RoHS

# Specification

Client Name: _____

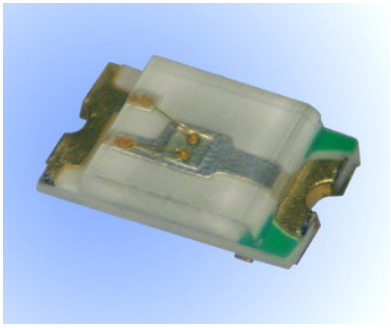
Client P/N: _____

Factory P/N: OF-SMD2012G-1

Sending Date: _____

## Features

- Extremely wide viewing angle
- Suitable for all SMT assembly and solder process
- Available on tape and reel
- Moisture sensitivity level: Level 4
- Package:3000pcs/reel
- RoHS compliant



## Description

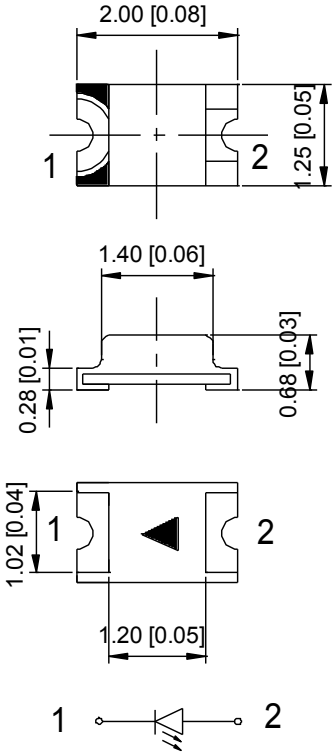
The Green source color devices are made with InGaN on Substrate Light Emitting Diode

**ATTENTION**
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

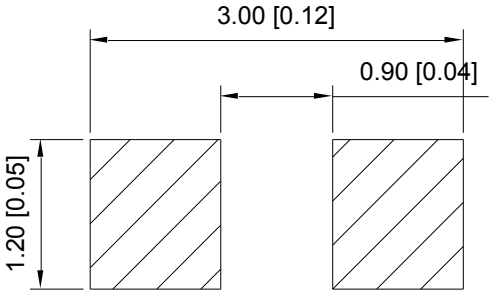
## Applications

- ■Optical indicator
- ■Indoor display
- ■Backlighting in dashboard and switch
- ■Flat backlighting for LCD, symbol and display
- ■General use

## Package Dimensions




## Recommended Soldering Pattern




Notes:

1. All dimension units are millimeters.

2.All dimension tolerance is ±0.15mm unless otherwise noted.

## Selection Guide

| Part No. | Dice | Lens Type | Luminous intensity(mcd) @ 20mA | | Viewing Angle |
|---|---|---|---|---|---|
| | | | Min. | Typ. | 2θ1/2 |
| OF-SMD2012G-1 | Green (InGaN ) | Water Clear | 600 | 800 | 120° |

Note:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2.the above luminous intensity measurement allowance tolerance ±10%.

## Electrical / Optical Characteristics at Ta=25°C

| Parameter | Symbol | Min. | Typ. | Max | Units | Test Conditions |
|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | 2.8 | - - | 3.4 | V | $I_F$=20mA |
| Reverse Current | $I_R$ | - - | - - | 10 | uA | $V_R$ = 5V |
| Dominate Wavelength | λd | 515 | - - | 525 | nm | $I_F$=20mA |

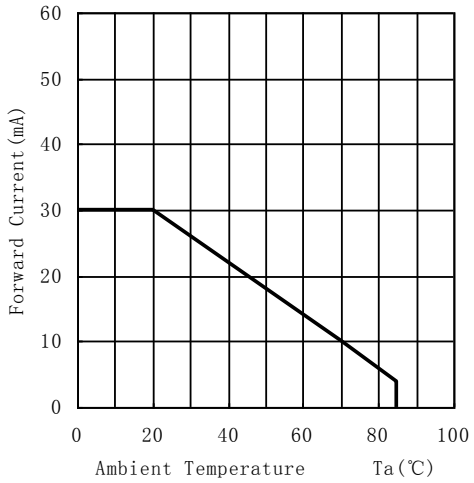
## Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Rating | Units |
|---|---|---|---|
| Power Dissipation | Pd | 105 | mW |
| DC Forward Current | $I_F$ | 30 | mA |
| Peak Forward Current [1] | $I_{FP}$ | 100 | mA |
| Reverse Voltage | $V_R$ | 5 | V |
| Electrostatic Discharge (HBM) | ESD | 1000 | V |
| Operating Temperature | Topr | -40 ~ +85 | ℃ |
| Storage Temperature | Tstg | -40 ~ +100 | ℃ |

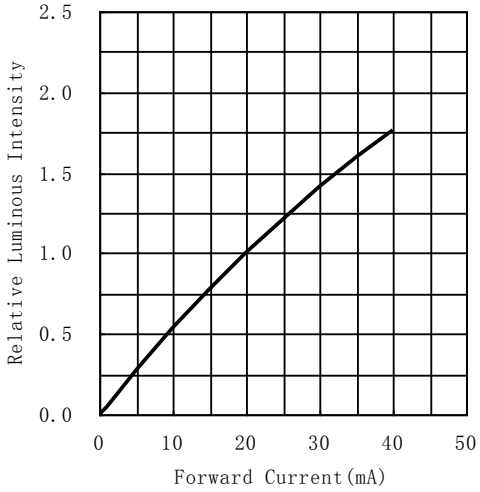
Note:
1. 1/10 Duty cycle, 0.1ms pulse width.
2. The above forward voltage measurement allowance tolerance ±0.1V.

**Typical optical characteristics curves**

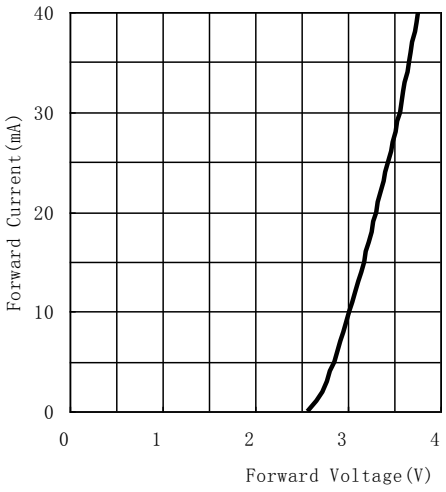
Ambient Temperature VS. Forward Current



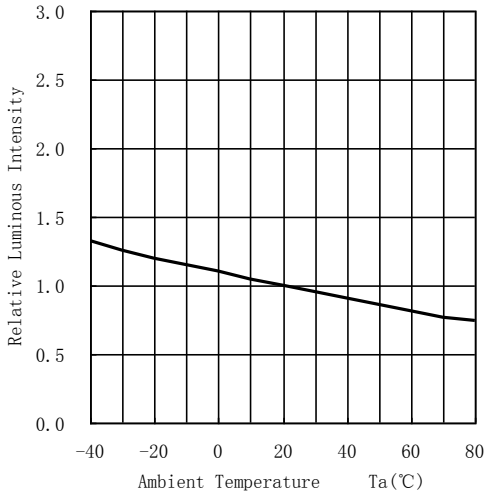

Forward Current VS. Relative Intensity




Forward Voltage VS. Forward Current




Ambient Temperature VS. Relative Intensity




Relative spectral emission

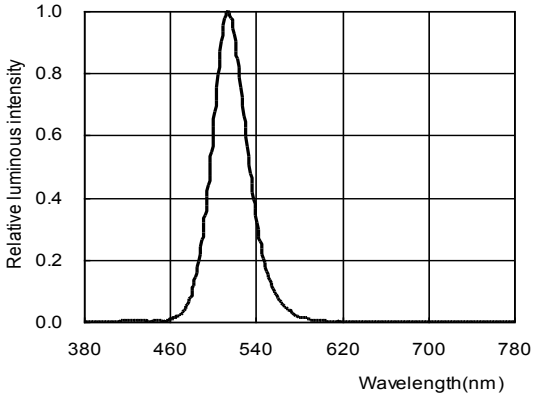
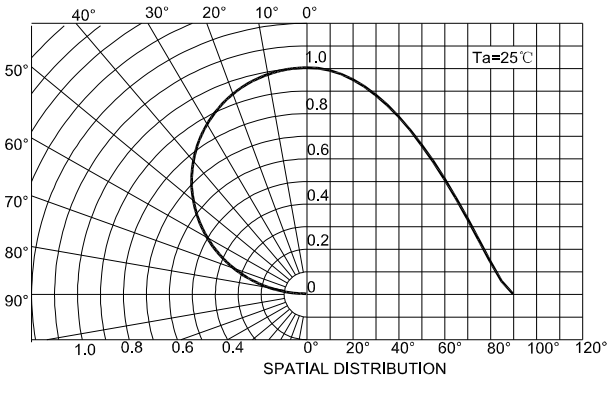



Diagram characteristics of radiation



## Reliability Test Items And Conditions

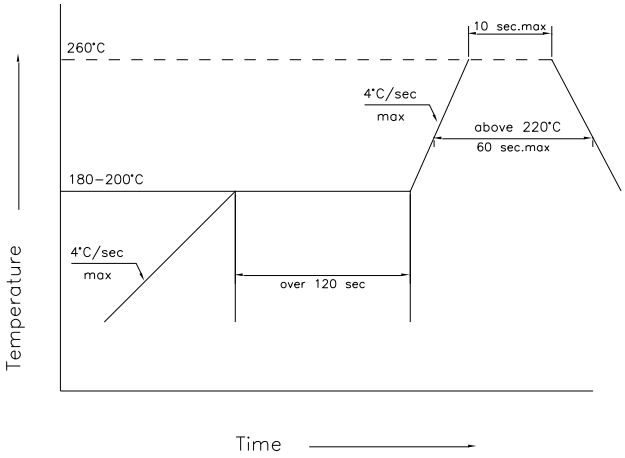
The reliability of products shall be satisfied with items listed below.
Confidence level :90%
LTPD :10%

| No. | Items | Ref. Standard | Test Condition | Test Hours/ Cycles | Sample Size | Ac/Re |
|---|---|---|---|---|---|---|
| 1 | Reflow | JESD22-B106 | Temp:260℃max<br>T=10 sec | 3 times. | 22Pcs. | 0/1 |
| 2 | Temperature Cycle | JESD22-A104 | 100℃±5℃ 30 min.<br>↑↓5 min<br>-40℃±5℃ 30 min. | 100 Cycles | 22Pcs. | 0/1 |
| 3 | Thermal Shock | JESD22-A106 | 100℃±5℃ 5 min.<br>↑↓<br>-40℃±5℃ 5 min. | 100 Cycles | 22Pcs. | 0/1 |
| 4 | High Temperature Storage | JESD22-A103 | Temp:100℃±5℃ | 1000Hrs. | 22Pcs. | 0/1 |
| 5 | Low Temperature Storage | JESD22-A119 | Temp:-40℃±5℃ | 1000Hrs. | 22Pcs. | 0/1 |
| 6 | DC Operating Life | JESD22-A108 | Ta=25℃±5℃<br>IF=20mA | 1000Hrs. | 22Pcs. | 0/1 |
| 7 | High Temperature<br>High Humidity | JESD22-A101 | 85℃±5℃/ 85%RH<br>IF=5mA | 1000Hrs. | 22Pcs. | 0/1 |

*The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

## SMT Reflow Soldering Instructions

1.Reflow soldering should not be done more than two times
2.When soldering , do not put stress on the LEDs during heating

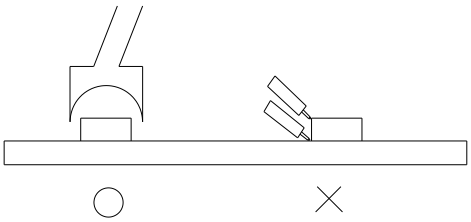



## Soldering iron

1.When hand soldering, the temperature of the iron must less than 300℃ for 3 seconds
2.The hand solder should be done only one times

## Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of LEDs will or will not be damaged by repairing.

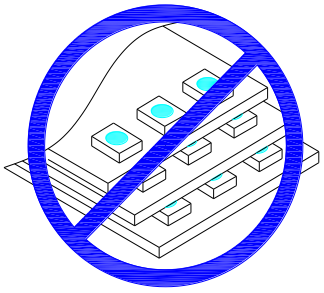


## Cautions

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper.

## Handling Precautions

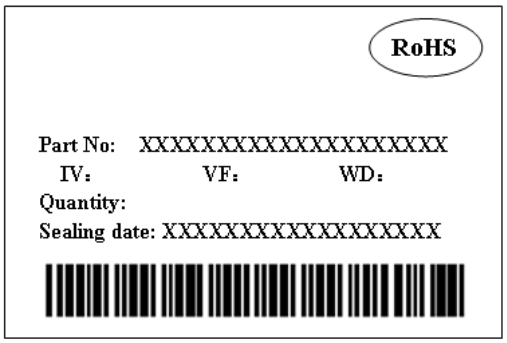
1.Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage



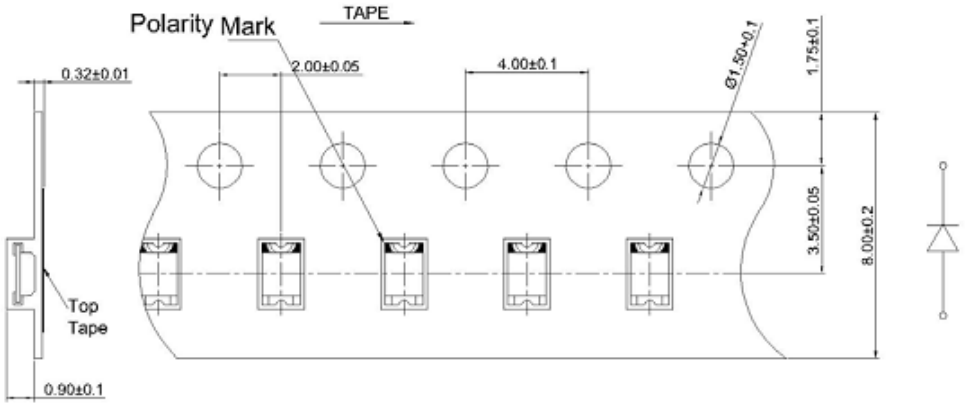
2.Not available in the situation of acidity for PH

## Label

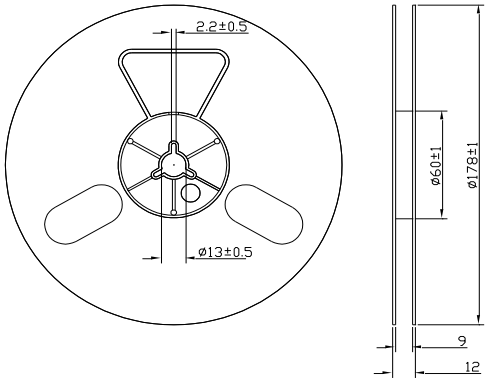
IV: Luminous intensity rank
λD: Dominate Wavelength
VF: Forward voltage rank



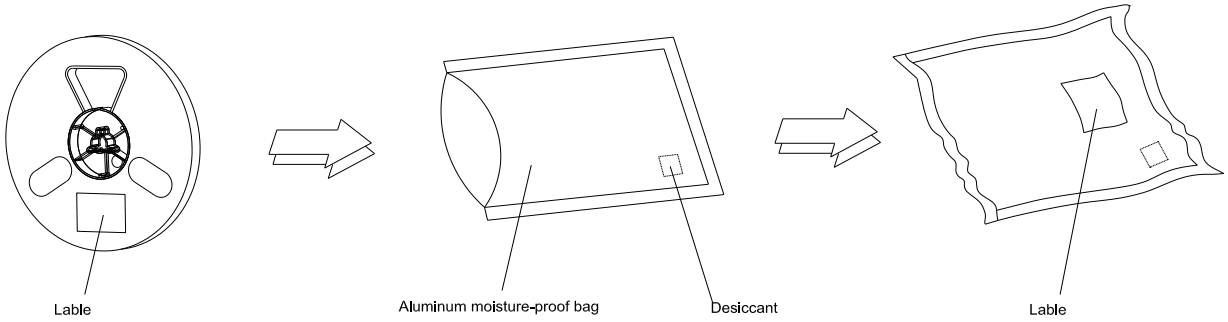

## Tape Specifications (Units : mm)




## Reel Dimensions




## Moisture Resistant Packaging




Note: The tolerances unless mentioned is ±0.1mm , Unit: mm