



Data Sheet

Customer:

Part No:

CL-SP2106DNB-02

Sample No:

Description:

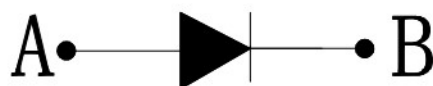
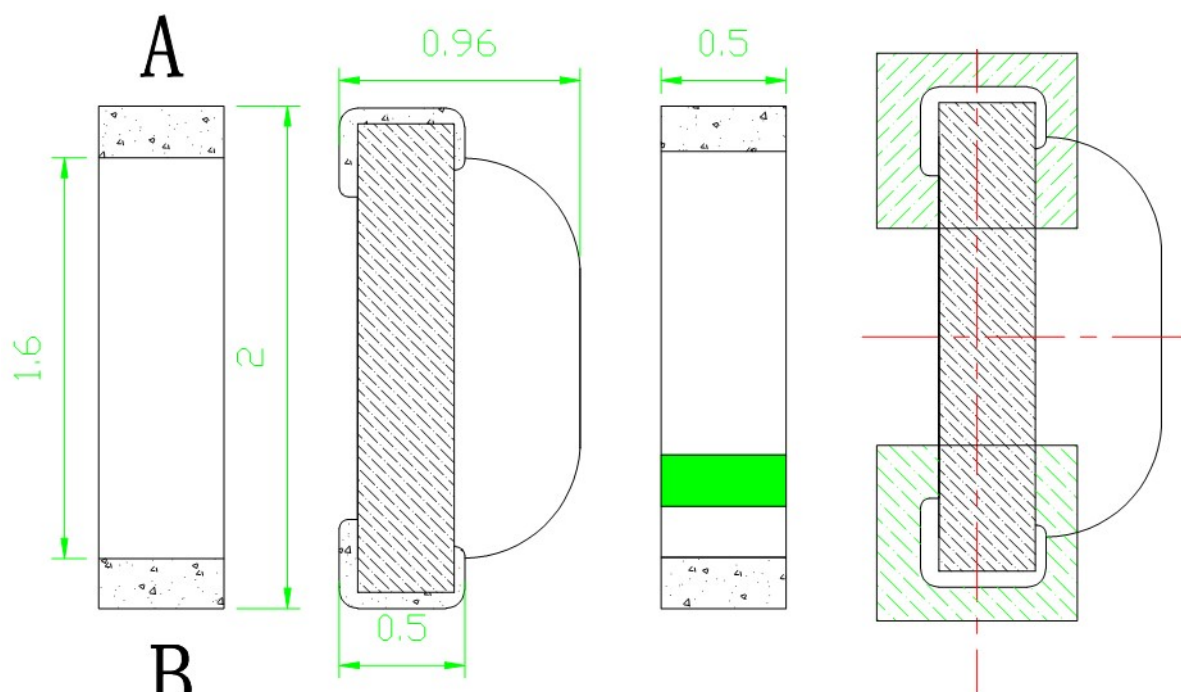
Item No:

Customer			
Check	Inspection	Approval	Date

Features

- _2.0mmX0.5mm SMT LED, 0.96 mm THICKNESS.
- _LOW POWER CONSUMPTION.
- _WIDE VIEWING ANGLE.
- _IDEAL FOR BACKLIGHT AND INDICATOR.
- _VARIOUS COLORS AND LENS TYPES AVAILABLE.
- _PACKAGE: 4000PCS / REEL.
- _RoHS COMPLIANT.

Package Dimensions



Notes:

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



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.

Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) @5mA		Viewing Angle
			Min.	Typ.	2 θ 1/2
SP2106DNB-02	BLUE (GaN)	WATER CLEAR	40	100	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
λ _{peak}	Peak Wavelength	Blue	464	472	nm	IF=5mA
λ _D	Dominant Wavelength	Blue			nm	IF=5mA
Δλ _{1/2}	Spectral Line Half-width	Blue	25		nm	IF=5mA
C	Capacitance	Blue			pF	VF=0V;f=1MHz
VF	Forward Voltage	Blue	2.6	3.1	V	IF=5mA
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

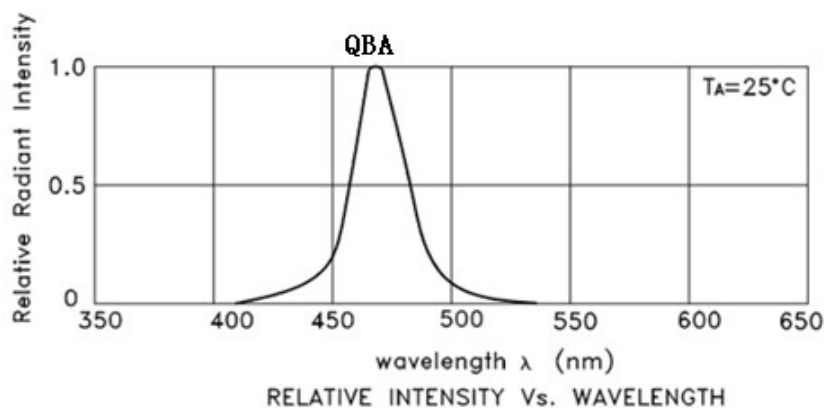
Note: Accuracy may depend on the sorting parameters

Absolute Maximum Ratings at TA=25°C

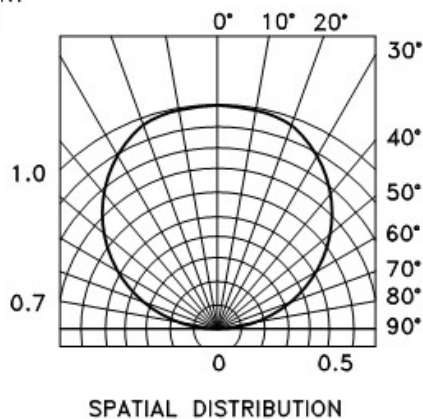
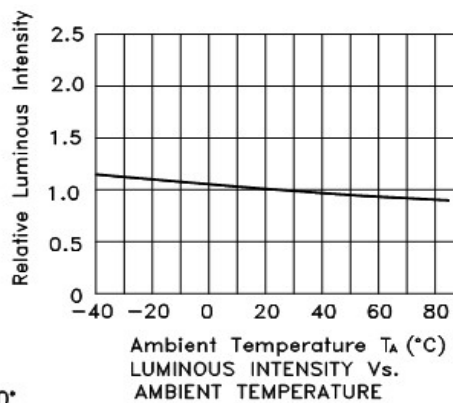
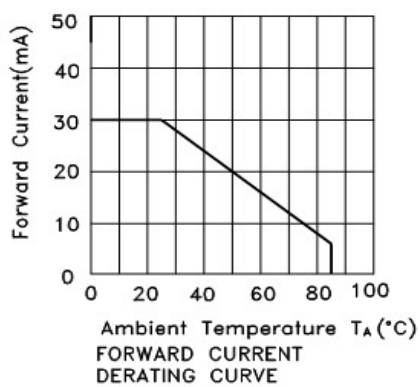
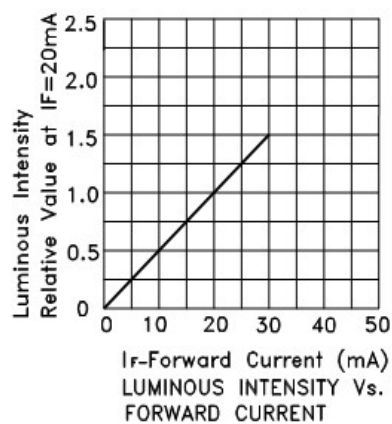
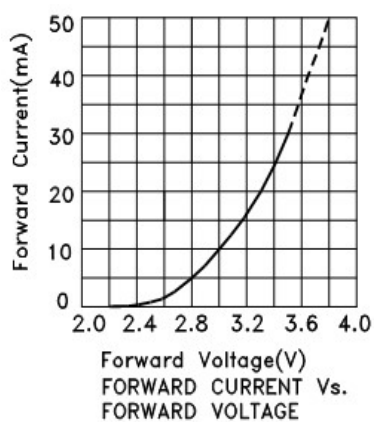
Parameter	Blue	Units
Power dissipation	135	mW
DC Forward Current	30	mA
Peak Forward Current [1]	140	mA
Reverse Voltage	5	V
Operating/Storage Temperature	-40°C To +85°C	

Note:

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



Blue



RELIABILITY

Test Items and Results

NO	TEST ITEM	Guideline	TEST CONDITION	Duration	Qty	Ac/Re
1	Temperature cycle	JEITA ED-4701	-40℃～25℃～100℃～ 25℃ 30 min 5 min 30 min 5 min	Loop 100 rounds	50	0/50
2	Thermal shock	MIL-STD-2 02G	-40℃～100℃ 15 min 15 min	Loop 500 rounds	50	0/50
3	High temperature storage	JEITA ED-4701 200 201	Ta=100℃	1000 hours	50	0/50
4	Low temperature storage	JEITA ED-4701 200 201	Ta=-40℃	1000 hours	50	0/50
5	Normal temperature life test		Ta=25±5℃ IF=20mA	1000 hours	50	0/50
6	High temperature and high humidity life test		Ta=60℃ RH=85% IF=20mA	1000 hours	50	0/50
7	Solderability (reflow soldering)	JEITA ED-4701 300 303	Tsol=235℃±5℃,5 sec Use flux	Weld once, 5 seconds	10	0/10
8	Solder resistance (reflow soldering)	JEITA ED-4701 300 301	Tsol=260℃,10 sec Preprocessing : 35℃ 95%RH 96 hours	Weld twice, 10 seconds each time	10	0/10
Prepare	If the above test items are different from the customer's test requirements or have special customer requirements, they can be trial-produced according to the actual situation and in accordance with the customer's requirements. If the customer does not require them, they can be trial-produced according to our company's test standards. Different products use different currents for testing.					

5. Cautions

(1) Soldering Conditions

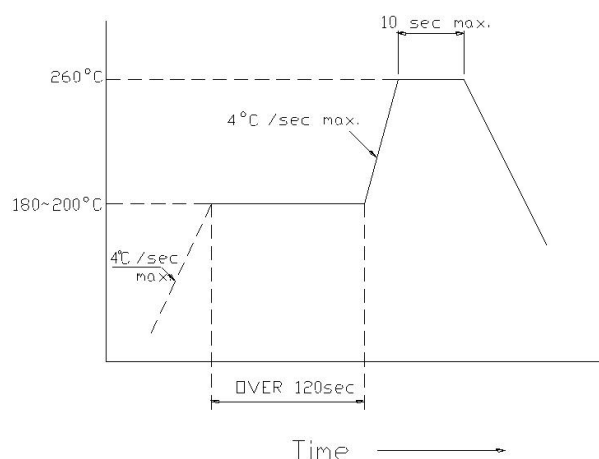
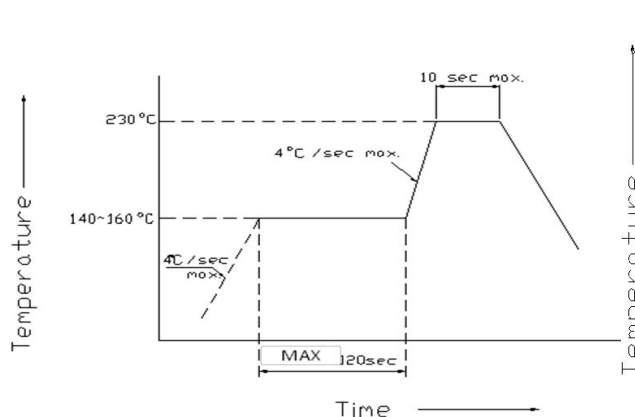
Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

(Recommended soldering conditions)

回流焊接 Reflow Soldering			手工焊接	
预热温度 Pre-heat	有铅 Lead Solder	无铅 Lead-free Solder	温度 Temperature	350° C Max.
预热时间 Pre-heat time	140 ~ 160° C 120 sec. Max.	180 ~ 200° C 120 sec. Max.	焊接时间 Soldering time	3 sec. Max. (one time only)
峰值温度 Peak temperature	230° C Max. 10 sec. Max.	260° C Max. 10 sec. Max.		
焊接时间 Soldering time	参考下图	参考下图		
条件 Condition				

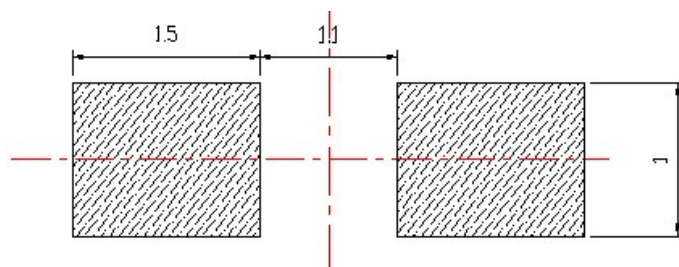
有铅回焊 (Lead Solder)

无铅回焊 (Lead-Free Solder)



Recommended Soldering Pattern

(Units : mm)



(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.

2.0V 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.

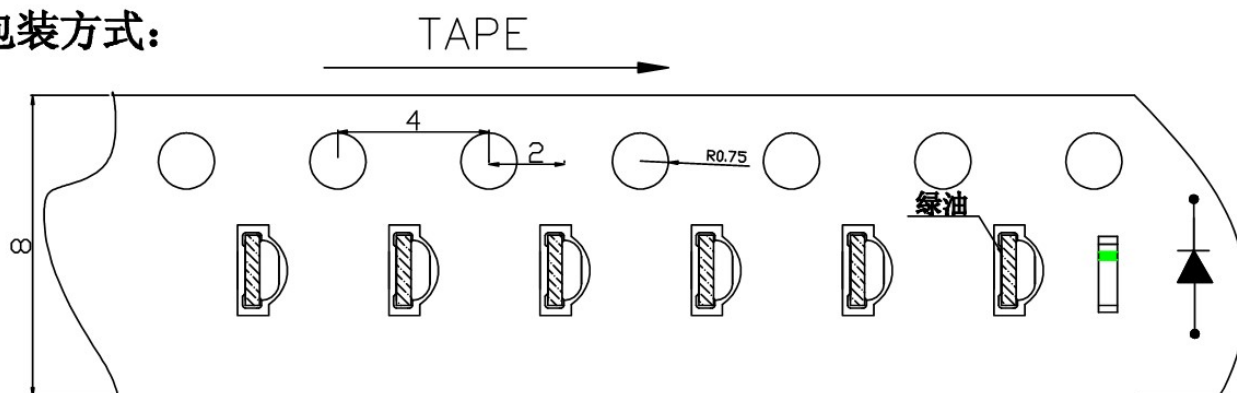
4.5.

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.

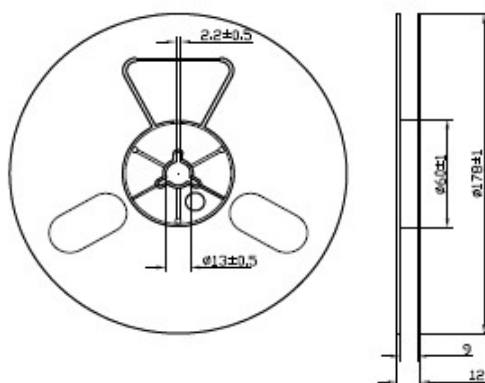
包装方式:



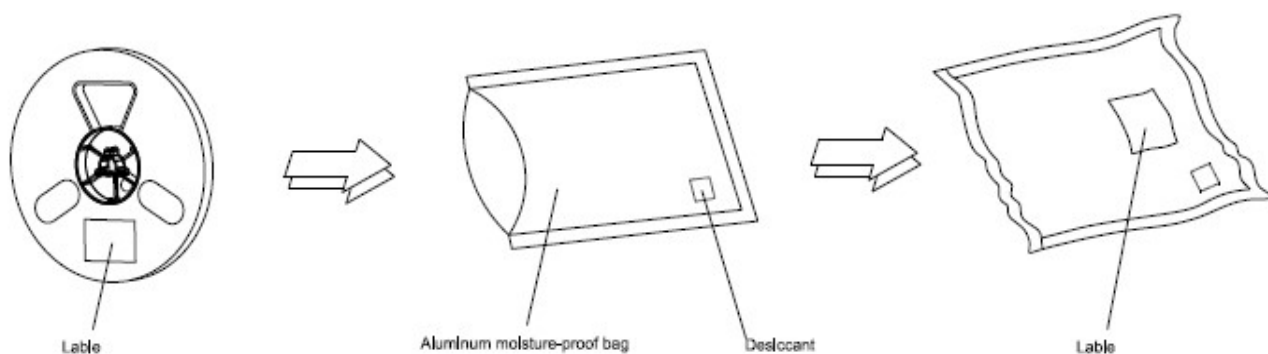
0802

Package: 4000PCS/reel

Reel Dimensions



Moisture Resistant Packaging



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