

APPROVAL SHEET

PART NO: E005000**

PART NAME: LED

SPECIFICATION: 312LGD-3.5HK

APPROVAL

| | WRITE | CHECK | APPROVAL |
|----------------|-------|-------|----------|
| | | | |
| DATE | | | |
| COR-TEK | | | |

APPROVAL

| | WRITE | CHECK | APPROVAL |
|--|------------|-------|----------|
| | | | |
| DATE | 2020.05.16 | | |
| SHENZHEN BEST LED OPTO-ELECTRONIC CO.,LTD | | | |

MANUFACTURER: SHENZHEN BEST LED OPTO-ELECTRONIC CO.,LTD

ADDRESS:201,NO.1.LANE 1,LIUWU NORTH,NANLIAN COMMUNITY
LONGGANG STREET,LONGGANG DISTRICT,SHENZHEN CITY

TEL:+86-755-89752405

FAX:+86-755-89752207

客户名:PT. PAMPAS

Date:2020-5-26

环境管理物质不使用证明书
(承认用)


供应商: SHENZHEN BEST LED OPTO-ELECTRONIC CO.,LTD

代 表: Jackie Zhang

电 话: 0755-89752405

E-mail: info@byt-light.com

本公司对 PT.PAMPAS ELECTRIC 供货品上用的材料, 包装材料
及制造工程上配合 PT.PAMPAS ELECTRIC 要求证明环境物质不使用.

| | |
|------------------|--|
| Part Name | LED |
| Customer Code No | E0050005** |
| Factory Code No. | 312YGD-3.5HK |
| Factory Name | SHENZHEN BEST LED OPTO-ELECTRONIC CO.,LTD  |
| 承认 要请日 | 2020.5.26 |

*在环境物质不使用证明书提供承认原时加上第一页.

产品规格书

SPECIFICATION

顾客: PT. Pampas ELECTRIC

产品名称: $\phi 3$ 绿发绿带卡座 LED

产品型号: 312LGD-3.5HK

| 技术质量部 | | |
|-------|----|----|
| 制作 | 审核 | 批准 |
| | | |

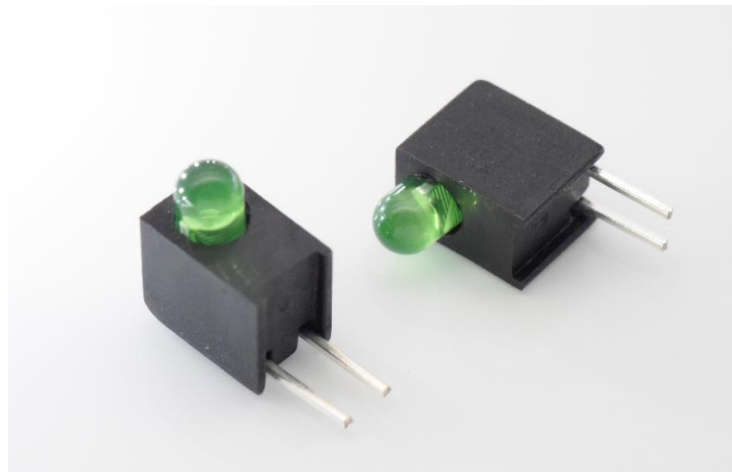


Data Sheet

PN:312LGD-3.5HK



3mm Through-hole LED-Green LED



ATTENTION

OBSERVE PRECAUTIONS FOR HANDLING
ELECTROSTATIC DISCHARGE
SENSITIVE DEVICES

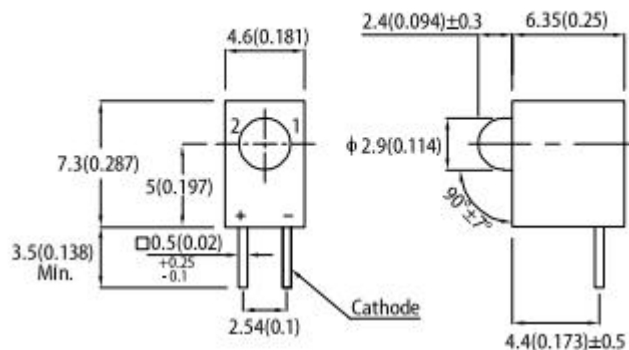
Features

- Dimensions: $\phi 3\text{mm}$
- Color: Yellow Green LED
- Lens: Green Diffused Epoxy
- Chip Material: GaP
- Chip Dimension: $205\mu\text{m} \times 205\mu\text{m}$
- Number of Chips: 1 pcs
- High reliability, High radiant intensity
- Low forward voltage
- Meet ROHS, Green Product

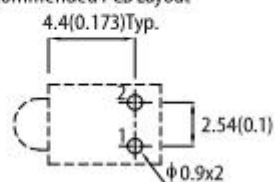
Applications

- Status indicator
- Signage applications
- Decorative and entertainment lighting

Package Dimensions



Recommended PCB Layout



Notes:

1. All dimensions are in millimeters ;
2. Tolerance is ± 0.10 mm unless otherwise noted.

Absolute Maximum Ratings (Tc=25°C)

| Parameter | Symbol | Rating | Unit |
|--------------------------------------|--------|------------|-------|
| Power Dissipation | Pd | 105 | mW |
| Pulse Forward Current | IFP | 100 | mA |
| Forward Current | IF | ≤30 | mA |
| Reverse Voltage | VR | 5 | V |
| Junction Temperature | Tj | 100 | °C |
| Operating Temperature | Topr | -40 ~ +80 | °C |
| Storage Temperature Range | Tstg | -40 ~ +100 | °C |
| Soldering Temperature | Tsol | 260 | °C |
| Electro Static Discharge(HBM) | ESD | 2000 | V |
| Service life under normal conditions | Time | 80000 | H |
| Warranty | Time | 5 | Years |
| Antistatic bag | Piece | 1000 | Bag |

*Pulse Forward Current Condition:Duty 1% and Pulse Width=10us.

*Soldering Condition:Soldering condition must be completed with 3 seconds at 260°C

Electrical Optical Characteristics(Tc=25°C)

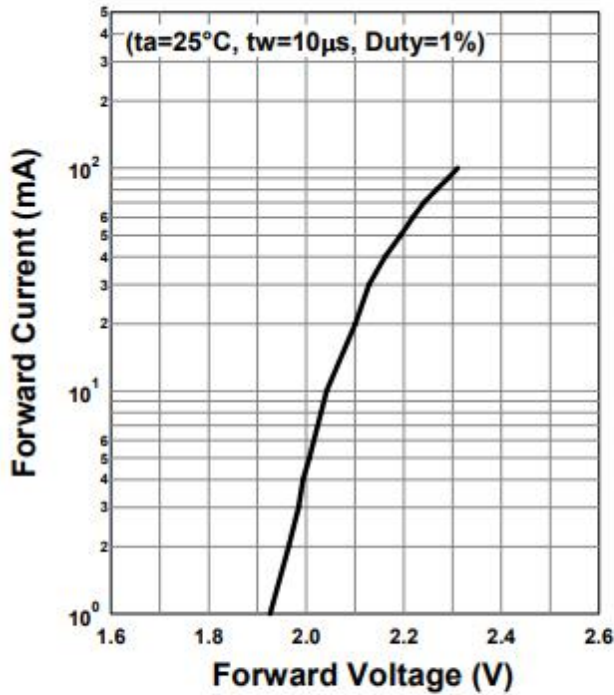
| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|---------------------|--------|-----|-----|-----|------|----------------|
| Forward Voltage | VF | 1.8 | 1.9 | 2.4 | V | IF=20mA |
| Luminous Intensity | IV | 150 | | 250 | mcd | IF=20mA |
| Peak Wavelength | λP | | 570 | | nm | IF=20mA |
| Dominant Wavelength | λd | 565 | 570 | 575 | nm | IF=20mA |
| Half Width | Δλ | | 12 | | nm | IF=20mA |
| Viewing Half Angle | 2θ1/2 | | ±22 | | deg | IF=20mA |
| Reverse Current | IR | | | 5 | uA | VR=5V |

*Luminous Intensity is measured by ZWL600.

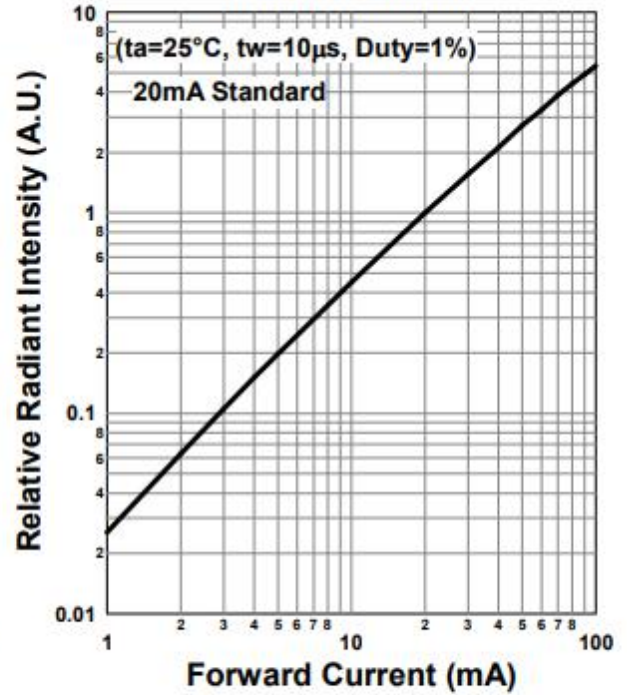
*θ1/2 is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

Typical Electrical-Optical Characteristics Curves

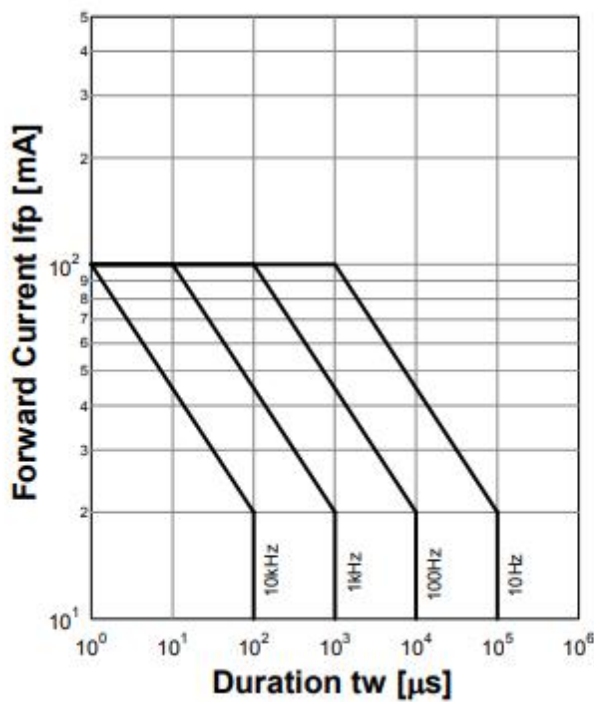
Forward Current - Forward Voltage



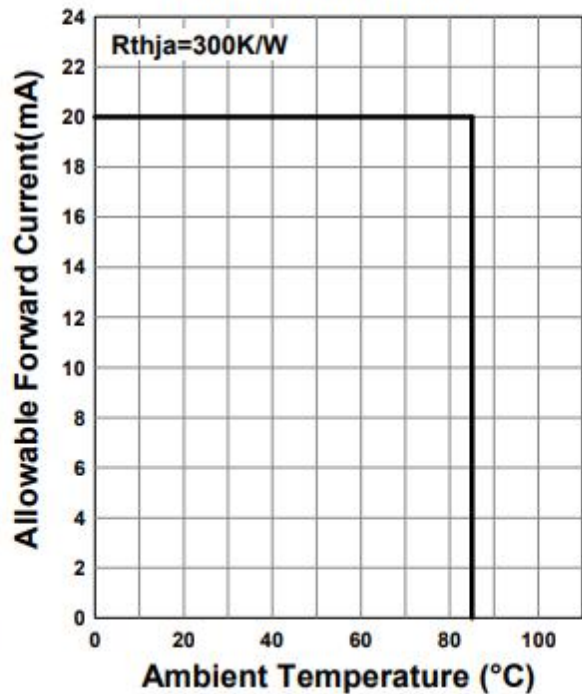
Relative Radiant Intensity - Forward Current

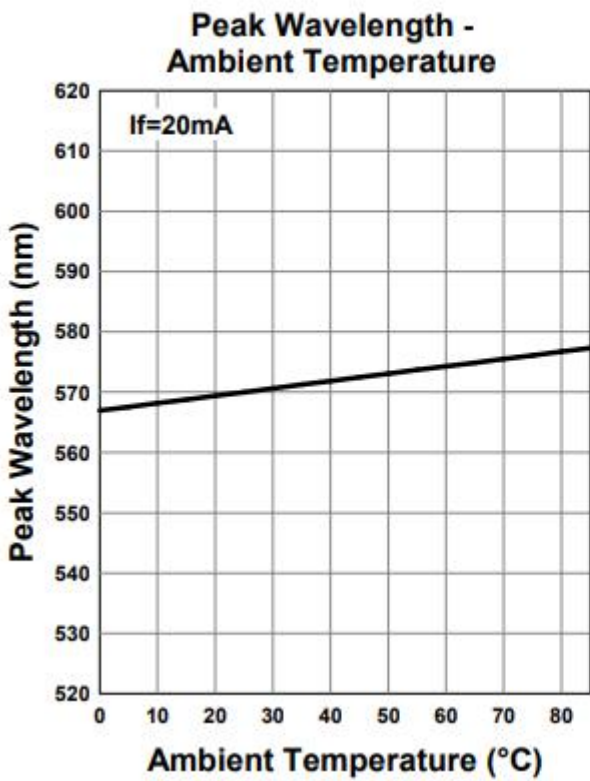
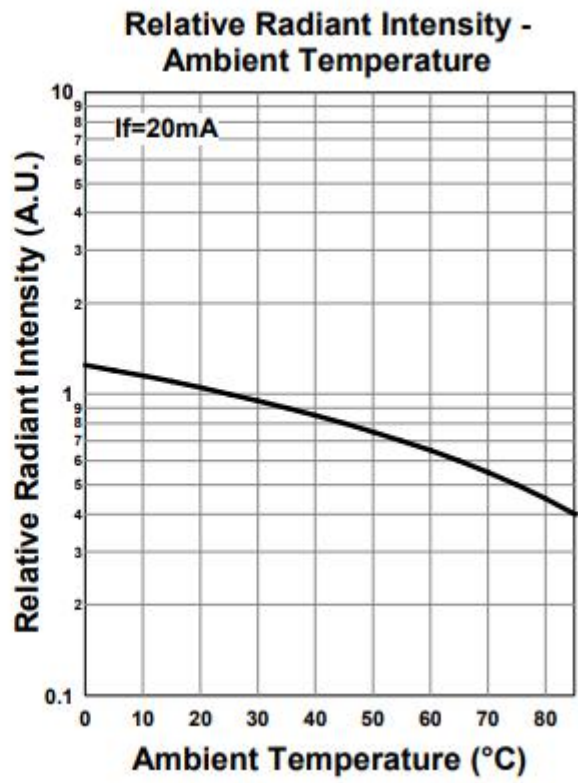
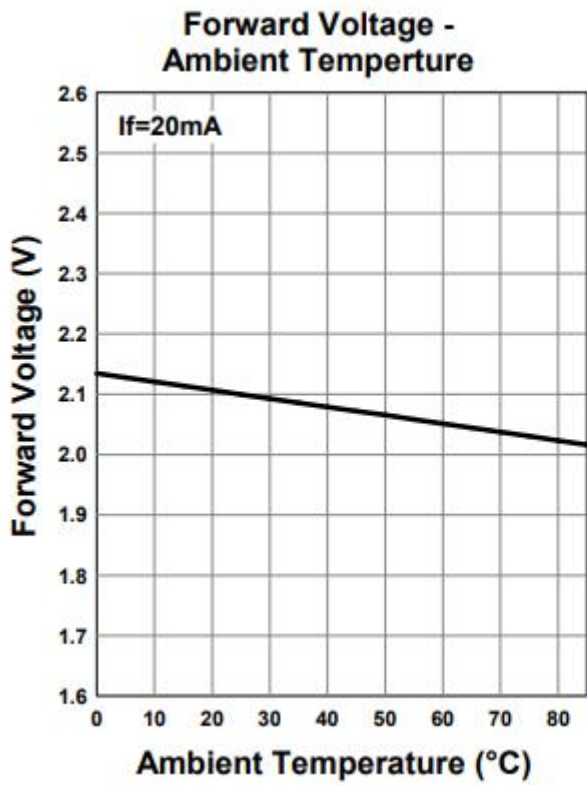


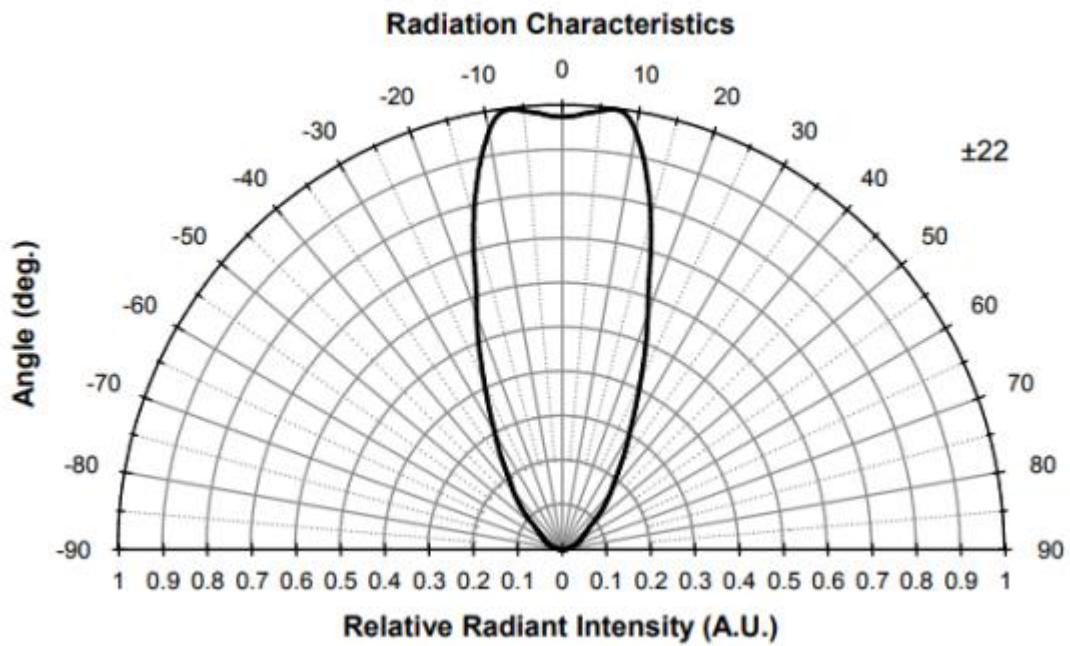
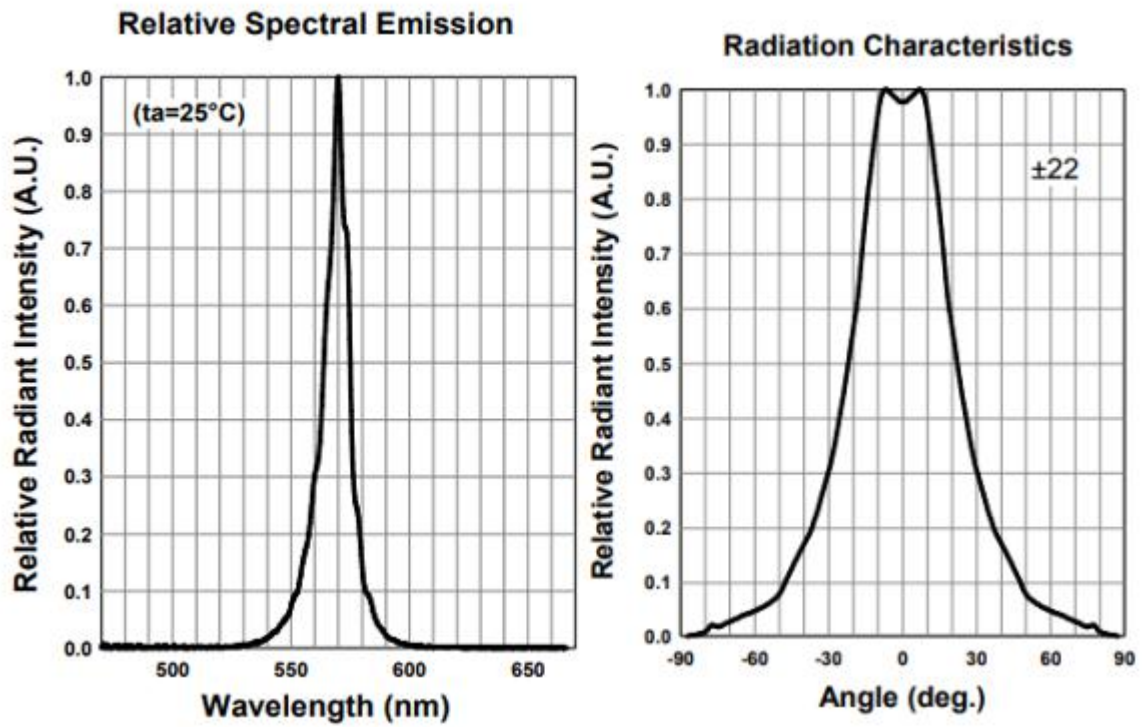
Forward Current - Pulse Duration

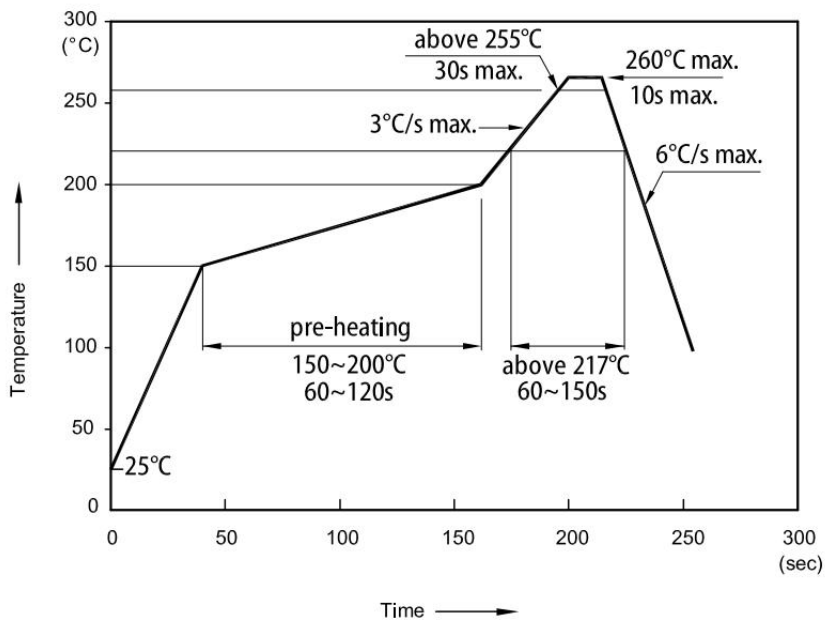


Allowable Forward Current - Ambient Temperature







Reflow soldering profile for LEAD-FREE SMD process**Notes:**

1. Don't cause stress to the LEDs while it is exposed to high temperature.
2. The maximum number of reflow soldering passes is 2 times
3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product

Reliability Test Items and Conditions

| Test Item | Reference | Test Conditions | Time | Quantity | Criterion |
|--|---------------------------|---|-----------|----------|-----------|
| Thermal Shock | JIS-C7021 A-4 | 100°C±5°C 15min ↓ ↑ -40°C±5°C 15min | 200cycles | 22 | 0/22 |
| High Temperature Storage | JEITA ED- 4701 200 201 | Ta=100°C | 1000h | 22 | 0/22 |
| Low Temperature Storage | JEITA ED- 4701 200 202 | Ta=-40°C | 1000h | 22 | 0/22 |
| High Temperature High Humidity Storage | JIS-C7021 B-11 | Ta=85°C, RH=85% | 1000h | 22 | 0/22 |
| Resistance to Soldering Heat | GB/T 4937 | Tsol*=(260±5)°C 10secs. | 2times | 22 | 0/22 |
| Life Test | JESD22-A108 | Ta=25°C±5°C IF=5mA | 1000h | 22 | 0/22 |
| High Temperature Life Test | JESD22-A108 | Ts=55°C±5°C | 1000h | 22 | 0/22 |

*Note:Tsol-Temperature of tin liquid

Criteria for Judging the Damage

| Item | Symbol | Test Condition | Failure Criteria | |
|--------------------|----------|----------------|------------------|-----------|
| | | | MIN | MAX |
| Forward Voltage | VF (V) | IF=20mA | --- | U.S.L*1.1 |
| Reverse Current | IR (uA) | VR=5V | --- | 5uA |
| Luminous Intensity | IV (mcd) | IF=20mA | L.S.L*0.7 | --- |

*Note:1.USL:Upper Specification Level

2.LSL:Lower Specification Level

Cautions

Storage conditions

- 1, avoid continued exposure to the condensing moisture environment and keep the product away from rapid transitions in ambient temperature.
- 2, LEDs should be stored with temperature $\leq 30^{\circ}\text{C}$ and relative humidity $< 60\%$
- 3, Product in the original sealed package is recommended to be assembled within 72 hours of opening
- 4, Product in opened package for more than a week should be baked for 6-8 hours at $85-10^{\circ}\text{C}$

LED MOUNTING METHOD

- 1, The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement.

Lead-forming may be required to insure the lead pitch matches the hole pitch.

Refer to the figure below for proper lead forming procedures.

Do not route PCB trace in the contact area between the leadframe and the PCB to prevent short-circuits

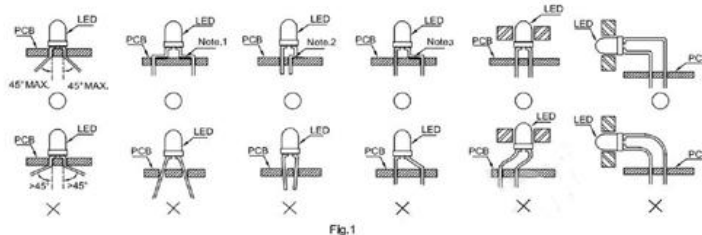


Fig. 1

Note:

○ Correct mounting method

× Incorrect mounting method

- 2, When soldering wires to the LED, each wire joint should be separately insulated with heat-shrink tube to prevent short-circuit contact.

Do not bundle both wires in one heat shrink tube to avoid pinching the LED leads.

Pinching stress on the LED leads may damage the internal structures and cause failure.

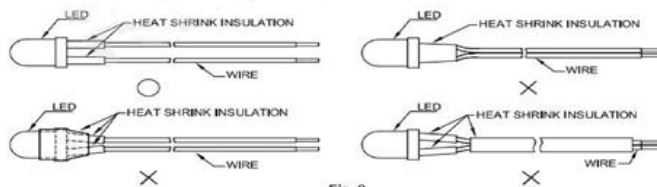


Fig. 2

Note:

○ Correct mounting method

× Incorrect mounting method

- 3, Use stand-offs (Fig.3) or spacers (Fig.4) to securely position the LED above the PCB.
- 4, Maintain a minimum of 3mm clearance between the base of the LED lens and the first lead bend (Fig. 5, Fig. 6).
- 5, During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures. Do not perform lead forming once the component has been mounted onto the PCB.

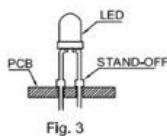


Fig. 3

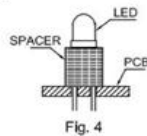


Fig. 4

Lead Forming Procedures

- 1, Lead Forming Procedures
- 2, Do not bend the leads more than twice. (Fig. 7)
- 3, During soldering, component covers and holders should leave clearance to avoid placing damaging stress on the LED during soldering. (Fig. 8)
- 4, The tip of the soldering iron should never touch the lens epoxy.
- 5, Through-hole LEDs are incompatible with reflow soldering.
- 6, If the LED will undergo multiple soldering passes or face other processes where the part may be subjected to intense heat, please check with Bestsmid for compatibility.

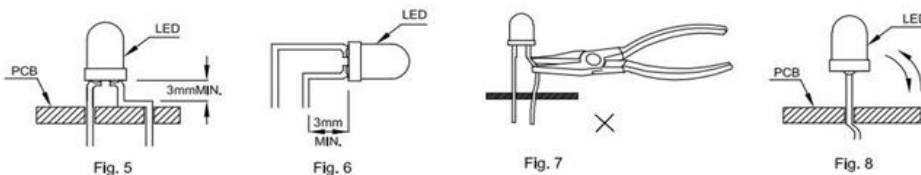
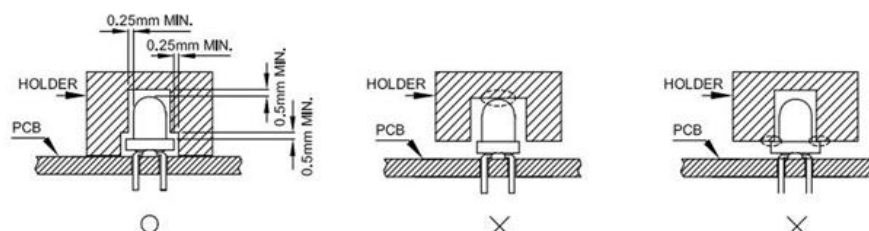


Fig. 5

Fig. 6

Fig. 7

Fig. 8



Note: ○ Correct mounting method

× Incorrect mounting method