I_V = 49.0 mcd, V_F = 2.8 V
Surface Mount LED

SECE1WA07YPT2

Data Sheet

Description

The SECE1WA07YPT2 is a surface mount white LED.

Features

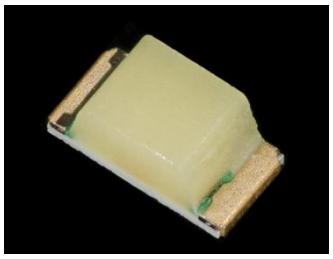
- Color ---------- White
- Luminous Intensity, I_V ---- 49.0 mcd (typ.) (I_F = 5 mA)
- Forward Voltage, V_F ---------- 2.8 V (typ.) (I_F = 5 mA)
- Chromaticity (x, y) ----------(0.273, 0.281)
- Viewing Angle, $2\theta_{1/2}$ ---------- 140
- MSL 3
- RoHS Compliant
- Pb-free, Reflow Soldering
- High Reliability

Applications

- Automotive Interior
- Switch
- Indicator

Package

Dimensions (L × W × H): 1.6 × 0.8 × 0.7 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		108	mW
Forward Current	I_F		30	mA
Forward Current Reduction	ΔI_F	$T_A \geq 60$ °C	−0.62	mA/°C
Pulse Forward Current	I_{FP}	Frequency = 1 kHz Pulse Width ≤ 100 µs	50	mA
Reverse Voltage	V_R		3	V
Operating Temperature	T_{OP}		−40 to 100	°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 = 5 mA	2.3	2.8	3.6	V
Reverse Current	I_R	V_R = 3 V	—	—	10	µA
Luminous Intensity	I_V	I_F = 5 mA	32.6	49.0	68.6	mcd
Chromaticity	x	I_F = 5 mA	—	0.273	—	—
	y		—	0.281	—	—
Viewing Angle	$2\theta_{1/2}$	I_F = 5 mA	—	140	—	deg
Thermal Resistance	$\theta_{(J\text{-}A)}$		—	450	—	°C/W

Mechanical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Package Weight		—	0.00123	—	g

Luminous Intensity Bins

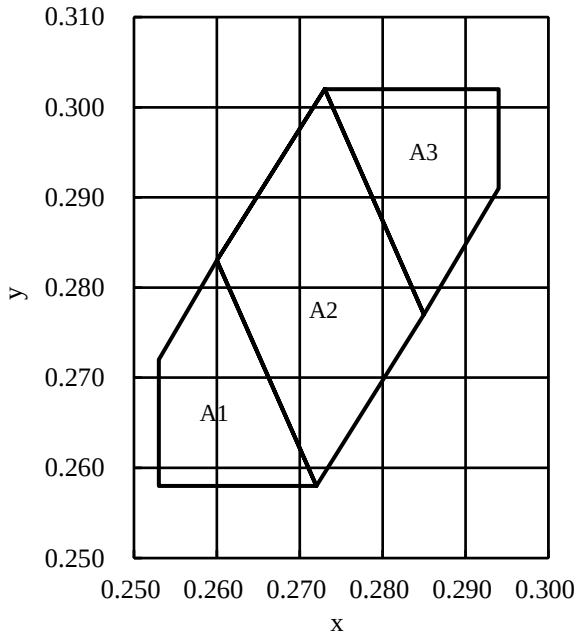
The values have a tolerance of ±10%.

Bin Number	Luminous Intensity Range	Unit
C	32.6 to 49.0	mcd
D	49.0 to 68.6	mcd

Chromaticity Bins

The values have a tolerance of ±0.01.

Bin Number	x	y
A1	0.2600	0.2830
	0.2530	0.2720
	0.2530	0.2580
	0.2720	0.2580
A2	0.2730	0.3020
	0.2600	0.2830
	0.2720	0.2580
	0.2850	0.2770
A3	0.2730	0.3020
	0.2940	0.3020
	0.2940	0.2910
	0.2850	0.2770



Derating Curves

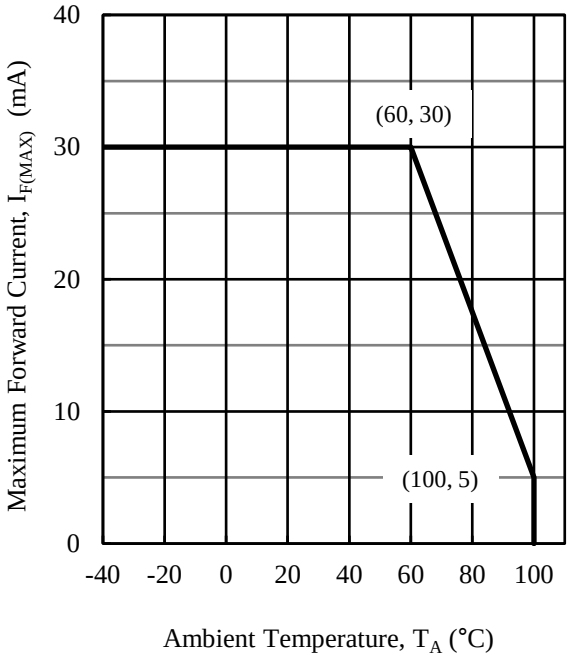


Figure 1. $I_{F(MAX)}$ vs. T_A

Characteristic Curves

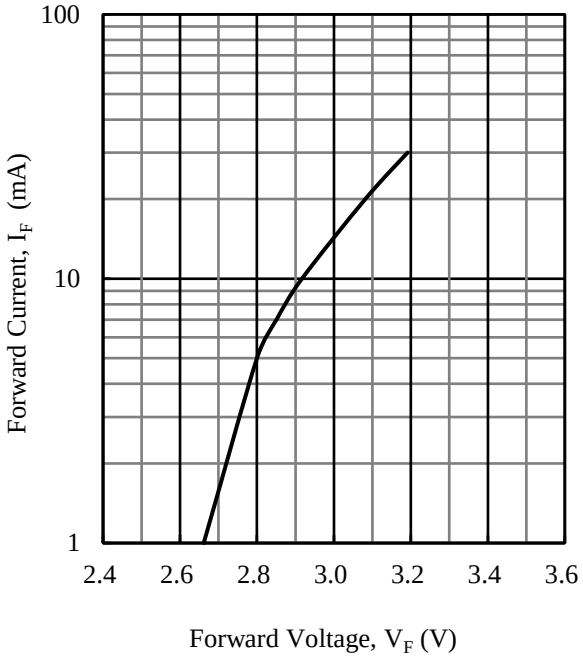


Figure 2. I_F vs. V_F

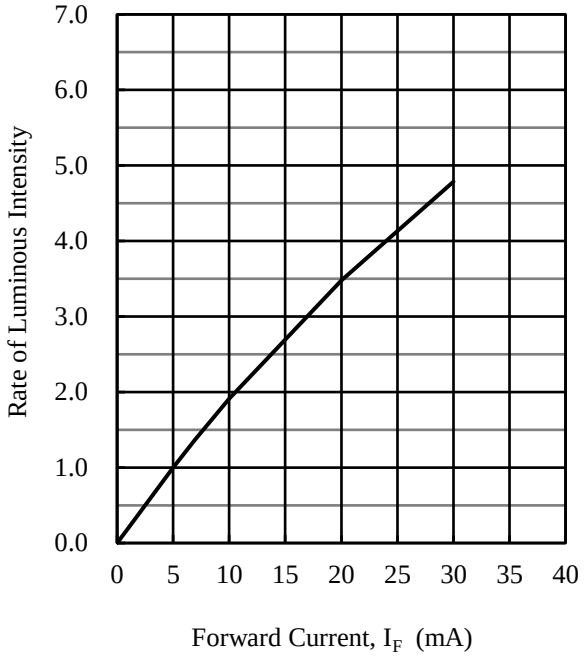


Figure 3. Rate of Luminous Intensity vs. I_F

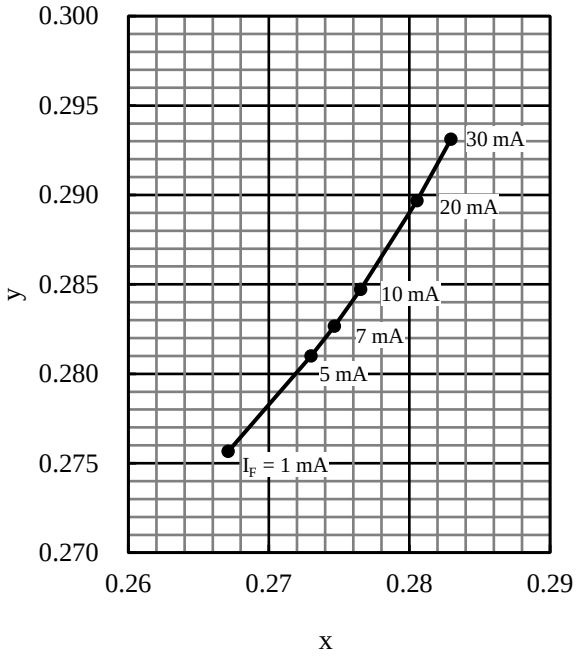


Figure 4. I_F vs. Chromaticity

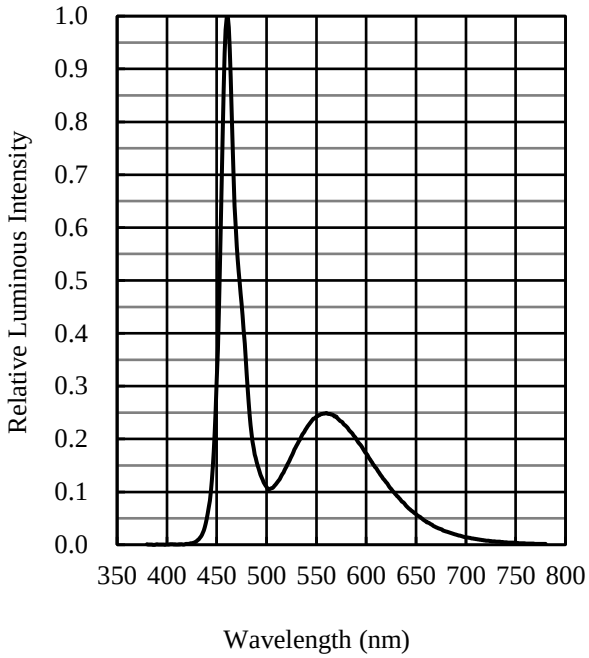


Figure 5. Spectrum

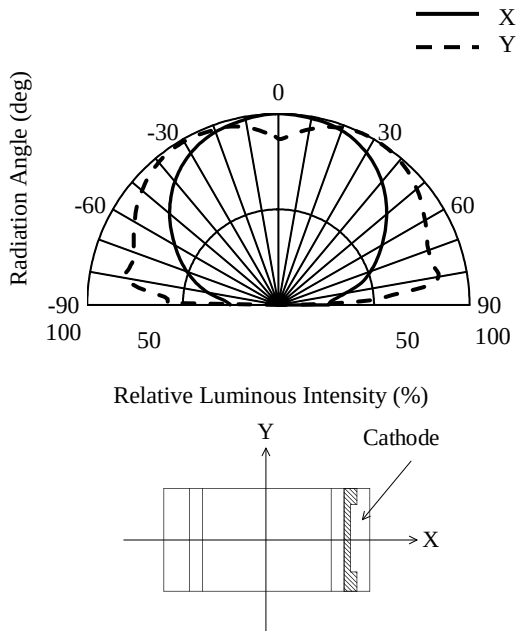
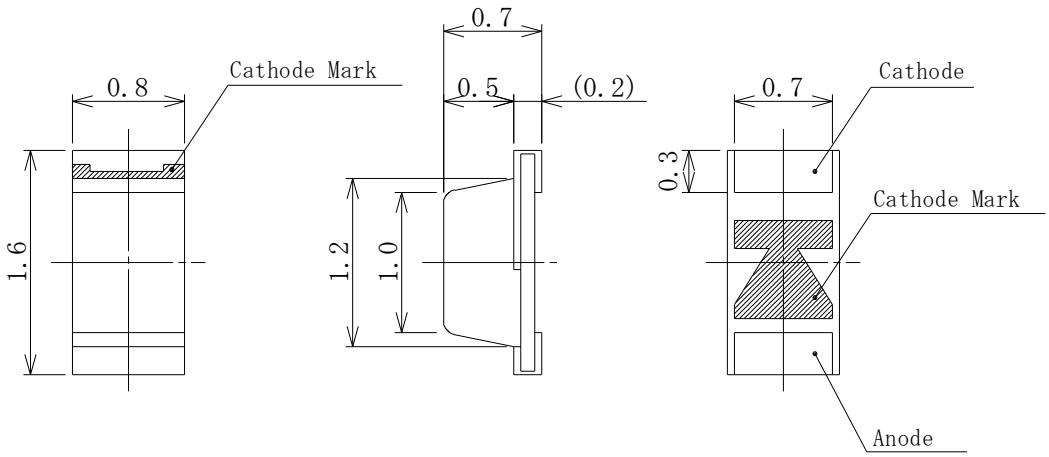


Figure 6. Directivity

Physical Dimensions

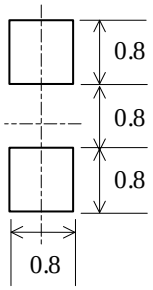
● **Surface Mount (1.6 × 0.8 × 0.7 mm)**



NOTES:

- Dimensions in millimeters
- Tolerance: ±0.1 mm
- RoHS compliant
- MSL 3 (Moisture Sensitivity Level 3)

● **Land Pattern Example**



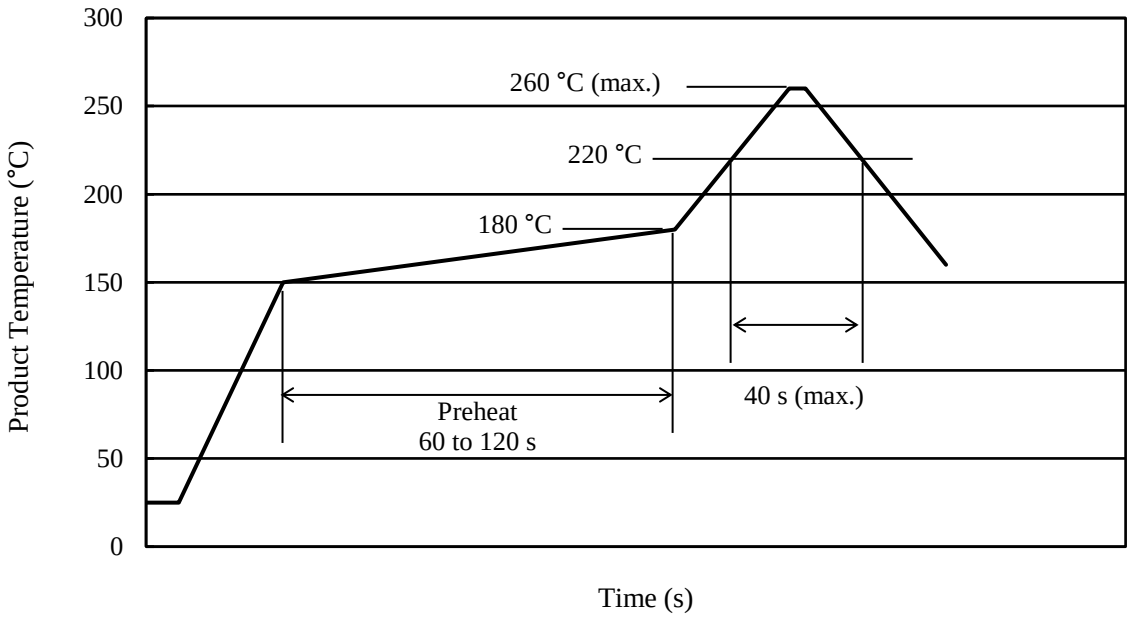
Unit: mm

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**



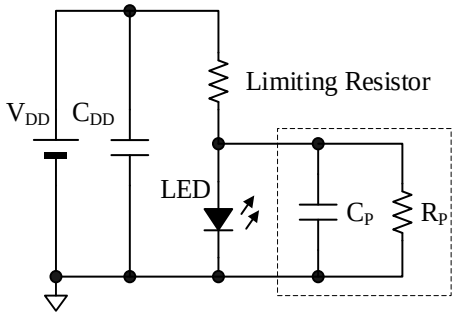
Precautions for Use

● **Measures for Electrostatic Discharge (ESD)**

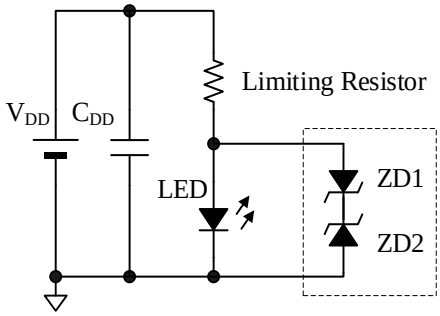
Because this product is sensitive to ESD, it is necessary to take adequate measures against ESD and surge for safe and proper handling. In particular, note that when a voltage that exceeds the absolute maximum rating is applied, the product may be damaged.

● **Reference Protection Circuits for Electrostatic Discharge and Surge**

The following figures show reference protection circuits that prevent the product from any damage due to ESD or surge. Note that these circuits are only examples; therefore, be sure to check the ESD and surge levels in your actual system and to take appropriate measures (e.g., adding a part) as needed.



Example of Adding Filter
(C_P ≥0.01 μF, R_P = 10 kΩ)



Example of Adding Zener Diodes
(ZD1, ZD2: V_Z = 7 V to 8 V)

● **Other**

- 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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