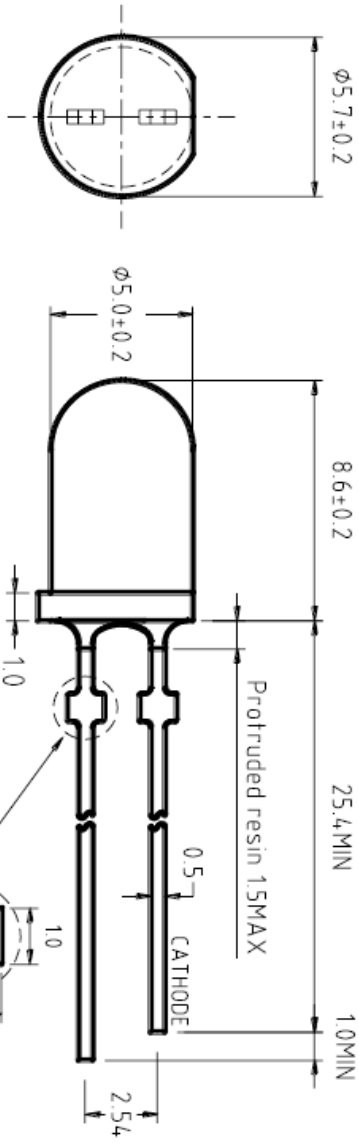
American Opto Plus LED Corp.
L513LBGW-S
5mm Blue-Green LED Lamp, Tape and Reel

DESCRIPTION

- Round Type
- 5mm Diameter
- Lens Color: White Diffused
- With Flange
- Solder leads with standoffs



FEATURES

- Emitted Color: Blue-Green
- High Luminous Intensity
- Technology: InGaN
- Viewing Angle: 40°

NOTE:

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

Part Number	Material	Lens Color	
		Emitted	Lens
L513LBGW-S	InGaN	Blue-Green	White Diffused

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
Power Dissipation	Pd	120	mW
Operating temperature range	Topr	-20~+85	°C
Storage temperature range	Tstg	-30~+100	°C
Electrostatic Discharge	ESD	500	V

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	--	3.5	4.2	V
Spectral halfwidth	Δλ		--	32	--	nm
Dominant Wavelength	λD		--	505	--	nm
Luminous Intensity	I_V		3400	5000	--	mcd
Viewing Angle	2θ ½		--	40	--	deg

*Note:

1. The forward voltage data does not include ± 0.1V testing tolerance.
2. The luminous intensity data does not include ± 15% testing tolerance.

BRIGHTNESS BIN CODE

Rank	Luminous Intensity (mcd) @ 20mA	
	Min	Max
A27	3400	4000
A28	4000	5000
A29	5000	6200
A30	6200	7700
A31	7700	9500

COLOR BIN CODE

Rank	Wavelength (nm) @ 20mA	
	Min	Max
1H	498	501
1I	501	504

TYPICAL ELECTRICAL-OPTICAL CHARACTERISTIC CURVES

Fig.1 Forward current vs. Forward Voltage

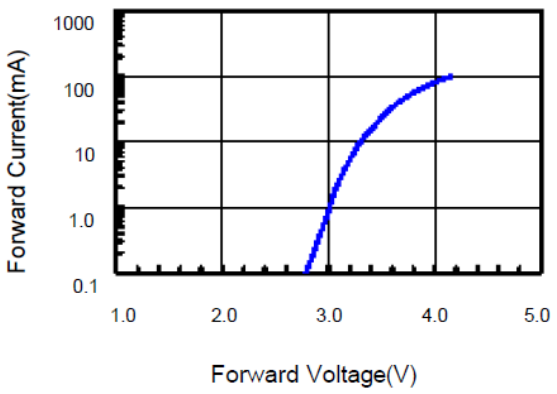


Fig.2 Relative Intensity vs. Forward Current

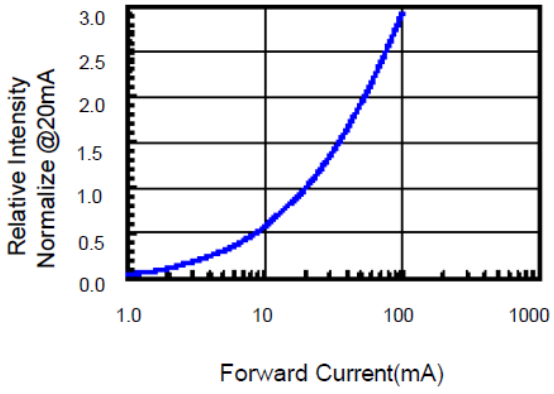


Fig.3 Forward Voltage vs. Temperature

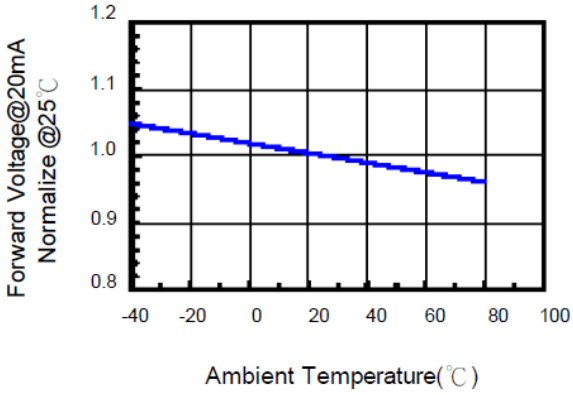


Fig.4 Relative Intensity vs. Temperature

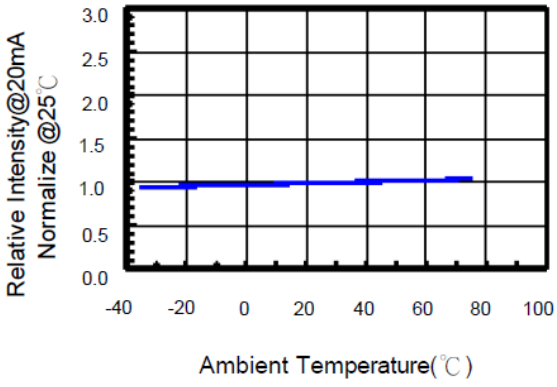
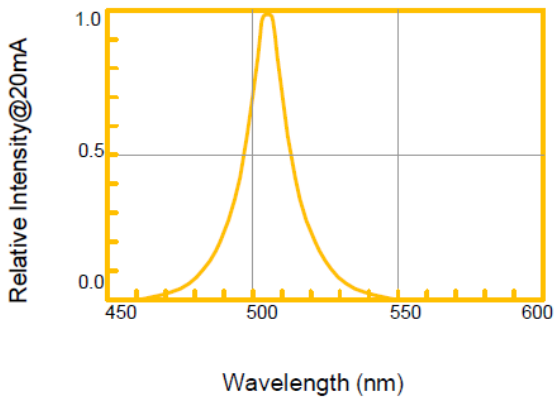
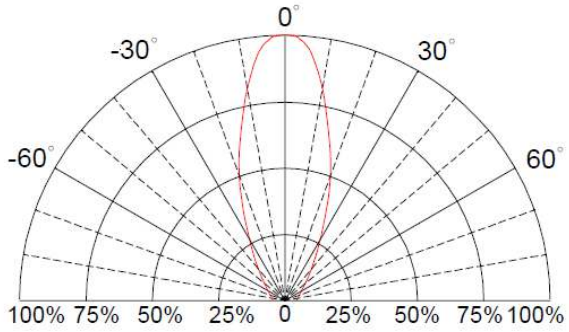


Fig.5 Relative Intensity vs. Wavelength



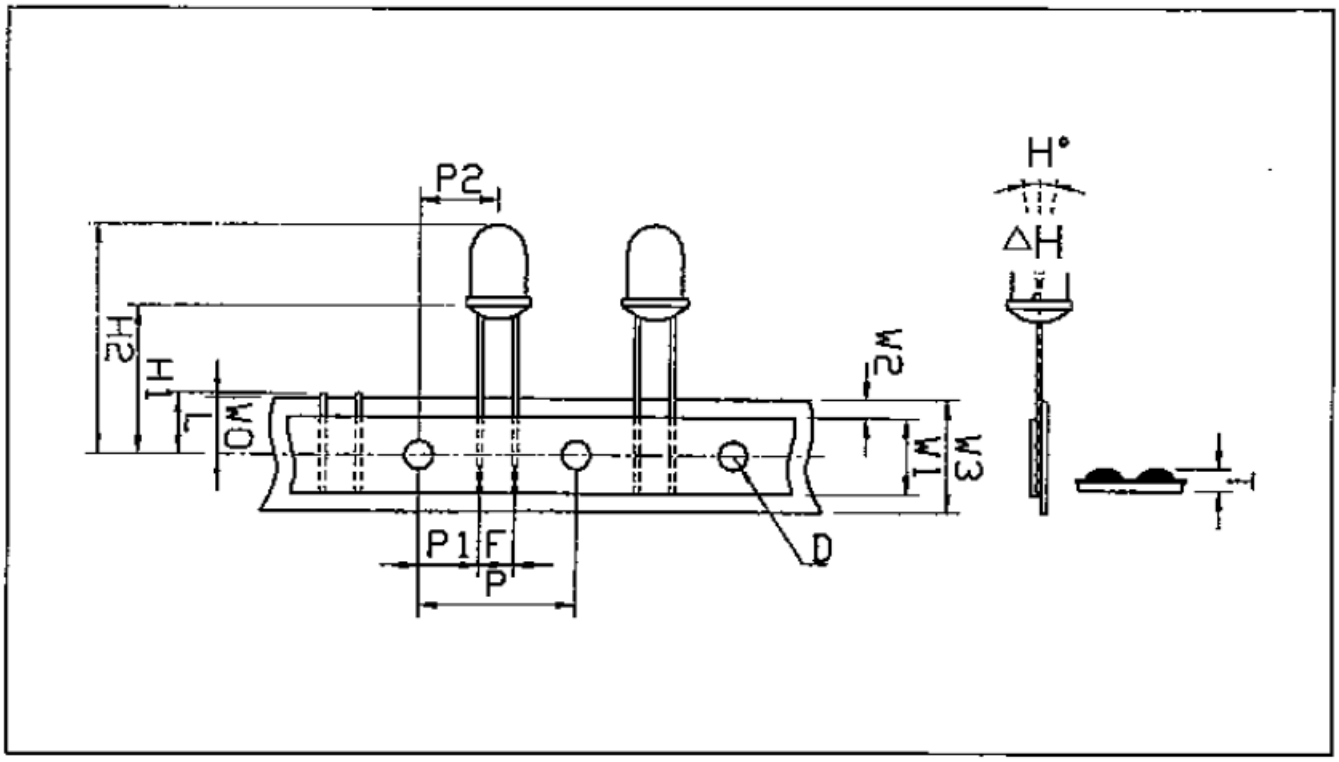
Directivity Radiation

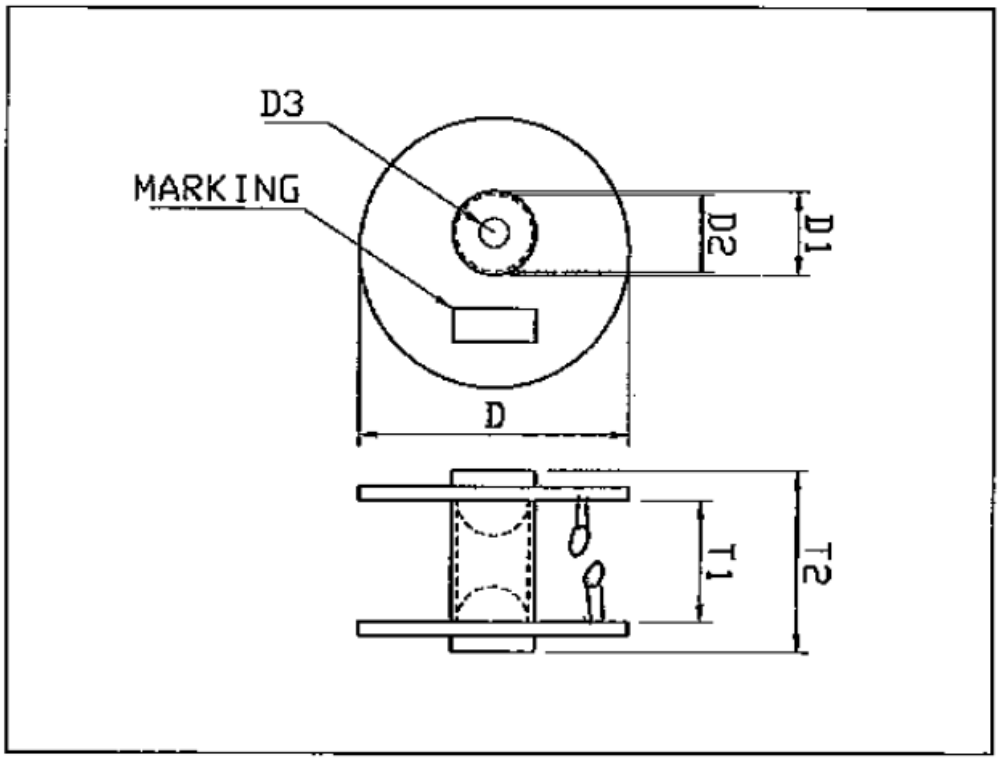


DIMENSIONS SYMBOL INFORMATION

Symbol Items	Option Code	Symbol	Specifications			
			Minimum		Maximum	
			mm	inch	mm	inch
Tape feed Hole Diameter	——	D	3.8	0.15	4.2	0.17
Component Lead Pitch	——	F	2.3	0.09	3	0.12
Front-To-Rear Deflection	——	ΔH	——	——	2	0.08
Feed Hole To Bottom Of Component	TRS-1	H1	17.5	0.69	18.5	0.73
	TRS-2		21.5	0.85	22.5	0.89
	TRS-3		25.5	1.0	26.5	1.04
	TRS-4		27.5	1.08	28.5	1.12
	TRS-5		22.5	0.89	23.5	0.93
	TRS-6		19.9	0.78	20.9	0.82
	TRS-7		24.0	0.94	25.0	0.98
	TRS-8		24.5	0.96	25.5	1.0
	TRS-9		19.0	0.75	20.0	0.79
	TRS-10		18.4	0.72	19.4	0.76
	TRS-11		21	0.83	22	0.87
	TRS-12		20.5	0.81	21.5	0.85
	TRS-13		18.0	0.71	19.0	0.75
	TRS-14		26.5	1.04	27.5	1.08
Remark: TRS=Tape AND Reel Straight Leads						
Feed Hole To Overall Component Height	——	H2	——	——	36	1.42
Lead Length After Component Height	——	L	WO		11	0.43
Feed Hole Pitch	——	P	12.4	0.49	13	0.51
Lead Location	——	P1	4.4	0.17	5.8	0.23
Center Of Component Location	——	P2	5.1	0.2	7.7	0.3
Overall Taped Package Thickness	——	T	——	——	1.42	0.06
Feed Hole Location	——	W0	8.5	0.33	9.75	0.38
Adhesive Tape Width	——	W1	14.5	0.57	15.5	0.61
Adhesive Tape Position	——	W2	0	0	4	0.16
Tape Width	——	W3	17.5	0.69	19	0.75
Reel Diameter	——	D	78.2	3.08	380	14.96
Core Diameter	——	D1	34.9	1.37	102	4.02
Hub Recess Inside Diameter	——	D2	28.6	1.13	88	3.46
Arbor Hole Diameter	——	D3	13.8	0.54	38.1	1.5
Overall Reel Thickness	——	T2	——	——	57.2	2.25
Inside Reel Flange Thickness	——	T1	30	1.18	50	1.97

PACKAGE DIMENSIONS

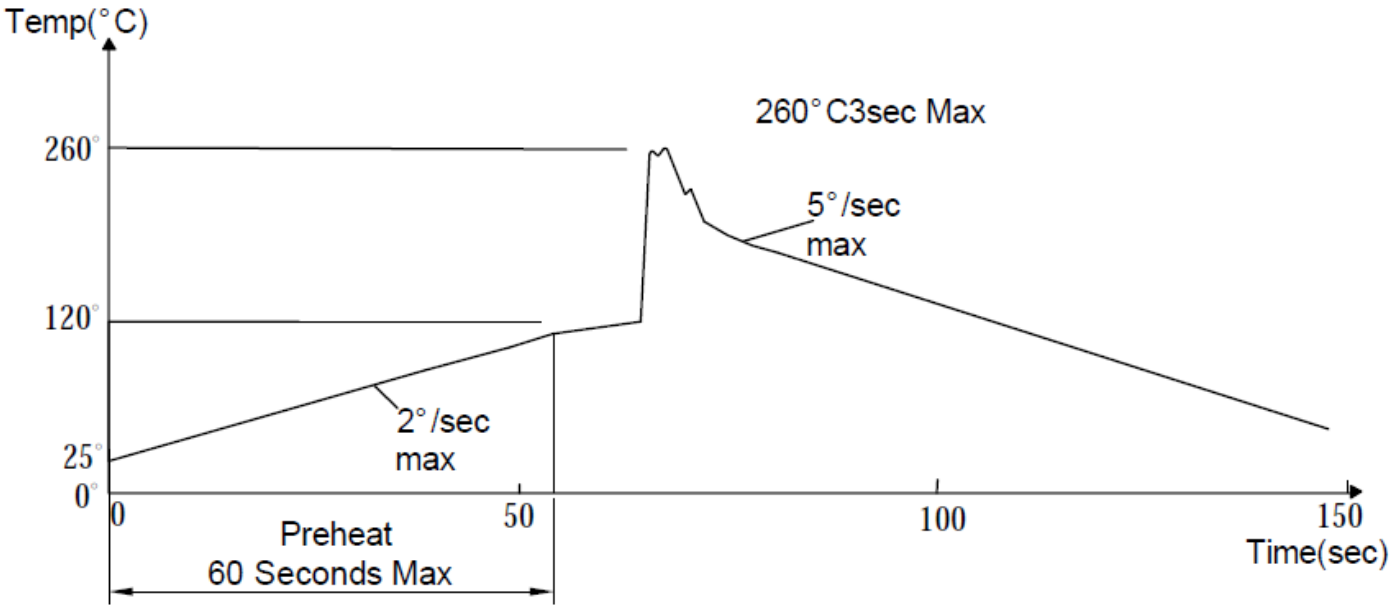




SOLDERING CONDITIONS – LAMP TYPE LED

1. Iron:
   Soldering Iron: 30W Max
   Temperature 350 °C Max
   Soldering Time: 3 Seconds Max (One Time Only)
   Distance: 2mm Min (From Solder Joint to Body)

2. Wave Soldering Profile:
   Dip Soldering
   Preheat: 120°C Max
   Preheat Time: 60 Seconds Max
   Ramp-Up
   2°C/Sec (Max)
   Ramp-Down: -5°C/Sec (Max)
   Solder Bath: 260°C Max
   Dipping Time: 3 Seconds Max
   Distance: 2mm Min (From Solder Joint to Body)



Note:
1. Wave solder should not be made more than one time.
2. Only select one of the soldering conditions above.

RELIABILITY TEST

Test Item	Test Condition	Description	Reference Standard
Operating Life Test	1.Under Room Temperature 2.If=20mA 3.t=1000 hrs (-24hrs, +72hrs)	This test is conducted for the purpose of detemining the resisance of a part in electrical and themal stressed.	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
High Temperature Storage Test	1.Ta=105℃±5℃ 2.t=1000 hrs (-24hrs, +72hrs)	The purpose of this is the resistance of the device which is laid under ondition of hogh temperature for hours.	MIL-STD-883:1008 JIS C 7021: B-10
Low Temperature Storage Test	1.Ta=-40℃±5℃ 2.t=1000 hrs (-24hrs, +72hrs)	The purpose of this is the resistance of the device which is laid under condition of low temperature for hours.	JIS C 7021: B-12
High Temperature High Humidity Test	1.Ta=65℃±5℃ 2.RH=90%~95% 3.t=240hrs±2hrs	The purpose of this test is the resistance of the device under tropical for hous.	MIL-STD-202:103B JIS C 7021: B-11
Thermal Shock Test	1.Ta=105℃±5℃&-40℃±5℃ (10min) (10min) 2.total 10 cycles	The purpose of this is the resistance of the device to sudden extreme changes in high and low temperature.	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
Solder Resistance Test	1.T.Sol=260℃±5℃ 2.Dwell time= 10±1sec.	This test intended to determine the thermal characteristic resistance of the device to sudden exposures at extreme changes in temperature when soldering the lead wire.	MIL-STD-202: 210A MIL-STD-750: 2031 JIS C 7021: A-1
Solderability Test	1.T.Sol=245℃±5℃ 2.Dwell time=5±1sec	This test intended to see soldering well performed or not.	MIL-STD-202: 208D MIL-STD-750: 2026 MIL-STD-883: 2003 JIS C 7021: A-2