**$I_V$ = 600 mcd, $V_F$ = 2.0 V**
**Surface Mount LED**

# SEP181404TA

**Data Sheet**

## Description

The SEP181404TA is a surface mount amber LED.

## Features

- Color ---------- Amber
- Luminous Intensity, $I_V$----600 mcd (typ.) ($I_F$ = 20 mA)
- Forward Voltage, $V_F$--------- 2.0 V (typ.) ($I_F$ = 20 mA)
- Dominant Wavelength, $\lambda_D$ ---------- 605 nm
- Viewing Angle, $2\theta_{1/2}$---------- 120 deg
- MSL 3
- RoHS Compliant
- Pb-free, Reflow Soldering
- High Reliability

## Applications

- Automotive Interior
- Switch
- Indicator

## Package

Dimensions (L × W × H): 3.5 × 2.8 × 1.2 mm


(1) Cathode
(2) Anode

Not to scale

## Absolute Maximum Ratings

Unless specifically noted, $T_A$ = 25 °C.

| Parameter | Symbol | Conditions | Rating | Unit |
|---|---|---|---|---|
| Power Dissipation | $P_D$ | | 81 | mW |
| Forward Current | $I_F$ | | 30 | mA |
| Forward Current Reduction | $\Delta I_F$ | $T_A \geq 75$ °C | −1 | mA/°C |
| Pulse Forward Current | $I_{FP}$ | Frequency = 1 kHz<br>Pulse Width ≤ 100 µs | 70 | mA |
| Reverse Voltage | $V_R$ | | 5 | V |
| Operating Temperature | $T_{OP}$ | | −40 to 85 | °C |
| Storage Temperature | $T_{STG}$ | | −40 to 100 | °C |
| Junction Temperature | $T_J$ | | 100 | °C |

## Electrical / Optical Characteristics

Unless specifically noted, $T_A$ = 25 °C.

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Forward Voltage | $V_F$ | $I_F$ = 20 mA | — | 2.0 | 2.7 | V |
| Reverse Current | $I_R$ | $V_R$ = 5 V | — | — | 10 | µA |
| Luminous Intensity | $I_V$ | $I_F$ = 20 mA | 490 | 600 | 733 | mcd |
| Dominant Wavelength | $\lambda_D$ | $I_F$ = 20 mA | 602 | 605 | 608 | nm |
| Viewing Angle | $2\theta_{1/2}$ | $I_F$ = 20 mA | — | 120 | — | deg |
| Thermal Resistance | $\theta_{(J\text{-}A)}$ | | — | 150 | — | °C/W |

## Luminous Intensity Bins

The values have a tolerance of ±20%.

| Bin Number | Luminous Intensity Range | Unit |
|---|---|---|
| C | 490 to 600 | mcd |
| D | 600 to 733 | mcd |

## Wavelength Bins

The values have a tolerance of ±2 nm.

| Bin Number | Wavelength Range | Unit |
|---|---|---|
| Y | 602 to 605 | nm |
| R | 605 to 608 | nm |

## Derating Curves

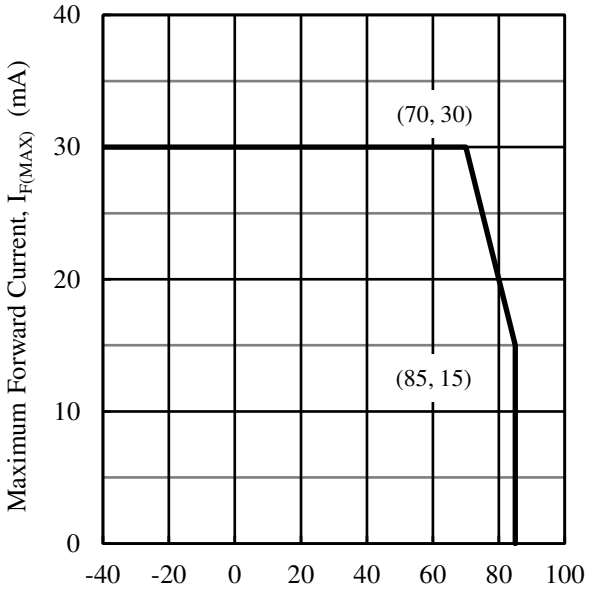



Figure 1. $I_{F(MAX)}$ vs. $T_A$

## Performance Curves

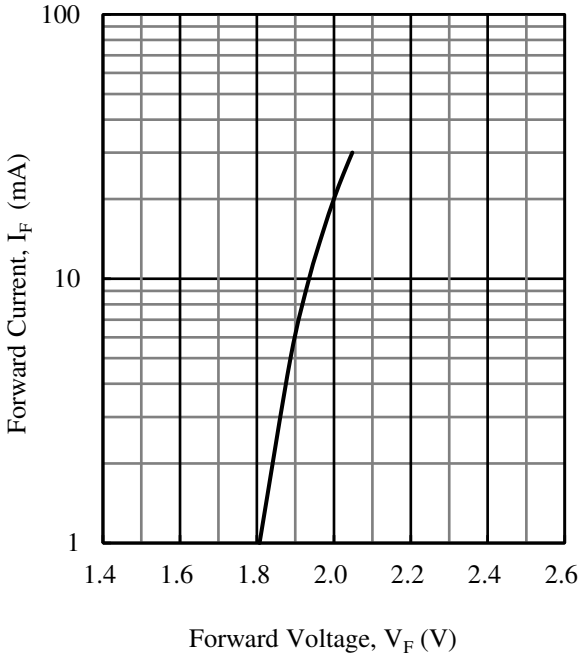



Figure 2. $I_F$ vs. $V_F$

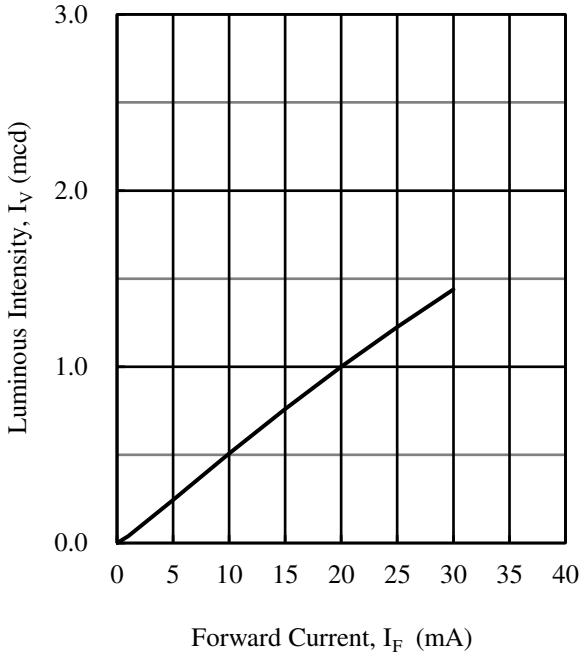



Figure 3. $I_V$ vs. $I_F$

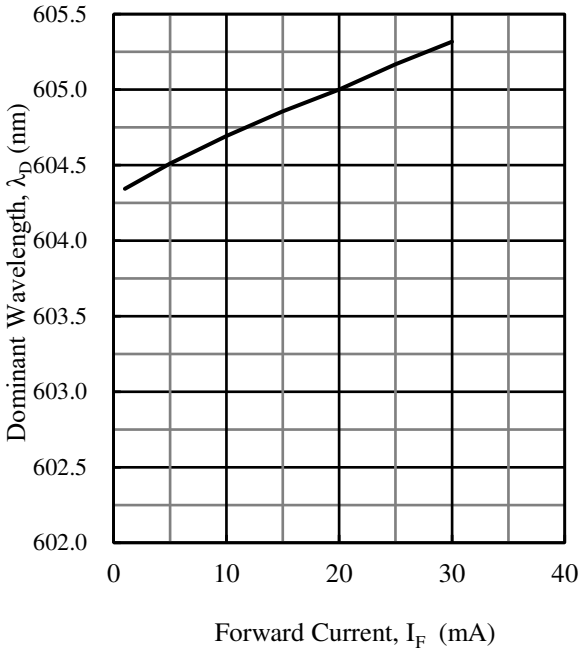



Figure 4. $\lambda_D$ vs. $I_F$

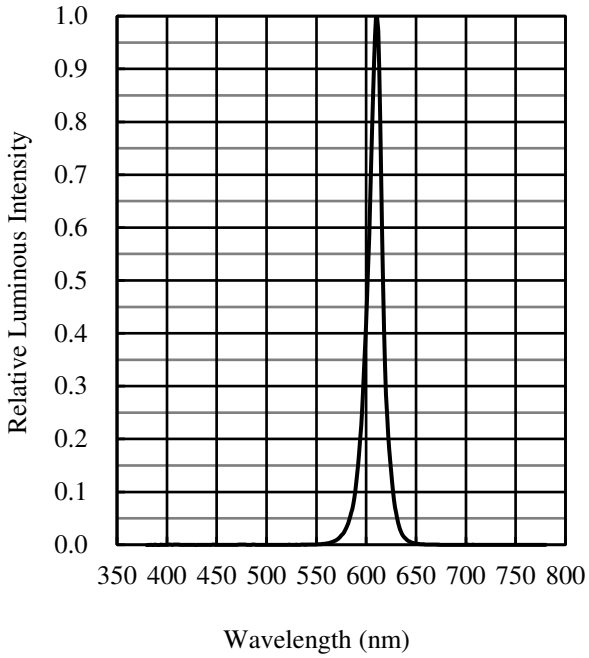



Figure 5. Spectrum

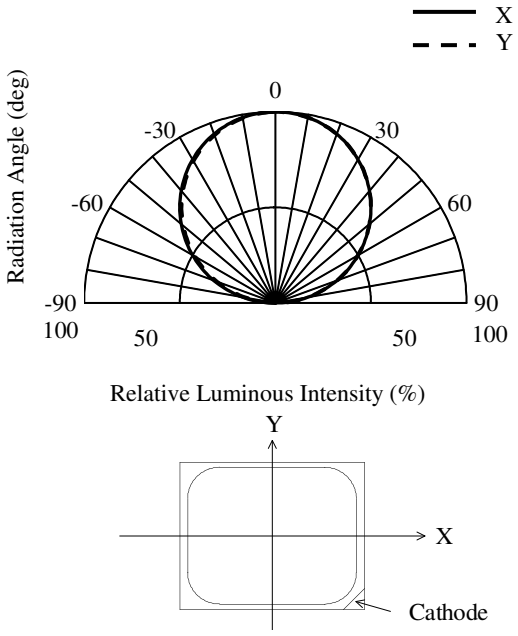


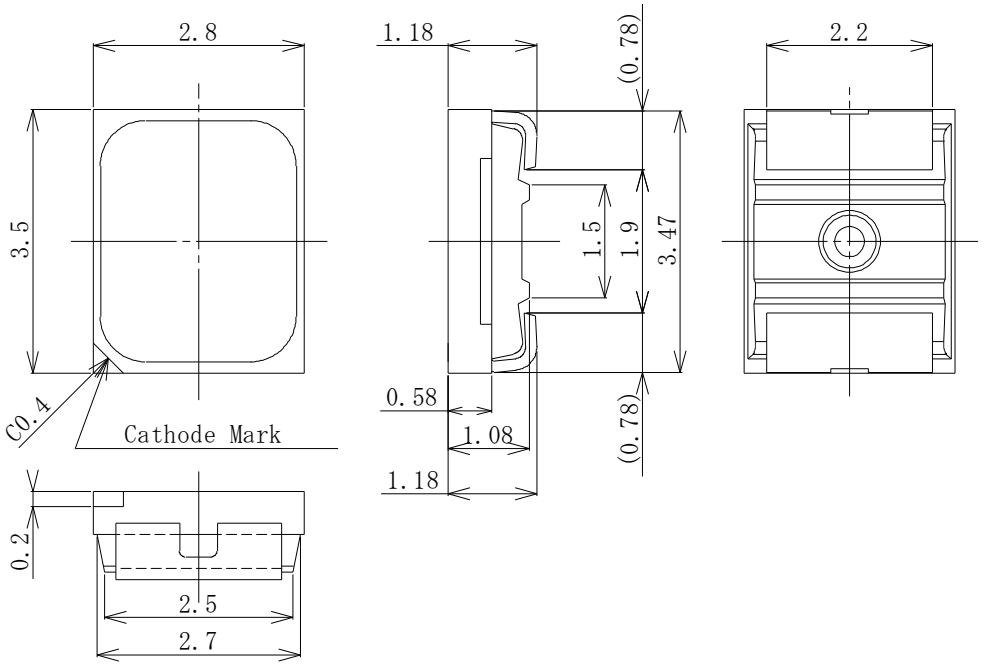




Figure 6. Directivity

## Physical Dimensions

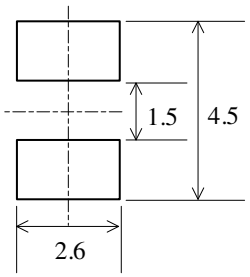
● **Surface Mount (3.5 × 2.8 × 1.2 mm)**




**NOTES:**

- Dimensions in millimeters
- Unless specifically noted, tolerance is ±0.2.
- RoHS compliant
- MSL 3 (Moisture Sensitivity Level 3)

● Land Pattern Example



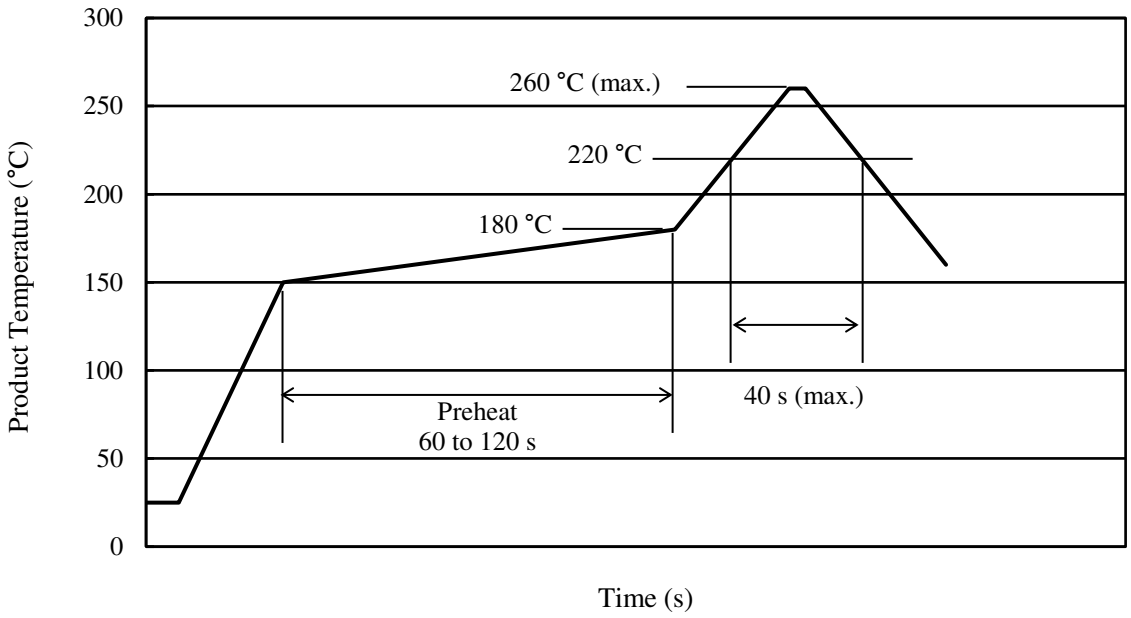

Unit: mm

## Soldering Conditions

When soldering the products, it is required to minimize the working time within the following limits:

- Reflow:
  Preheat: 150 to 180 °C / 60 to 120 s
  Solder heating: 220 °C / 40 s (260 °C peak, 2 times)
- Soldering iron: 350 ±10 °C / 3 s, 1 time

● **Reference Reflow Profile**




## Precautions for Use

- After soldering the product, care should be taken not to apply mechanical stress or excessive vibration until it cools to room temperature.
- Do not cool the product rapidly.
- When mounting the product on a board, mounting position and orientation should be taken into account so that any stress due to board warpage is not applied to the product.
- Do not touch the encapsulating resin of the product with sharp objects such as a tweezer or fingernails. Also, do not use the product again after removal.
- Do not touch the product after mounting it on a board.
- The product emits a high-power light. Therefore, care should be taken not to look at the light emission directly for a long time because it may hurt your eyes.
- Use the product at rated current (sorting current) as much as possible. When the product is used at a current lower than the rated current (sorting current), a variation in forward voltage or luminous intensity may increase. Therefore, care should be taken for such variation when you use the product at low current.
- When the product comes into contact with material containing sulfide or is exposed to an atmosphere containing sulfide gas, the following may be caused: discoloration in the silver plating of the metal parts inside and outside the package; change in the brightness and tint of the original luminescent color.
- When the product is used in applications where high-and-low current regulations are repeated for a long time, its luminous intensity lifetime may be shortened in low-current settings. Therefore, thorough verifications are required beforehand.
- As the product uses gallium arsenide (GaAs), the following must be considered dangerous and be avoided: burning or crushing the product; inhaling or swallowing the liquid or gas generated by any chemical treatment on the product.

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