

Description

The SEP1D1402DT3A is a surface mount green LED.

Features

•	ColorGreen
•	Luminous Intensity, I_V 325 mcd (typ.) ($I_F = 10 \text{ mA}$)
•	Forward Voltage, V_F 3.0 V (typ.) ($I_F = 10 \text{ mA}$)
•	Dominant Wavelength, λ _D 527 nm
•	Viewing Angle, $2\theta_{1/2}$ 120 deg
	MSI 3

- MSL 3
- RoHS Compliant
- Pb-free, Reflow Soldering
- High Reliability

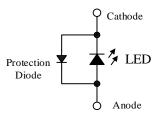
Applications

- Automotive Interior
- Switch
- Indicator

Package

Dimensions (L \times W \times H): 3.5 \times 2.8 \times 1.2 mm





Not to scale

SEP1D1402DT3A

Absolute Maximum Ratings

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

Parameter	Symbol	Conditions	Rating	Unit
Power Dissipation	P _D		105	mW
Forward Current	I_{F}		30	mA
Forward Current Reduction	ΔI_{F}	$T_A \ge 70 ^{\circ}C$	-0.67	mA/°C
Pulse Forward Current	I_{FP}	Frequency = 1 kHz Pulse Width ≤ 100 μs	70	mA
Reverse Current	I_R		10	mA
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}	$I_F = 10 \text{ mA}$	_	3.0	3.5	V
Reverse Voltage	V_R	$I_R = 1 \text{ mA}$	_	0.8	_	V
Luminous Intensity	I_V	$I_F = 10 \text{ mA}$	276	325	374	mcd
Dominant Wavelength	λ_{D}	$I_F = 10 \text{ mA}$	523	527	531	nm
Viewing Angle	$2\theta_{1/2}$	$I_F = 10 \text{ mA}$		120		deg
Thermal Resistance	$\theta_{(J-A)}$		_	175	_	°C/W

Mechanical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Package Weight			0.0257		g

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Luminous Intensity Bins

The values have a tolerance of $\pm 20\%$.

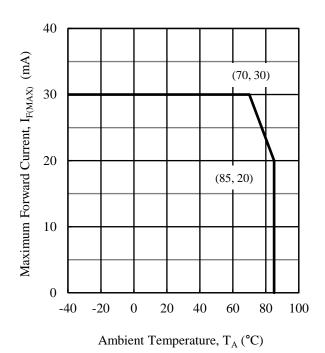
Bin Number	Luminous Intensity Range	Unit
С	276 to 374	mcd

Wavelength Bins

The values have a tolerance of ± 2 nm.

Bin Number	Wavelength Range	Unit
G	523 to 527	nm
Y	527 to 531	nm

Derating Curves



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

Performance Curves

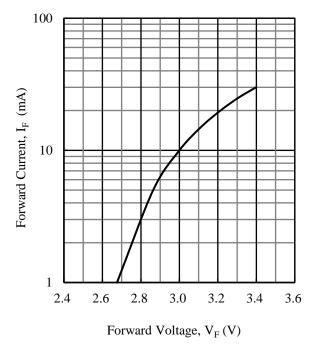


Figure 2. I_F vs. V_F

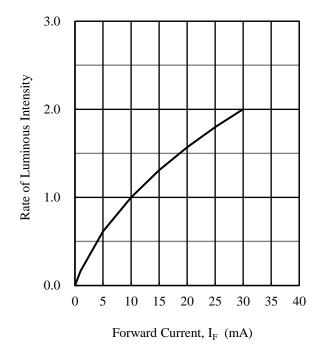
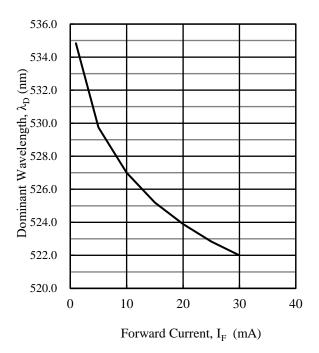


Figure 3. Rate of Luminous Intensity vs. I_F





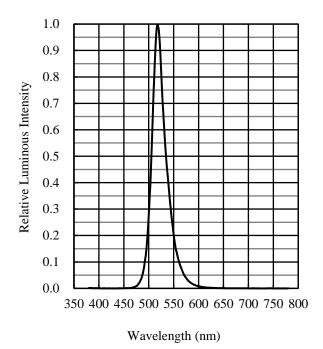


Figure 5. Spectrum

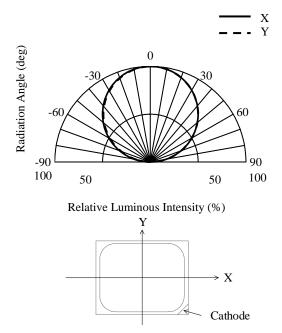
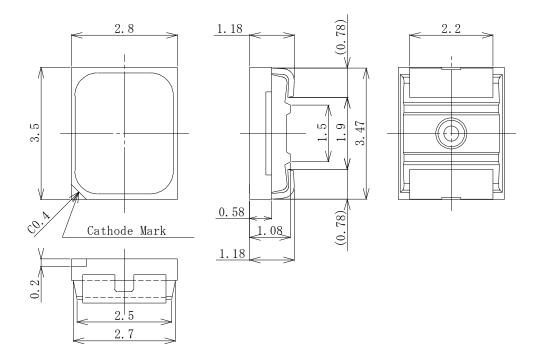


Figure 6. Directivity

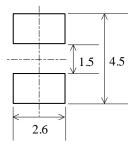
Physical Dimensions

• Surface Mount $(3.5 \times 2.8 \times 1.2 \text{ mm})$



NOTES:

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



Unit: mm

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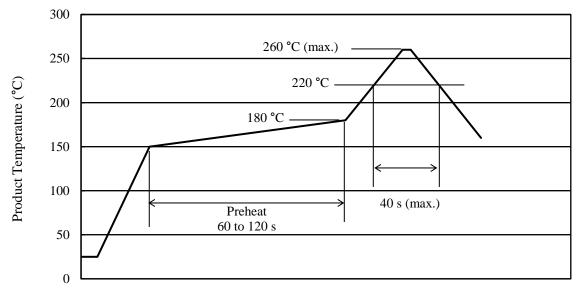
Soldering Conditions

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

Preheat: 150 to 180 $^{\circ}$ C / 60 to 120 s

Solder heating: $220 \, ^{\circ}\text{C} \, / \, 40 \, \text{s} \, (260 \, ^{\circ}\text{C} \, \text{peak}, 2 \, \text{times})$ - Soldering iron: $350 \, \pm 10 \, ^{\circ}\text{C} \, / \, 3 \, \text{s}, 1 \, \text{time}$

• Reference Reflow Profile



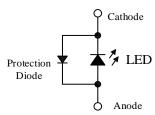
Time (s)

Precautions for Use

• Measures for Electrostatic Discharge (ESD)

In general, InGaN-based elements such as blue LEDs are very sensitive to ESD. For enhanced ESD withstand capability, this product is designed to include a surge protection diode as shown in the figure below. Therefore, the following ESD withstand capabilities are ensured: \geq 200 V on machine model (C = 200 pF, R = 0 Ω), and \geq 2000 V on human body model (C = 100 pF, R = 1.5 k Ω). Note that, however, all the values mentioned above are not guaranteed.

When using the product, care should be taken not to apply a voltage in the opposite direction of the LED. If a voltage is applied in the opposite direction of the LED, the surge protection diode becomes conductive, and then an unintended current may flow through the set.



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 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.

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