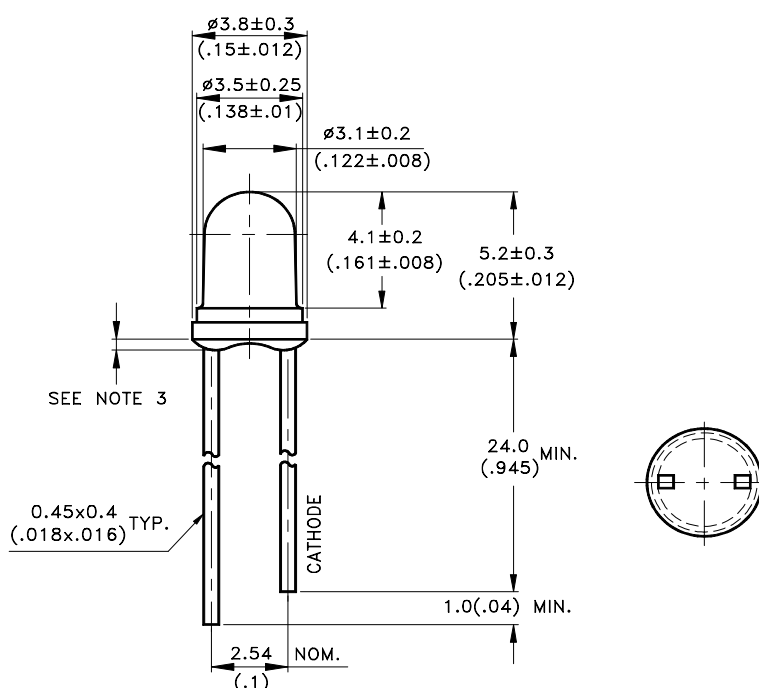


Features

- * High luminous intensity output.
- * Low power consumption.
- * High efficiency.
- * Versatile mounting on P.C. Board or panel.
- * I.C. Compatible/low current requirement.
- * 3.1 mm diameter package.

Package Dimensions



Part No.	Lens	Source Color
LTL1CHKFK-0G1A	Water Clear	AlInGaP Yellow Orange

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25 mm($.010$ ") unless otherwise noted.
3. Protruded resin under flange is 1.0 mm($.04$ ") max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.



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Absolute Maximum Ratings at $T_A=25^{\circ}\text{C}$

Parameter	Maximum Rating	Unit
Power Dissipation	75	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	60	mA
Continuous Forward Current	30	mA
Derating Linear From 50°C	0.4	mA/ $^{\circ}\text{C}$
Reverse Voltage	5	V
Operating Temperature Range	-40°C to $+100^{\circ}\text{C}$	
Storage Temperature Range	-55°C to $+100^{\circ}\text{C}$	
Lead Soldering Temperature [1.6mm(.063") From Body]	260°C for 5 Seconds	

Electrical / Optical Characteristics at T_A=25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I _v	240	680		mcd	I _F = 20mA Note 1
Viewing Angle	2 θ _{1/2}		45		deg	Note 2 (Fig.5)
Peak Emission Wavelength	λ _p		611		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λ _d		605		nm	Note 4
Spectral Line Half-Width	Δ λ		17		nm	
Forward Voltage	V _F		2.05	2.4	V	I _F = 20mA
Reverse Current	I _R			100	μ A	V _R = 5V
Capacitance	C		40		pF	V _F = 0 , f = 1MHz

NOTE: 1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

2. θ_{1/2} is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

3. I_v classification code is marked on each packing bag.

4. The dominant wavelength, λ_d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

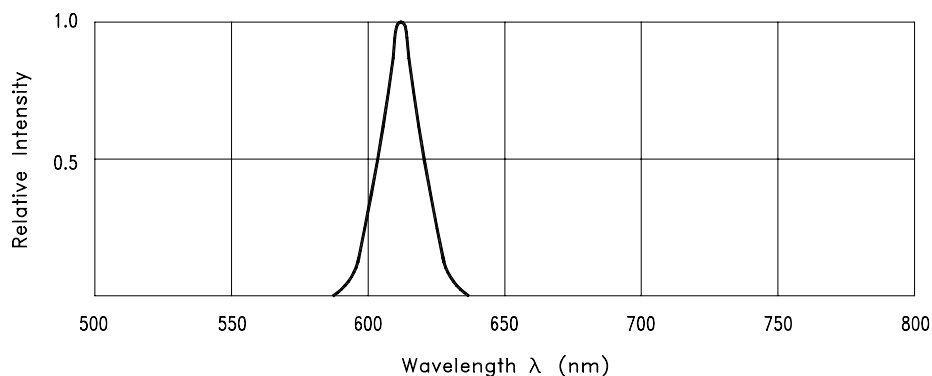


Fig.1 Relative Intensity vs. Wavelength

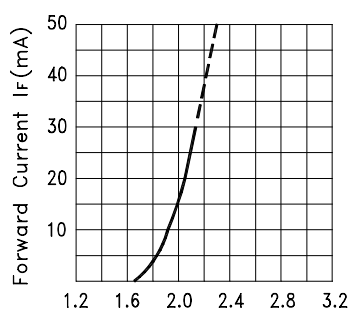


Fig.2 Forward Current vs. Forward Voltage

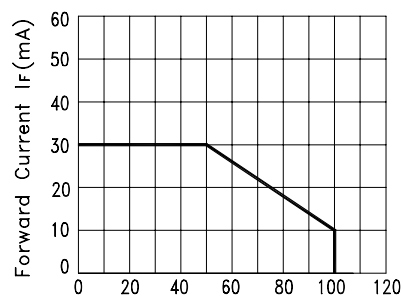


Fig.3 Forward Current Derating Curve

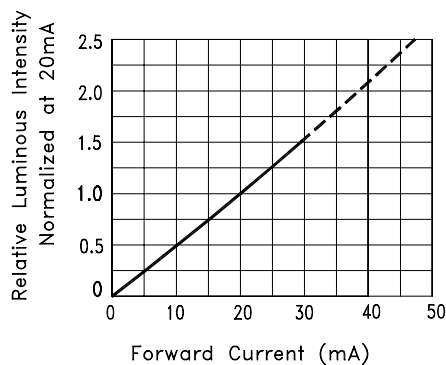


Fig.4 Relative Luminous Intensity vs. Forward Current

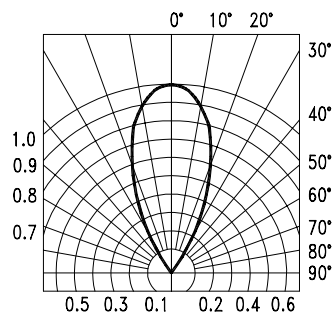
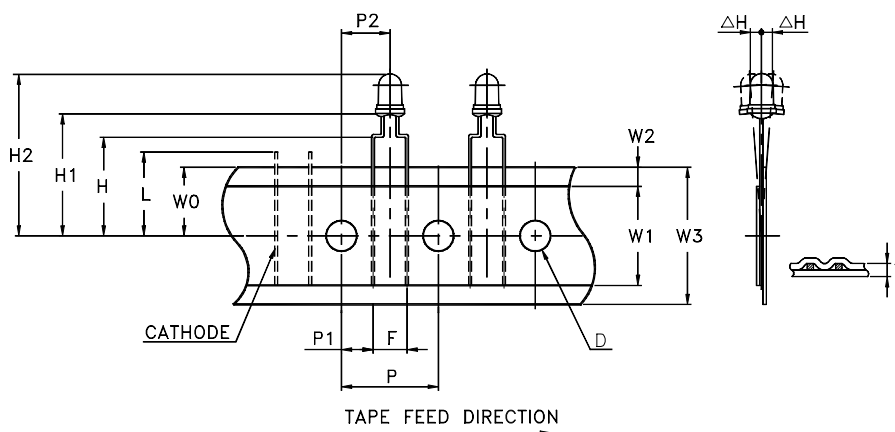


Fig.5 Spatial Distribution

Features

- * Compatible with radial lead automatic insertion equipment.
 - * Most radial lead plastic lead lamps available packaged in tape and folding.
 - * 5mm (0.197") formed lead spacing available.
 - * Folding packaging simplifies handling and testing.
- Reel packaging is available by removing suffix "A" on option.

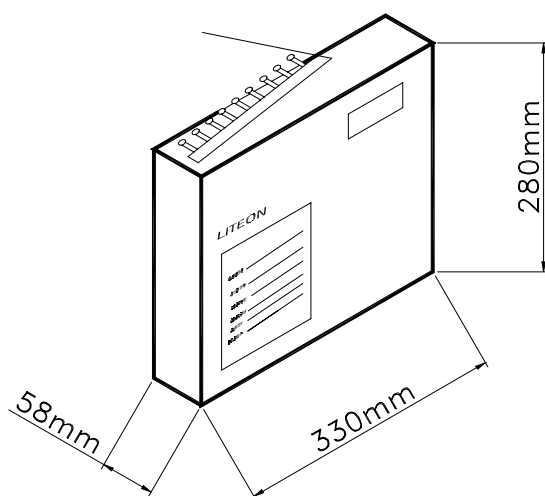
Package Dimensions



Item	Symbol	Specification			
		Minimum		Maximum	
		mm	inch	mm	inch
Tape Feed Hole Diameter	D	3.8	0.149	4.2	0.165
Component Lead Pitch	F	4.8	0.188	5.8	0.228
Front to Rear Deflection	ΔH	--	--	2.0	0.078
Height of Seating Plane	H	15.5	0.610	16.5	0.649
Feed Hole to Bottom of Component	H1	20.0	0.787	22.0	0.866
Feed Hole to Overall Component Height	H2	24.9	0.980	27.5	1.083
Lead Length After Component Height	L	W0		11.0	0.433
Feed Hole Pitch	P	12.4	0.488	13.0	0.511
Lead Location	P1	3.15	0.124	4.55	0.179
Center of Component Location	P2	5.05	0.198	7.65	0.301
Total Taped Thickness	T	--	--	0.90	0.035
Feed Hole Location	W0	8.5	0.334	9.75	0.384
Adhesive Tape Width	W1	14.5	0.571	15.5	0.610
Adhesive Tape Position	W2	0	0	3.0	0.118
Tape Width	W3	17.5	0.689	19.0	0.748

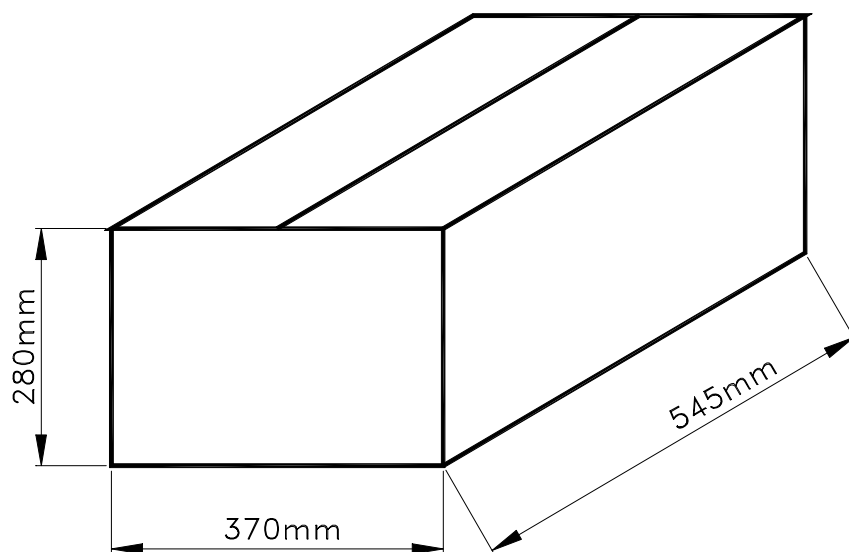
Packing Spec

2500 pcs per inner carton



Tolerance: $\pm 5\text{mm}$

10 Inner cartons per outer carton
total 25000 pcs per outer carton





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Bin Code List For Reference

Luminous Intensity		Unit : mcd @20mA
Bin Code	Min.	Max.
JK	240	400
LM	400	680
NP	680	1150
QR	1150	1900

Dominant Wavelength		Unit : nm @20mA
Bin Code	Min.	Max.
H22	598.0	600.0
H23	600.0	603.0
H24	603.0	606.5
H25	606.5	610.0
H26	610.0	613.5

CAUTIONS

1. Application limitation

The LEDs described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household application.) Consult Liteon's sales in advance for information on application in which exceptional quality and reliability are required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health (such as airplanes, automobiles, traffic control equipment, life support system and safety devices).

2. Storage

After being shipped from Liteon the LEDs should be kept at 30°C or less and 70%RH or less.

The LEDs should be used within 3 months. They can be stored for a year in a sealed container with a nitrogen atmosphere and moisture absorbent material. Please avoid rapid transitions in ambient temperature in high humidity environments where condensation may occur.

3. Cleaning

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED.

4. Forming & Mounting

When forming a lead, the leads should be bent at a point at least 3mm from the base of epoxy bulb. Do not use the base of the leadframe as a fulcrum during forming. Lead forming must be done before soldering at normal temperature. When mounted through hole type LED lamp, avoid the occurrence of residual mechanical stress due to clinching.

5. Soldering

When soldering, leave a minimum of 2mm clearance from the resin to the soldering point.

Dipping the resin into the solder must be avoided.

Do not apply any stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering condition

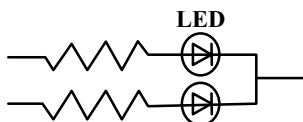
Soldering iron		Wave soldering	
Temperature	300°C Max.	Pre-heat	100°C Max.
Soldering time	3 sec. Max. (one time only)	Pre-heat time	60 sec. Max.
		Solder wave	260°C Max.
		Soldering time	10 sec. Max.

*The material of hook type Housing is very sensitive of soldering temperature. Any increase of soldering temperature might seriously result in serious melting of the housing.

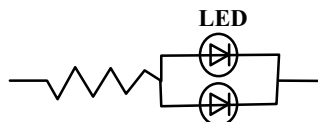
6. Drive Method

LED, a current operated device, requires specific current limit incorporated into the driving circuit. The current control can be achieved by using a resistor in series with the LED. In order to prevent to exceed the allowed value of 40% over desired forward current, the resistor should be well chosen for possible voltage variation. Two possible circuit designs are shown below. The model **A** is recommended, and the model **B** will probably result in uneven brightness between LEDs because of the Vf-If characteristics of LEDs.

Circuit model A



Circuit model B



7. ESD (Electrostatic Discharge)

Static electricity discharge or power surge will damage the LED. When handling the LED, it is highly recommended to use a conductive wrist band or anti-electrostatic glove. All devices, equipment and machinery must be properly grounded.

8. Reliability Test (for LED)

Classification	Test Item	Test Condition	Duration / Cycle	Reference Standard
Endurance Test	Room Temp. Operation Life	Ta= Room Temp, IDC= 30 mA	1000 hrs	
Environmental Test	Temperature Cycling	105°C ~ 25°C ~ -55°C ~ 25°C 30min 5mins 30mins 5mins	10 cycles	MIL-STD-202F:107D (1980) MIL-STD-750D:1051(1995) MIL-STD-883D:1010 (1991) JIS C 7021: A-4(1982)
	Solder Resistance	Solder temperature is 260± 5 °C	10 sec	MIL-STD-202F:210A(1980) MIL-STD-750D:2031(1995) JIS C 7021: A-1(1982)
	Solderability	Solder temperature is 230± 5 °C	5 sec	MIL-STD-202F:208D(1980) MIL-STD-750D:2026(1995) MIL-STD-883D:2003(1991) JIS C 7021: A-2(1982)

9. Others

The appearance and specifications of the product may be modified for the quality improvement without further notice.