

RoHS

Specification

Customer Name : _____

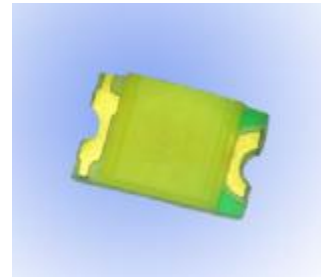
Customer P/N : OF-SMD2012W

Factory P/N : _____

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 White LED which was fabricated using a blue chip and the phosphor



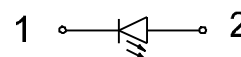
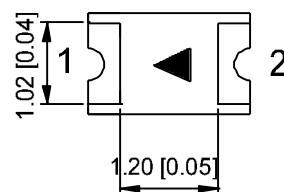
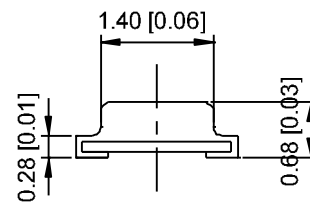
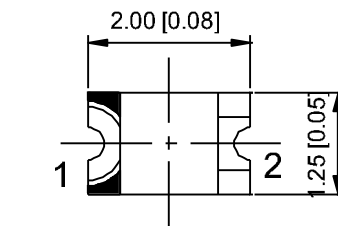
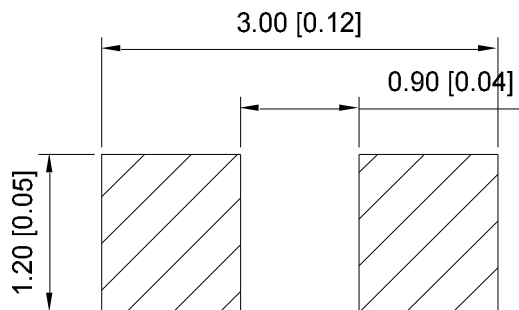
ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Applications

- Optical indicator
- Indoor display
- Automotive lighting
- Backlight for LCD, switch and Symbol, display
- Tubular light application
- General use

Package Dimensions

Recommended Soldering Pattern



Notes:

1. All dimension units are millimeters.
2. All dimension tolerance is ± 0.15 mm unless otherwise noted.

Selection Guide

| Part No. | Dice | Lens Type | Luminous intensity(mcd) @ 20mA | | Viewing Angle |
|-------------|------------------|-----------------|-----------------------------------|------|---------------|
| | | | Min | Typ | 2q1/2 |
| OF-SMD2012W | White (InGaN) | Yellow Diffused | 1000 | 1400 | 120° |

Note:

1. $\theta/2$ 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 $\pm 10\%$.

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 | μA | V _R = 5V |
| Color Coordinates | X | -- | 0.31 | -- | -- | I _F =20mA |
| | Y | -- | 0.32 | -- | -- | I _F =20mA |
| Color Temperature | T _c | -- | 6500 | -- | K | I _F =20mA |
| Color Rendering Index | CRI | 65 | -- | -- | Ra | I _F =20mA |

Absolute Maximum Ratings at Ta=25°C

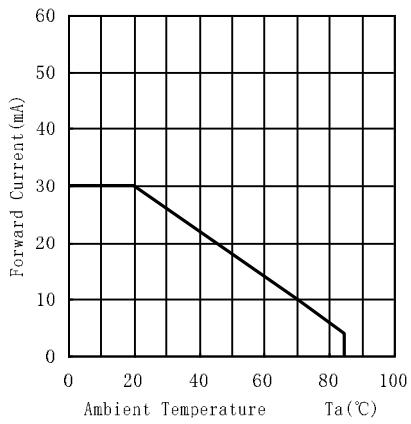
| Parameter | Symbol | Rating | Units |
|-------------------------------|------------------|------------|-------|
| Power Dissipation | P _d | 105 | mW |
| Forward Current | I _F | 30 | mA |
| Peak Forward Current [1] | I _{FP} | 100 | mA |
| Reverse Voltage | V _R | 5 | V |
| Electrostatic Discharge (HBM) | ESD | 1000 | V |
| Operating Temperature | T _{opr} | -40 ~ +85 | °C |
| Storage Temperature | T _{stg} | -40 ~ +100 | °C |

Note:

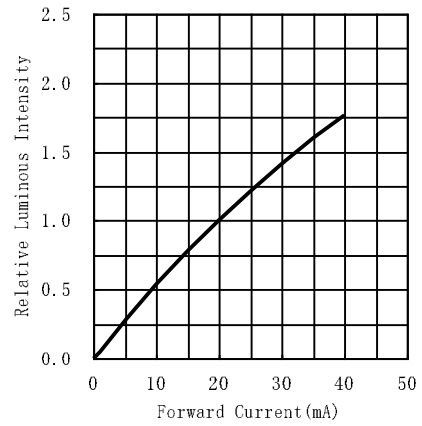
1. 1/10 Duty cycle, 0.1ms pulse width.
2. The above forward voltage measurement allowance tolerance is $\pm 0.1V$.
3. The above color coordinates measurement allowance tolerance is ± 0.003 .

Typical optical characteristics curves

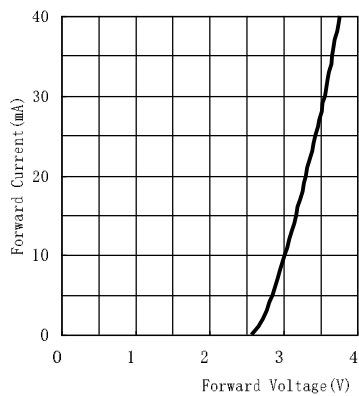
Ambient Temperature vs. Forward Current



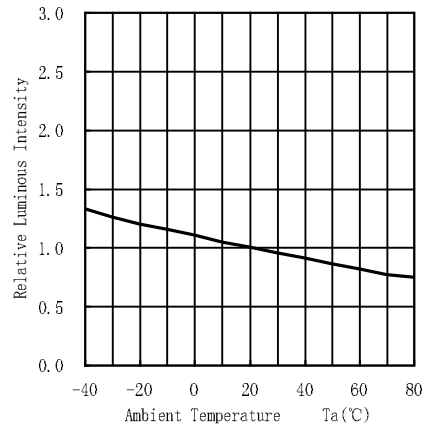
Forward Current VS. Relative Intensity



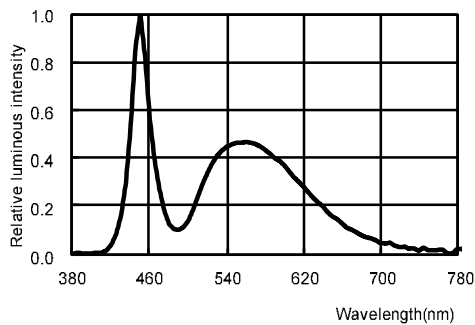
Forward Voltage VS. Forward Current



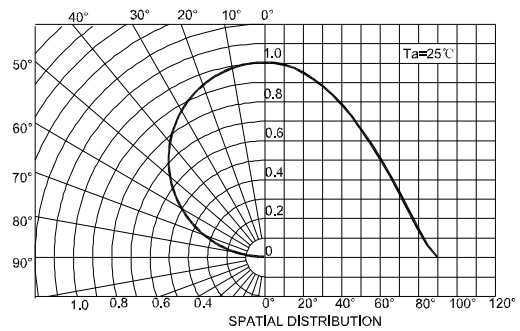
Ambient Temperature VS. Relative Intensity

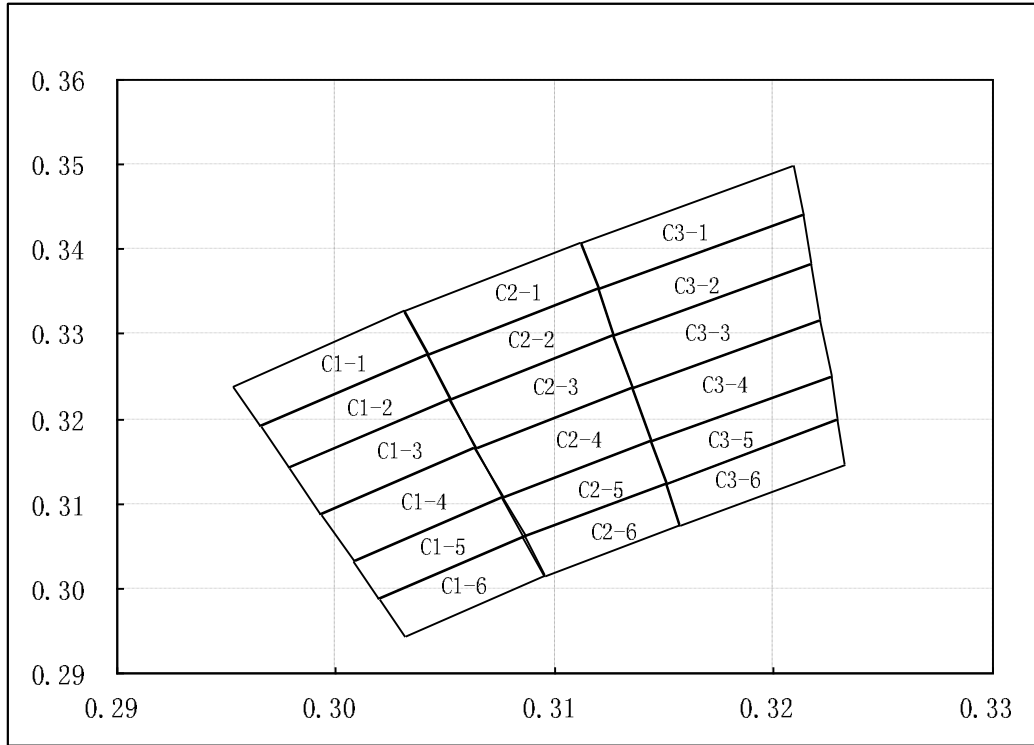


Relative spectral emission



Radiation diagram





| | | | | | | | | | | | | | | |
|-----------------|--------|--------|--------|--------|-----------------|--------|--------|--------|--------|-----------------|--------|--------|--------|--------|
| C1-1 7000-7500K | | | | | C1-2 7000-7500K | | | | | C1-3 7000-7500K | | | | |
| x | 0.2953 | 0.3031 | 0.3042 | 0.2966 | x | 0.2966 | 0.3042 | 0.3052 | 0.2978 | x | 0.2978 | 0.3052 | 0.3064 | 0.2993 |
| y | 0.3240 | 0.3327 | 0.3276 | 0.3192 | y | 0.3192 | 0.3276 | 0.3224 | 0.3143 | y | 0.3143 | 0.3224 | 0.3166 | 0.3088 |
| C1-4 7000-7500K | | | | | C1-5 7000-7500K | | | | | C1-6 7000-7500K | | | | |
| x | 0.2993 | 0.3064 | 0.3076 | 0.3008 | x | 0.3008 | 0.3076 | 0.3086 | 0.3020 | x | 0.3020 | 0.3086 | 0.3095 | 0.3031 |
| y | 0.3088 | 0.3166 | 0.3108 | 0.3033 | y | 0.3033 | 0.3108 | 0.3062 | 0.2989 | y | 0.2989 | 0.3062 | 0.3015 | 0.2944 |
| C2-1 6500-7000K | | | | | C2-2 6500-7000K | | | | | C2-3 6500-7000K | | | | |
| x | 0.3031 | 0.3112 | 0.3120 | 0.3042 | x | 0.3042 | 0.3120 | 0.3127 | 0.3052 | x | 0.3052 | 0.3127 | 0.3136 | 0.3064 |
| y | 0.3327 | 0.3408 | 0.3354 | 0.3276 | y | 0.3276 | 0.3354 | 0.3299 | 0.3224 | y | 0.3224 | 0.3299 | 0.3237 | 0.3166 |
| C2-4 6500-7000K | | | | | C2-5 6500-7000K | | | | | C2-6 6500-7000K | | | | |
| x | 0.3064 | 0.3136 | 0.3144 | 0.3076 | x | 0.3076 | 0.3144 | 0.3151 | 0.3086 | x | 0.3086 | 0.3151 | 0.3157 | 0.3095 |
| y | 0.3166 | 0.3237 | 0.3174 | 0.3108 | y | 0.3108 | 0.3174 | 0.3124 | 0.3062 | y | 0.3062 | 0.3124 | 0.3074 | 0.3015 |
| C3-1 6000-6500K | | | | | C3-2 6000-6500K | | | | | C3-3 6000-6500K | | | | |
| x | 0.3112 | 0.3209 | 0.3213 | 0.3120 | x | 0.3120 | 0.3213 | 0.3217 | 0.3127 | x | 0.3127 | 0.3217 | 0.3221 | 0.3136 |
| y | 0.3408 | 0.3498 | 0.3440 | 0.3354 | y | 0.3354 | 0.3440 | 0.3382 | 0.3299 | y | 0.3299 | 0.3382 | 0.3317 | 0.3237 |
| C3-4 6000-6500K | | | | | C3-5 6000-6500K | | | | | C3-6 6000-6500K | | | | |
| x | 0.3136 | 0.3221 | 0.3226 | 0.3144 | x | 0.3144 | 0.3226 | 0.3229 | 0.3151 | x | 0.3151 | 0.3229 | 0.3232 | 0.3157 |
| y | 0.3237 | 0.3317 | 0.3251 | 0.3174 | y | 0.3174 | 0.3251 | 0.3198 | 0.3124 | y | 0.3124 | 0.3198 | 0.3145 | 0.3074 |

Reliability Test Items And Conditions

| Test Items | Ref.Standard | Test Condition | Time | Quantity | Ac/Re |
|-----------------------------------|--------------|---|------------|----------|-------|
| Reflow | JESD22-B106 | Temp:260°Cmax T=10 sec | 3 times. | 22Pcs. | 0/1 |
| Temperature Cycle | JESD22-A104 | 100°C±5°C 30 min. ↑↓5 min -40°C±5°C 30 min. | 100 Cycles | 22Pcs. | 0/1 |
| High Temperature Storage | JESD22-A103 | Temp:100°C±5°C | 1000Hrs. | 22Pcs. | 0/1 |
| Low Temperature Storage | JESD22-A119 | Temp:-40°C±5°C | 1000Hrs. | 22Pcs. | 0/1 |
| Life Test | JESD22-A108 | Ta=25°C±5°C IF=20mA | 1000Hrs. | 22Pcs. | 0/1 |
| High Temperature High Humidity | JESD22-A101 | 85°C±5°C/ 85%RH | 1000Hrs. | 22Pcs. | 0/1 |

Criteria For Judging Damage

| Test Items | Symbol | Test Condition | Criteria For Judgement | |
|-----------------|--------|----------------|------------------------|-------------|
| | | | Min. | Max. |
| Forward Voltage | VF | IF=20mA | -- | U.S.L*)x1.1 |
| Reverse Current | IR | VR = 5V | -- | U.S.L*)x2.0 |
| Luminous Flux | Im | IF=20mA | L.S.L*)x0.7 | -- |

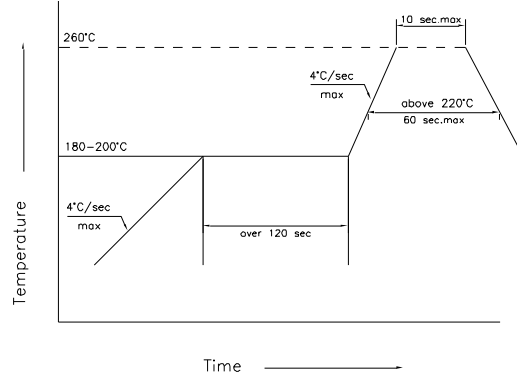
U.S.L: Upper standard level

L.S.L: Lower standard level

*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

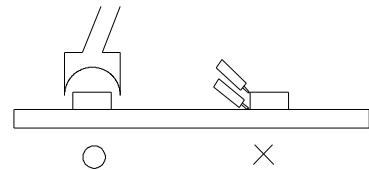


Soldering iron

- 1.When hand soldering, keep the temperature of iron below less 300°C less than 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 in advance whether the characteristics of LEDs will or will not be damaged by repairing.

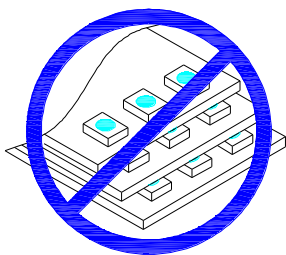


Cautions

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.

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

4.Not suitable to operate in acidic environment, PH<7




Label

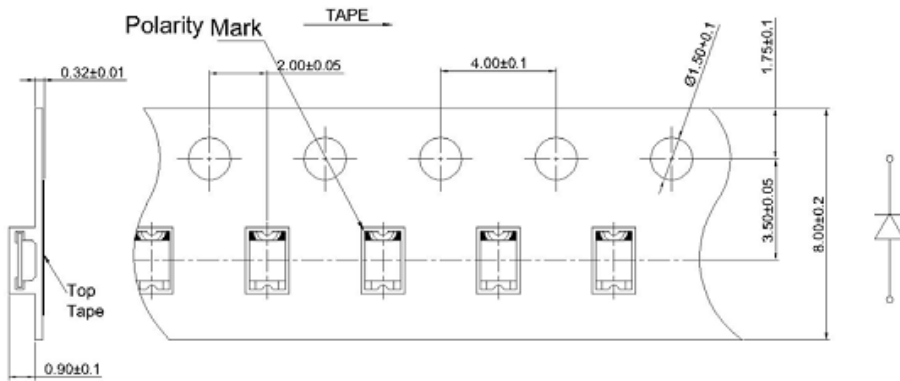
IV: Luminous intensity rank
 VF: Forward voltage rank
 X/Y: Coordinate rank
 TC: Color temperature

RoHS

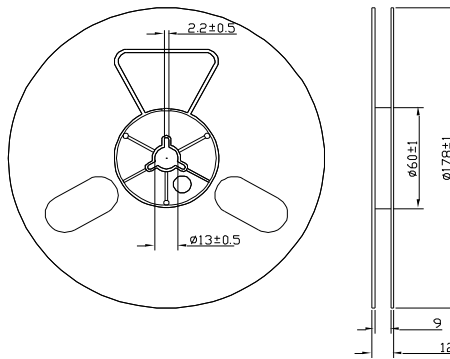
Part No: XXXXXXXXXXXXXXXXXXXXXXXX
 IV: VF: X/Y:
 Quantity: TC:
 Sealing date: XXXXXXXXXXXXXXXXXXXX



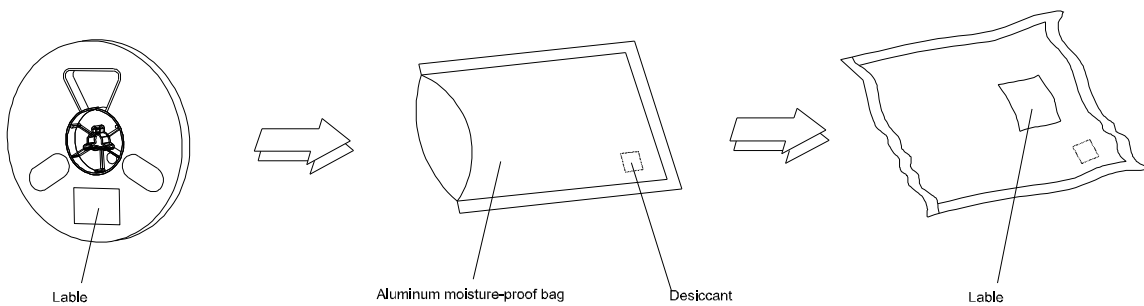
Tape Specifications (Units : mm)



Reel Dimensions



Moisture Resistant Packaging



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