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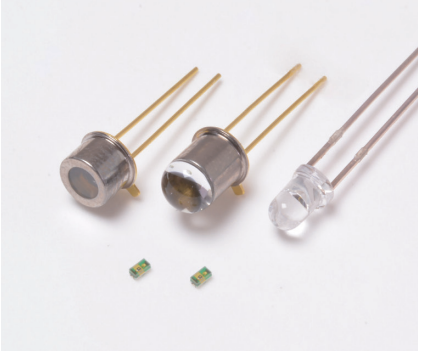
Infrared LED



L13072 series

Peak emission wavelength: 1.2 µm

The L13072 series is a high-power LED that emits infrared light at a peak wavelength of 1.2 µm. The LED is suitable for applications requiring use of an infrared emitter with InGaAs photodiode.

Features

- **High output**
- **High reliability**
- **Compact, surface mount type package (1.6 × 0.8 × 0.7^{t} mm): L13072-0120G**
- **Supports lead-free reflow soldering**

Applications

- **Gas detection**
- **Analytical instruments**
- **Near infrared lighting**

Structure

Type no.	Package	Window material
L13072-0120G	Glass epoxy	Silicone resin
L13072-0120K	TO-46	Borosilicate glass
L13072-0120L	TO-46	Lens type borosilicate glass
L13072-0120P	Plastic	Bullet-shaped epoxy resin

Absolute maximum ratings (Ta=25 °C, unless otherwise noted)

Type no.	Reverse voltage V_R (V)	Forward current I_F (mA)	Forward current decrease rate Ta > 25 °C (mA/°C)	Pulse forward current I_{FP}*1 (A)	Pulse forward current decrease rate Ta > 25 °C (mA/°C)	Power dissipation P (mW)	Operating temperature Topr*2 (°C)	Storage temperature Tstg*2 (°C)	Soldering temperature Tsol (°C)
L13072-0120G	1.0	80	1.1	0.5	6.7	150	-30 to +85	-40 to +100	250 (twice)*3
L13072-0120K				1.0	13				-
L13072-0120L									-
L13072-0120P		100	1.0	1.0	10				-

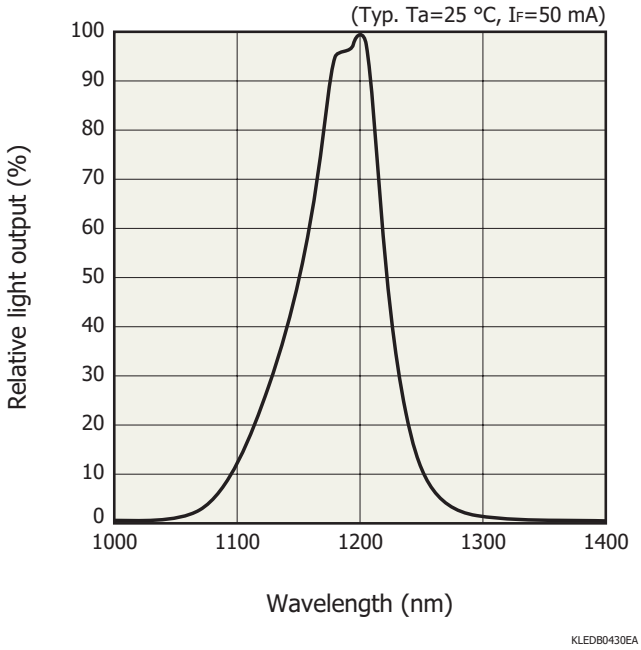
*1: Pulse width=10 µs, duty ratio=1%
*2: No dew condensation
When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.
*3: Reflow soldering, JEDEC J-STD-020 MSL 2a, see P.8
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Ta=25 °C)

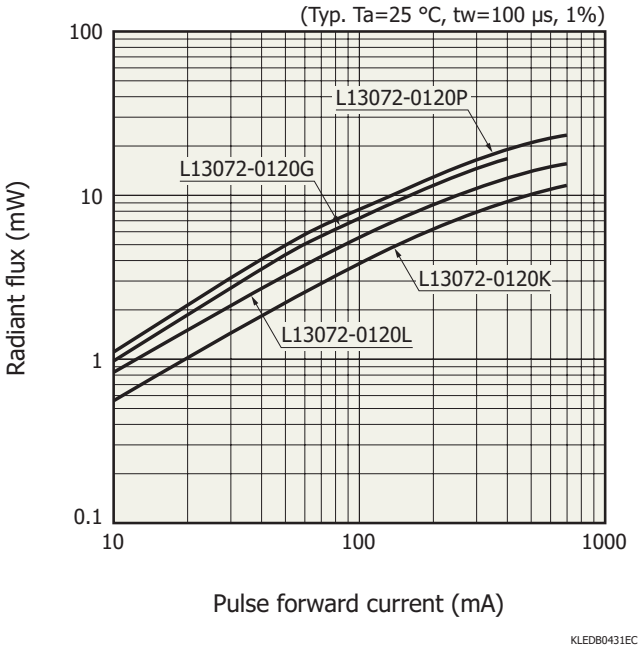
Type no.	Peak emission wavelength λp IF=50 mA			Spectral half width Δλ IF=50 mA	Radiant flux ϕc IF=50 mA		Forward voltage VF IF=50 mA		Reverse current IR VR=1V	Cutoff frequency fc*4	
	Min. (nm)	Typ. (nm)	Max. (nm)	Typ. (nm)	Min. (mW)	Typ. (mW)	Typ. (V)	Max. (V)	Max. (μA)	Min. (MHz)	Typ. (MHz)
L13072-0120G	1150	1200	1250	80	3.2	4.4	1.1	1.4	10	10	15
L13072-0120K					1.5	2.2	1.1	1.6			
L13072-0120L					2.2	3.2					
L13072-0120P					-	5.0	1.1	1.5			

*4: IF=50 mA ± 10 mAp-p, frequency at which the light output drops by 3 dB relative to the output at 100 kHz

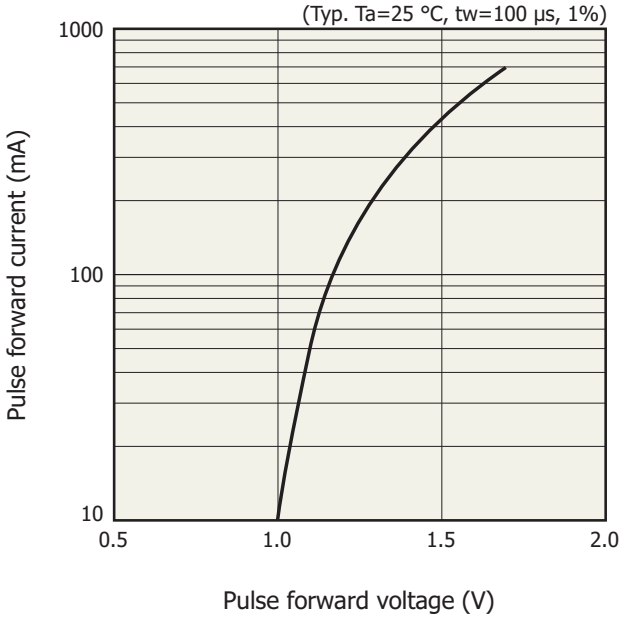
Emission spectrum



Radiant flux vs. pulse forward current

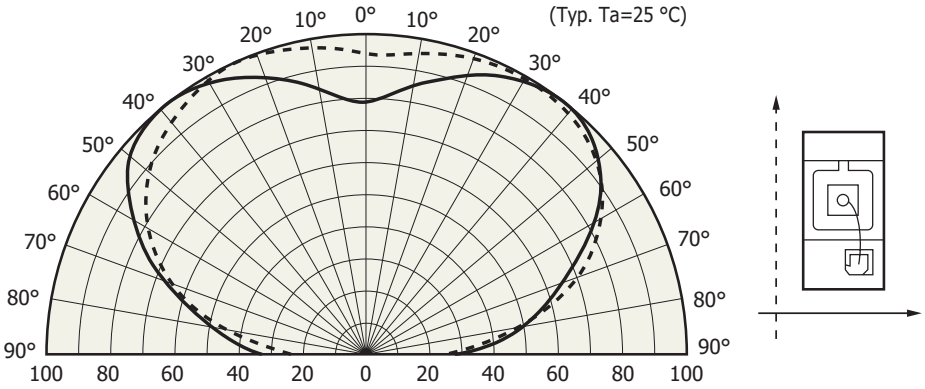


Pulse forward current vs. pulse forward voltage



Directivity

L13072-0120G



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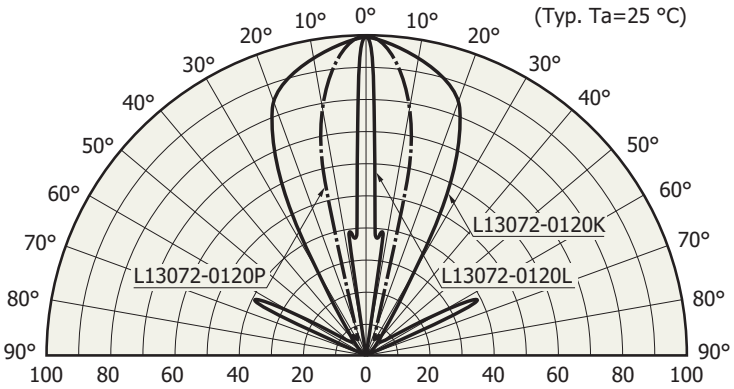
L13072-0120K/-0120L/-0120P



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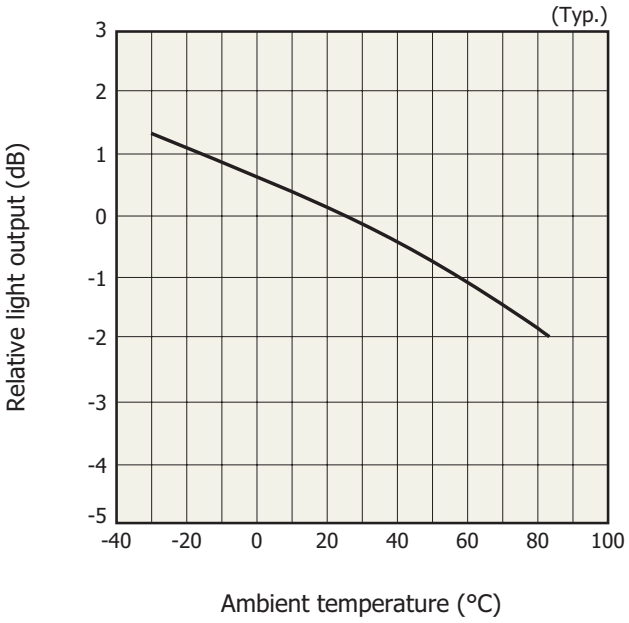
Light output vs. ambient temperature



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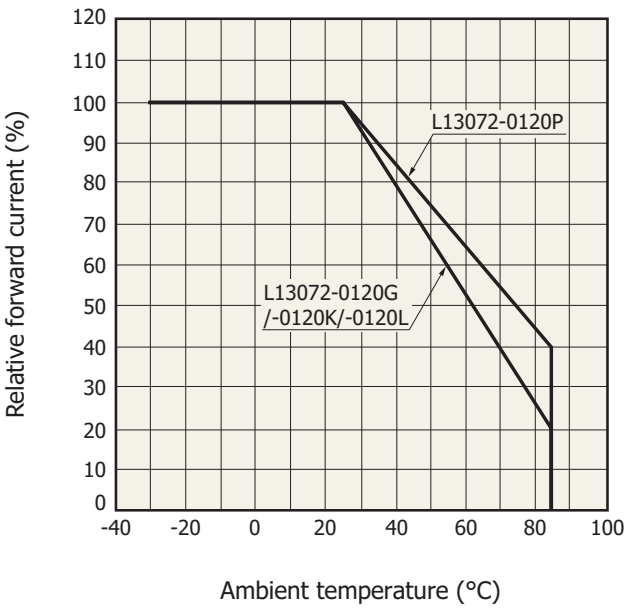
Allowable forward current vs. ambient temperature



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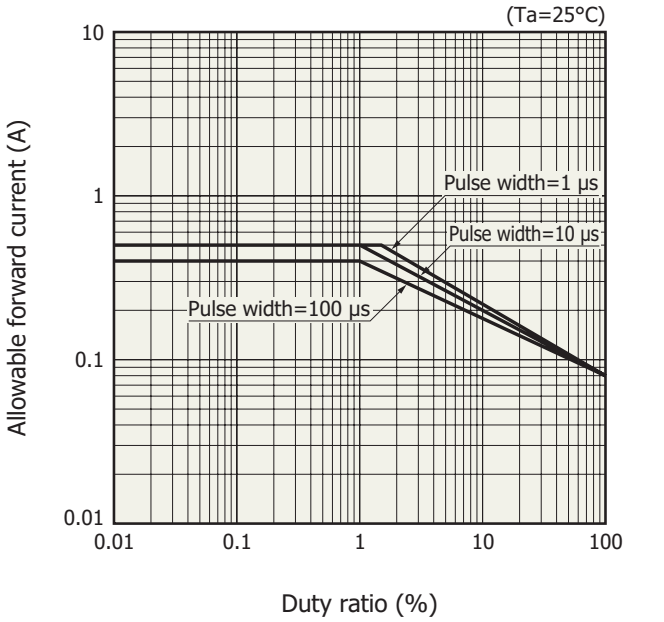
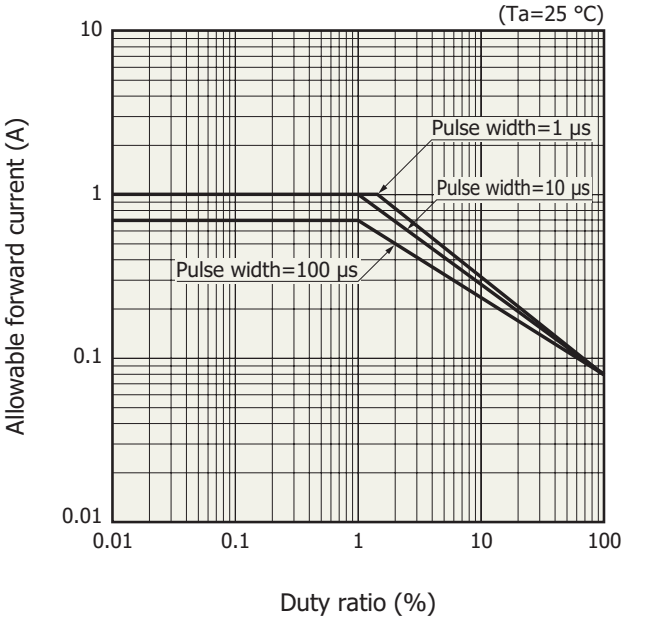
Allowable forward current vs. duty ratio

L13072-0120G



KLEDB0516EB

L13072-0120K/-0120L



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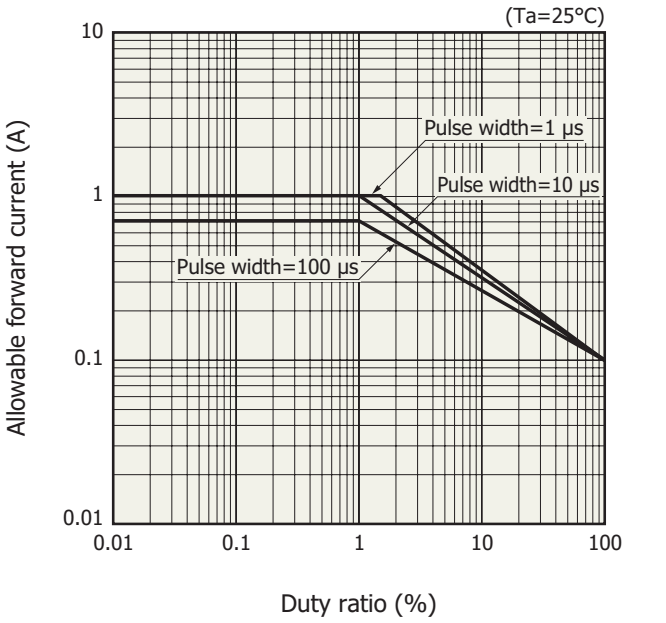
L13072-0120P



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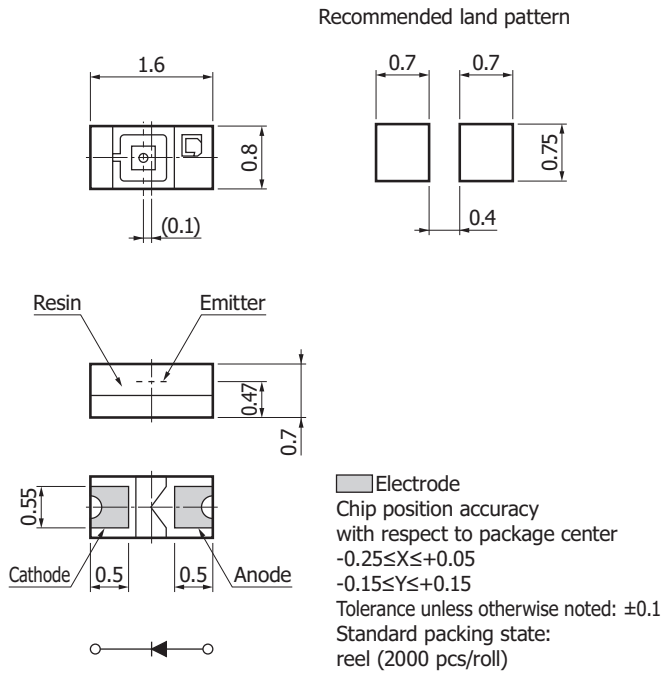
Dimensional outlines (unit: mm)

L13072-0120G



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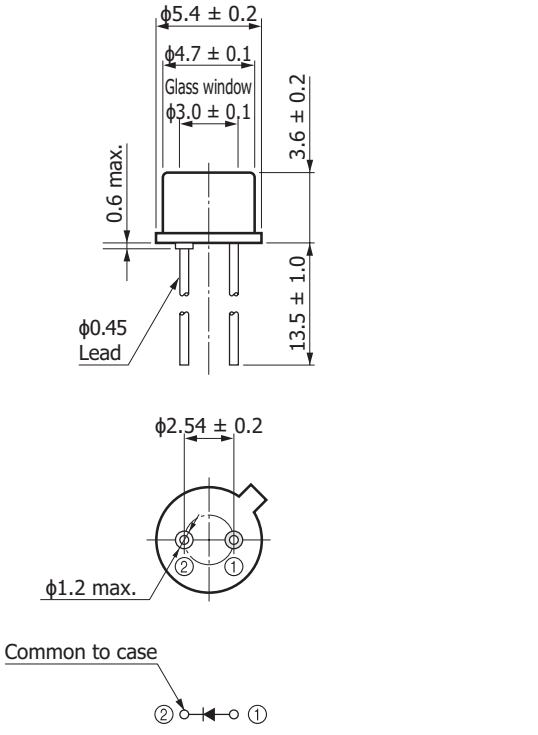
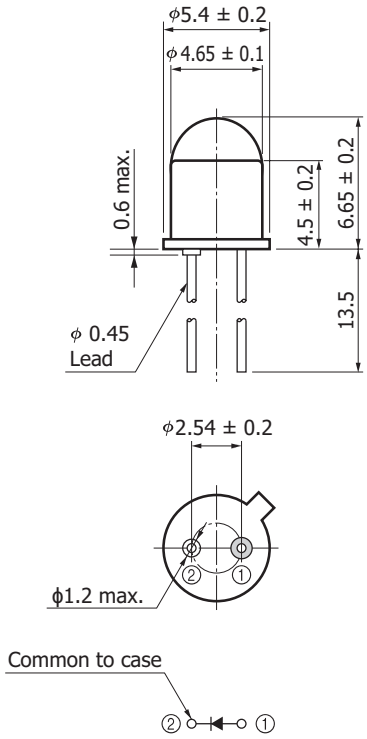
L13072-0120K



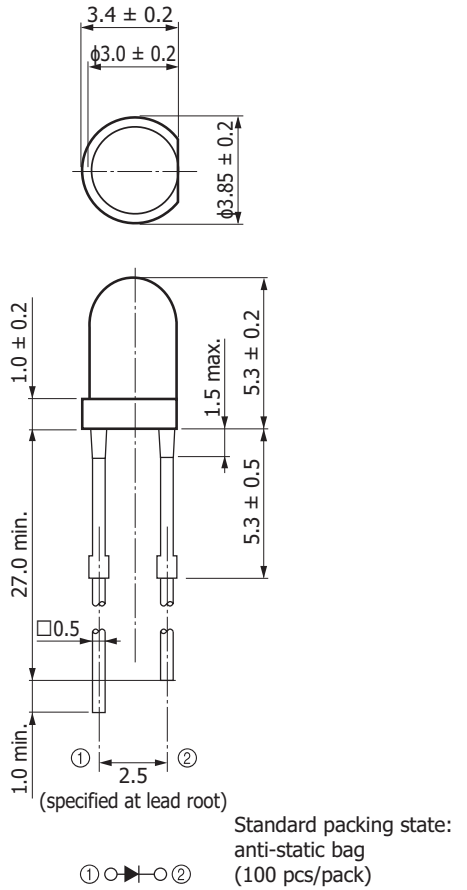
KLEDA0103EB

L13072-0120L



KLEDA0092EB

L13072-0120P



Standard packing state:
anti-static bag
(100 pcs/pack)

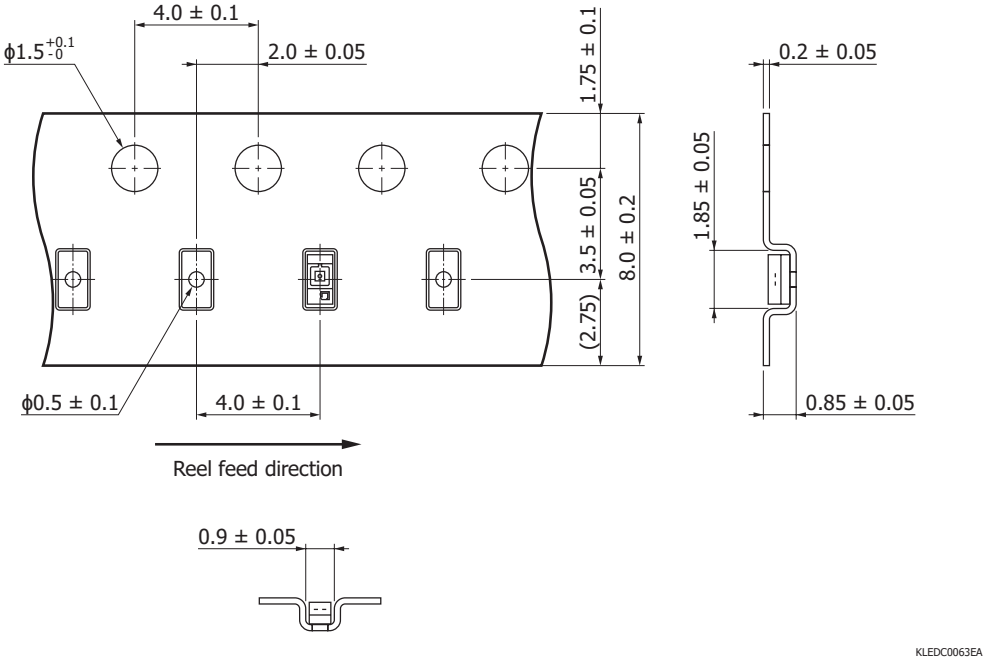
KLEDA0098EC

Standard packing specifications (L13072-0120G)

■ Reel (conforms to JEITA ET-7200)

Outer diameter	Hub diameter	Tape width	Material	Electrostatic characteristics
ϕ180 mm	ϕ60 mm	8 mm	PS	Conductive

■ Embossed tape (unit: mm, material: PS, conductive)

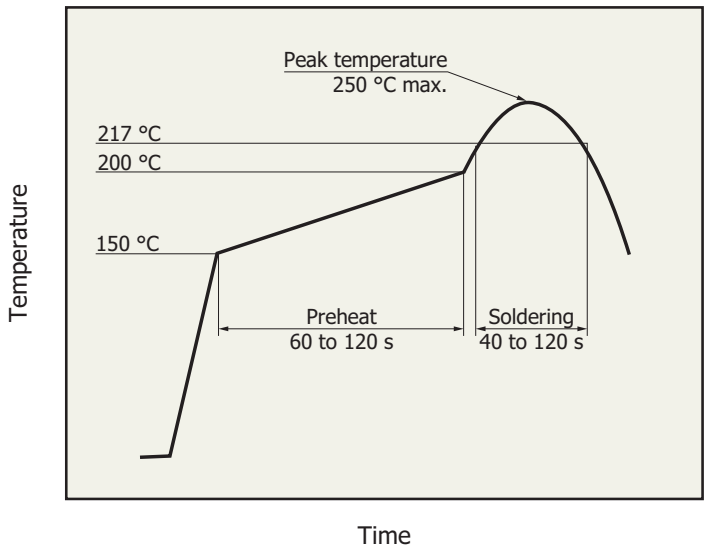


■ Packing quantity
2000 pcs/reel

■ Packing stage
Reel and desiccant in moisture-proof packaging (vaccum-sealed)

Recommended soldering conditions

L13072-0120G



- After unpacking, store the device in an environment at a temperature range of 5 to 30 °C and a humidity of 60% or less, and perform reflow soldering within 4 week.
- The effect that the product receives during reflow soldering varies depending on the circuit board and reflow oven that are used. When you set reflow soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

L13072-0120K/-0120L

- Solder temperature: 260 °C (5 s or less, once)
  Solder the leads at a point at least 1 mm away from the package body.

L13072-0120P

- Solder temperature: 230 °C (5 s or less, once)
  Solder the leads at a point at least 2 mm away from the package body.

Note: When you set soldering conditions, check that problems do not occur in the product by testing out the conditions in advance.

Baking (L13072-0120G)

If more than 3 months have passed in the unopend state or storage conditions are exceeded after opening the package, baking is required to remove moisture before reflow soldering. For the baking, refer to "Surface mount type products" in the related information.

■ Recommended baking conditions

- Temperature: 150 °C (3 hours, once)

Note: When you set baking conditions, perform experiments to confirm that no problems occur with the product.

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions
· Disclaimer
· Safety consideration
· Surface mount type products
· Compound opto-semiconductors (photosensors, light emitters)

■ Technical information
· LED / Technical note

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