

Features

- Package in 8mm tape on 7" diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflows older process

The product itself will remain within RoHS compliant version

RS PRO LEDs

RS Stock No.: 0280096



RS PRO is the own brand of RS. The RS PRO Seal of Approval is your assurance of professional quality, a guarantee that every part is rigorously tested, inspected, and audited against demanding standards. Making RS PRO the Smart Choice for our customers.

Product Description

PLCC-4, wide viewing angle, low current requirement, optimized light coupling by inter reflector. This LED is 3.5 x 2.8mm, Common Anode Multi-colour, Surface Mount LED Indicator, RoHS & REACH Compliant, and Applications is

- Backlight in dashboards and switches.
- Indicator and backlight for audio and video equipment.
- Telecommunication.
- Light pipe application

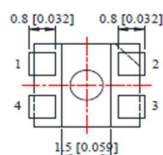
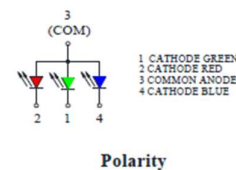
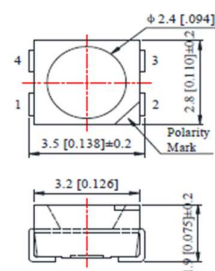
General Specifications

| | |
|-------------------|---|
| LED Colour | Black face , Multi-colour, Common Anode ,PLCC-4 |
| Dimensions | 3.5 x 2.8mm, Surface Mount LED Indicator |
| | |
| | |

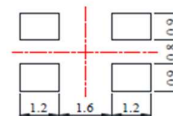
Mechanical Specifications

Mechanical Life

Recommended Soldering Pad Dimensions
Soldering Temperature : 260°C for 5 Seconds



Recommended Soldering Pad Dimensions



- Notes:
1. All dimensions are in millimeters (inches).
 2. Tolerance is ± 0.25 mm (.010") unless otherwise noted.
 3. Protruded resin under flange is 1.00mm (.039") max.

Electrical Specifications

Absolute Maximum Ratings at Ta=25°C

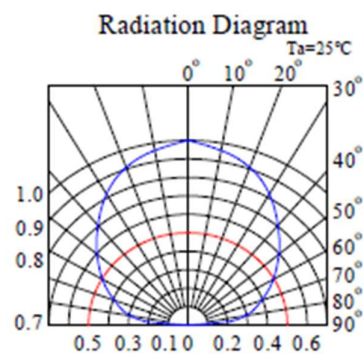
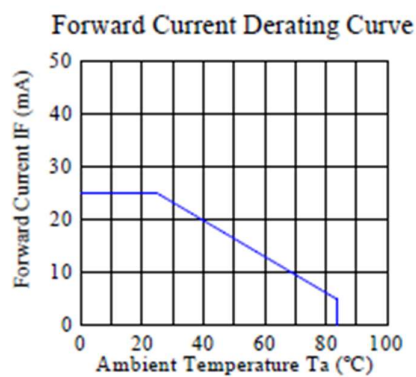
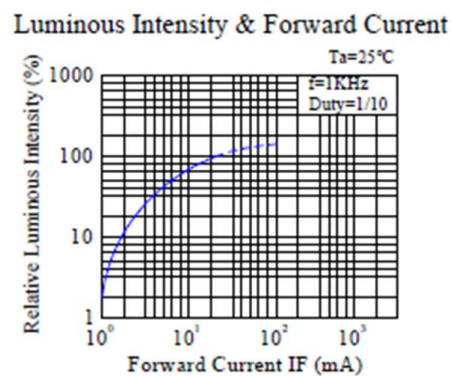
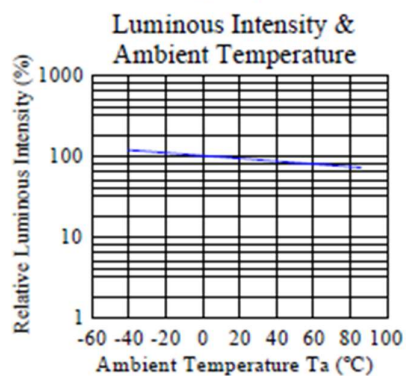
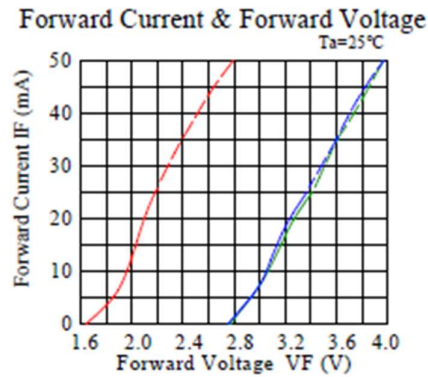
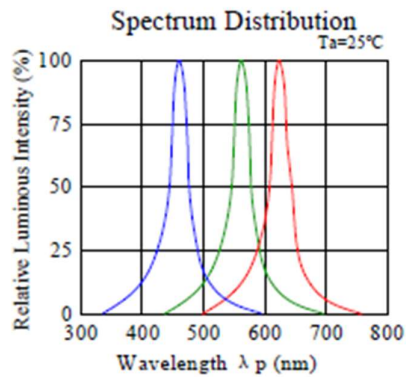
| Parameters | | Symbol | Max | Unit |
|-----------------------------|------------|--------|--------------------|------|
| Power Dissipation | Red | Pd | 60 | mW |
| | Pure green | | 90 | mW |
| | Blue | | 90 | mW |
| Peak Forward Current(a) | | IFP | 100 | mA |
| DC Forward Current (b) | Red | IF | 25 | mA |
| | Pure green | | 25 | mA |
| | Blue | | 25 | mA |
| Reverse Voltage | | VR | 5 | V |
| Operating Temperature Range | | | -40°C to+80°C | |
| Storage Temperature Range | | Tstg | -40°C to+85°C | |
| Soldering Temperature | | Tstg | 260°Cfor 5 Seconds | |

Electrical Optical Characteristics at Ta=25°C

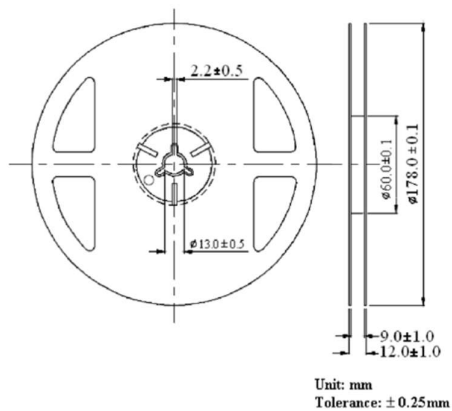
| Parameters | Symbol | Emitting Color | Min. | Typ. | Max. | Unit | TestCondition |
|--------------------------|--------|----------------|------|------|------|------|---------------|
| Luminous Intensity (a) | IV | Red | 400 | 550 | --- | mcd | IF=20mA |
| | | Pure green | 1000 | 1400 | --- | mcd | IF=20mA |
| | | Blue | 300 | 450 | --- | mcd | IF=20mA |
| ViewingAngle(b) | 2θ1/2 | Red | --- | 120 | --- | Deg | IF=20mA |
| | | Pure green | --- | 120 | --- | Deg | IF=20mA |
| | | Blue | --- | 120 | --- | Deg | IF=20mA |
| Peak Emission Wavelength | λp | Red | | 632 | --- | nm | IF=20mA |
| | | Pure green | | 520 | --- | nm | IF=20mA |
| | | Blue | | 468 | --- | nm | IF=20mA |
| Dominant Wavelength © | λd | Red | | 624 | --- | nm | IF=20mA |
| | | Pure green | | 525 | --- | nm | IF=20mA |
| | | Blue | | 470 | --- | nm | IF=20mA |
| Spectral Line Half-Width | Δλ | Red | | 20 | --- | nm | IF=20mA |
| | | Pure green | | 35 | --- | nm | IF=20mA |
| | | Blue | | 25 | --- | nm | IF=20mA |
| ForwardVoltage | VF | Red | 1.6 | 2.0 | 2.4 | V | IF=20mA |
| | | Pure green | 2.8 | 3.2 | 3.6 | V | IF=20mA |
| | | Blue | 2.8 | 3.2 | 3.6 | V | IF=20mA |
| ReverseCurrent | IR | Red | --- | --- | 10 | μA | VR=5V |
| | | Pure green | --- | --- | 10 | μA | VR=5V |
| | | Blue | --- | --- | 10 | μA | VR=5V |

Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

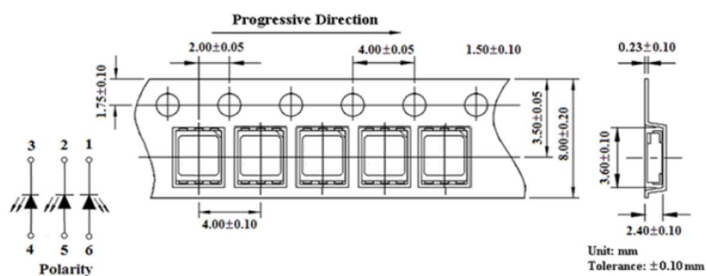


Reel Dimensions / Packing & Label Specifications:

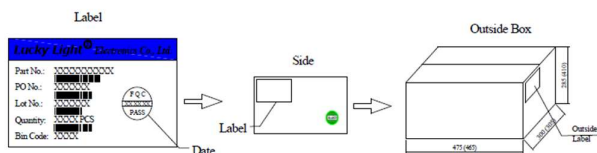
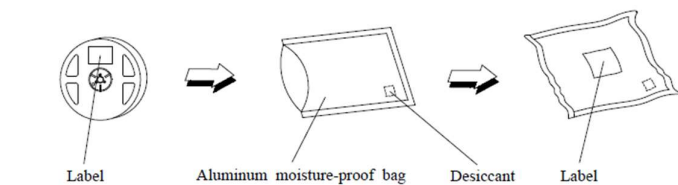


Carrier Tape Dimensions:

Loaded quantity 2000 pcs per reel.



Moisture Resistant Packaging:

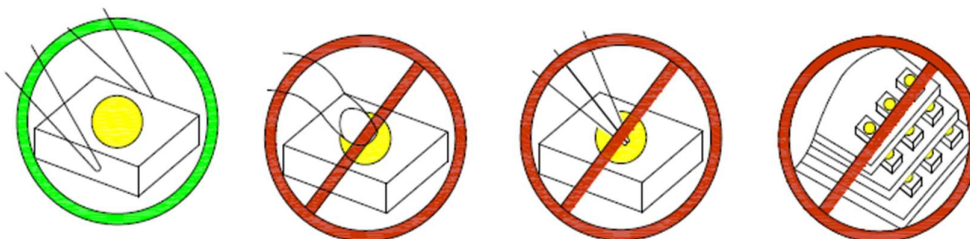


CAUTIONS

CAUTIONS

1. Handling Precautions:

- 1.1. Handle the component along the side surfaces by using forceps or appropriate tools.
- 1.2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.
- 1.3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

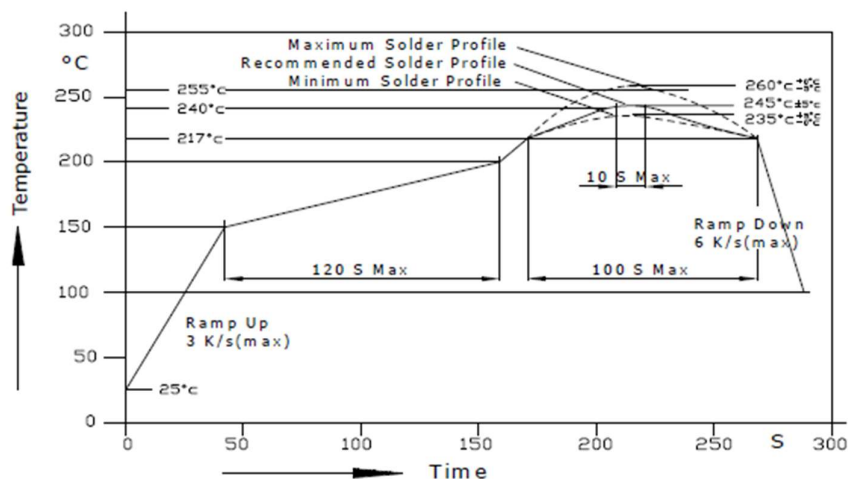
2. Storage

- 2.1. Do not open moisture proof bag before the products are ready to use.
- 2.2. Before opening the package, the LEDs should be kept at 30°C or less and 60%RH or less.
- 2.3. The LEDs should be used within a year.
- 2.4. After opening the package, the LEDs should be kept at 30°C or less and 60%RH or less.
- 2.5. The LEDs should be used within 24 hours after opening the package.
- 2.6. If the moisture adsorbent material has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 65±5°C for 24 hours

CAUTIONS

3. Soldering Condition

3.1. Pb-free solder temperature profile



3.2. Reflow soldering should not be done more than two times.

3.3. When soldering, do not put stress on the LEDs during heating.

3.4. After soldering, do not warp the circuit board.

3.5. Recommended soldering conditions:

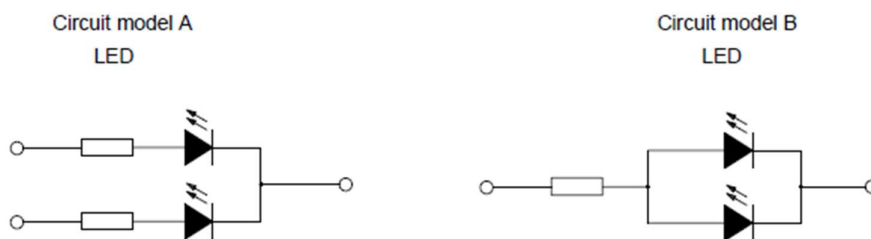
| Reflow soldering | | Soldering iron | |
|------------------|-------------------------------|----------------|-----------------|
| Pre-heat | 150~200°C | Temperature | 300°C Max. |
| Pre-heat time | 120 sec. Max. | Soldering time | 3 sec. Max. |
| Peak temperature | 260°C Max. | | (one time only) |
| Soldering time | 10 sec. Max. (Max. two times) | | |

3.6. Because different board designs use different number and types of devices, solder pastes, reflow ovens, and circuit boards, no single temperature profile works for all possible combinations.

CAUTIONS

4. Drive Method

4.1. An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.



a. Recommended circuit.

b. The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

5. ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Suggestions to prevent ESD damage:

- Use of a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- All devices, equipment, and machinery must be properly grounded.
- Work tables, storage racks, etc. should be properly grounded.
- Use ion blower to neutralize the static charge which might have built up on surface of the LED's plastic lens as a result of friction between LEDs during storage and handling.

ESD-damaged LEDs will exhibit abnormal characteristics such as high reverse leakage current, low forward voltage, or "no lightup" at low currents. To verify for ESD damage, check for "lightup" and V_f of the suspect LEDs at low currents. The V_f of "good" LEDs should be $>2.0V@0.1mA$ for InGaN product and $>1.4V@0.1mA$ for AlInGaP product.