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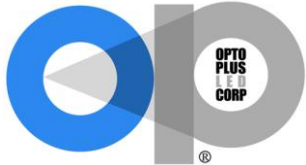
Opto Plus LED Corp
OPS-L0404F1C
Top View Chip LED

● **EDIT HISTORY**

Version A : APR. 22, 2024

Preliminary Spec.

Confidential Document



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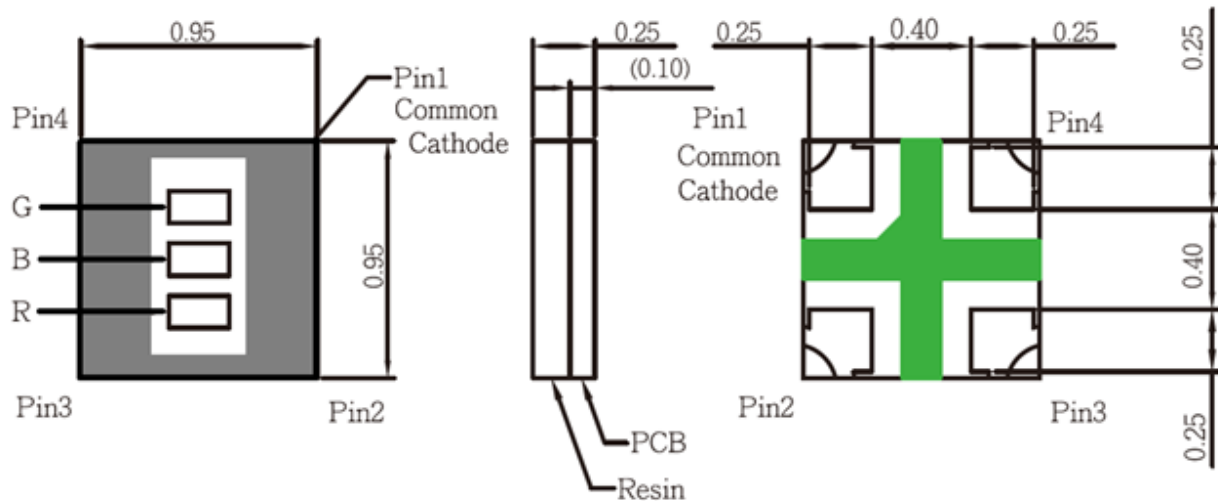
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● FEATURES

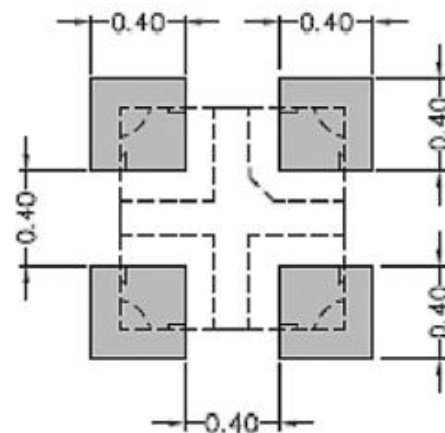
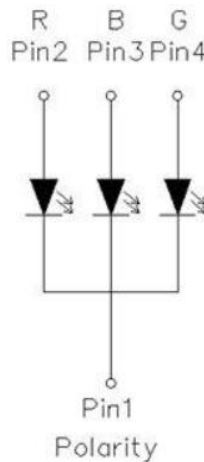
- 0.95mm x 0.95 mm x 0.25 mm. [0.04 inch x 0.04 inch x 0.01 inch]
- Top View Chip LED.
- Low power consumption.
- RoHS compliant.

● PACKAGE DIMENSIONS



Unit:mm Tolerance: +/-0.1

SOLDERING PATTERN



Unit:mm Tolerance: +/-0.1

Suggested pad dimension is just for reference only.

Please modify the pad dimension based on individual need.



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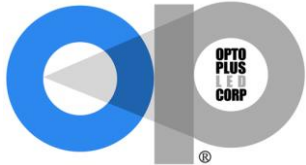
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ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P_{AD}	25	mW
Continuous forward current (Red)	I_{AF}	5	mA
Continuous forward current (Green) (Blue)	I_{AF}	2	mA
Peak current (duty cycle 1/10, 1kHz)	I_{PF}	20	mA
Reverse voltage	V_R	5	V
Operating temperature	T_{OPR}	-30 to +80	°C
Storage temperature	T_{STG}	-40 to +85	°C

ELECTRICAL - OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Type.	Max.	Unit
Forward Voltage (Red)	V_F	$I_F = 5mA$	1.5	1.9	2.7	V
Forward Voltage (Green)	V_F	$I_F = 2mA$	2.0	2.5	3.3	V
Forward Voltage (Blue)	V_F	$I_F = 2mA$	2.0	2.5	3.3	V
Reverse Current	I_R	$V_R = 5V$	-	-	10	μA
Dominant Wavelength (Red)	λ_D	$I_F = 5mA$	-	620	-	nm
Dominant Wavelength (Green)	λ_D	$I_F = 2mA$	-	533	-	nm
Dominant Wavelength (Blue)	λ_D	$I_F = 2mA$	-	470	-	nm
Luminous Intensity(Red)	I_v	$I_F = 5mA$	-	28	-	mcd
Luminous Intensity(Green)	I_v	$I_F = 2mA$	-	37	-	mcd



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Luminous Intensity(Blue)	I_v	$I_F = 2\text{mA}$	-	7	-	mcd
Spectrum Radiation Bandwidth (Red)	$\Delta\lambda$	$I_F = 5\text{mA}$	-	11	-	nm
Spectrum Radiation Bandwidth (Green)	$\Delta\lambda$	$I_F = 2\text{mA}$	-	28	-	nm
Spectrum Radiation Bandwidth (Blue)	$\Delta\lambda$	$I_F = 2\text{mA}$	-	16	-	nm



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● **LUMINOUS INTENSITY (IV) BIN :**

BIN	R	S	T
(Red) @5mA	112-180 mcd	181-285 mcd	285-360 mcd

BIN	T	U	V	W
(Green) @2mA	285-360 mcd	361-450 mcd	451-560 mcd	561-715 mcd

BIN	Q	R	S
(Blue) @2mA	71-112 mcd	113-180 mcd	181-285 mcd

Note: It maintains a tolerance of $\pm 10\%$ on Luminous Intensity.

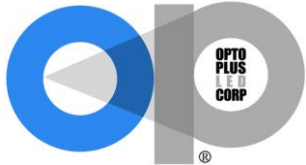
● **WAVELENGTH(λ D) BIN :**

BIN	2	3	4
(Red) @5mA	618-623 nm	623-628 mcd	628-633 nm

BIN	0	2	4
(Green) @2mA	524-528 nm	528-532 mcd	532-536 nm

BIN	1	3
(Blue) @2mA	464 – 468 nm	468 – 472 nm

Note: It maintains a tolerance of $\pm 0.5\text{nm}$ on Wavelength BIN.



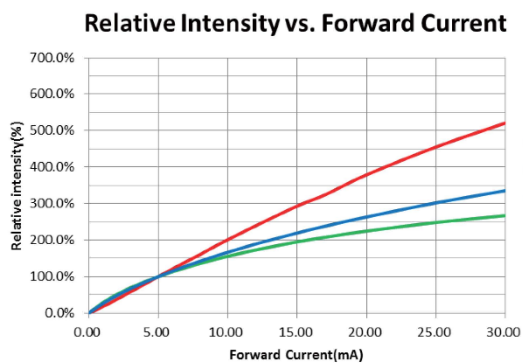
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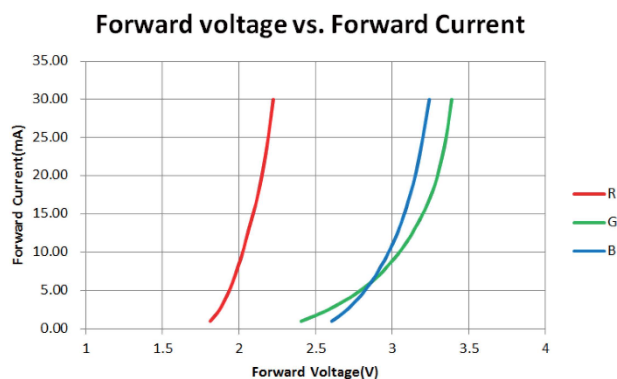
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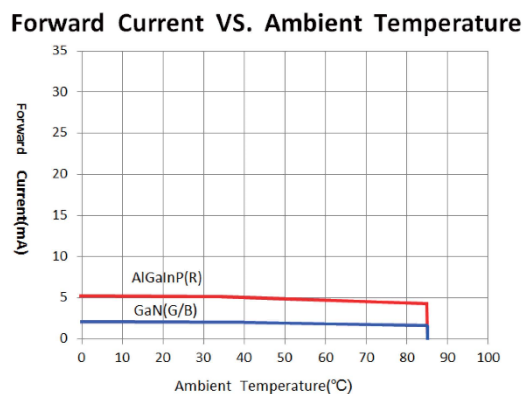
Relative Intensity vs. Forward Current
(相對光強度與順向電流變化圖)



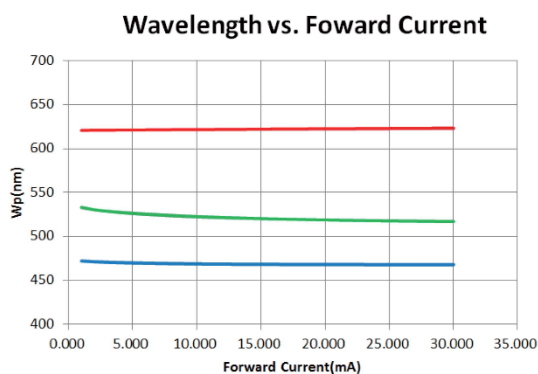
Forward Voltage vs. Forward Current
(順向偏壓與順向電流對應圖)



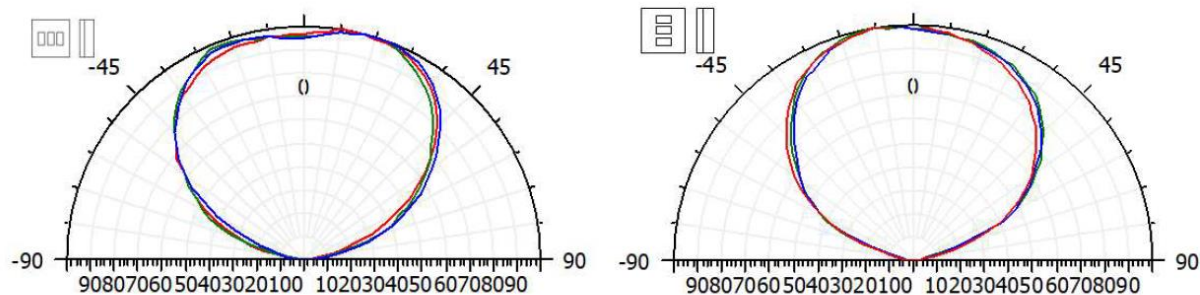
Forward Current vs. Ambient Temperature
(順向電流與環境溫度變化圖)

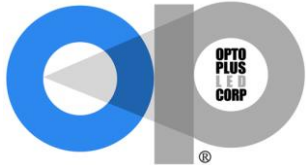


Wavelength vs. Forward Current
(波長與順向電流變化圖)



Radiation Diagram(發光角度圖)





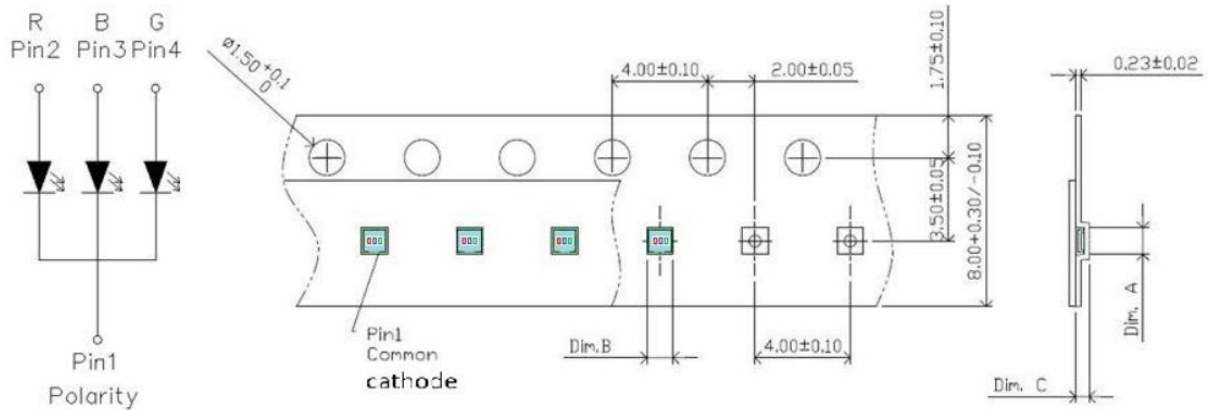
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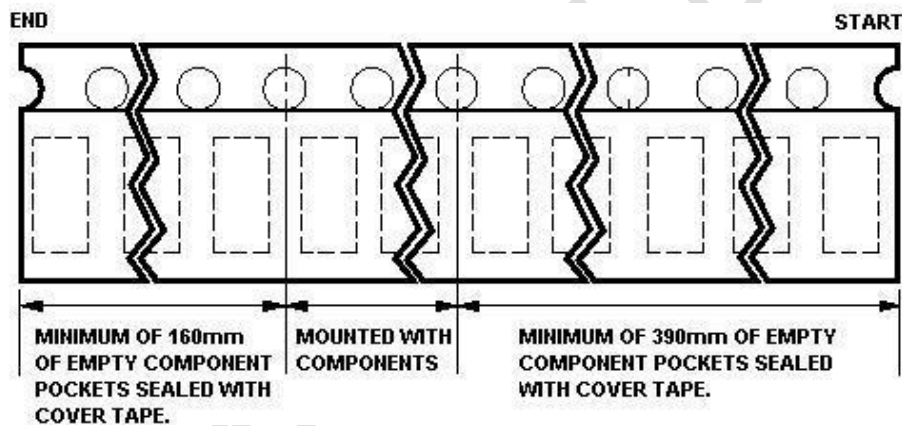
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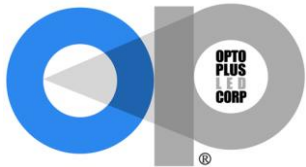
● Packaging



Unit:mm Tolerance: +/-0.1

Dim. A	Dim. B	Dim. C	Q'ty/Reel
1.11 ± 0.05	1.11 ± 0.05	0.35 ± 0.05	4K





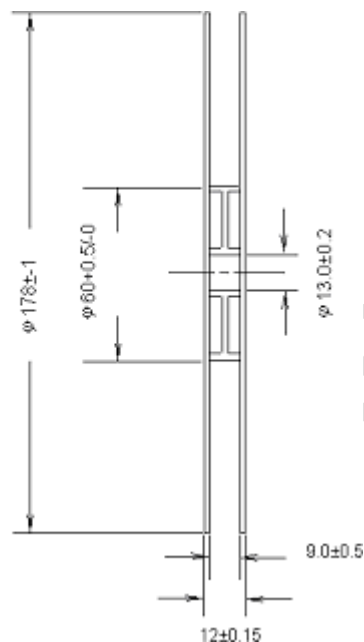
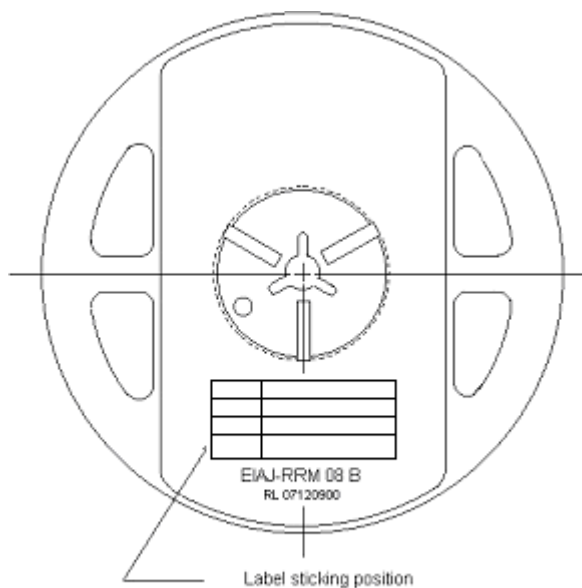
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● Reel Dimension

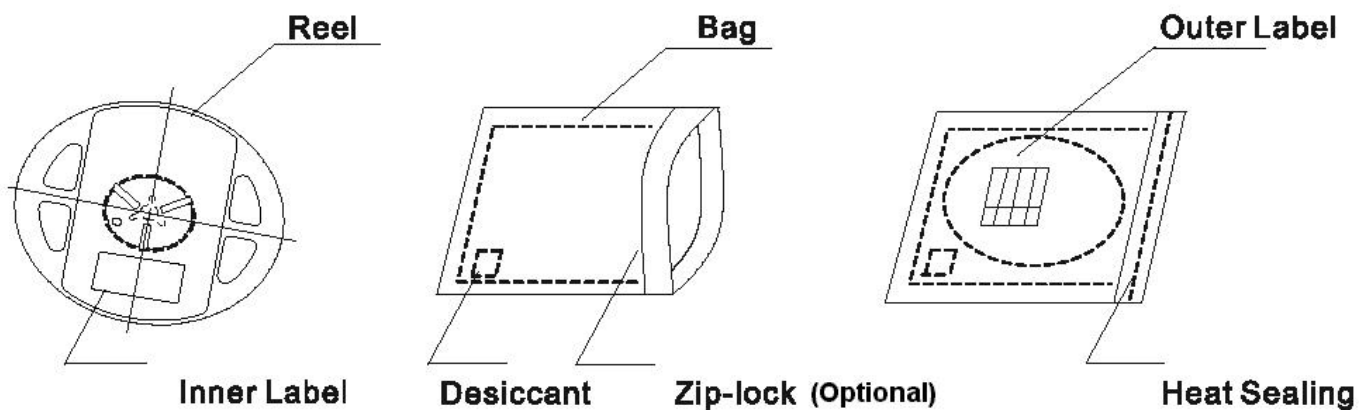


● Dry Pack

All SMD optical devices are **MOISTURE SENSITIVE**. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

A humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

The packaging sequence is as follows:



● Baking

Baking before soldering is recommended when the package has been unsealed for 4 weeks.

The conditions are as followings:

1. $60 \pm 3^{\circ}\text{C} \times (12 \sim 24\text{hrs})$ and $< 5\% \text{RH}$, taped reel type.
2. $100 \pm 3^{\circ}\text{C} \times (45\text{min} \sim 1\text{hr})$, bulk type.
3. $130 \pm 3^{\circ}\text{C} \times (15\text{min} \sim 30\text{min})$, bulk type.

● Precautions

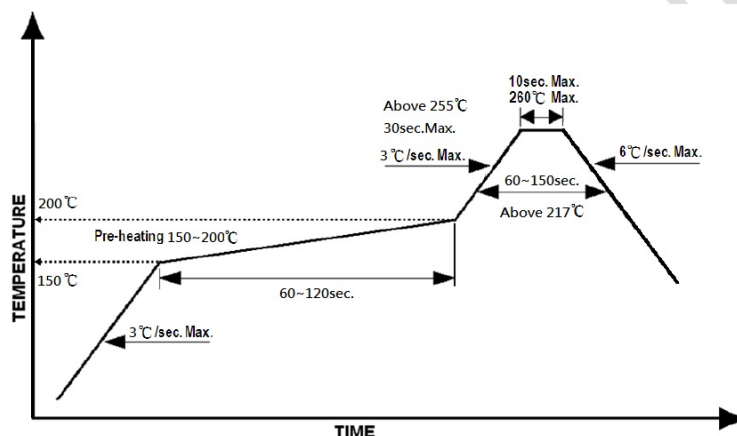
1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the specified limit.
4. Avoid operation beyond the limits as specified by the absolute maximum ratings.
5. Avoid direct contact with the surface through which the LED emits light.
6. If possible, assemble the unit in a clean room or dust-free environment.

● Reflow Soldering

Recommend soldering paste specifications:

1. Operating temp.: Above 217°C ,60~150 sec.
2. Peak temp.:260°C Max.,10sec Max.
3. Reflow soldering should not be done more than two times.
4. Never attempt next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measured on the surface of the LED terminal) is as following:

● Lead-free Solder Profile



● Reworking

- Rework should be completed within 5 seconds under 260°C.
- The iron tip must not come in contact with the copper foil.
- Twin-head type is preferred.

● Cleaning

Following are cleaning procedures after soldering:

- An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
- Temperature x Time should be 50°C x 30sec. or <30°C x 3min
- Ultrasonic cleaning: < 15W/ bath; bath volume ≤ 1liter

Curing: 100°C max, <3min