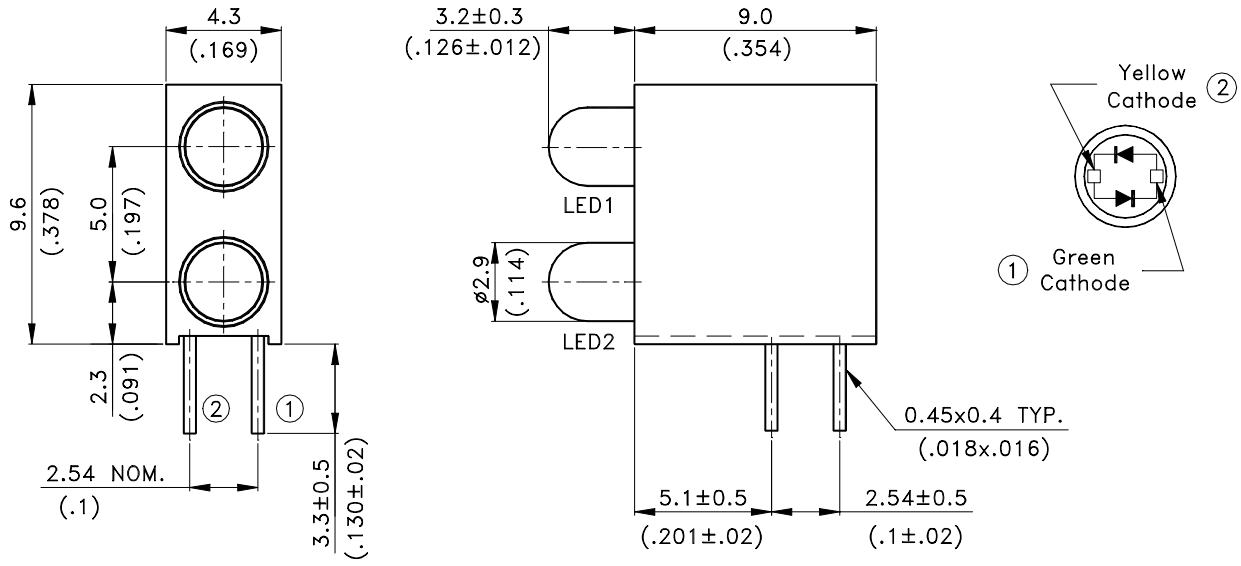
Features

* Designed for ease in circuit board assembly.
* Black case enhance contrast ratio.
* Solid state light source.
* Reliable and rugged.

Package Dimensions



	①	②
14CDJN	Green Cathode	Yellow Cathode

Lamp Part No.	Lens	Source Color
LTL-14CDJN	White Diffused	Green/Yellow

Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25mm(.010") unless otherwise noted.
3. The holder color is black.
4. The holder raw material is PBT+GF.
5. The LED lamps are LTL-14CDJN (Bi-Color).

Absolute Maximum Ratings at T_a=25℃

Parameter	Green	Yellow	Unit
Power Dissipation	100	60	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	120	80	mA
Continuous Forward Current	30	20	mA
Derating Linear From 50℃	0.4	0.25	mA/℃
Operating Temperature Range	-55℃ to + 100℃		
Storage Temperature Range	-55℃ to + 100℃		
Lead Soldering Temperature [1.6mm(.063") From Body]	260℃ for 5 Seconds		

Electrical Optical Characteristics at T_a=25℃

Parameter	Symbol	Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I_V	Green	3.7	12.6		mcd	I_F = 20mA Note 1,4
		Yellow	2.5	8.7			I_F = 20mA Note 1,4
Viewing Angle	$2\theta_{1/2}$	Green		80		deg	Note 2 (Fig.6)
		Yellow					
Peak Emission Wavelength	λ p	Green		565		nm	Measurement @Peak (Fig.1)
		Yellow		585			
Dominant Wavelength	λ d	Green		569		nm	Note 3
		Yellow		588			
Spectral Line Half-Width	$\Delta\lambda$	Green		30		nm	
		Yellow		35			
Forward Voltage	V_F	Green		2.1	2.6	V	I_F = 20mA
		Yellow		2.1	2.6		I_F = 20mA
Reverse Current	I_R	Green			100	μA	V_R = 5V, Note 5
		Yellow					V_R = 5V, Note 5
Capacitance	C	Green		35		pF	V_F = 0 , f = 1MHz
		Yellow		15			

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

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

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

4. Iv needs ±15% additionary for guaranteed limits.

5. Reverse current is controlled by dice source.

Typical Electrical / Optical Characteristics Curves

(25℃ Ambient Temperature Unless Otherwise Noted)

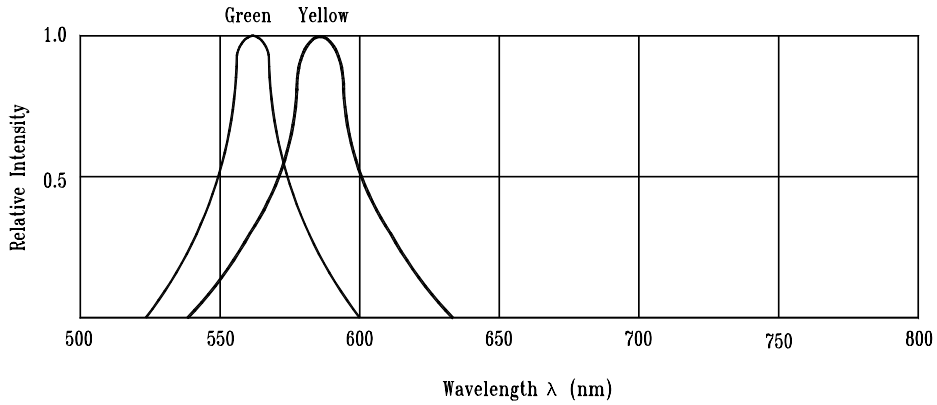


Fig.1 Relative Intensity vs. Wavelength

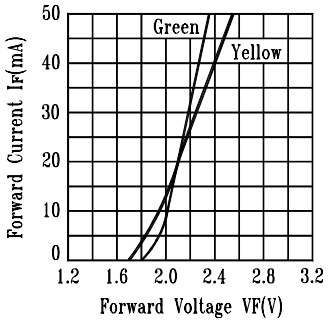


Fig.2 Forward Current vs. Forward Voltage

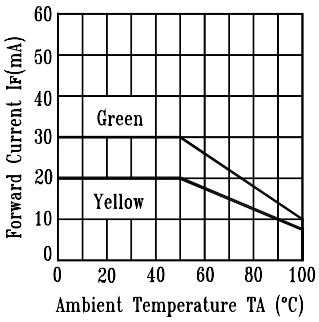


Fig.3 Forward Current Derating Curve

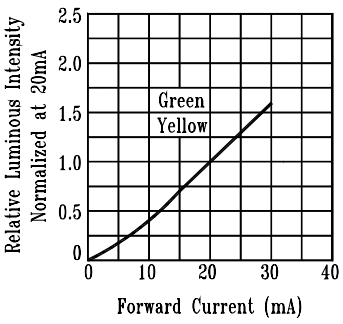


Fig.4 Relative Luminous Intensity vs. Forward Current

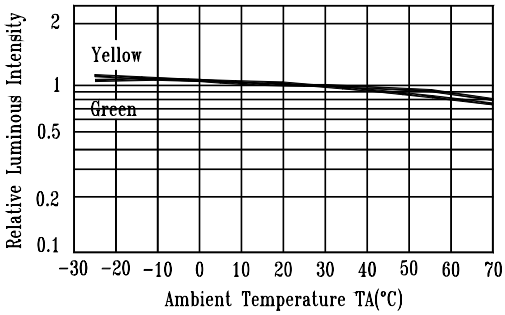


Fig.5 Luminous Intensity vs. Ambient Temperature

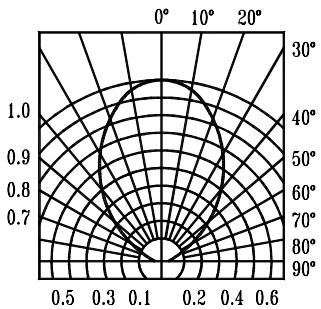


Fig.6 Spatial Distribution

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 as figure shown here.

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.

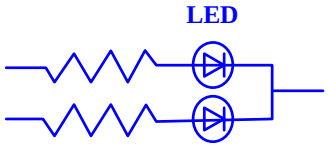
Recommended soldering condition

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

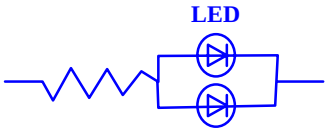
6. Drive Method

LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the drive circuit. This current limiting typically takes the form of a current limiter resistor placed in series with the LED. Consider worst case voltage variations that could occur across the current limiting resistor.
The forward 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 LEDs could be found due to the Vf-If characteristics of LED

7. ESD (Electrostatic Discharge)

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

8. Reliability Test

Classification	Test Item	Test Condition	Duration / Cycle	Referance Standard
Endurance Test	Room Temp. Operation Life	Ta= Room Temp, Ip= 160 mA / 1/8 duty, Pulse Width =1.25 ms	1000 hrs	MIL-STD-750D:1026 (1995) MIL-STD-883D:1005 (1991) JIS C 7021:B-1 (1982)
Environmental Test	Temperature Cycling	105℃ ～ 25℃ ～ -55℃ ～ 25℃ 30mins 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 ℃	10 sec	MIL-STD-202F:210A(1980) MIL-STD-750D:2031(1995) JIS C 7021: A-1(1982)
	Solderability	Solder temperature is 230± 5 ℃	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 improvement without notice.