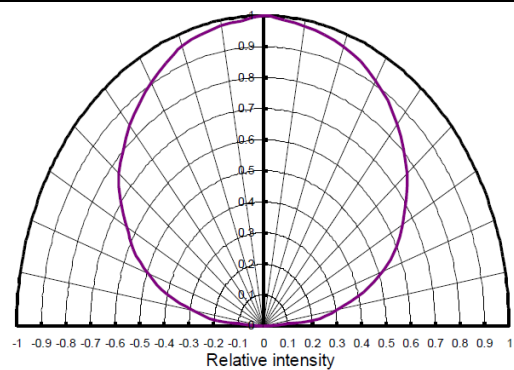
| Code | Min. | Max. | Unit |
|------|------|------|------|
| 1 | 3.2 | 3.7 | V |

 Radiometric Power Classifications ($I_F = 350\text{mA}$):

| Code | Min. | Max. | Unit |
|------|------|------|------|
| U1 | 380 | 420 | mW |
| U2 | 420 | 460 | |

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

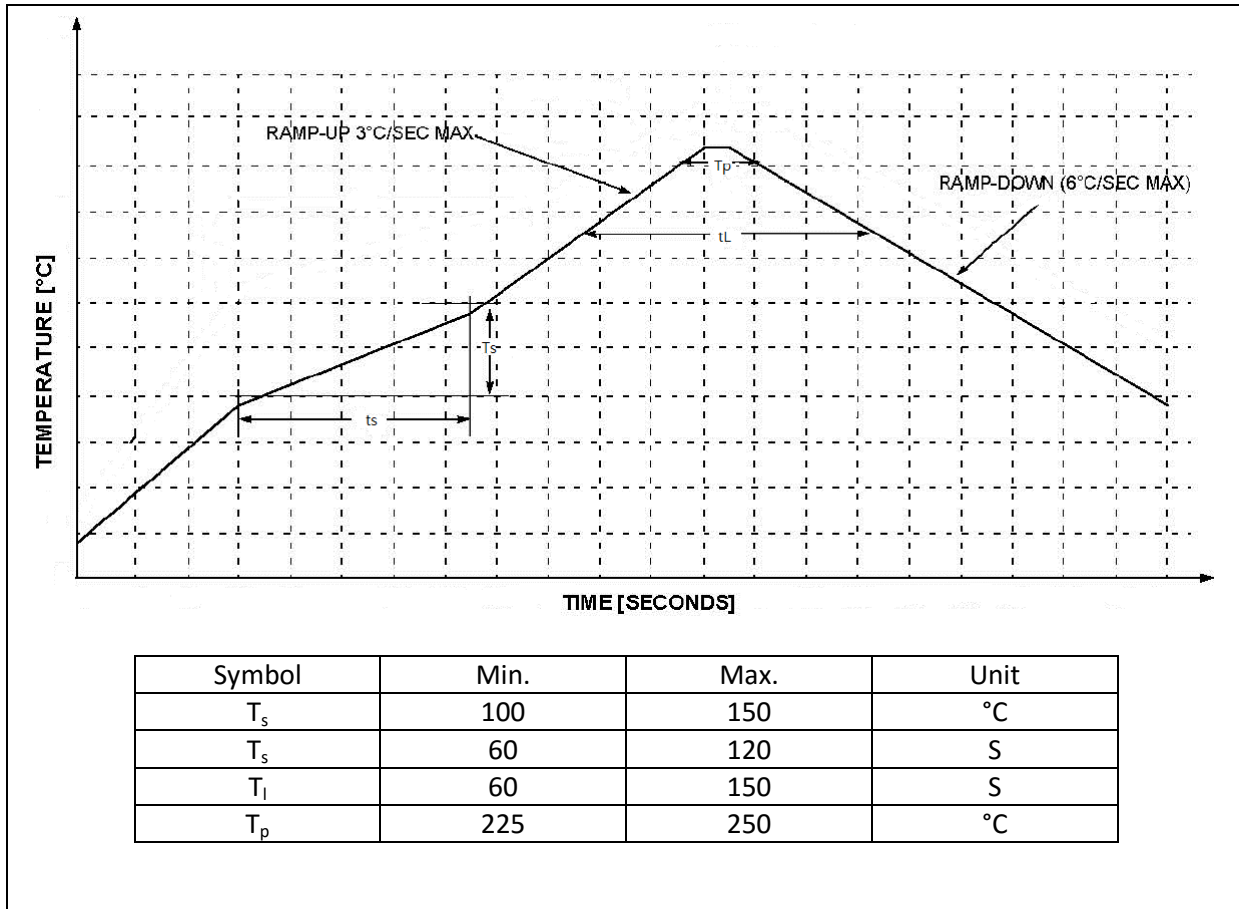
| Code | Min. | Max. | Unit |
|------|------|------|------|
| V1 | 390 | 395 | nm |
| V2 | 395 | 400 | |

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

Forward Current v.s. Forward Voltage

Relative Spectral Power v.s. Wavelength

Directive Radiation




RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:

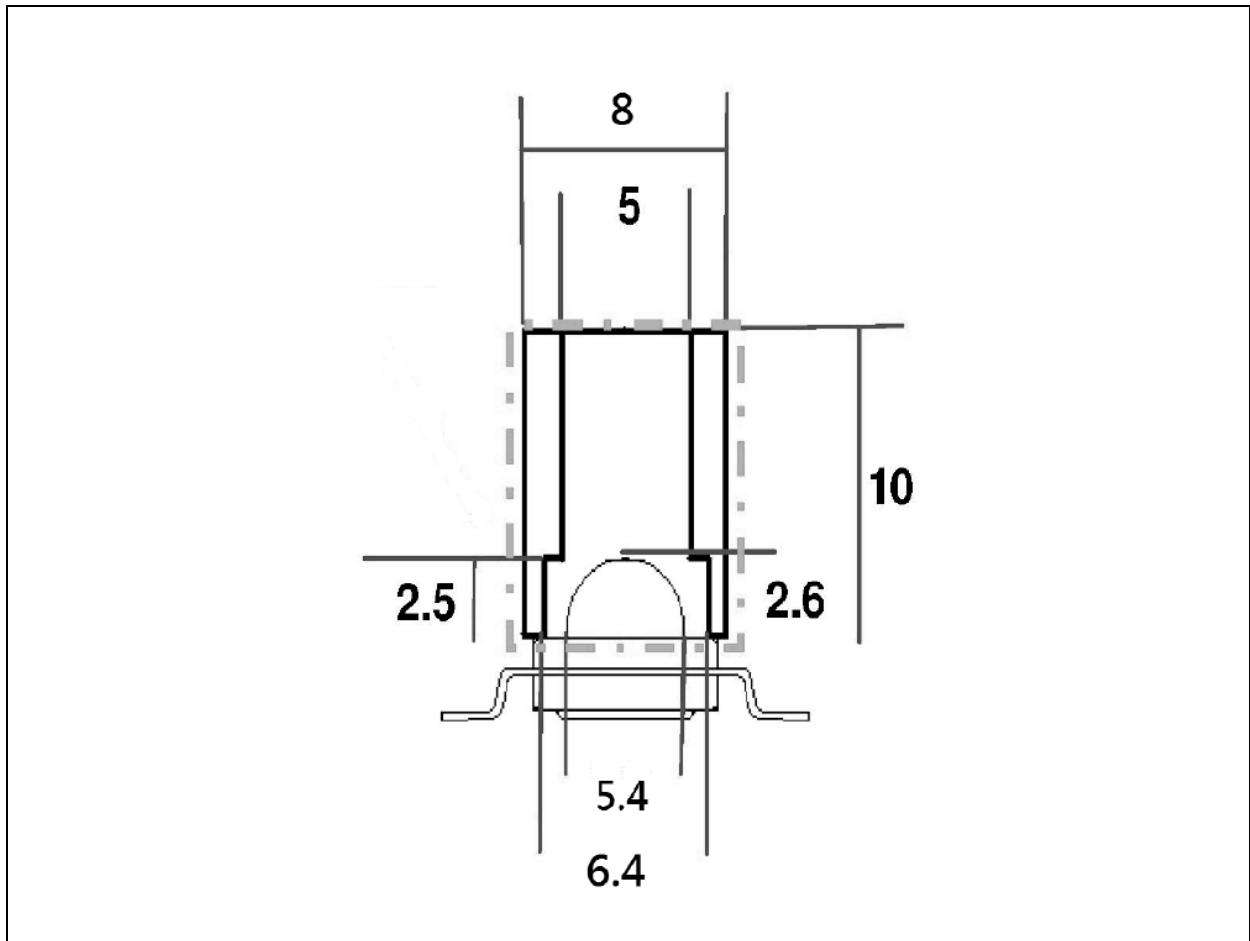


Note:

1. Maximum reflow soldering: 1 time.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

RECOMMENDED NOZZLE FOR SMT:

Recommended Pick & Place Nozzle:

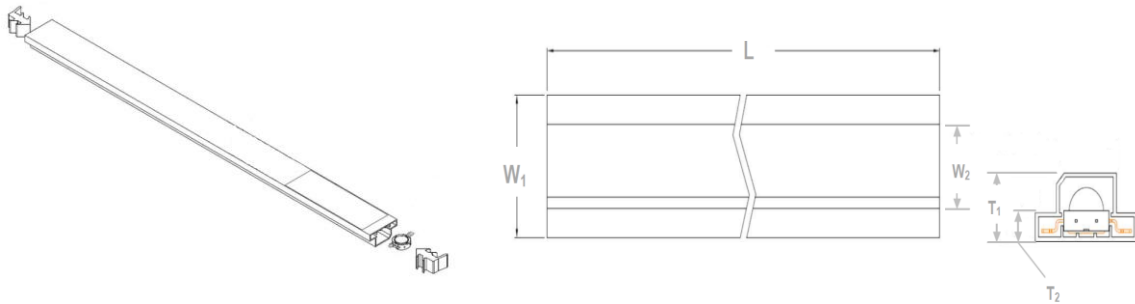


1. All dimensions are in millimetre (mm).
2. Tolerance ± 0.1 mm, unless otherwise noted.

PACKING SPECIFICATION:

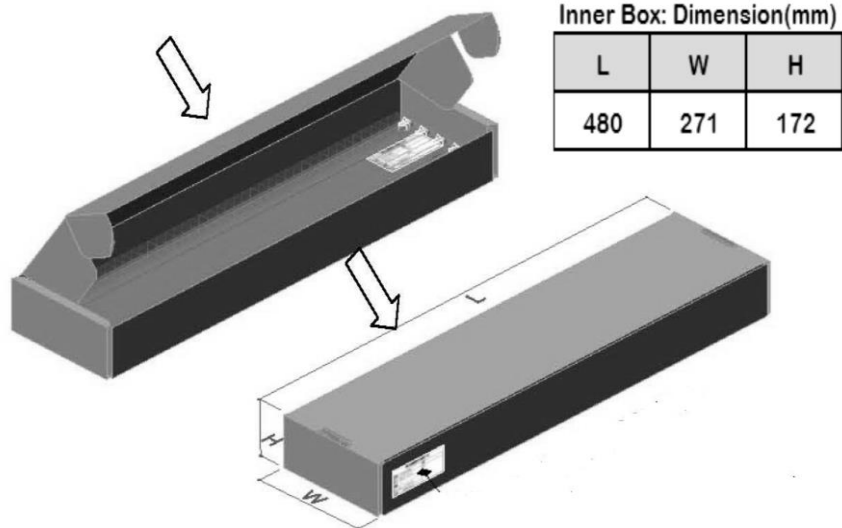
Tube Dimension:

2000pcs/carton (40 tubes); 50pcs/tube



Unit(mm)

| W ₁ | W ₂ | T ₁ | T ₂ | L |
|----------------|----------------|----------------|----------------|-----|
| 16.5 | 9.7 | 7.9 | 3.3 | 420 |

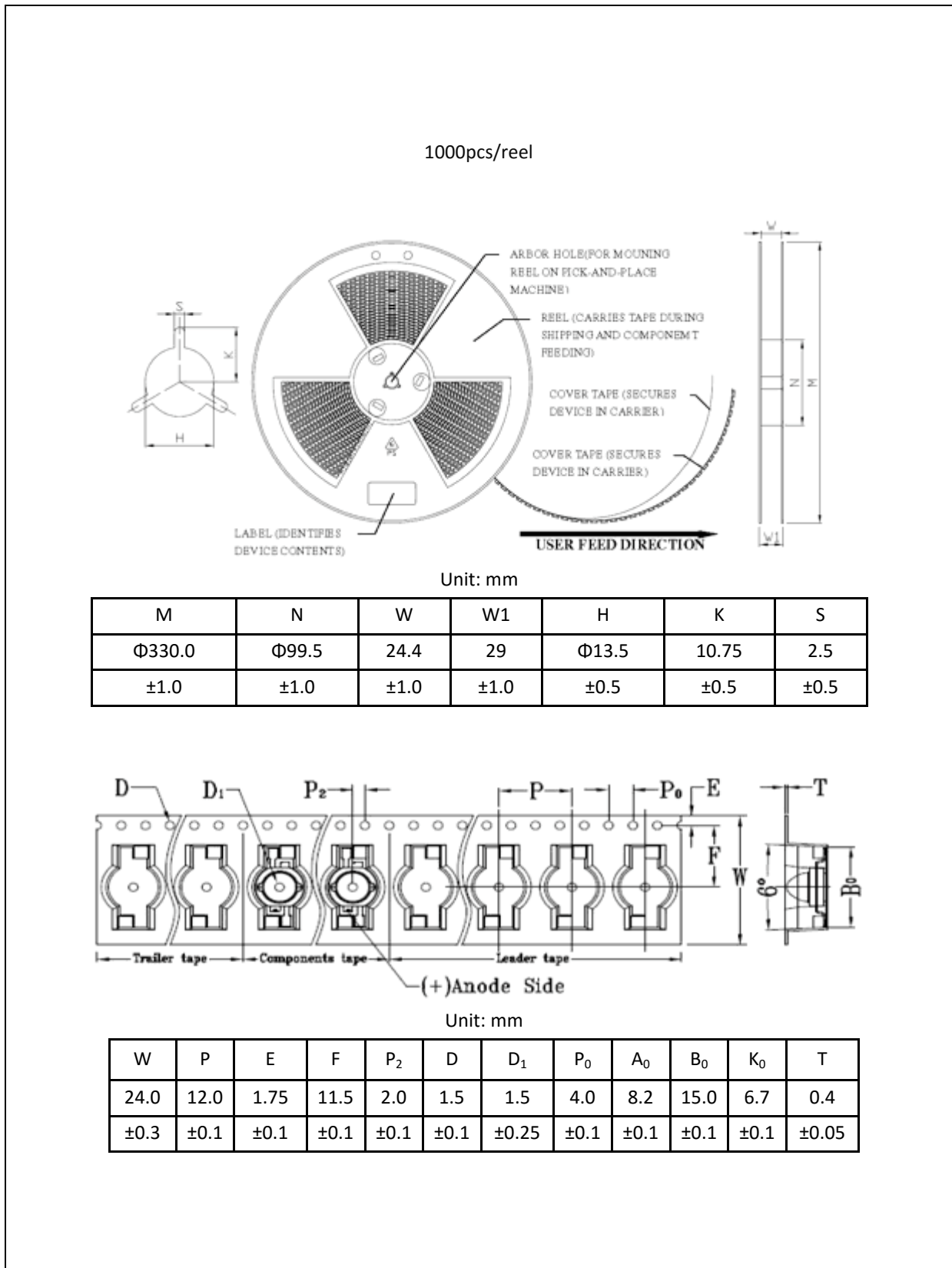


Inner Box: Dimension(mm)

| L | W | H |
|-----|-----|-----|
| 480 | 271 | 172 |

PACKING SPECIFICATION:

Reel Dimension:



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 month 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 and apply baking at 60°C±5°C for 15hrs before use.

Baking:

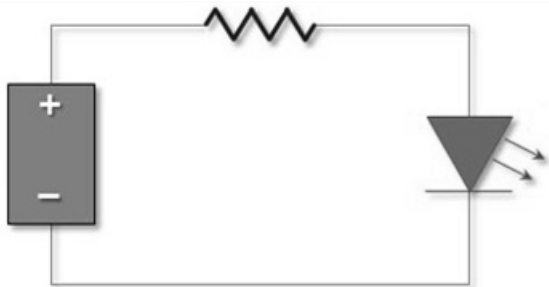
It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs.

The suggested baking conditions are as followings:

- 70±3°C x 24hrs and <5%RH, taped / reel package.
- 100±3°C x 2hrs, bulk (loose) package.
- 130±3°C x 30min, bulk (loose) 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-electrostatic 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:

| Version | Date | Summary of Revision |
|---------|------------|---------------------|
| A1.0 | 21/09/2016 | Datasheet set-up. |