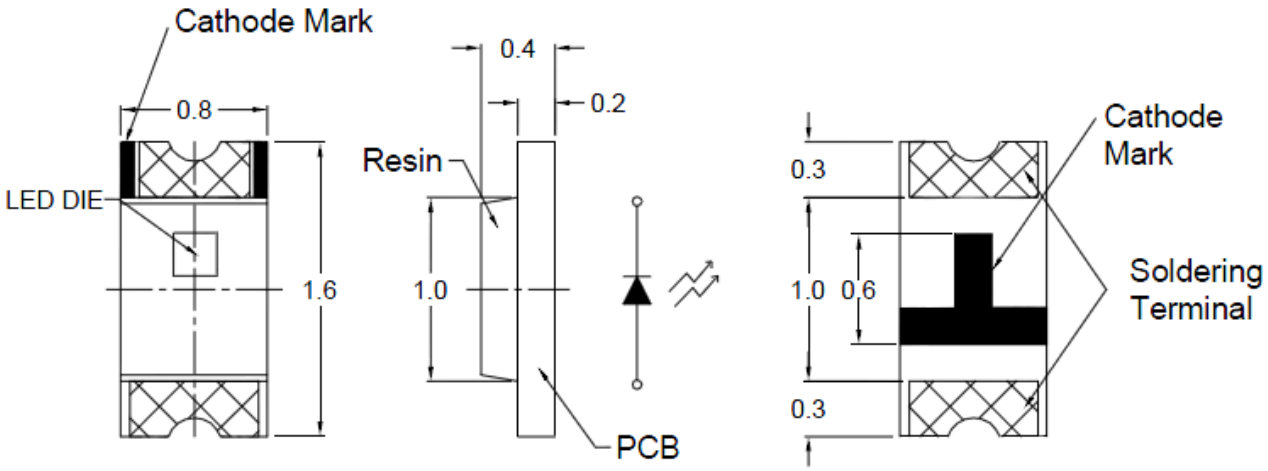
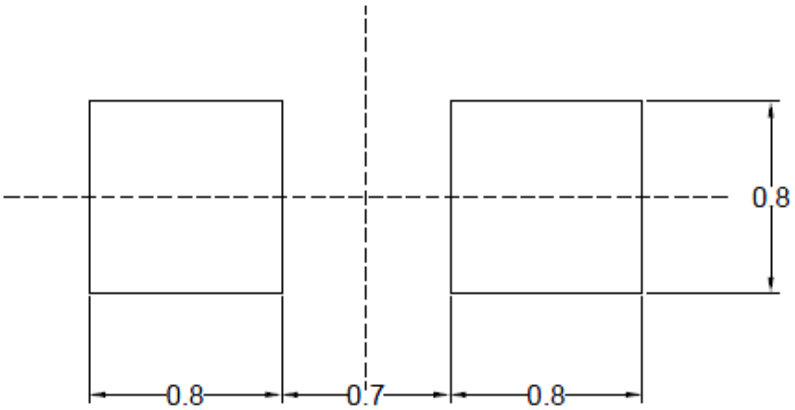
American Opto Plus LED Corp.
L196L-QBC-TR
1.6 x 0.8 x 0.4 mm Blue SMD LED

PACKAGE OUTLINES



RECOMMEND PAD LAYOUT



NOTES:
1. All dimensions are in millimeters (inches);
2. Tolerances are ±0.1mm unless otherwise noted.

Part Number	Material	Lens Color	
		Emitted	Lens
L196L-QBC-TR	InGan/GaN	Blue	Water Clear

Version 1.0 Date: 08-08-2011
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	Value	Unit
Forward current	If	20	mA
Reverse current @ 5V	Ir	50	μA
Power dissipation	Pd	80	mW
Operating temperature range	Top	-40~+85	°C
Storage temperature range	Tstg	-40~+90	°C
Peak pulsing current (1/10 duty f= 10KHz)	Ifp	100	mA
Electrostatic Discharge	ESD	150	V
Soldering Temperature	T_{SOL}	Max 260°C for 5 sec Max	

OPTICAL-ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Condition	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	λpeak	I_F = 20mA	-	465	-	nm
Spectral half bandwidth	△λ	I_F = 20mA	-	30	-	nm
Dominant wavelength	λdom	I_F = 20mA	-	470	-	Nm
Forward Voltage	Vf	I_F = 20mA	-	3.5	4.0	V
Luminous intensity	Iv	I_F = 20mA	50	125	-	mcd
Viewing angle at 50% Iv	2Θ ½	I_F = 20mA	-	120	-	Deg

OPTICAL CHARACTERISTIC CURVES

Fig.1 Forward current vs. Forward Voltage

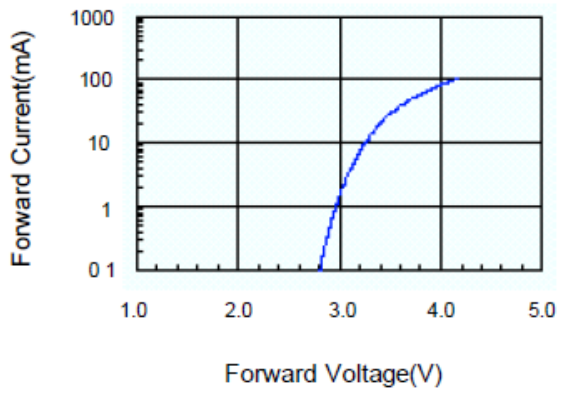


Fig.2 Relative Intensity vs. Forward Current

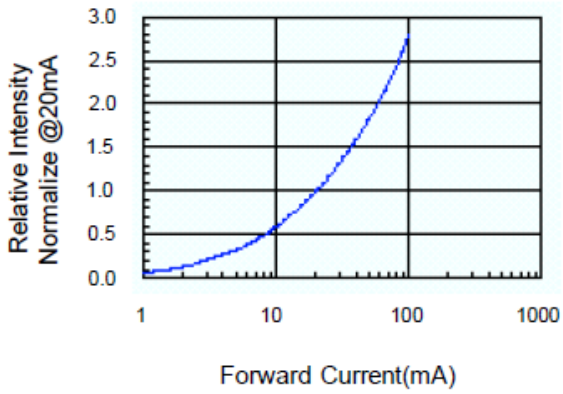


Fig.3 Forward Voltage vs. Temperature

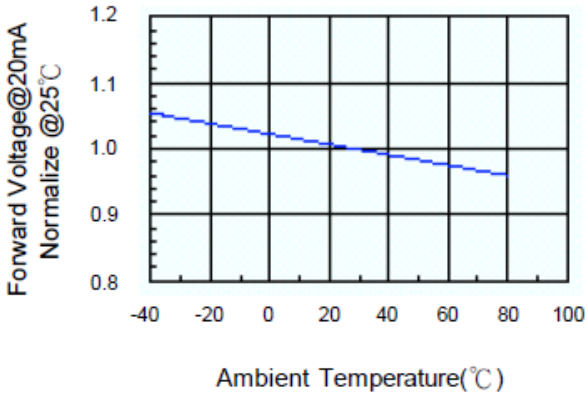


Fig.4 Relative Intensity vs. Temperature

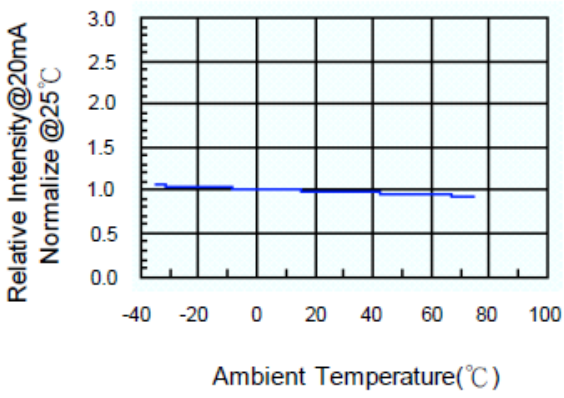


Fig.5 Relative Intensity vs. Wavelength

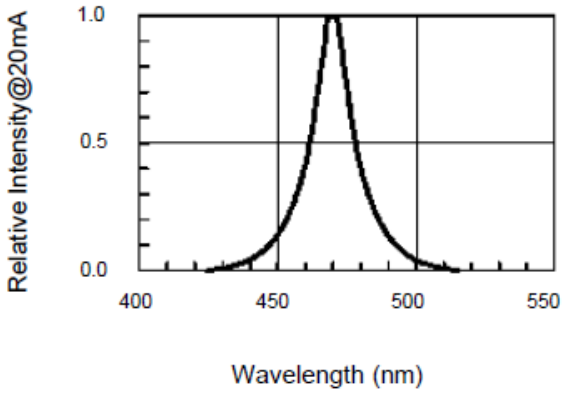
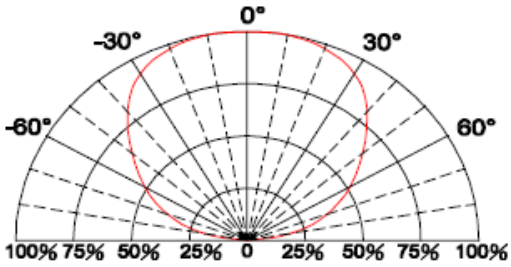
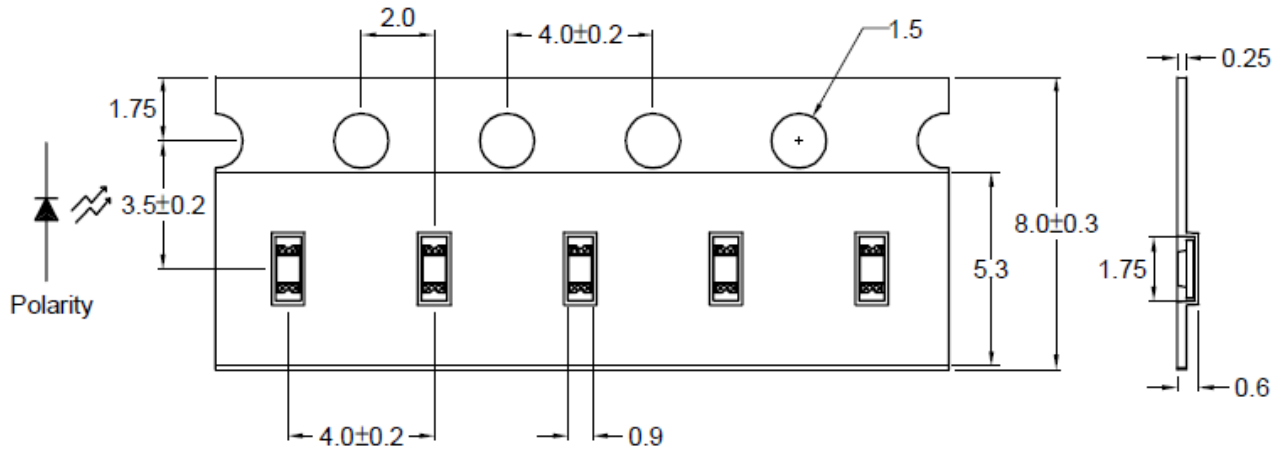


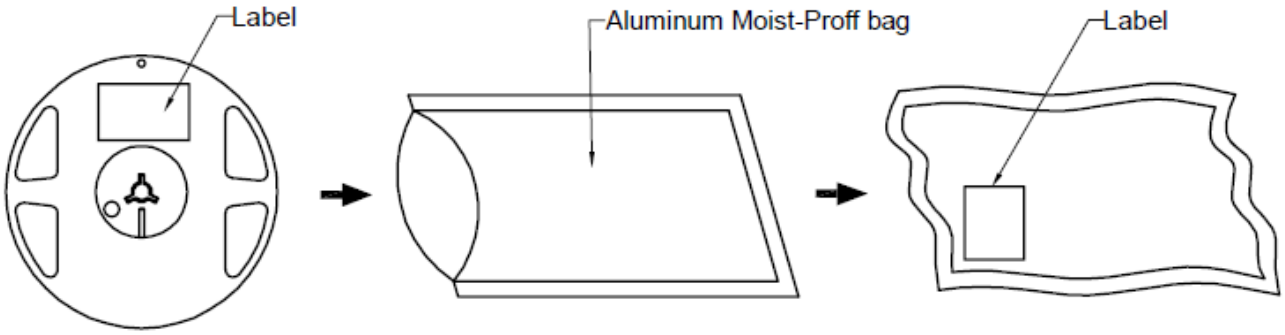
Fig.6 Directive Radiation



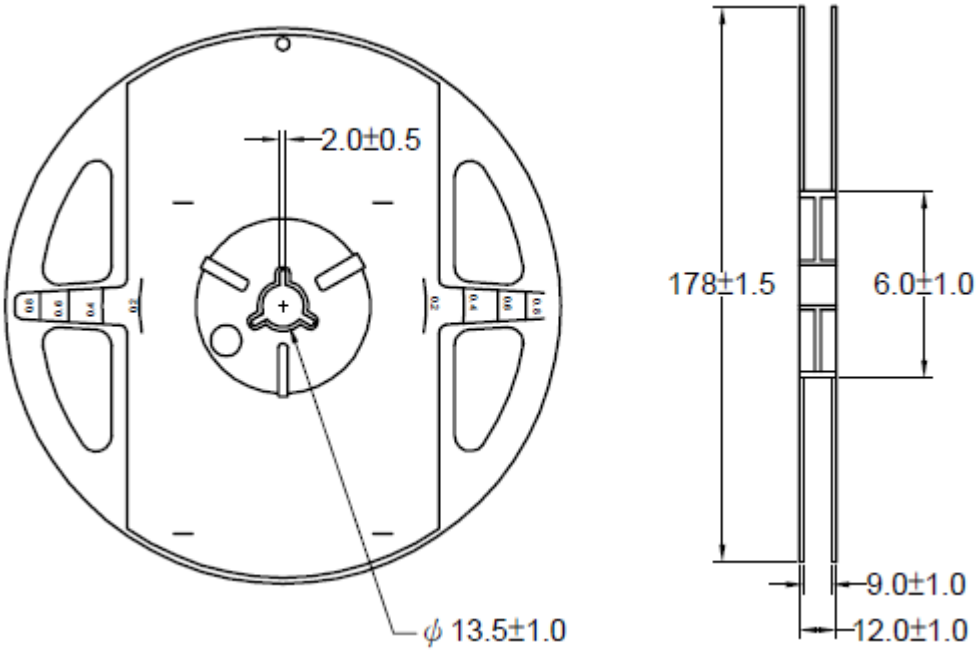
Dimensions of Tape (Unit: mm)



PACKAGING SPECIFICATION



REEL DIMENSIONS



Notes:

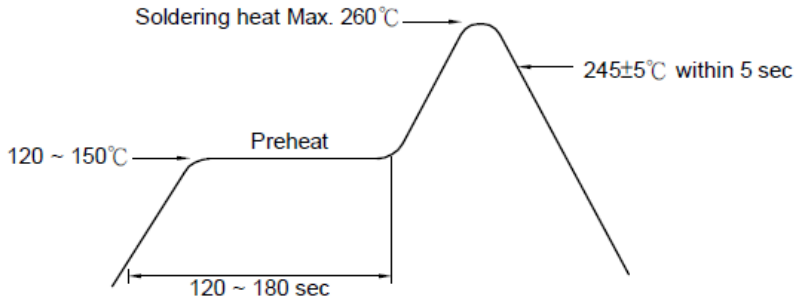
1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole.
4. 4,000pcs/Reel

Recommended Soldering Conditions

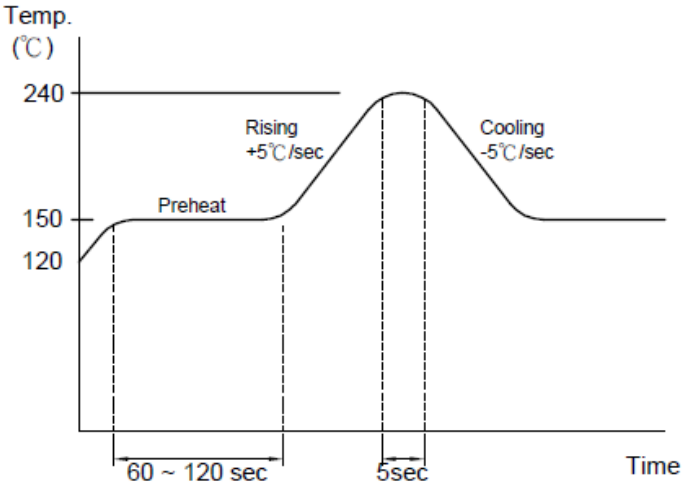
1. Hand Solder

Basic spec is ≦ 280℃ 3 sec one time only.

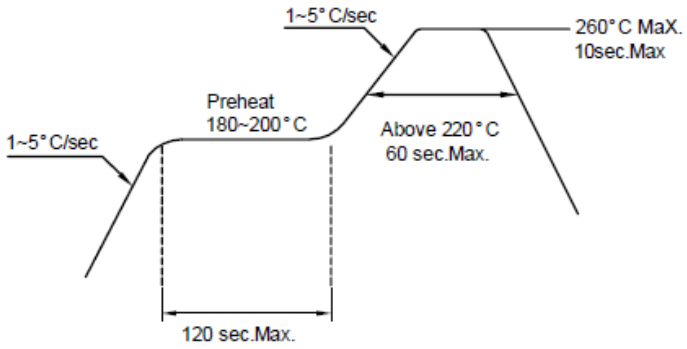
2. Wave Solder



3-1. LEAD Reflow Solder



3-2 PB-Free Reflow Solder



Reflow Soldering should not be done more than two times.

Precautions For Use:

Storage time:

1.The operation of Temperatures and RH are : 5 ℃~35℃,RH60%.

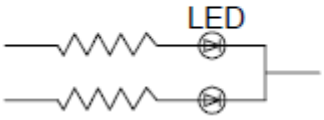
2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with descanting agent.
Considering the tape life, we suggest our customers to use our products within a year(from production date).

3.If opened more than one week in an atmosphere 5 ℃ ~ 35℃,RH60%,
they should be treated at 60 ℃±5 ℃fo r 15hrs.

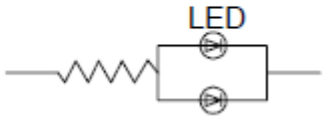
Drive Method:

LED is a current operated device, and therefore, requirer some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.
Consider worst case voltage variations than could occur across the current limiting resistor. The forwrd current should not be allowed to change by more than 40 % of its desired value.

Circuit model A



Circuit model B



(A) Recommended circuit.
(B) The difference of brightness between LED could be found due to the VF-IF characteristics of LED.

ESD(Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing these LED. All devices, equipment and machinery must be properly grounded.

RELIABILITY TEST

Classification	Test Item	Test Condition	Reference Standard
Endurance Test	Operating Life Test	1.Ta=Under Room Temperature As Per Data Sheet Maximum Rating. 2.If=20mA 3.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-750D: 1026 MIL-STD-883D: 1005 JIS C 7021: B-1
	High Temperature Storage Test	1.Ta=105℃±5℃ 2.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-883D:1008 JIS C 7021: B-10
	Low Temperature Storage Test	1.Ta=-40℃±5℃ 2.t=1000 hrs (-24hrs, +72hrs)	JIS C 7021: B-12
	High Temperature High Humidity Storage Test	1.Ta=65℃±5℃ 2.RH=90%~95% 3.t=1000hrs±2hrs	MIL-STD-202F:103B JIS C 7021: B-11
Environmental Test	Thermal Shock Test	1.Ta=105℃±5℃&-40℃±5℃ (10min) (10min) 2.total 10 cycles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1011
	Solderability Test	1.T.Sol=235℃±5℃ 2.Immersion time 2±0.5sec 3.Coverage ≧95% of the dipped surface	MIL-STD-202F: 208D MIL-STD-750D: 2026 MIL-STD-883D: 2003 IEC 68 Part 2-20 JIS C 7021: A-2
	Temperature Cycling	1.105℃ ~ 25℃ ~ -55℃ ~ 25℃ 30mins 5mins 30mins 5mins 2.10 Cyeles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1010 JIS C 7021: A-4
	IR Reflow	1.T=260°C Max. 10sec.Max. 2. 6 Min	MIL-STD-750D:2031.2 J-STD-020