



Data Sheet

Customer: _____

Part No: _____

CL-BIT1005DNB-02

Sample No: _____

Description: _____

1005 SMD Blue Color

Item No: _____

| Customer | | | |
|----------|------------|----------|------|
| Check | Inspection | Approval | Date |
| | | | |

ATTENTION
注意

ESD protected area
静电防护区域



Observe precautions for handling electrostatic discharge sensitive devices
接触静电放电敏感元件时请采取适当的预防措施

Features

- _1.00mmX0.50mm SMT LED, 0.60mm THICKNESS.
- _LOW POWER CONSUMPTION.
- _WIDE VIEWING ANGLE.
- _IDEAL FOR BACKLIGHT AND INDICATOR.
- _VARIOUS COLORS AND LENS TYPES AVAILABLE.
- _PACKAGE: 4000 PCS / REEL.
- _RoHS COMPLIANT.

Description

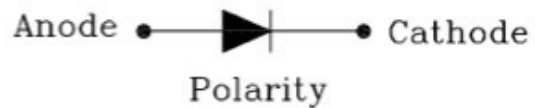
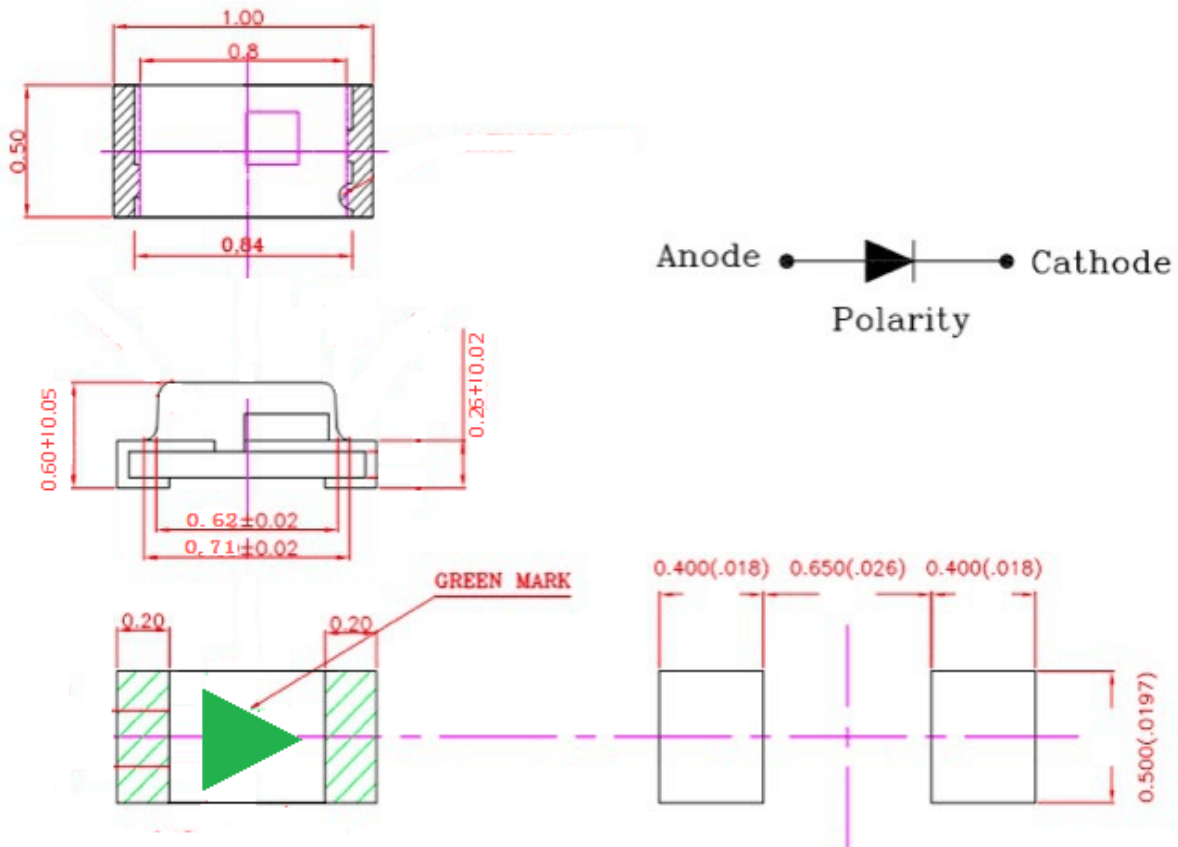
The Blue source color devices are made with GaN on Sapphire Light Emitting Diode.

Static electricity and surge damage the LEDs.

It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

All devices, equipment and machinery must be electrically grounded.

Emitting Diode.

Package Dimensions

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.1(0.004)$ unless otherwise noted.
3. Specifications are subject to change without notice.

Selection Guide

| Part No. | Dice | Lens Type | Iv (mcd) @ 20mA | | Viewing Angle |
|------------------|---------------|-------------|--------------------|------|------------------|
| | | | Min. | Typ. | 2 θ 1/2 |
| CL-BIT1005DNB-02 | BLUE (InGaN) | WATER CLEAR | 90 | 280 | 120 |

Note:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

Electrical / Optical Characteristics at TA=25°C

| Symbol | Parameter | Device | Typ. | Max. | Units | Test Conditions |
|--------|--------------------------|--------|------|------|-------|-----------------|
| λD | Dominant Wavelength | Blue | 464 | 474 | nm | IF=20mA |
| Δλ1/2 | Spectral Line Half-width | Blue | 25 | | nm | IF=20mA |
| C | Capacitance | Blue | | | pF | VF=0V;f=1MHz |
| VF | Forward Voltage | Blue | 2.7 | 3.2 | V | IF=20mA |
| IR | Reverse Current | Blue | | 2 | uA | VR = 7V |

Remarks:

If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or wavelength), the typical accuracy of the sorting process is as follows:

1. Wavelength: +/-1nm
2. Luminous Intensity: +/-15%
3. Forward Voltage: +/-0.1V

Note: Accuracy may depend on the sorting parameters

Absolute Maximum Ratings at TA=25°C

| Parameter | Blue | Units |
|-------------------------------|----------------|-------|
| Power dissipation | 135 | mW |
| DC Forward Current | 30 | mA |
| Peak Forward Current [1] | 140 | mA |
| Reverse Voltage | 5 | V |
| Operating/Storage Temperature | -40°C To +85°C | |

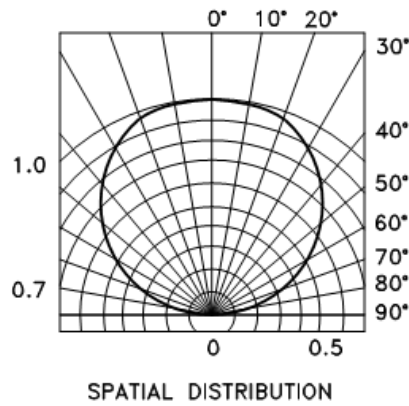
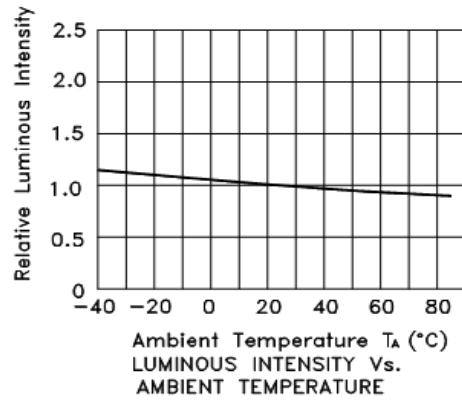
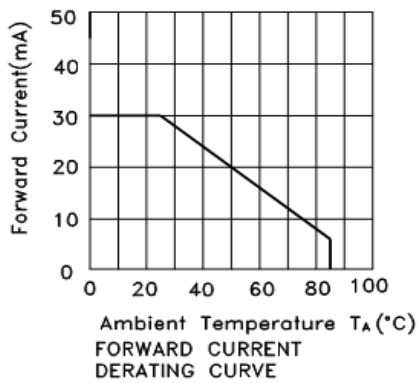
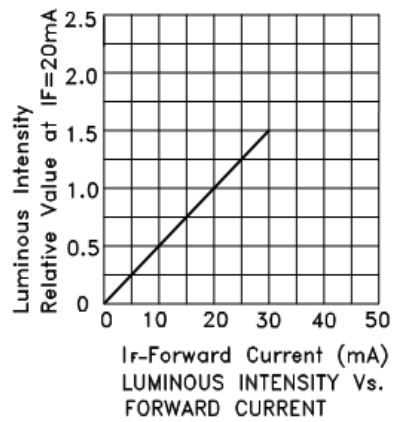
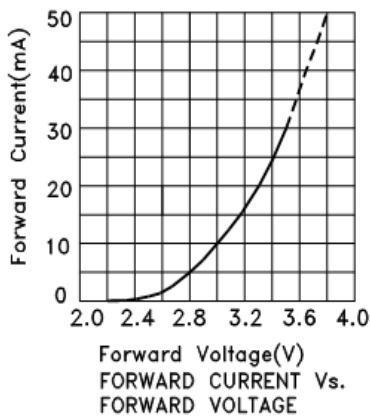
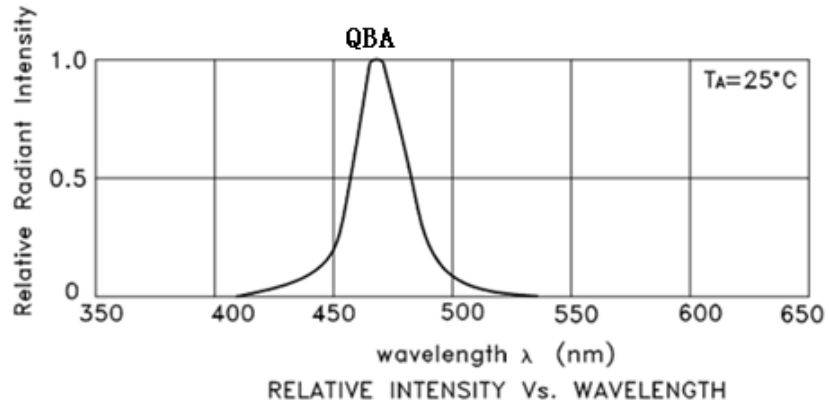
Note:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.

| BIN Code | Test Condition @20mA | |
|----------|----------------------|-----------|
| DNB | Vfmin(v) | Vfmax (v) |
| 1 | 2.7 | 2.8 |
| 2 | 2.8 | 2.9 |
| 3 | 2.9 | 3.0 |
| 4 | 3.0 | 3.1 |
| 5 | 3.1 | 3.2 |

| BIN Code | Test condition: @20mA | |
|----------|-----------------------|---------------------|
| DNB | λ dmin (nm) | λ dmax (nm) |
| 1 | 564 | 566 |
| 2 | 566 | 568 |
| 3 | 568 | 570 |
| 4 | 570 | 572 |
| 5 | 572 | 574 |

| BIN Code | Test condition: @20mA | |
|----------|-----------------------|-------------|
| DNB | IVmin(mcd) | IVmax (mcd) |
| B1 | 90 | 112 |
| B2 | 112 | 140 |
| B3 | 140 | 180 |
| B4 | 180 | 225 |
| B5 | 225 | 280 |



4. RELIABILITY

(1) Test Items and Results

| NO. | Test Item | Reference Standard | Test Conditions | (Hours/Cycles) | Sample | Number of Damaged |
|-----|---|--------------------------|--|----------------|--------|-------------------|
| 1 | Temperature Cycle | JEITA ED-4701 | -40 °C - 25 °C - 100 °C - 25 °C 30min 5min 30min 5min | 100 Cycles | 20 | 0/20 |
| 2 | Thermal shock | MIL-STD-202G | -40°C ~ 100°C 15min 15min | 500 Cycles | 20 | 0/20 |
| 3 | High Temperature Storage | JEITA ED-4701 200 201 | Ta=100°C | 1000 Hours | 20 | 0/20 |
| 4 | Low Temperature Storage | JEITA ED-4701 200 201 | Ta=-40°C | 1000 Hours | 20 | 0/20 |
| 5 | Room Temperature Life Test | | Ta=25±5°C IF=20mA | 1000 Hours | 20 | 0/20 |
| 6 | High Temperature High Humidity Life Test | | Ta=60°C RH=85% IF=20mA | 1000 Hours | 20 | 0/20 |
| 7 | Solderability (Reflow Soldering) | JEITA ED-4701 300 303 | Tsol=235°C ± 5°C, 5sec (Using Flux, Lead Solder) | 1 time, 5sec | 10 | 0/10 |
| 8 | Resistance to Soldering Heat (Reflow Soldering) | JEITA ED-4701 300 301 | Tsol=260°C, 10 sec Pre Treatment: 35 °C 95% RH96 Hrs | 2 time, 10sec | 10 | 0/10 |

The above test items such as differences or special customer specific requirements according to the actual situation in accordance with the requirements of customers to try the requirements with the customer, the customer is not required by our test standard test. Different products using different current test

Cautions

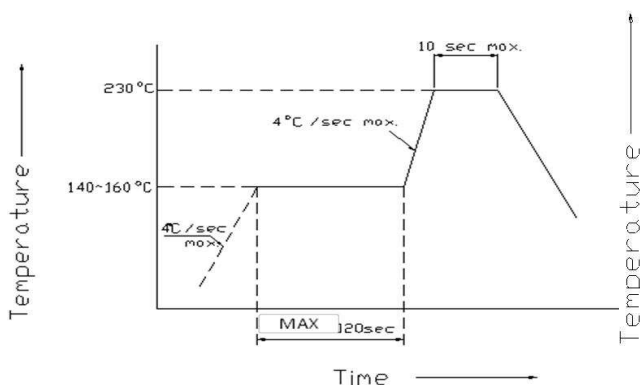
(1) Soldering Conditions

Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

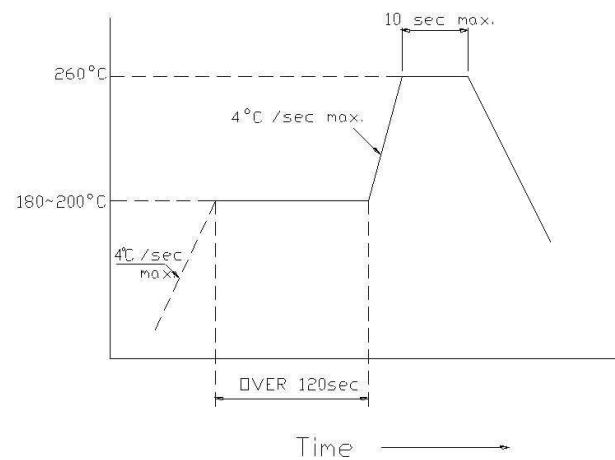
(Recommended soldering conditions)

| | Reflow Soldering | | Manual Soldering | |
|------------------|-------------------------------|-------------------------------|-----------------------|---|
| | Lead Solder | Lead-free Solder | Temperature Soldering | 350° C Max. 3 sec. Max. (one time only) |
| Pre-heat time | 140 ~ 160° C 120 sec. Max. | 180 ~ 200° C 120 sec. Max. | | |
| Peak temperature | 230° C Max. 10 sec. Max. | 240° C Max. 10 sec. Max. | | |
| Soldering time | | | | |
| Condition | | | | |

(Lead Solder)



(Lead-Free Solder)



(2) Static Electricity

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

All devices, equipment and machinery must be properly grounded.

Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : ($V_F > 2.0V$ at $I_F=0.5mA$)

(3) Moisture Proof Package

It is recommended that moisture proof package be used .

(4)Cautions:

4.1.Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

4.2 Products can be used within 15days after packaging, after that, they must be:

4.2.1 Soldered within 24 hrs

4.2.2 Used in the condition: $30^{\circ}C$ within and 60%RH below

4.2.3 Stored in 30%RH for moisture below.

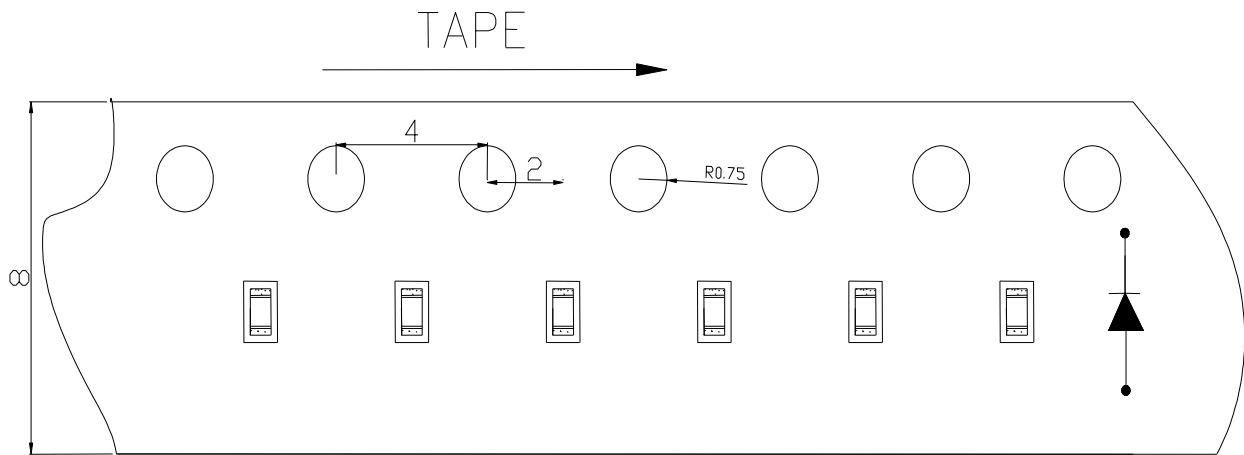
4.3.Products cannot be used for and over 15days after being packaged unless opening the package and take drying our process in $85^{\circ}C/6H$.

4.4.Products not be used for or over 60days after being packaged please return back to take drying out and packaging process for forward using.

4.5.Products not be used after opening the package need to be dried out for $85^{\circ}C/6H$

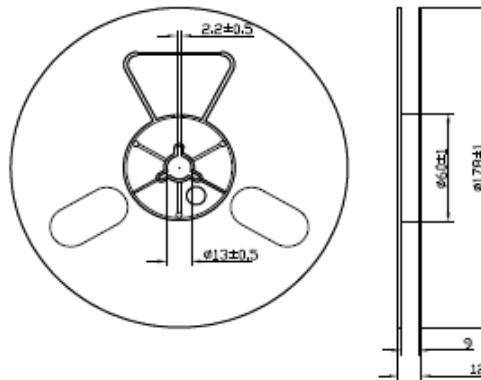
PACKAGING

The LEDs are packed in cardboard boxes after taping.

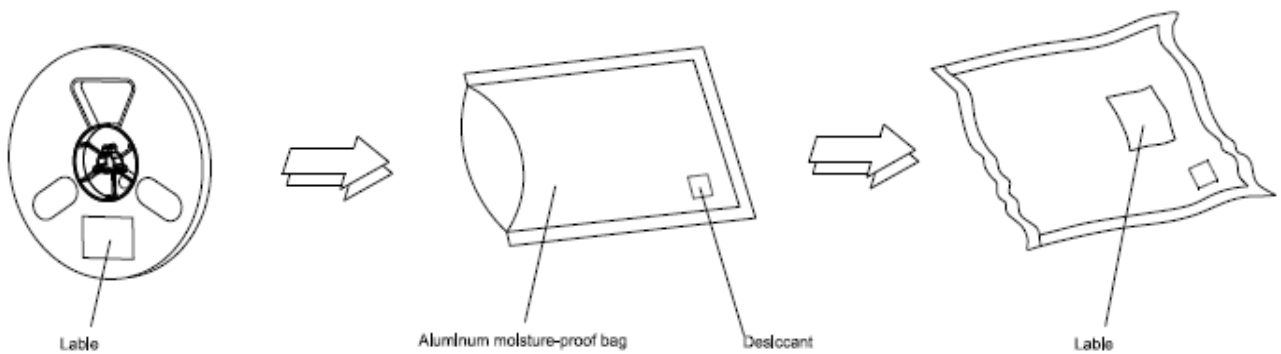


Package: 4000PCS/reel

Reel Dimensions



Moisture Resistant Packaging



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit: mm