



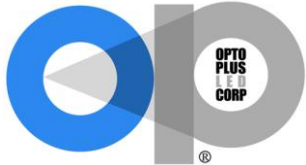
Opto Plus LED Corp
OPS-L0202F2C
Top View Chip LED

● **EDIT HISTORY**

Version A : APR. 22, 2024

Preliminary Spec.

Confidential Document



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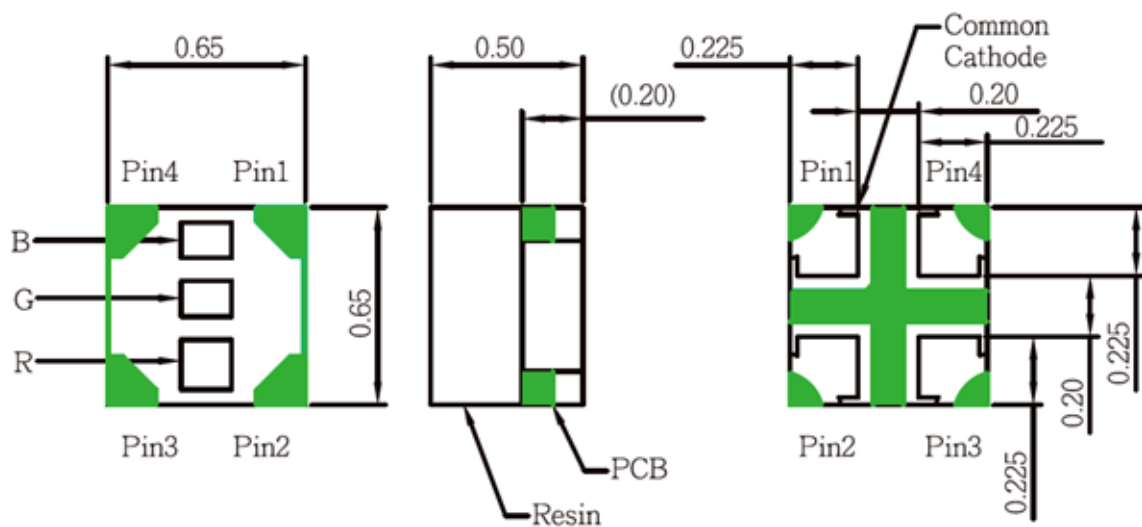
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● FEATURES

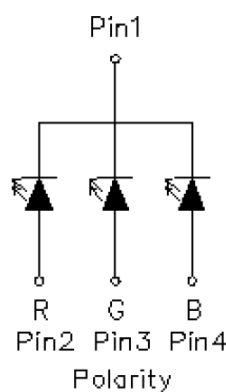
- 0.65mm x 0.65 mm x 0.50 mm. [0.02 inch x 0.02 inch x 0.02 inch]
- Top View Chip LED.
- Low power consumption.
- RoHS compliant.

● PACKAGE DIMENSIONS



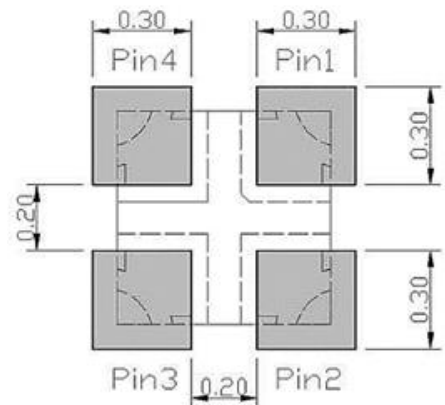
Unit:mm Tolerance: +/-0.1

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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ABSOLUTE MAXIMUM RATING AT Ta=25°C

Parameter	Symbol	Maximum Rating	Unit
Power dissipation	P_{AD}	24	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	$I_F = 5mA$	1.6	1.9	2.4	V
Forward Voltage (Green)	V_F	$I_F = 2mA$	2.1	2.5	3.1	V
Forward Voltage (Blue)	V_F	$I_F = 2mA$	2.1	2.5	3.1	V
Reverse Current (PER SMD)	I_R	$V_R = 5V$	-	-	10	μA
Dominant Wavelength (Red)	λ_D	$I_F = 5mA$	-	621	-	nm
Dominant Wavelength (Green)	λ_D	$I_F = 2mA$	-	530	-	nm
Dominant Wavelength (Blue)	λ_D	$I_F = 2mA$	-	469	-	nm
Luminous Intensity(Red)	I_V	$I_F = 5mA$	-	32	-	mcd
Luminous Intensity(Green)	I_V	$I_F = 2mA$	-	46	-	mcd
Luminous Intensity(Blue)	I_V	$I_F = 2mA$	-	8	-	mcd



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● LUMINOUS INTENSITY (I_v) BIN: R @5 mA; G / B @2 mA

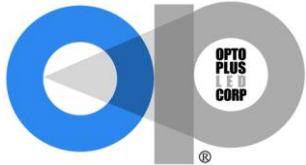
IV								
Red			Green			Blue		
HF3	21.3	26.7	HG3	30.0	37.5	HB3	5.4	6.8
HG1	24.0	30.0	HH1	33.5	42.0	HC1	6.0	7.5
HG2	26.7	33.5	HH2	37.5	47.0	HC2	6.8	8.5
HG3	30.0	37.5	HH3	42.0	52.5	HC3	7.5	9.4
HH1	33.5	42.0	HJ1	47.0	60.0	HD1	8.5	10.7
HH2	37.5	47.0	HJ2	52.5	65.7	HD2	9.4	12.0
HH3	42.0	52.5	HJ3	60.0	75.0	HD3	10.7	13.4

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

● DOMINANT WAVELENGTH (λ_D) BIN: R @5 mA; G / B @2 mA

WD								
Red			Green			Blue		
RH2	618	623	GH1	526	530	BH1	464	468
RH3	623	628	GH2	528	532	BH2	466	470
RH4	628	633	GH3	530	534	BH3	468	472
-	-	-	GH4	532	536	BH4	470	474
-	-	-	GH5	534	538			

Note: It maintains a tolerance $\pm 0.5\text{nm}$ on Color Bin.



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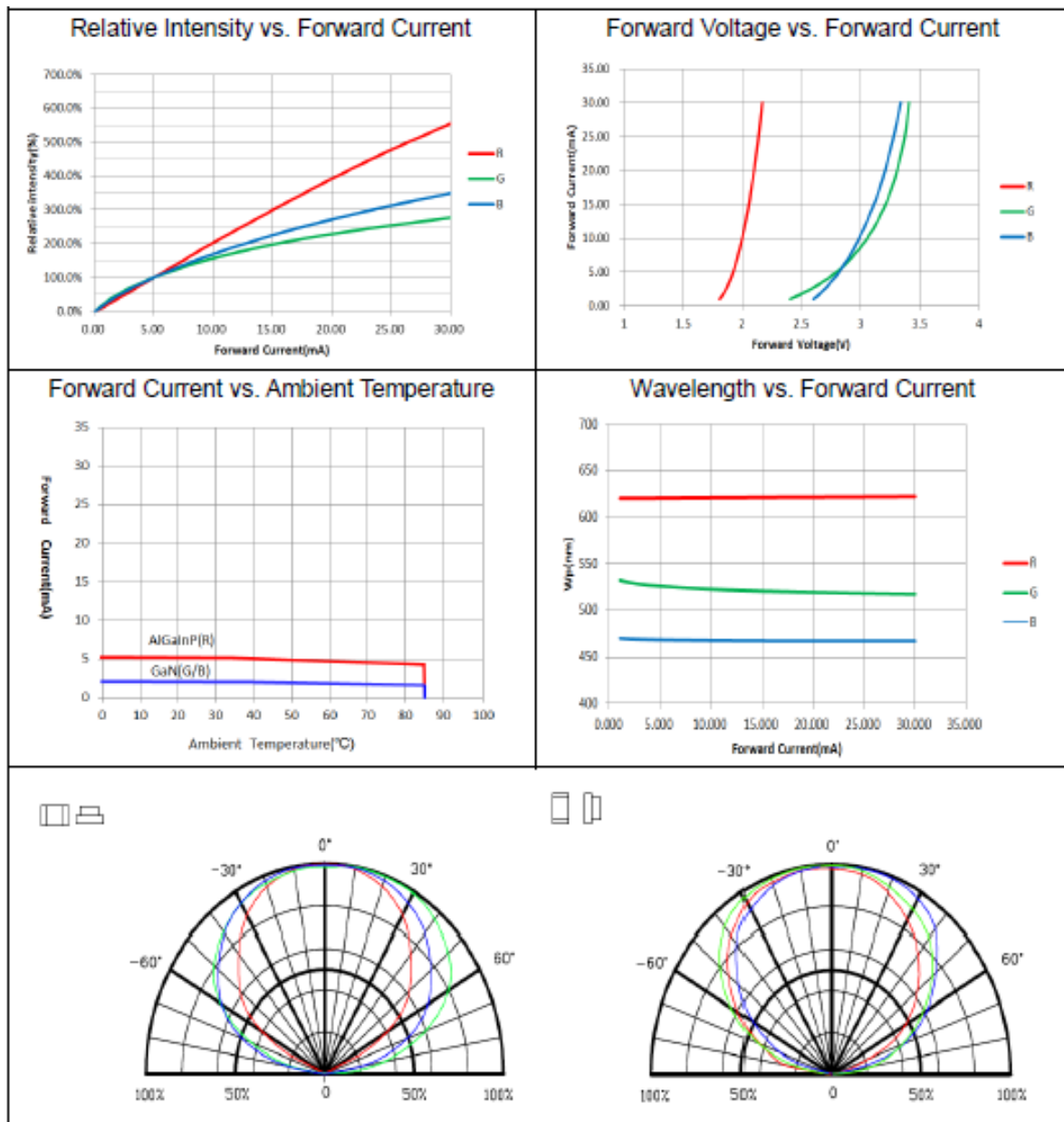
● **FORWARD VOLTAGE (V_F) BIN: R @5 mA; G / B @2 mA**

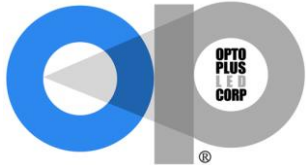
V_F								
Red			Green			Blue		
E18	1.6	2.4	F2A	2.1	3.1	F2A	2.1	3.1

Note: It maintains a tolerance $\pm 0.05V$ on forward voltage measurements

● RED (AlGaInP) / GREEN & BLUE (InGaN) CURVE

Typical Electro-optical Characteristic Curves
(25 °C Free Air Temperature Unless Otherwise Specified)





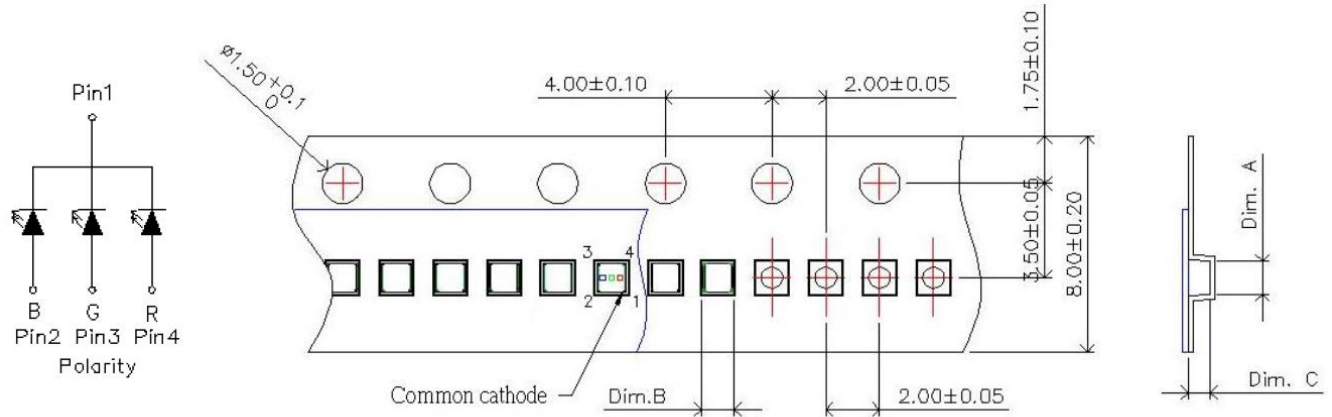
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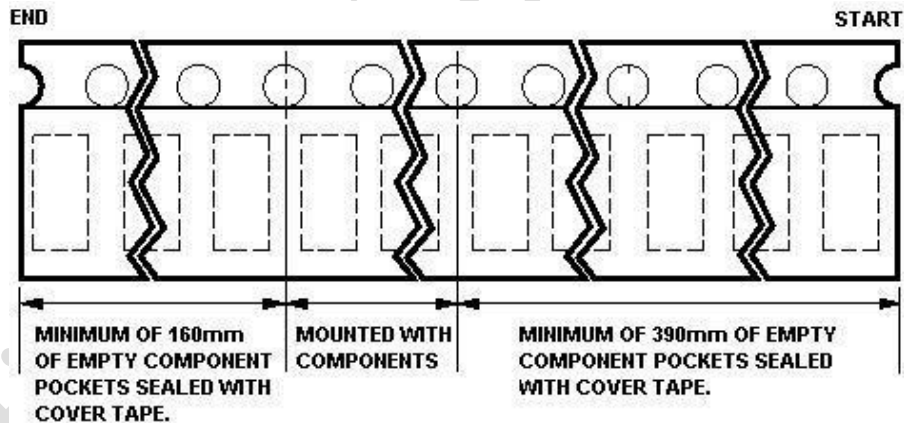
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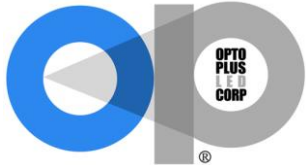
● Packaging



Unit:mm Tolerance: +/-0.1

Dim. A	Dim. B	Dim. C	Q'ty/Reel
0.72 ± 0.03	0.72 ± 0.03	0.56 ± 0.03	24k





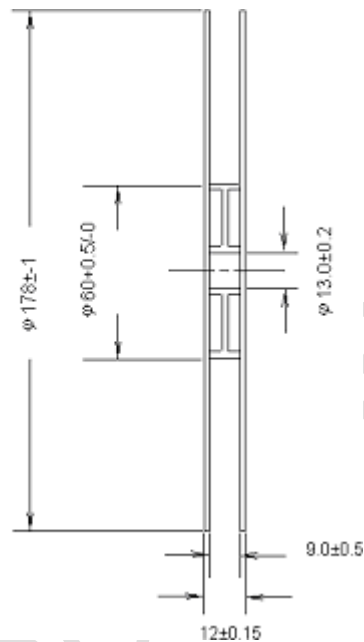
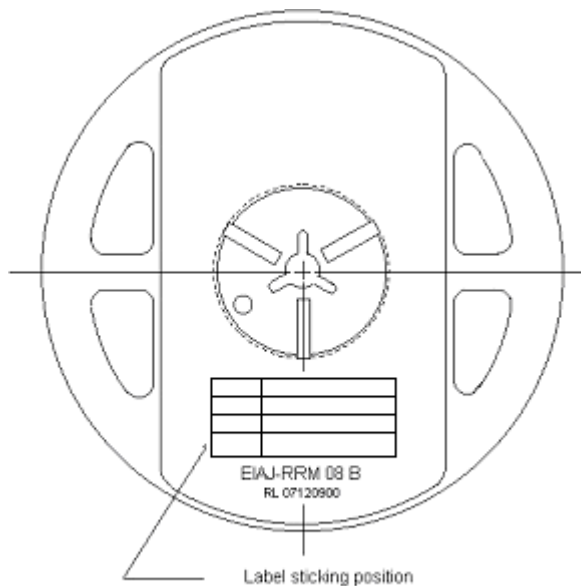
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● Reel Dimension

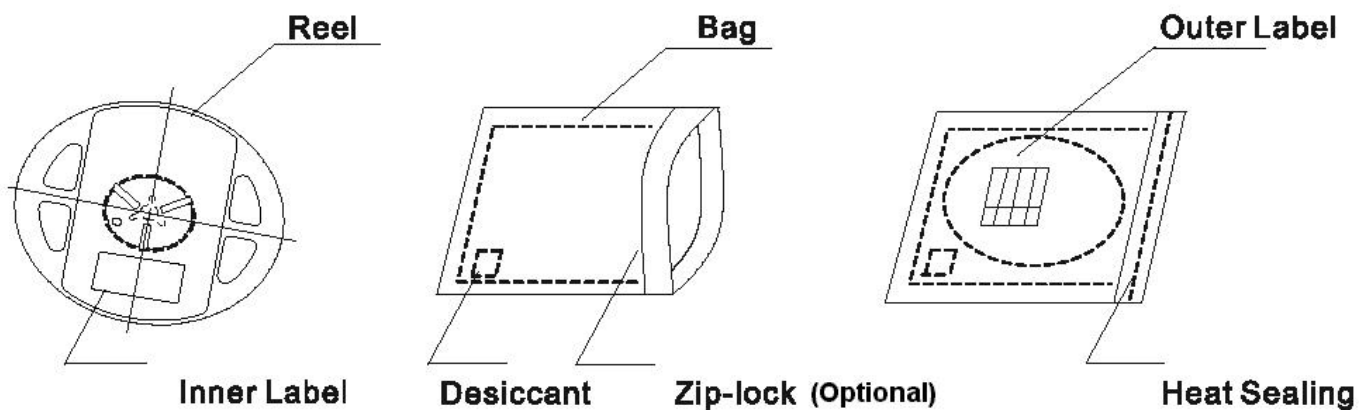


● Dry Pack

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

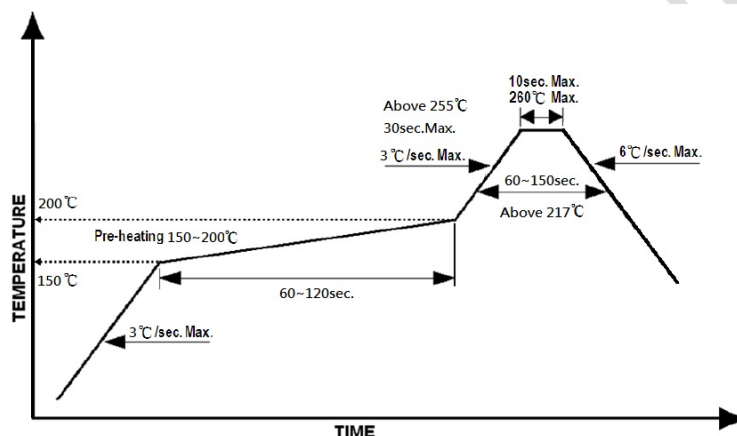
1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the 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