

# SEP181406A

- External Shape Type : 3.5 × 2.8 Flat View LED
- Color : Amber
- Application : Automotive, Consumer Electronics, Office Automation, Indicator
- Feature : MSL-3, RoHS compliant,  
Compatible with heat-resistance of lead-free solder.

## ● Absolute maximum ratings

| Description               | Symbol      | Ratings | Unit  | Remark               |
|---------------------------|-------------|---------|-------|----------------------|
| Power dissipation         | PD          | 91      | mW    |                      |
| Forward current           | IF          | 35      | mA    |                      |
| Forward current reduction | $\Delta$ IF | -1.0    | mA/°C | Above 85°C           |
| Pulse forward current     | IFP         | 100     | mA    | f=1kHz<br>tw ≤ 100μs |
| Reverse Voltage           | VR          | 3       | V     |                      |
| Operating temperature     | Topr        | -40~100 | °C    |                      |
| Storage temperature       | Tstg        | -40~100 | °C    |                      |
| Junction Temperature      | Tjmax       | 115     | °C    |                      |

## ● Photoelectric characteristic (Ta=25°C)

| Description         | Symbol         | Conditions | Min | Typ | Max | Unit |
|---------------------|----------------|------------|-----|-----|-----|------|
| Forward voltage     | VF             | IF = 20mA  |     | 2.1 | 2.6 | V    |
| Reverse current     | IR             | VR=3V      |     |     | 10  | μA   |
| Luminous intensity  | IV             | IF = 20mA  | 226 | 300 | 374 | mcd  |
| Dominant Wavelength | $\lambda_d$    | IF = 20mA  |     | 605 |     | nm   |
| Thermal resistance  | $\theta_{j-a}$ |            |     | 150 |     | °C/W |

## ● Luminous intensity rank (Ta=25°C)

(tolerances: ± 10%)

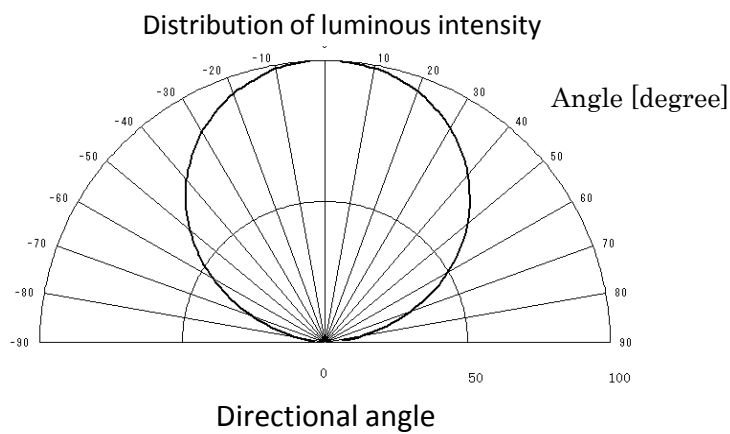
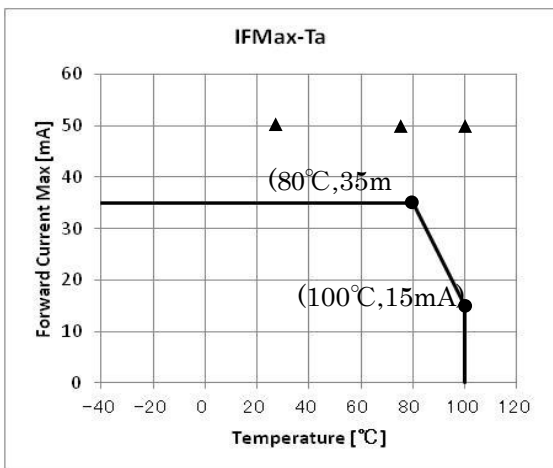
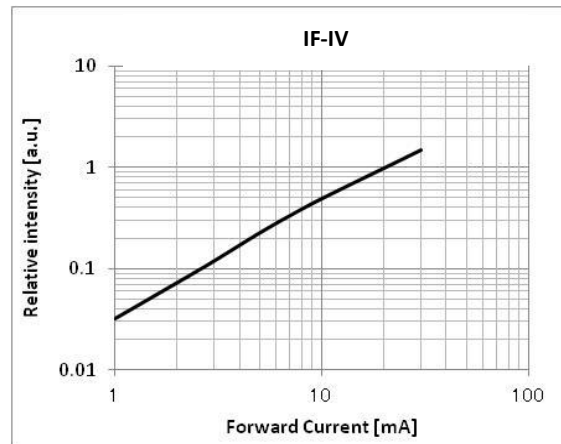
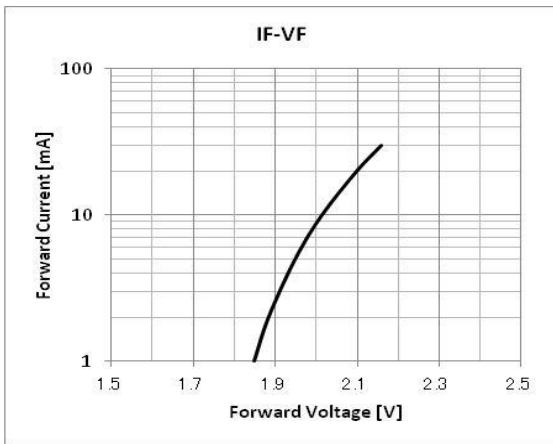
| rank | Luminous intensity range(mcd) |   |     |
|------|-------------------------------|---|-----|
| D    | 226                           | ~ | 300 |
| E    | 300                           | ~ | 374 |

## ● Dominant wavelength rank (Ta=25°C)

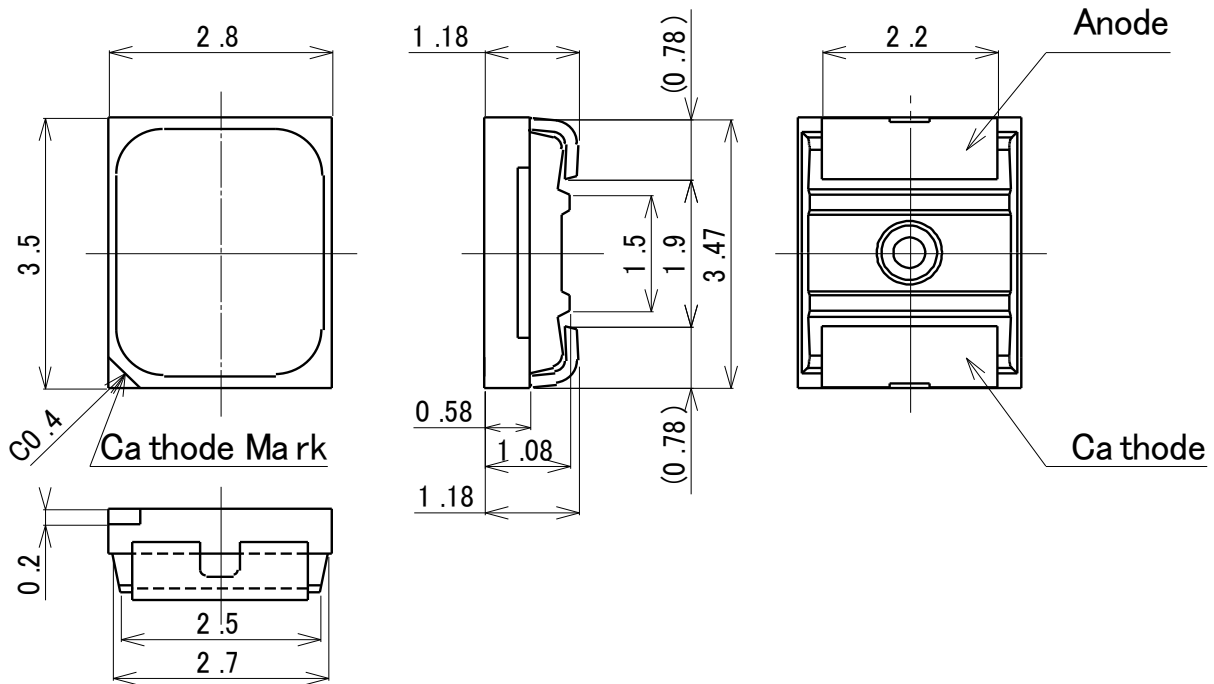
(tolerances: ± 1nm)

| rank | Dominant wavelength range(nm) |   |     |
|------|-------------------------------|---|-----|
| Y    | 602                           | ~ | 605 |
| R    | 605                           | ~ | 608 |

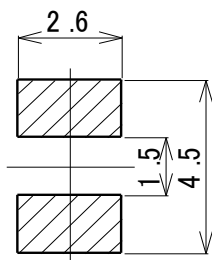
● Characteristic data



● Outline



Recommendable soldering pattern(For reflow soldering)



Tolerance  $\pm 0.2$

Material & Finish of leads

|          |                   |
|----------|-------------------|
| Material | Copper-Iron Alloy |
| Finish   | Ag plating        |

Material of resin

|          |          |
|----------|----------|
| Material | Silicone |
|----------|----------|

**● Soldering conditions**

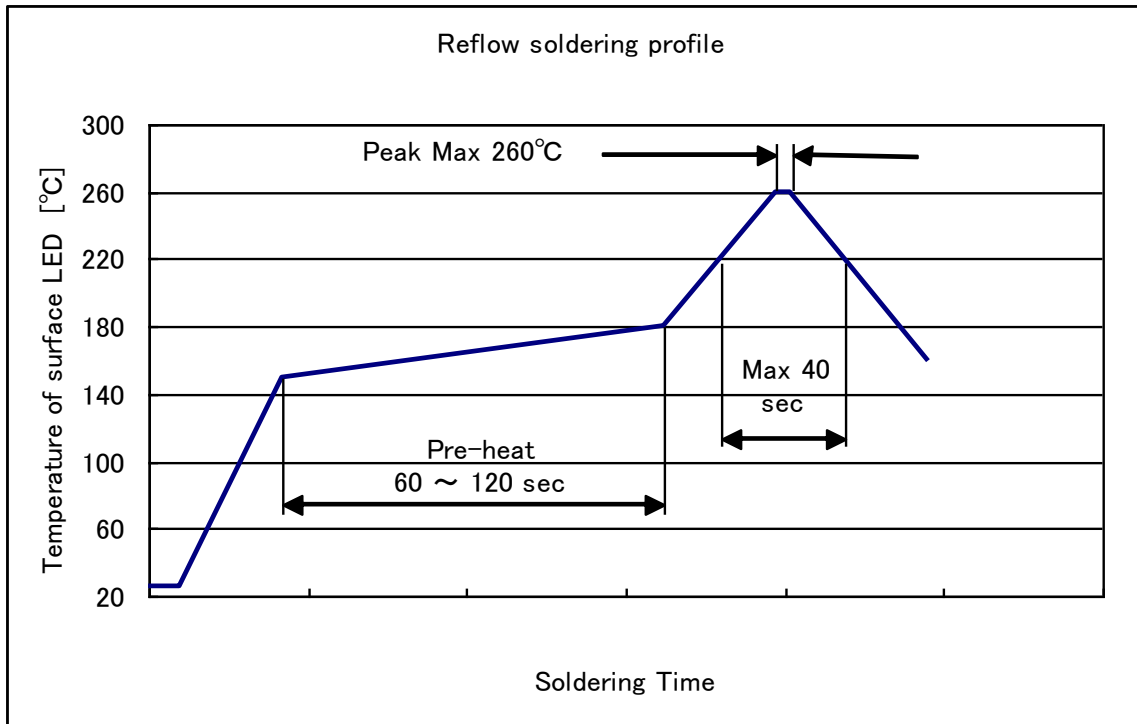
Following soldering conditions are recommended.

**① Reflow conditions (at the surface of LED resin)**

Pre-heat : 150 ~ 180 °C、60 ~ 120 sec

Soldering temperature: Soldering time more than 220°C is less than 40 sec.

Peak temperature is should be is less than 260°C.

**② Manual soldering**

Temperature of soldering iron tip should be  $350 \pm 10^{\circ}\text{C}$  for 3 seconds, which shall apply to only one soldered point and once for the each soldered point.

## ● Attention after opened

The LED is in SMD package. When the LED is mounted by means of soldering and the resin is unusually damp, soldering may cause interfacial defoliation.

This occurs when a drastic temperature change causes moisture in the resin to evaporate and to swell. Therefore, attention to the below must be paid.

### ① Atmosphere when using the LEDs after package is opened

After opened and mounted, soldering should be carried out quickly.

Following atmosphere is recommended when using (and mounting) the LEDs.

Temperature : 5~30°C    Humidity : less than 70%

### ② Baking

In case 168 hours have passed after package is opened, LEDs must be dried as follows.

60±5 °C for more than 24 hours (taping reel)

### ③ Storage after package is opened

Following storage conditions are recommended after package is opened.

In case indicator color (blue) of desiccant (ex. silica gel) has disappeared, LEDs must be dried under the same conditions as ② above.

## ● Other

① After soldering any mechanical force or excessive vibration should not be applied to LEDs during cooling process until the LEDs cool down to normal temperature.

② Quick cooling must be avoided.

③ The LEDs should not be mounted on warped direction of PCB.

④ This product series emits high light power. Do not look directly into the light emitting area. Direct exposure to the light over an extended time period may harm eyes.

⑤ Extra attention should be paid to the sealing resin of the product, which is silicone resin.

- The emitting area of the LEDs contains fine gold wires. Touching this area without care may add excess stress on the internal gold wires and may result in
- The silver plating of the leadframe may discolor if the product comes into contact with material containing sulfides or if it is exposed to an atmosphere containing sulfide gas.

## ● Reliability test

|                     | Test Items                  | EIAJ ED-4701 | Test Conditions                                      |
|---------------------|-----------------------------|--------------|--|
| Life Tests          | Steady state operating life | -            | Ta=RT、Ifmax<br>t=1000h                               |
| Environmental Tests | High temperature storage    | 201          | Ta=Tstgmax<br>t=1000h                                |
|                     | Low temperature storage     | 202          | Ta=Tstgmin<br>t=1000h                                |
|                     | Moisture Resistance         | 103          | Ta=60±5°C、RH=90±5%<br>t=1000h                        |
|                     | Temperature cycle           | 105          | Tstgmin(30min)~Tstgmax(30min)<br>100cycles           |
|                     | Soldering heat              | 301          | T=260±5°C、t=10s、1time                                |
|                     | Solderability               | 402          | T=245±5°C、t=5±1s、1time、Using flux for Pb free solder |
|                     | Drop                        | -            | H=1m、Drop on maple board、10times                     |

## Measurement Item and Criterion Judge Failure

| No | Measurement Item   | Mark | Criterion Judge Failure          |
|----|--------------------|------|----------------------------------|
| 1  | Forward Voltage    | VF   | $OK \leq V.F.S. \times \pm 20\%$ |
| 2  | Luminous Intensity | Iv   | $OK \geq I.V.S. \times 0.5$      |

\*Solderability ... The Lead shall be covered by solder at least 95%.

Measurement conditions is based on specifications.

Tstgmax and Tstgmin is absolute maximum ratings.

Ifmax and IFPmax is absolute maximum ratings.

U.S.L. is upper limit of standard.

V.F.S. is Initial data of VF.

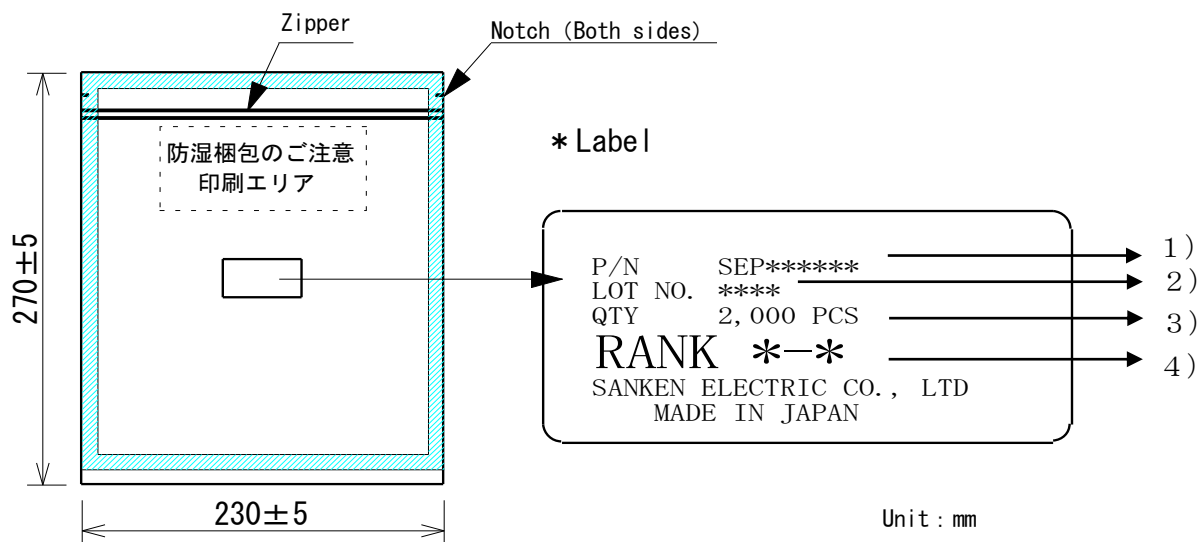
I.V.S. is Initial data of Luminous Intensity.

## ● Packing

Packing Material : Aluminum laminated moisture-proof packing

Quantity : 2000 pcs (Minimum order quantity)

Label : See below.



1) Part Number : SEP\*\*\*\*\*

2) Lot No. : \* \* \* \*  
 ↑ ↑ ↑  
 ① ② ③

① Last digit of year、

② Month

(January~September→Arabic Numeral

October →O、November→N、December→D)

③ Day

3) quantity : 2000pcs

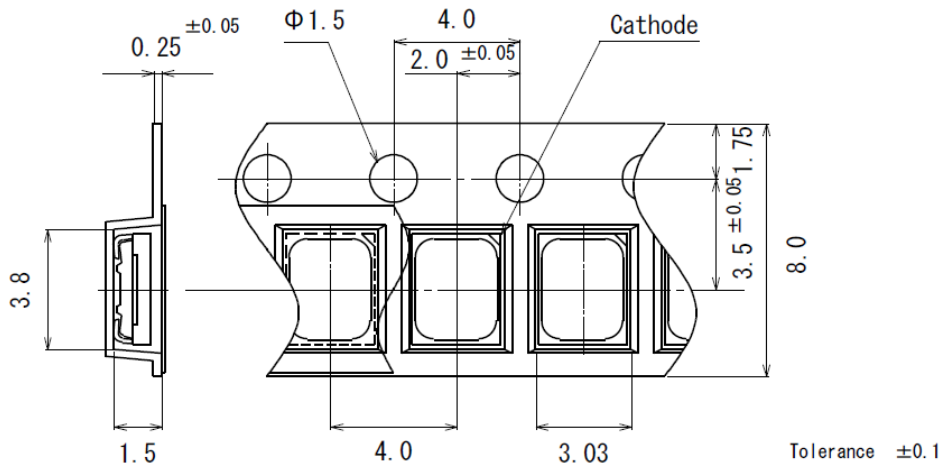
4) Rank : \* - \*  
 ↑ ↑  
 ① ②

① Luminous intensity rank

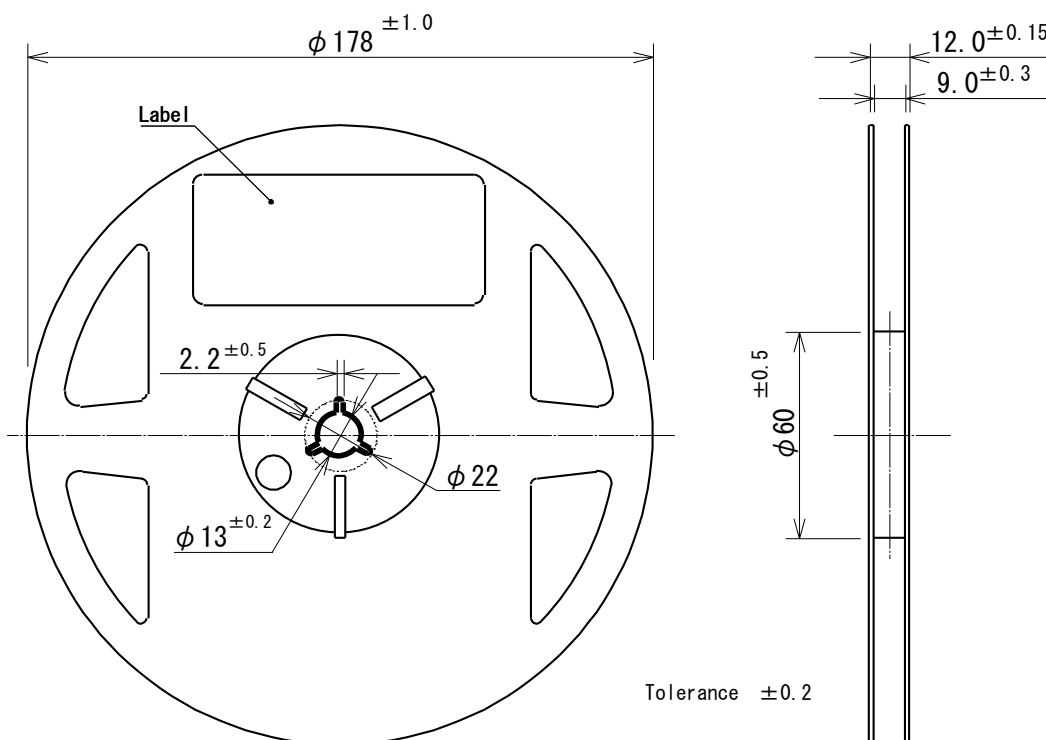
② Chromaticity rank

● Taping reel dimensions

Unit:mm



## Taping reel dimensions



①Quantity

The quantity per reel shall be 2000 pcs.

②Cumulative tolerance

Cumulative tolerance per 10 pitches shall be ±0.2mm.

③Adhesion strength of cover tape

Adhesion strength to be 0.1-0.7N when the cover tape is turn off from the carrier tape at 10 angle to be carrier tape.

④Packaging

P/N, manufacturing date code number and quantity shall be indicated on a dampproof package.



## ● Tips

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