I_V = 130 mcd, V_F = 2.0 V
Surface Mount LED

SECU190EC-S

Data Sheet

Description

The SECU190EC-S is a surface mount orange LED.

Features

- Color ----------Orange
- Luminous Intensity, I_V----130 mcd (typ.) (I_F = 20 mA)
- Forward Voltage, V_F--------- 2.0 V (typ.) (I_F = 20 mA)
- Dominant Wavelength, λ_D ---------- 590 nm
- Viewing Angle, $2\theta_{1/2}$----------120 deg
- MSL 3
- RoHS Compliant
- Pb-free, Reflow Soldering
- High Reliability

Applications

- Switch
- Indicator
- Backlight

Package

Dimensions (L × W × H): 3.0 × 1.4 × 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		75	mW
Forward Current	I_F		30	mA
Forward Current Reduction	ΔI_F	$T_A \geq 25$ °C	−0.167	mA/°C
Pulse Forward Current	I_{FP}	Frequency = 1 kHz 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	2.5	V
Reverse Current	I_R	V_R = 5 V	—	—	10	µA
Luminous Intensity	I_V	I_F = 20 mA	74	130	237	mcd
Dominant Wavelength	λ_D	I_F = 20 mA	587	590	593	nm
Viewing Angle	$2\theta_{1/2}$	I_F = 20 mA	—	120	—	deg
Thermal Resistance	$\theta_{(J\text{-}A)}$		—	220	—	°C/W

Luminous Intensity Bins

The values have a tolerance of ±20%.

Bin Number	Luminous Intensity Range	Unit
C	75 to 100	mcd
D	100 to 133	mcd
E	133 to 178	mcd
F	178 to 237	mcd

Wavelength Bins

The values have a tolerance of ±2 nm.

Bin Number	Wavelength Range	Unit
Y	587 to 590	nm
R	590 to 593	nm

Derating Curves

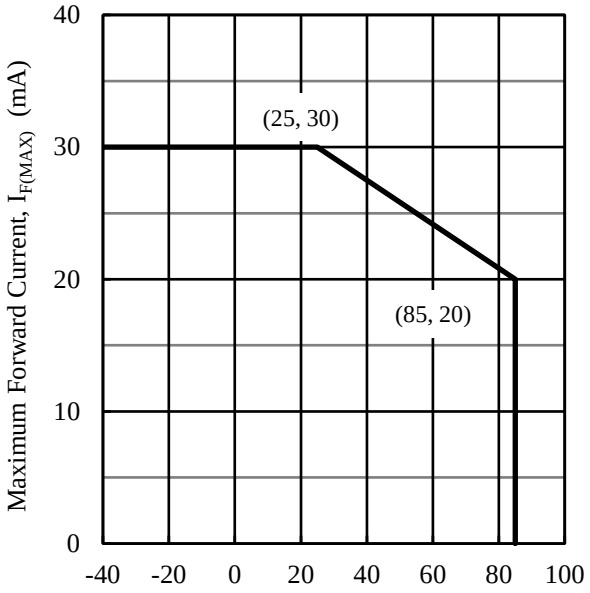


Figure 1. $I_{F(MAX)}$ vs. T_A

Performance Curves

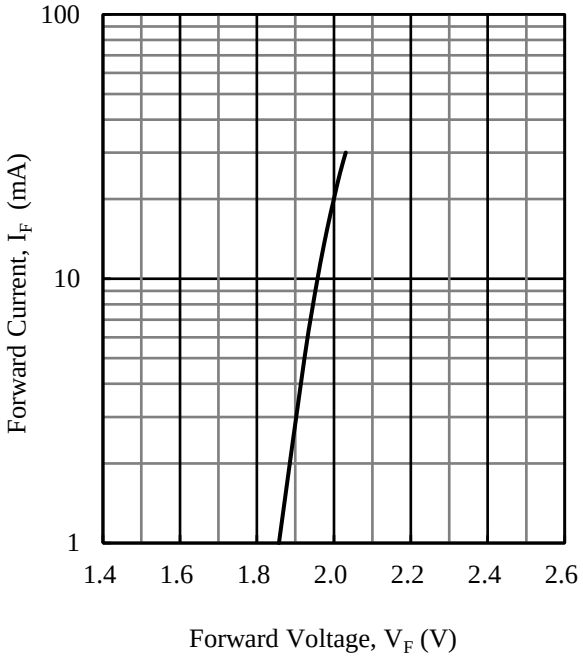


Figure 2. I_F vs. V_F

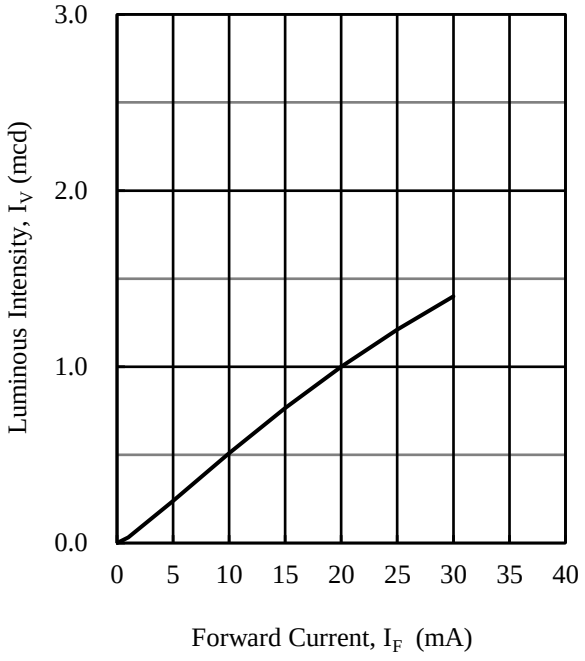


Figure 3. I_V vs. I_F

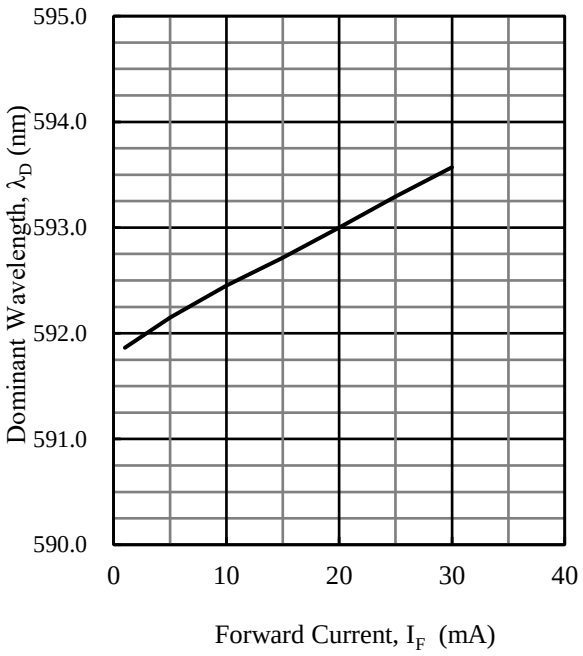


Figure 4. λ_D vs. I_F

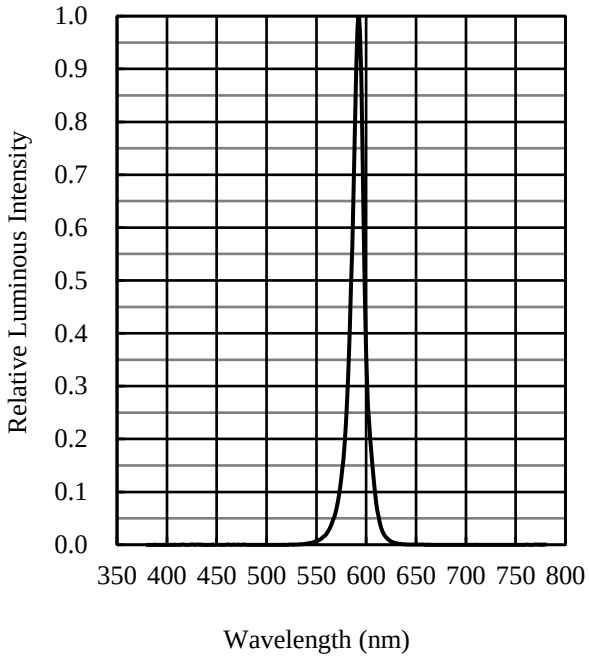


Figure 5. Spectrum

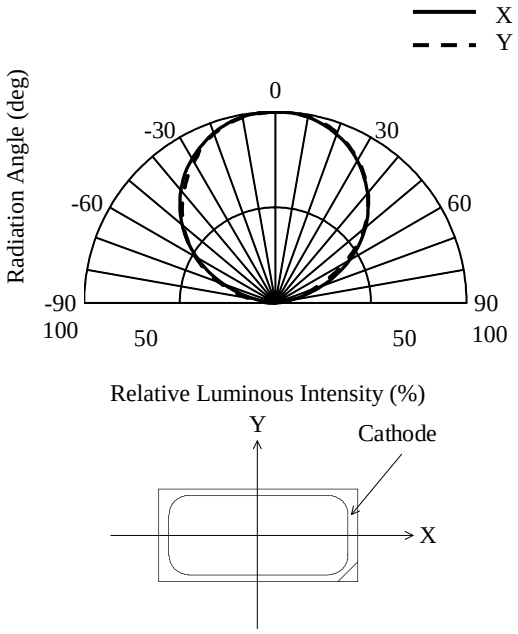
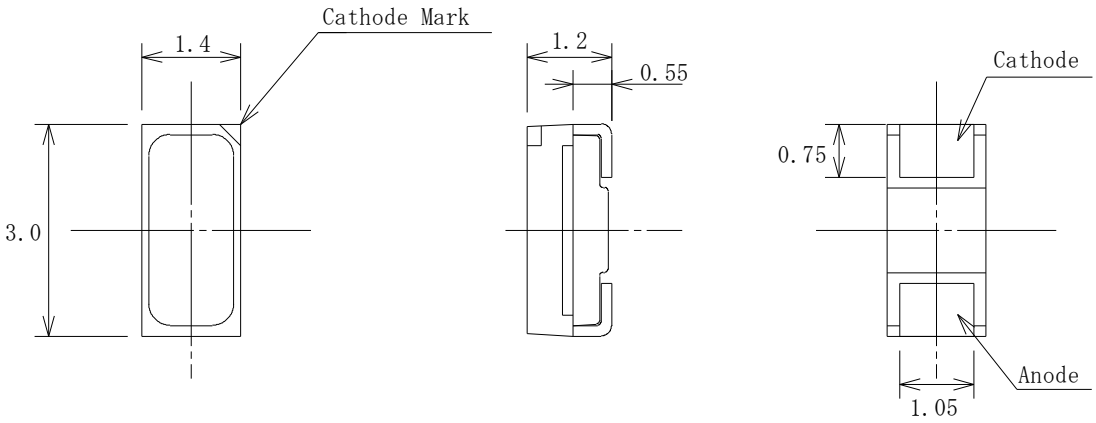


Figure 6. Directivity

Physical Dimensions

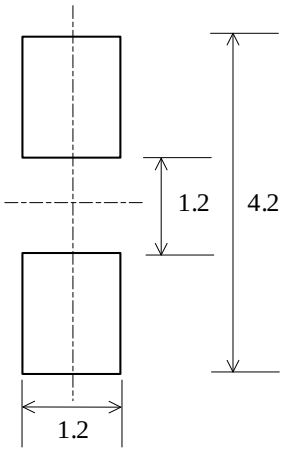
● **Surface Mount (3.0 × 1.4 × 1.2 mm)**



NOTES:

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

● Land Pattern Example



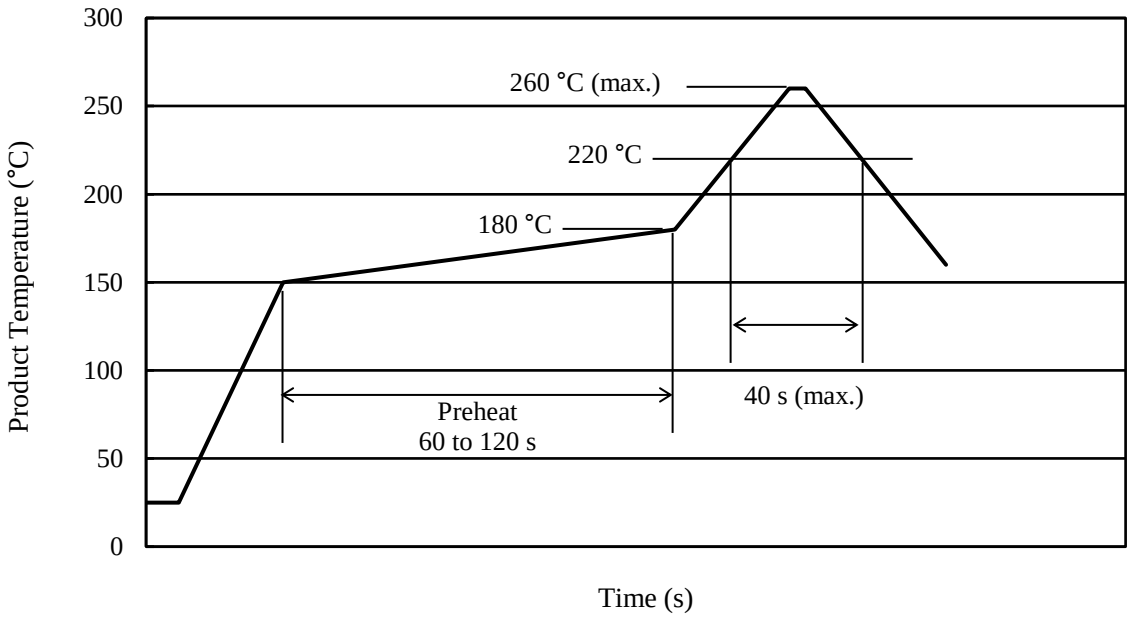
Unit: mm

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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