



American Opto Plus LED Corp.

L513SEC-30D

5mm Orange-Red LED Lamp

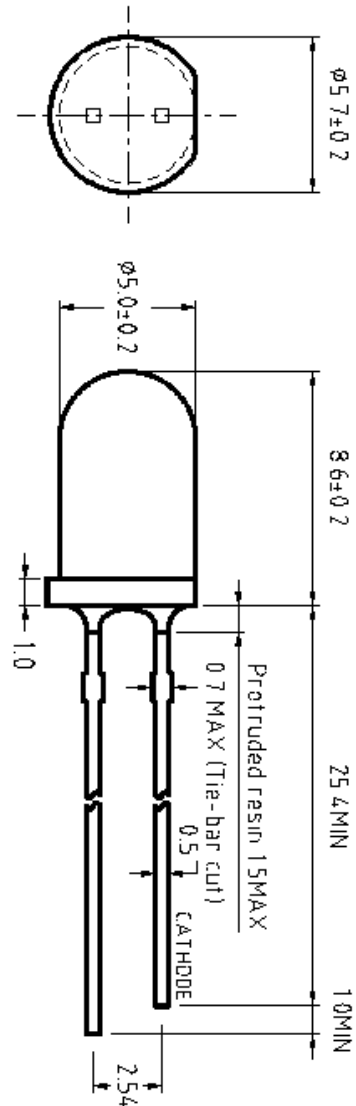
DESCRIPTION

- 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: Orange-Red
- Technology: AlInGaP/Si
- Dominant Wavelength $\lambda_p = 625\text{nm}$ (typ)
- Viewing Angle: 30°

Item	Materials
Resin	Epoxy Resin
Lead Frame	Ag Plating on SPCC



Notes:

1. All dimensions are in millimeters.

Part Number	Material	Lens Color	
		Emitted	Lens
L513SEC-30D	AlInGaP/Si	Orange-Red	Water Clear



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ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Value	Unit
DC Forward Current	I _F	50	mA
Peak Pulsed Forward Current*	I _{FP}	100	mA
Power Dissipation	P _D	120	mW
Reverse Voltage	V _R	5	V
Operating Temperature	T _{OPR}	-30~+100	°C
Storage Temperature	T _{STG}	-40~+100	°C
Solder Dipping Temperature	T _{SOL}	260 °C for 5 sec.	

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

OPTICAL-ELECTRICAL CHARACTERISTICS

(Ta=25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Luminous Intensity	I _v	I _F =20mA	1500	2500	--	mcd
Dominant Wavelength	λ _D		615	625	635	nm
Peak Wavelength	λ _P		--	635	--	nm
Forward Voltage	V _F		--	2.1	2.4	V
Spectral Half Width	Δλ _{1/2}		--	15	--	nm
Reverse Current	I _R	V _R =5V	--	--	50	μA



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LUMINOUS INTENSITY BIN TABLE

IF=20mA

RANK NAME	MIN (mcd)	MAX (mcd)
R	1500	1900
S	1900	2500
T	2500	3200
U	3200	4200

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

COLOR BIN TABLE

IF=20mA

RANK NAME	MIN (nm)	MAX (nm)
1	615	620
2	620	625
3	625	630
4	630	635

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

Notes:

1. One delivery will include several color ranks and I_V ranks of products.
The quantity-ratio of the different rank is decided by AOP.
2. Bin name typed on label: I_V rank + Color rank. For example,
BIN S2 means I_V : 1900~2500mcd and Color: 620nm~625nm
3. AOP has the right to update spec information without notice.
Please double-confirm the Spec details before placing an order.



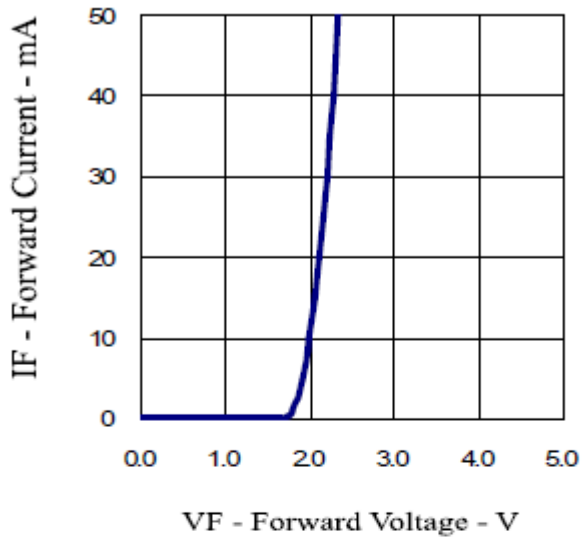
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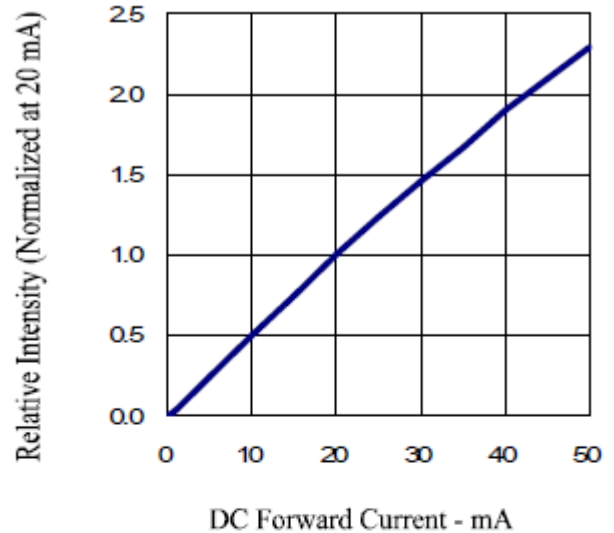
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TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE

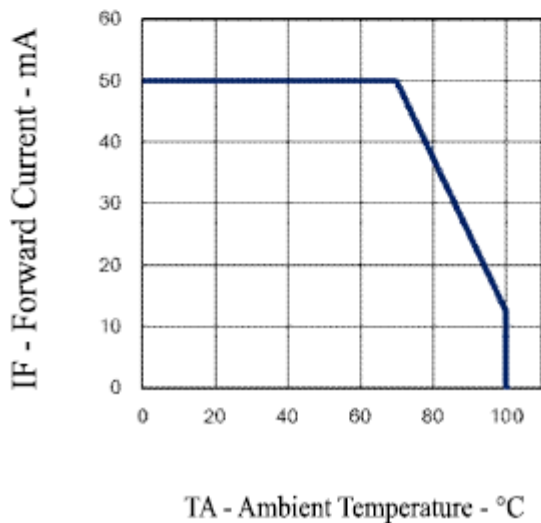
Forward Current vs. Forward Voltage



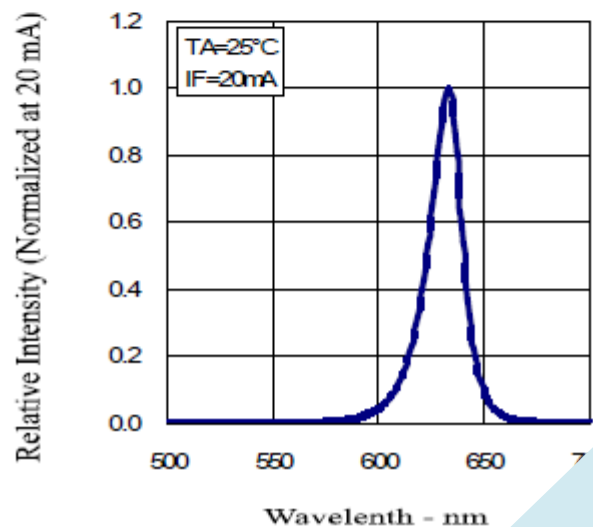
Relative Intensity vs. Forward Current



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		
	3Ø 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. Sander's 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 temperature may cause LED failure.