

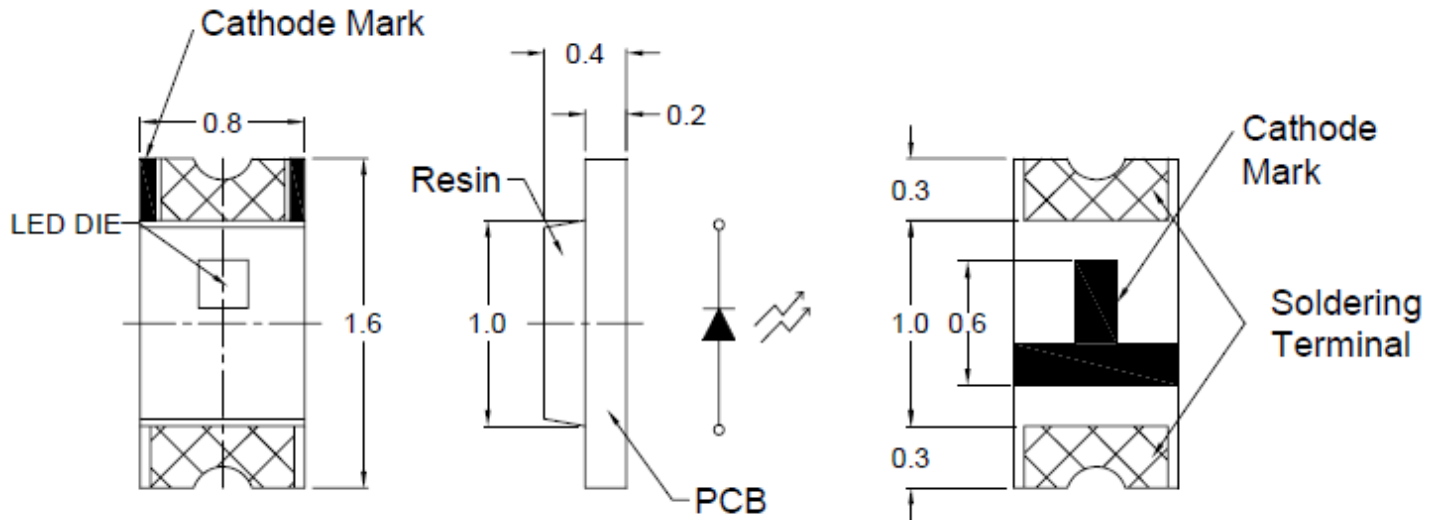


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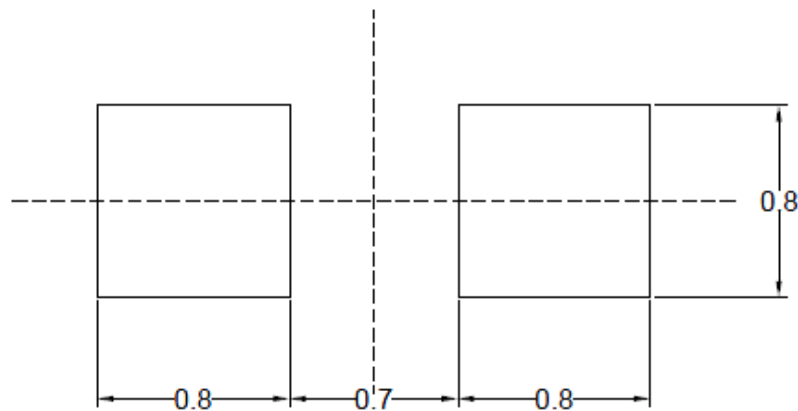
L196L-MPGC-L

1.6 x 0.8 x 0.4 mm Pure Green SMD LED

PACKAGE OUTLINES



RECOMMEND PAD LAYOUT



NOTES:

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

Part Number	Material	Lens Color	
		Emitted	Lens
L196L-MPGC-L	InGaN	Pure Green	Water Clear



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ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

Parameter	Symbol	Value	Unit
Forward current	I _f	30	mA
Reverse current @ 5V	I _r	50	μA
Power dissipation	P _d	108	mW
Operating temperature range	T _{op}	-20~+80	°C
Storage temperature range	T _{stg}	-30~+100	°C
Peak forward current (1/10 duty f= 10KHz)	I _{fp}	100	mA
Electrostatic Discharge	ESD	500	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	
Spectral half bandwidth	Δλ	I _F = 2mA	--	36	--	nm
Dominant wavelength	λ _d	I _F = 2mA	--	525	--	nm
Forward Voltage	V _f	I _F = 2mA	2.6	--	3.2	V
Luminous intensity	I _v	I _F = 2mA	20	32	--	mcd
Viewing Angle	2θ ½	I _F = 2mA	--	130	--	deg



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LUMINOUS INTENSITY CLASSIFICATION

BIN CODE	Iv (mcd) at 2mA	
	Min.	Max.
M	20	32
N	32	50
P	50	80
Q	80	125

DOMINANT WAVELENGTH CLASSIFICATION

BIN CODE	λ_D (nm) at 2mA	
	Min.	Max.
522-524	522	524
524-526	524	526
526-528	526	528
528-530	528	530
530-532	530	532
532-534	532	534
534-536	534	536
536-538	536	538



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OPTICAL CHARACTERISTIC CURVES

Fig.1 Forward current vs. Forward Voltage

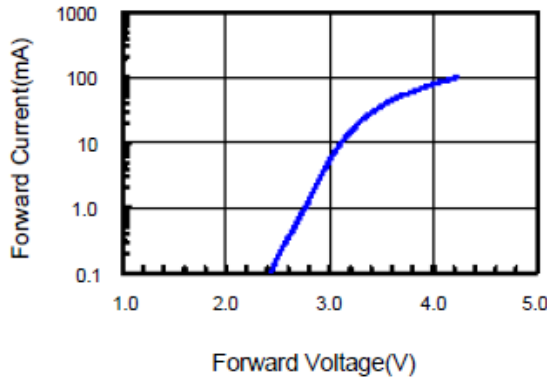


Fig.2 Relative Intensity vs. Forward Current

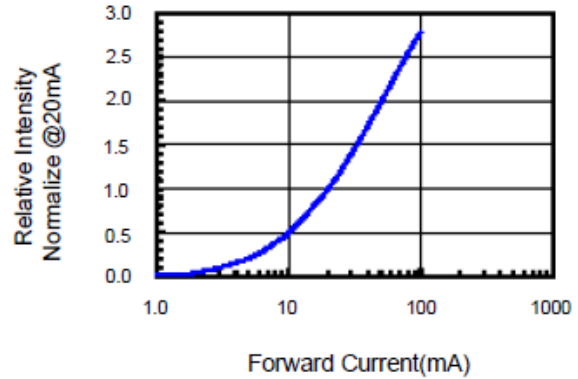


Fig.3 Forward Voltage vs. Temperature

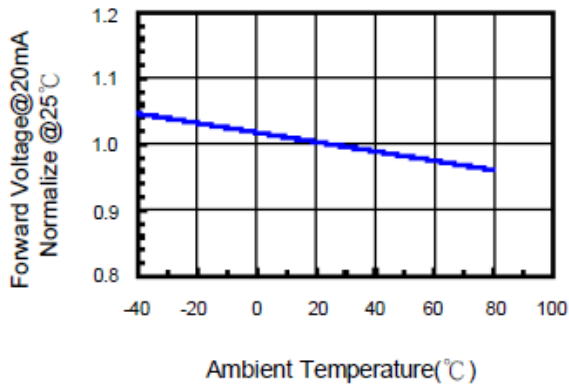


Fig.4 Relative Intensity vs. Temperature

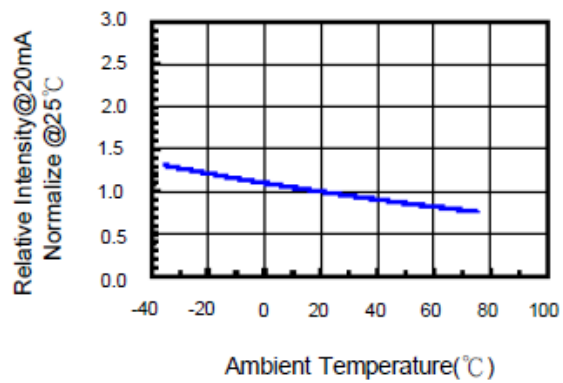


Fig.5 Relative Intensity vs. Wavelength

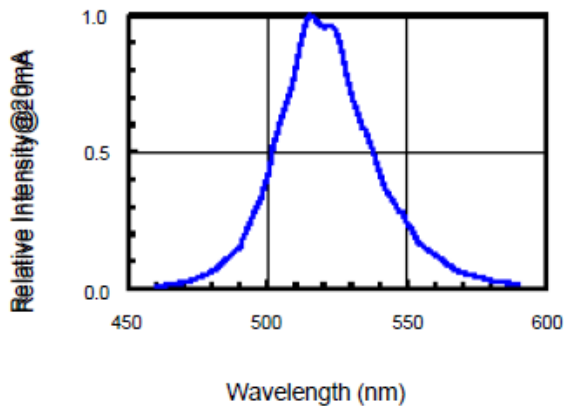
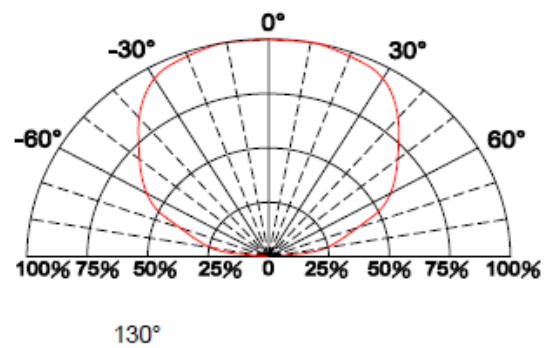


Fig.6 Directive Radiation



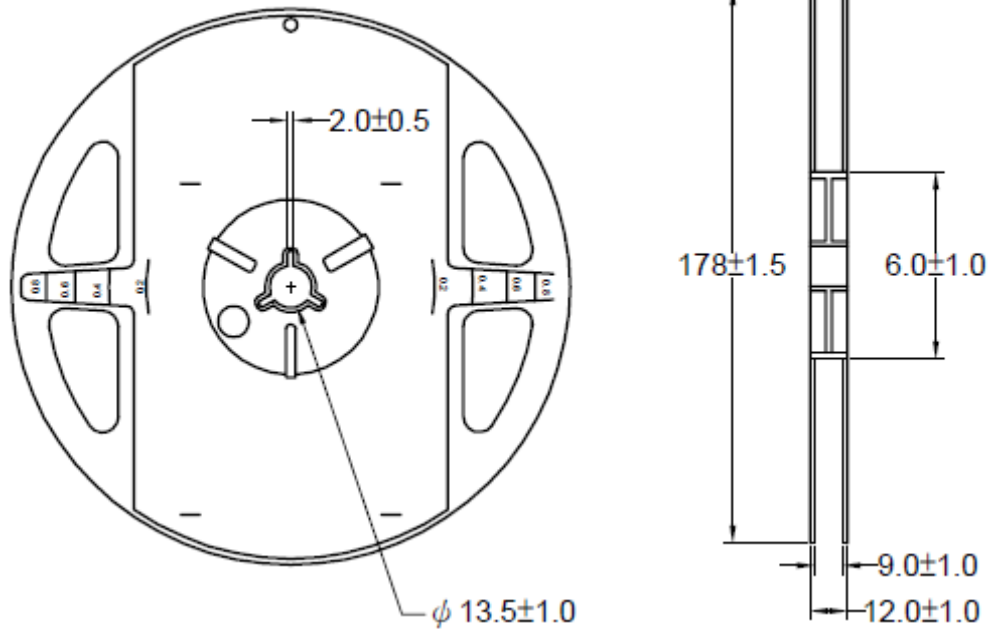


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REEL DIMENSIONS



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



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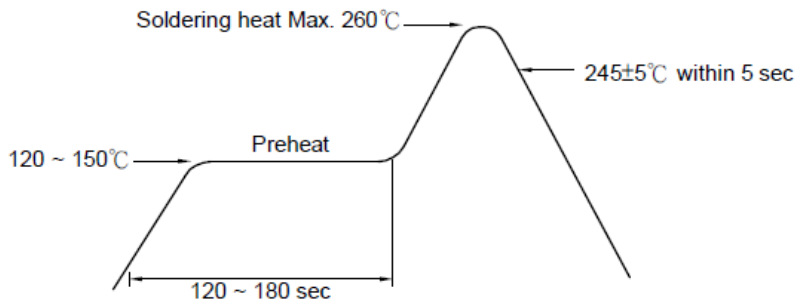
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Recommended Soldering Conditions

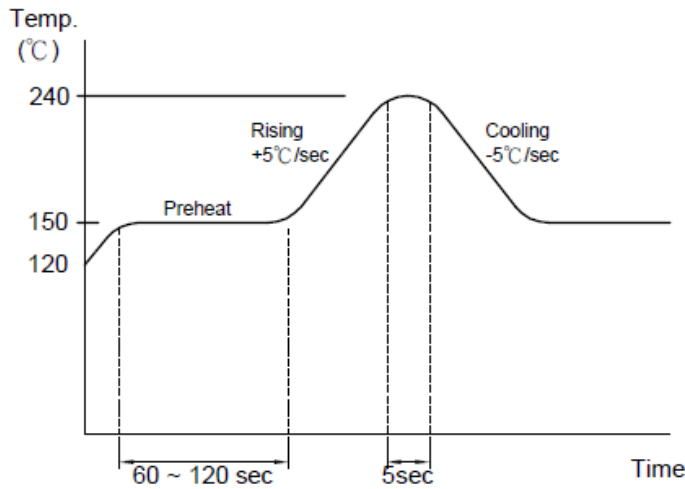
1. Hand Solder

Basic spec is $\leq 280^{\circ}\text{C}$ 3 sec one time only.

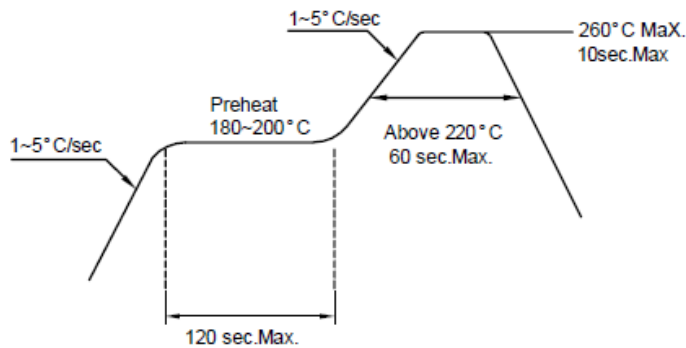
2. Wave Solder



3-1. LEAD Reflow Solder



3-2 PB-Free Reflow Solder



Reflow Soldering should not be done more than two times.



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Precautions For Use:

Storage time:

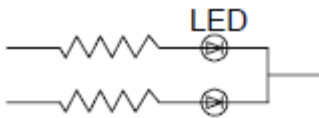
- 1.The operation of Temperatures and RH are : 5 °C ~35°C ,RH60%.
- 2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with descanting agent.
Considering the tape life, we suggest our customers to use our products within a year(from production date).
- 3.If opened more than one week in an atmosphere 5 °C ~ 35°C ,RH60%,
they should be treated at 60 °C±5 °C fo r 15hrs.

Drive Method:

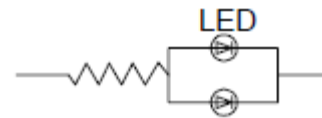
LED is a current operated device, and therefore, requirer some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

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.



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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°C±5°C 2.t=1000 hrs (-24hrs, +72hrs)	MIL-STD-883D:1008 JIS C 7021: B-10
	Low Temperature Storage Test	1.Ta=-40°C±5°C 2.t=1000 hrs (-24hrs, +72hrs)	JIS C 7021: B-12
	High Temperature High Humidity Storage Test	1.Ta=65°C±5°C 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°C±5°C & -40°C±5°C (10min) (10min) 2.total 10 cycles	MIL-STD-202F: 107D MIL-STD-750D: 1051 MIL-STD-883D: 1011
	Solderability Test	1.T.Sol=235°C±5°C 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°C ~ 25°C ~ -55°C ~ 25°C 30mins 5mins 30mins 5mins 2.10 Cycles	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