Φ_V = 3.3 lm, V_F = 2.20 V
Surface Mount LED

SEP161424T

Data Sheet

Description

The SEP161424T is a surface mount deep red LED. The product is suitable for LED lighting systems including light sources for inspection and decoration.

Features

- Color ---------- Deep Red
- Luminous Flux, Φ_V --------- 3.3 lm (typ.) (I_F = 50 mA)
- Forward Voltage, V_F -------- 2.20 V (typ.) (I_F = 50 mA)
- Peak Wavelength, λ_P ---------- 652 nm
- Viewing Angle, $2\theta_{1/2}$ ---------- 120 deg
- MSL 3
- RoHS Compliant
- Pb-free, Reflow Soldering
- High Reliability

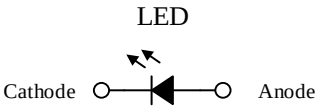
Applications

LED lighting for industrial equipment, houses, and facilities, such as:

- Light Source for Inspection
- Light Source for Decoration

Package

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



Not to scale

Absolute Maximum Ratings

Unless specifically noted, T_A = 25 °C.

Parameter	Symbol	Conditions	Rating	Unit
Power Dissipation	P_D		140	mW
Forward Current	I_F		60	mA
Reverse Voltage	V_R		3	V
Operating Temperature	T_{OP}		−40 to 85	°C
Storage Temperature	T_{STG}		−40 to 100	°C
Junction Temperature	T_J		115	°C

Electrical / Optical Characteristics

Unless specifically noted, T_A = 25 °C.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 50 mA	2.05	2.20	2.45	V
Reverse Current	I_R	V_R = 3 V	—	—	10	μA
Radiation Intensity	Ie	I_F = 50 mA	11.5	13.0	16.1	mW/sr
Luminous Flux	Φ_V	I_F = 50 mA	—	3.3	—	lm
Peak Wavelength	λ_P	I_F = 50 mA	649	652	658	nm
Viewing Angle	$2\theta_{1/2}$	I_F = 50 mA	—	120	—	deg
Thermal Resistance	$\theta_{(J\text{-}A)}$		—	150	—	°C/W

Radiation Intensity Bins

The values have a tolerance of ±10%.

Bin Number	Radiation Intensity Range	Unit
1	11.5 to 12.1	mW/sr
2	12.1 to 12.7	mW/sr
3	12.7 to 13.3	mW/sr
4	13.3 to 13.9	mW/sr
5	13.9 to 14.6	mW/sr
6	14.6 to 15.4	mW/sr
7	15.4 to 16.1	mW/sr

V_F Bins

The values have a tolerance of ±3%.

Bin Number	V_F Range	Unit
0A	2.05 to 2.25	V
0B	2.25 to 2.45	V

Wavelength Bins

The values have a tolerance of ±2%.

Bin Number	Wavelength Range	Unit
DR	649 to 658	nm

Derating Curves

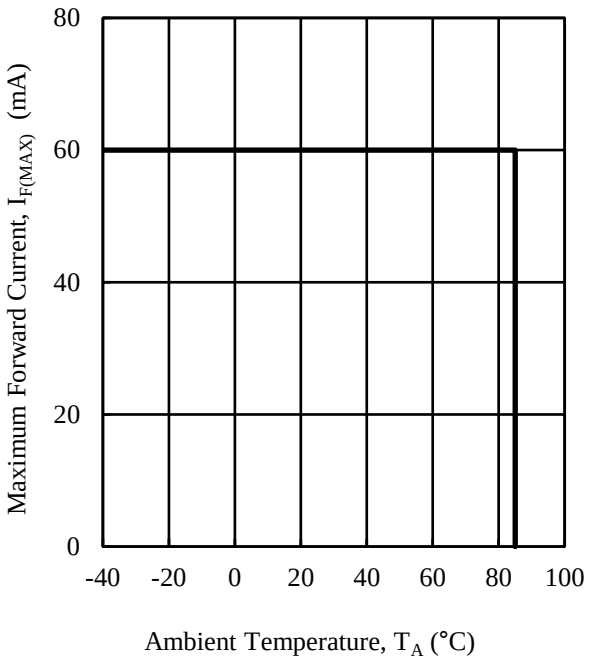


Figure 1. $I_{F(MAX)}$ vs. T_A

Characteristic Curves

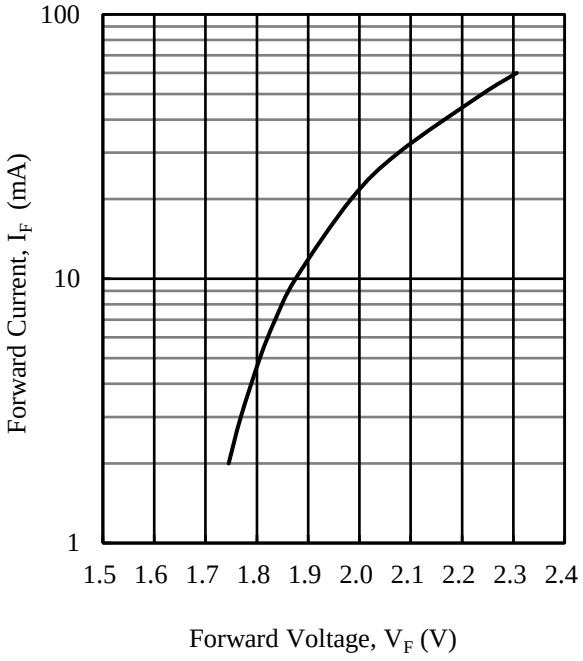


Figure 2. I_F vs. V_F (T_A = 25 °C)

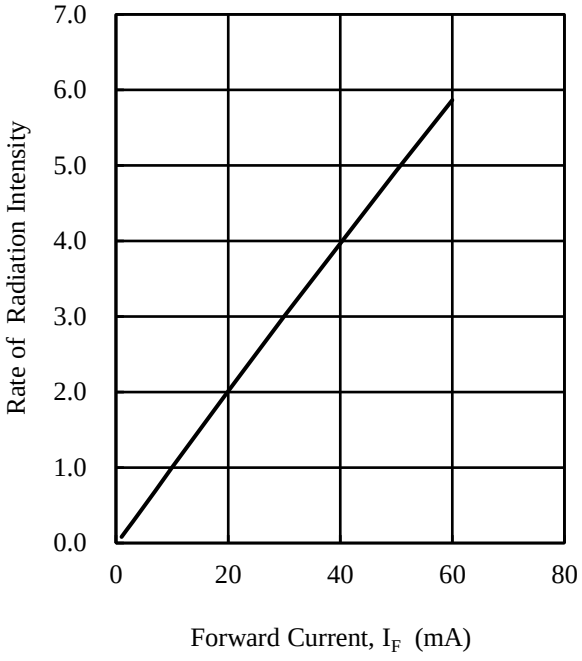


Figure 3. Rate of Radiation Intensity vs. I_F (T_A = 25 °C)

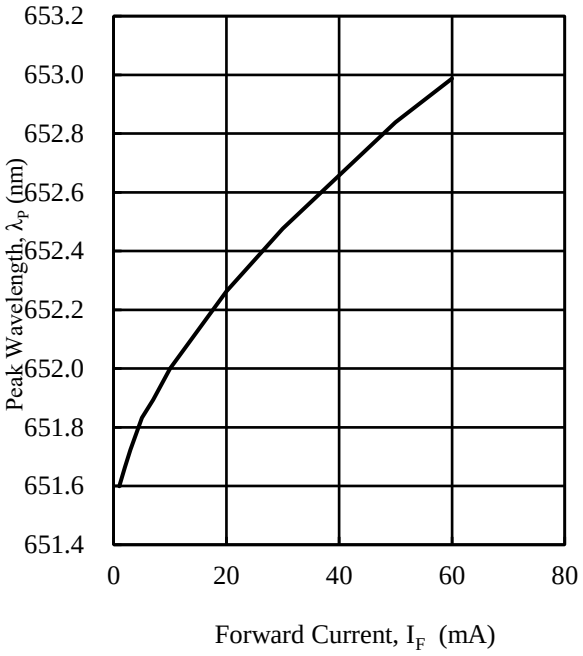


Figure 4. λ_P vs. I_F (T_A = 25 °C)

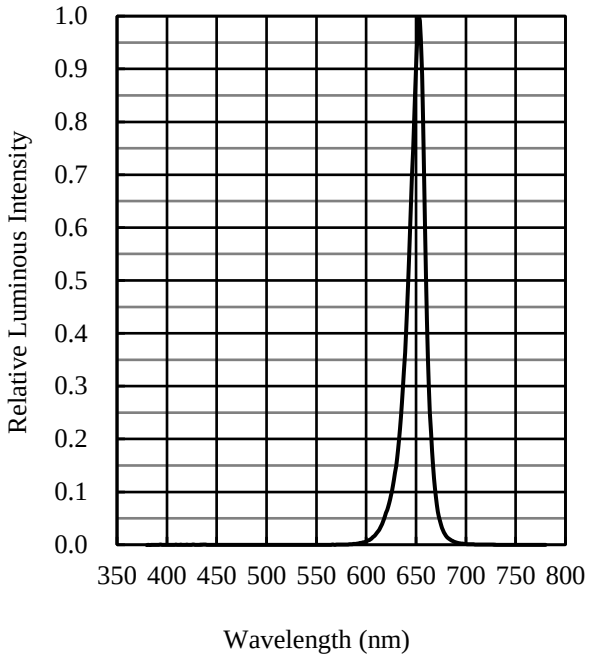


Figure 5. Spectrum (T_A = 25 °C, I_F = 50 mA)

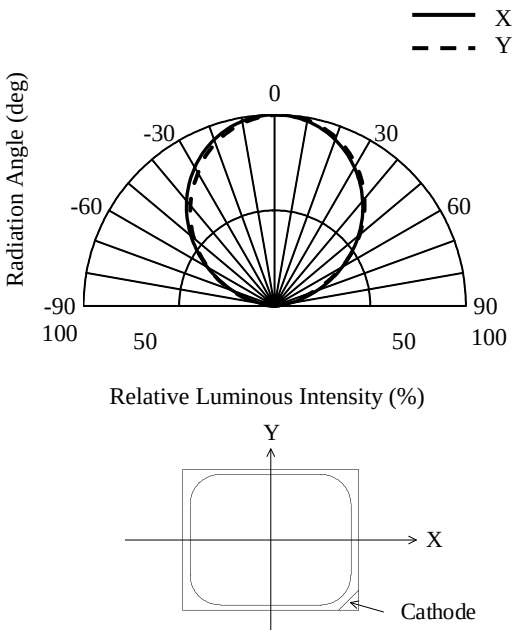
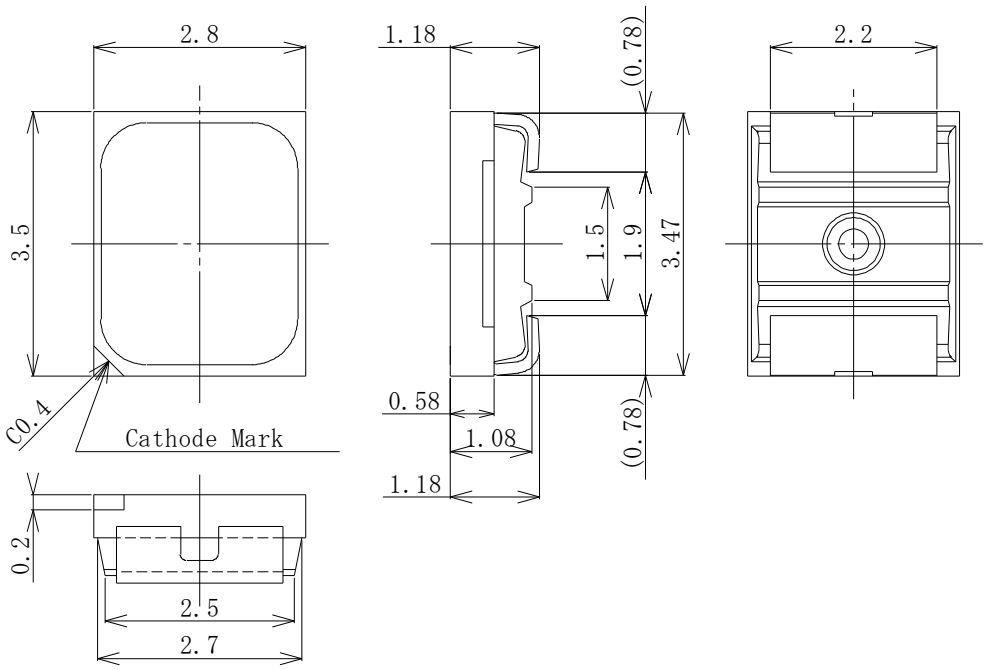


Figure 6. Directivity (T_A = 25 °C, I_F = 50 mA)

Physical Dimensions

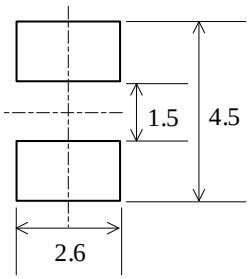
● **Surface Mount (3.5 × 2.8 × 1.2 mm)**



NOTES:

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

● **Land Pattern Example**



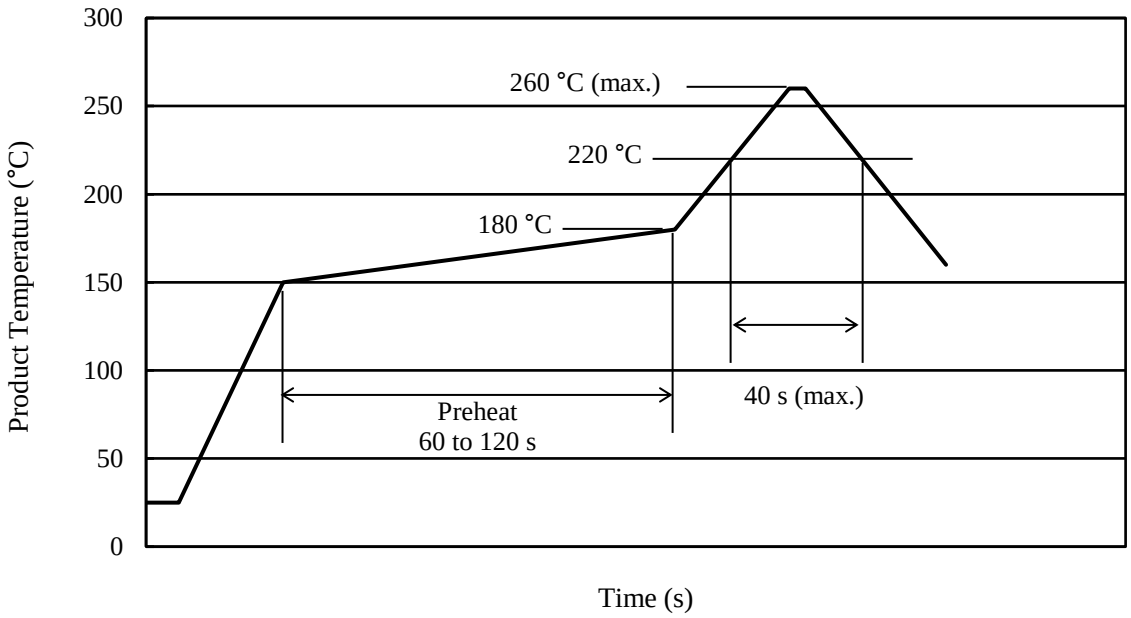
Unit: mm

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 using the product, care should be taken not to apply a voltage in the opposite direction of the LED.

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