



American Opto Plus LED Corp.

L513BMBC-15D

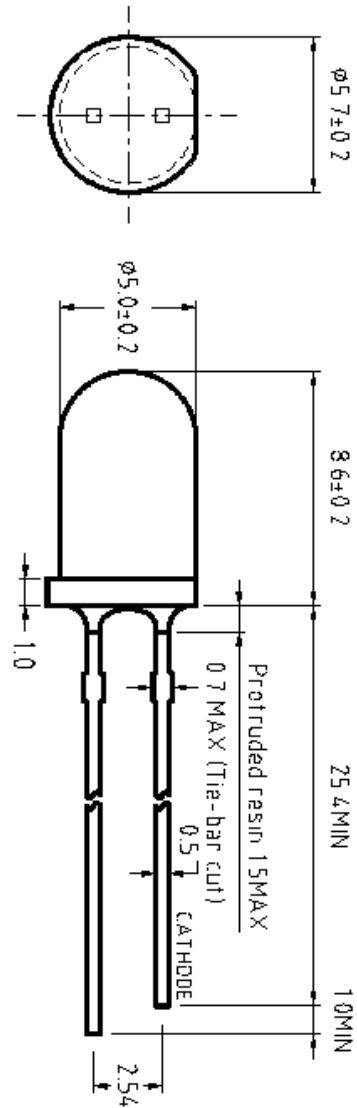
5MM BLUE LED LAMP

DESCRIPTION

- Round Type
- 5mm Diameter
- Lens Color: Water Clear
- With Flange
- Solder leads without standoff

FEATURES

- Epoxy Resin
- Ag Plating on SPCC lead frame
- Emitted Color: Blue
- Technology: InGaN
- Peak Wavelength $\lambda_p = 465\text{nm}$
- Viewing Angle: 15°



Notes:

1. All dimensions are in millimeters.
2. Lead spacing is measured where the lead emerges from the package.

Part Number	Material	Lens Color	
		Emitted	Lens
L513BMBC-15D	InGaN	Blue	Water Clear



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ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Ratings	Unit
DC Forward Current	I _F	30	mA
Peak Pulsed Forward Current*	I _{FP}	100	mA
Reverse Voltage	V _R	5	V
Power Dissipation	P _D	114	mW
Operating Temperature	T _{OPR}	-30~+100	°C
Storage Temperature	T _{STG}	-40~+100	°C
Soldering Temperature	T _{SOL}	Max 260°C for 5 sec	

*I_{FP} = Pulse Width ≤ 10 ms, Duty Ratio ≤ 1/10

OPTICAL-ELECTRICAL CHARACTERISTICS

(Ta=25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Current	I _R	V _R =5V	--	--	50	μA
Forward Voltage	V _F	I _F =20mA	--	3.2	3.8	V
Luminous Intensity	I _V		5500	9300	15700	mcd
Peak Wavelength	λ _P		--	465	--	nm
Dominant Wavelength	λ _D		460	470	480	nm
Spectral Radiation Bandwidth	Δλ _{1/2}		--	20	--	nm
Viewing Angle	2θ _{1/2}		--	15	--	Deg



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LUMINOUS INTENSITY BIN TABLE

IF=20mA

Rank name	Min (mcd)	Max (mcd)
W	5500	7200
X	7200	9300
Y	9300	12000
Z	12000	15700

Tolerance for each bin limit is $\pm 15\%$

COLOR BIN TABLE

IF=20mA

Rank name	Min (nm)	Max (nm)
1	460	465
2	465	470
3	470	475
4	475	480

Tolerance for each bin limit is $\pm 1\text{nm}$

Notes:

1. One delivery will include several color ranks and Iv ranks of products. The quantity-ratio of the different rank is decided by AOP.
2. Bin name typed on label: Iv rank + Color rank. For example: **BIN W2 means IV: 5500mcd~7200mcd and COLOR: 465nm~470nm**



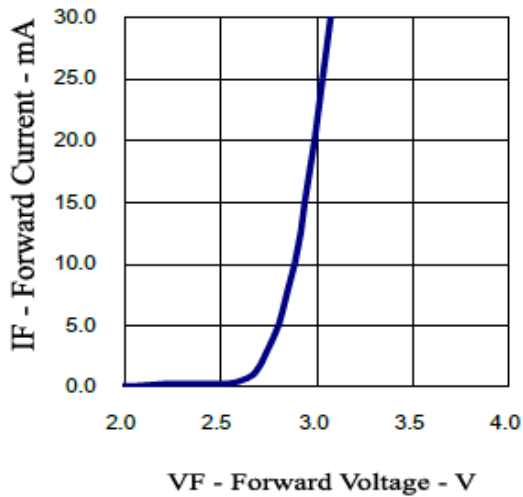
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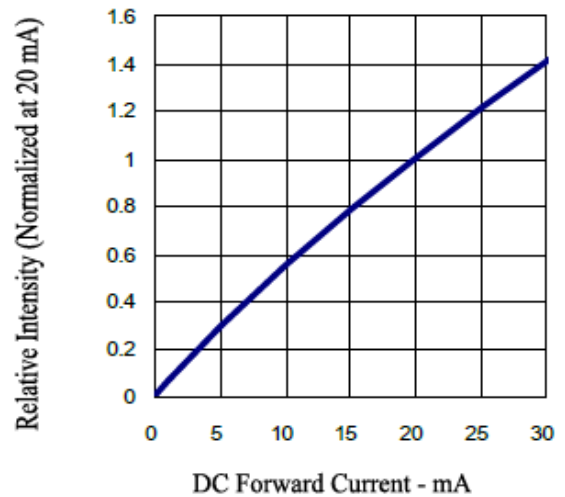
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TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVES

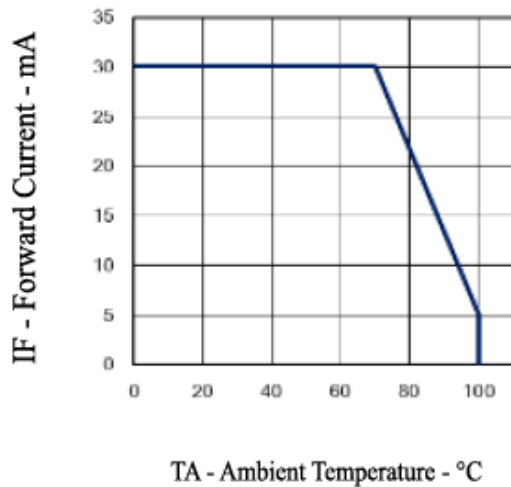
Forward Current vs. Forward Voltage



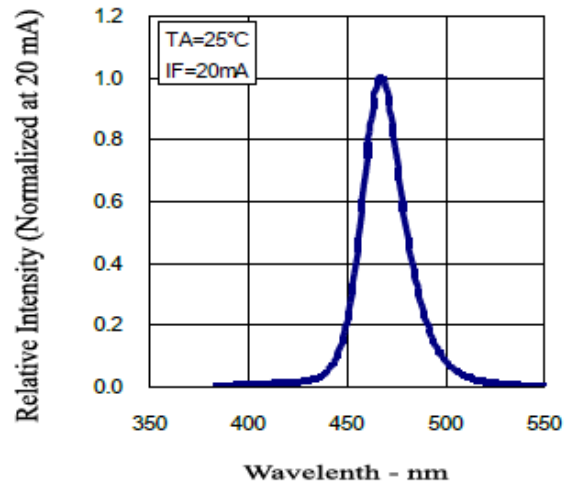
Relative Intensity vs. Forward Current



Forward Current vs. Ambient Temperature



Relative Intensity vs. Wavelength





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RECOMMENDED SOLDERING CONDITIONS

- Solder the LED no closer than 3mm from the base of the epoxy bulb. Soldering beyond the base of the tie bar is recommended.
- Recommended soldering conditions:

Dip Soldering	
Pre-Heat	100°C Max.
Pre-Heat Time	60 sec. Max.
Solder Bath Temperature	260°C Max.
Dipping Time	5 sec. Max.
Dipping Position	No lower than 3mm from the base of the epoxy bulb.

Hand Soldering		
	Current Series	Others (Including Lead-Free Solder)
Temperature	300 °C Max.	350 °C Max.
Soldering time	3 sec. Max.	3 sec. Max.
Position	No closer than 3mm from the base of the epoxy bulb.	No closer than 3mm from the base of the epoxy bulb.

- Do not apply any stress to the lead, particularly when heated.
- The LEDs must not be repositioned after soldering.
- After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- Direct soldering onto a PC board should be avoided. Mechanical stress to the resin may be caused by the PC board warping or from the clinching and cutting of the lead frames. When it is absolutely necessary, the LEDs may be mounted in this fashion, but, the User will assume responsibility for any problems. Direct soldering should only be done after testing has confirmed that no damage, such as wire bond failure or resin deterioration, will occur. LEDs should not be soldered directly to double sided PC boards because the heat will deteriorate the epoxy resin.
- When it is necessary to clamp the LEDs to prevent soldering failure, it is important to minimize the mechanical stress on the LEDs.
- Cut the LED lead frames at room temperature. Cutting the lead frames at high temperatures may cause LED failure.