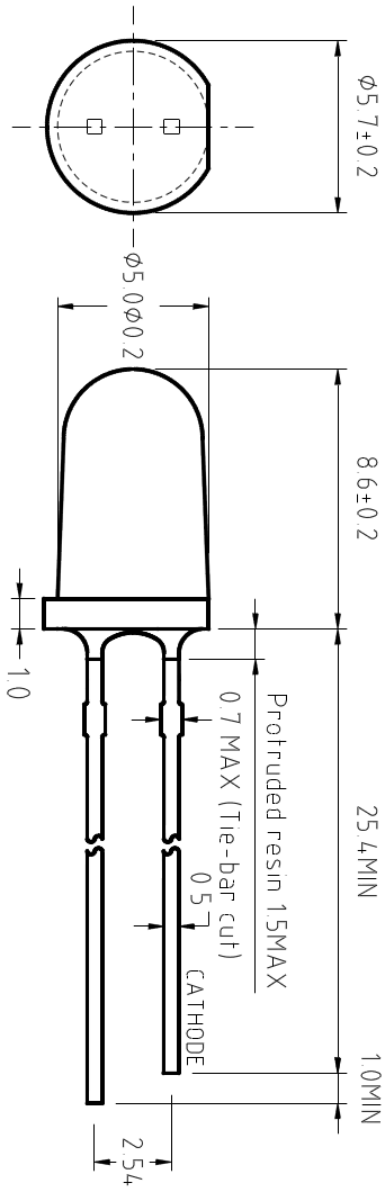
American Opto Plus LED Corp.
L513LWC-30D
5mm Warm White LED Lamp

DESCRIPTION

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

FEATURES

- Emitted Color: Warm White
- High Luminous Intensity
- Technology: InGaN
- Viewing Angle: 30°



NOTES:

1. All dimensions are in millimeters tolerance is ±0.25mm unless otherwise noted;

Part Number	Material	Lens Color	
		Emitted	Lens
L513LWC-30D	InGaN	Warm White	Water Clear

Version 1.0 Date: 06-04-2012 Specifications are subject to change without notice.
American Opto Plus LED Corp. 1206 E. Lexington Ave., Pomona CA 91766 Tel: 909-465-0080 Fax: 909-465-0130 www.aopled.com

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	Pd	114	mW
Operating temperature range	Topr	-30~+85	°C
Storage temperature range	Tstg	-40~+100	°C
Solder Dipping Temperature	Tsld	260°C for 5 sec	

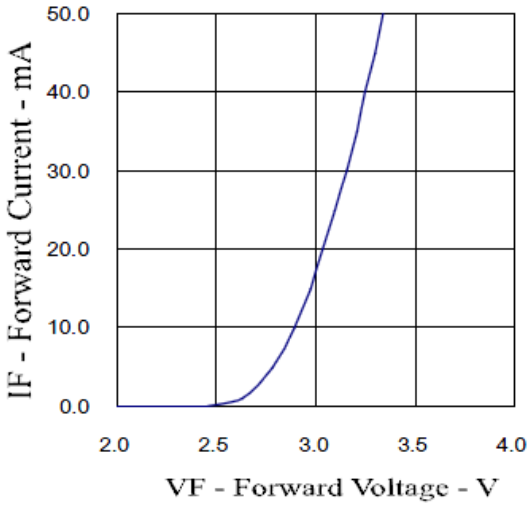
OPTICAL-ELECTRICAL CHARACTERISTICS (Ta=25°C)

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	3.6	V
Luminous Intensity	I_V		1500	2500	--	mcd
Chromaticity Coordinate	x		--	0.41	--	--
Chromaticity Coordinate	y		--	0.39	--	--

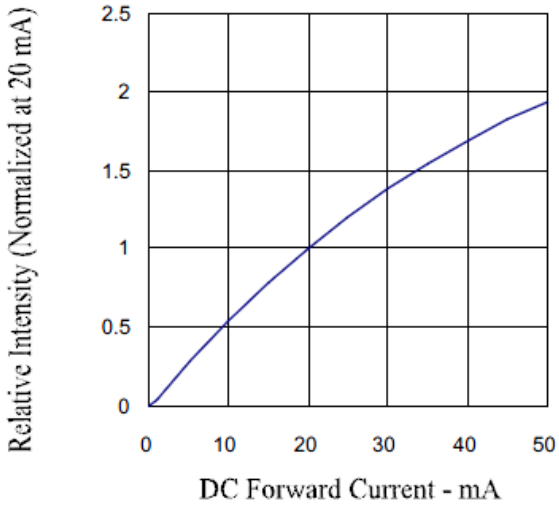
*Note: I_{FP} = Pulse Width ≤ 10ms, Duty Ratio ≤ 1/10

TYPICAL ELECTRICAL-OPTICAL CHARACTERISTIC CURVES

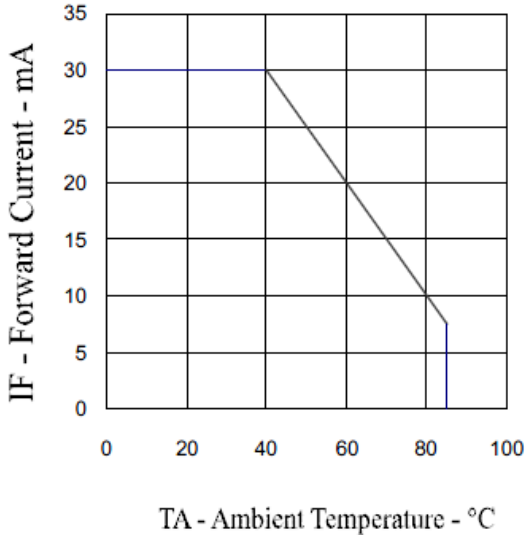
Forward Current vs. Forward Voltage



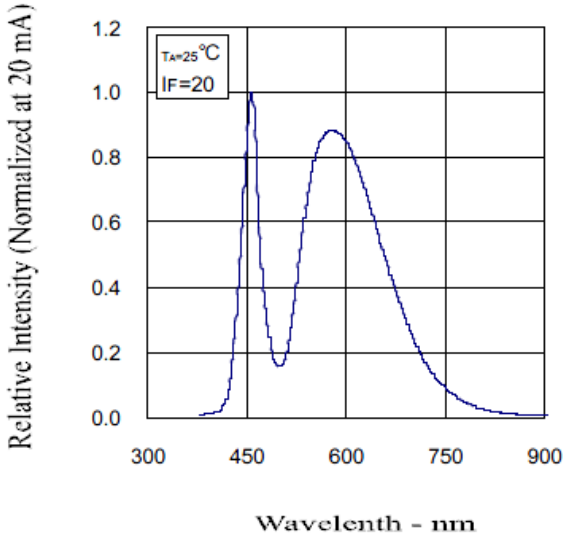
Relative Intensity vs. Forward Voltage



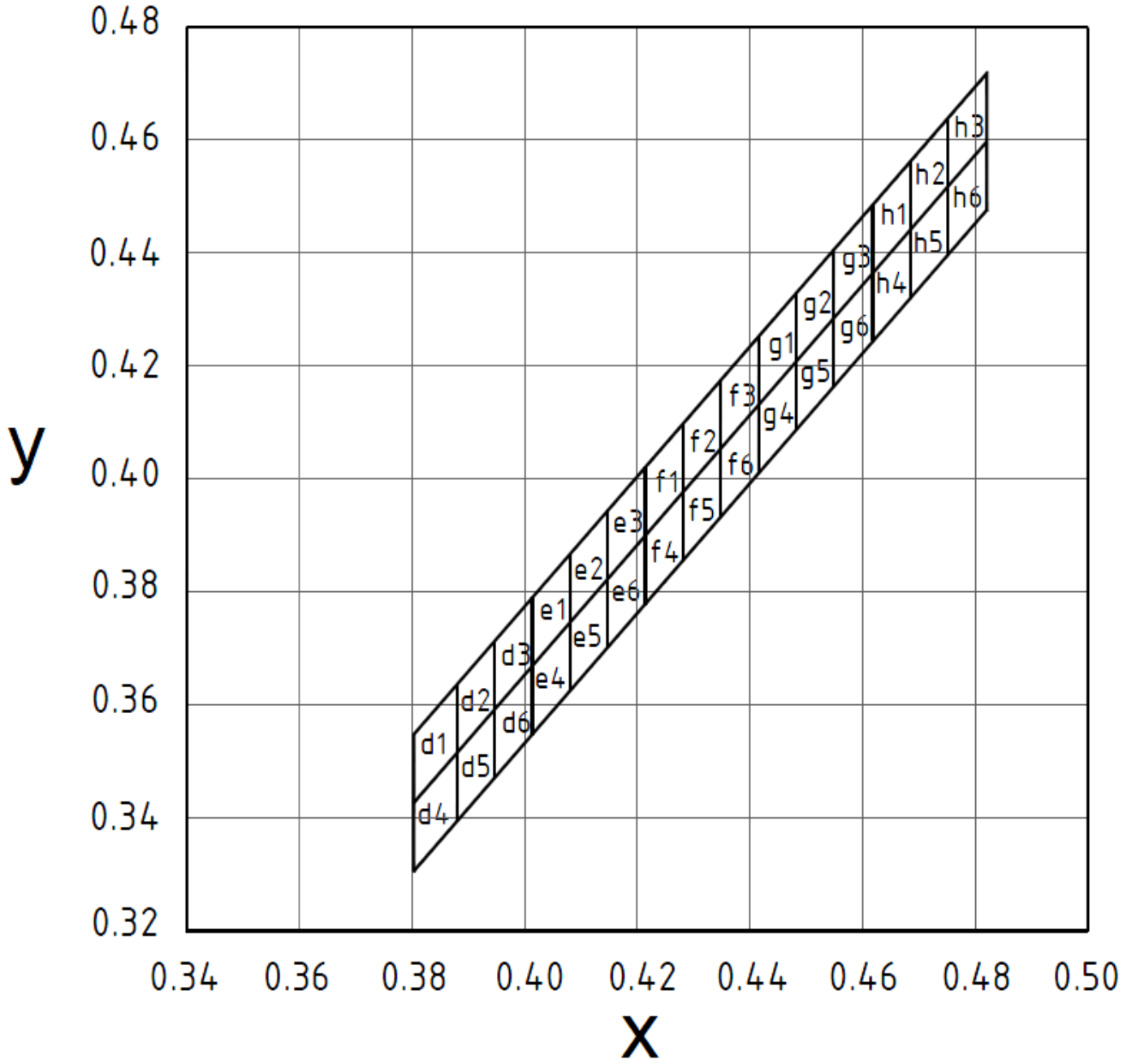
Forward Current vs. Ambient Temperature



Relative Intensity vs. Wavelength



CHROMATICITY DIAGRAM



COLOR RANKS

d1					d2				
x	0.3803	0.3803	0.3880	0.3880	x	0.3880	0.3880	0.3947	0.3947
y	0.3427	0.3548	0.3636	0.3515	y	0.3515	0.3636	0.3713	0.3592
d3					**d4**				
x	0.3947	0.3947	0.4014	0.4014	x	0.3803	0.3803	0.3880	0.3880
y	0.3592	0.3713	0.3790	0.3669	y	0.3306	0.3427	0.3515	0.3394
d5					**d6**				
x	0.3880	0.3880	0.3947	0.3947	x	0.3947	0.3947	0.4014	0.4014
y	0.3394	0.3515	0.3592	0.3471	y	0.3471	0.3592	0.3669	0.3548

e1					e2				
x	0.4014	0.4014	0.4081	0.4081	x	0.4081	0.4081	0.4148	0.4148
y	0.3669	0.3790	0.3867	0.3746	y	0.3746	0.3867	0.3944	0.3823
e3					**e4**				
x	0.4148	0.4148	0.4215	0.4215	x	0.4014	0.4014	0.4081	0.4081
y	0.3823	0.3944	0.4021	0.3900	y	0.3548	0.3669	0.3746	0.3625
e5					**e6**				
x	0.4081	0.4081	0.4148	0.4148	x	0.4148	0.4148	0.4215	0.4215
y	0.3625	0.3746	0.3823	0.3702	y	0.3702	0.3823	0.3900	0.3779

f1					f2				
x	0.4215	0.4215	0.4282	0.4282	x	0.4282	0.4282	0.4348	0.4348
y	0.3900	0.4021	0.4098	0.3977	y	0.3977	0.4098	0.4175	0.4054
f3					**f4**				
x	0.4348	0.4348	0.4415	0.4415	x	0.4215	0.4215	0.4282	0.4282
y	0.4054	0.4175	0.4252	0.4131	y	0.3779	0.3900	0.3977	0.3856
f5					**f6**				
x	0.4282	0.4282	0.4348	0.4348	x	0.4348	0.4348	0.4415	0.4415
y	0.3856	0.3977	0.4054	0.3933	y	0.3933	0.4054	0.4131	0.4010

g1					g2				
x	0.4415	0.4415	0.4482	0.4482	x	0.4482	0.4482	0.4549	0.4549
y	0.4131	0.4252	0.4329	0.4208	y	0.4208	0.4329	0.4406	0.4285
g3					g4				
x	0.4549	0.4549	0.4618	0.4618	x	0.4415	0.4415	0.4482	0.4482
y	0.4285	0.4406	0.4485	0.4364	y	0.4110	0.4131	0.4208	0.4087
g5					g6				
x	0.4482	0.4482	0.4549	0.4549	x	0.4549	0.4549	0.4618	0.4618
y	0.4087	0.4208	0.4285	0.4164	y	0.4164	0.4285	0.4364	0.4243

h1					h2				
x	0.4618	0.4618	0.4685	0.4685	x	0.4685	0.4685	0.4752	0.4752
y	0.4364	0.4485	0.4562	0.4441	y	0.4441	0.4562	0.4639	0.4518
h3					h4				
x	0.4752	0.4752	0.4821	0.4821	x	0.4618	0.4618	0.4685	0.4685
y	0.4518	0.4639	0.4718	0.4597	y	0.4243	0.4364	0.4441	0.4320
h5					h6				
x	0.4685	0.4685	0.4752	0.4752	x	0.4752	0.4752	0.4821	0.4821
y	0.4320	0.4441	0.4518	0.4397	y	0.4397	0.4518	0.4597	0.4476

- One delivery will include several color ranks and I_V ranks of products. The quantity-ratio of the different ranks is decided by AOP.
- Color coordinates measurement allowance is ±0.01.

SOLDERING CONDITIONS – LAMP TYPE LED

- 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℃ Max.
Pre-Heat Time	60 sec. Max.
Solder Bath Temperature	260℃ 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℃ Max.	350℃ 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 leadframes. 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. AOP'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 leadframes at room temperature. Cutting the leadframes at high temperatures may cause LED failure.