LITEON®
OPTOELECTRONICS

Through Hole Lamp

Product Data Sheet

LTL30EJ9NN

Spec No.: DS20-2000-257

Effective Date: 10/25/2012

Revision: B

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

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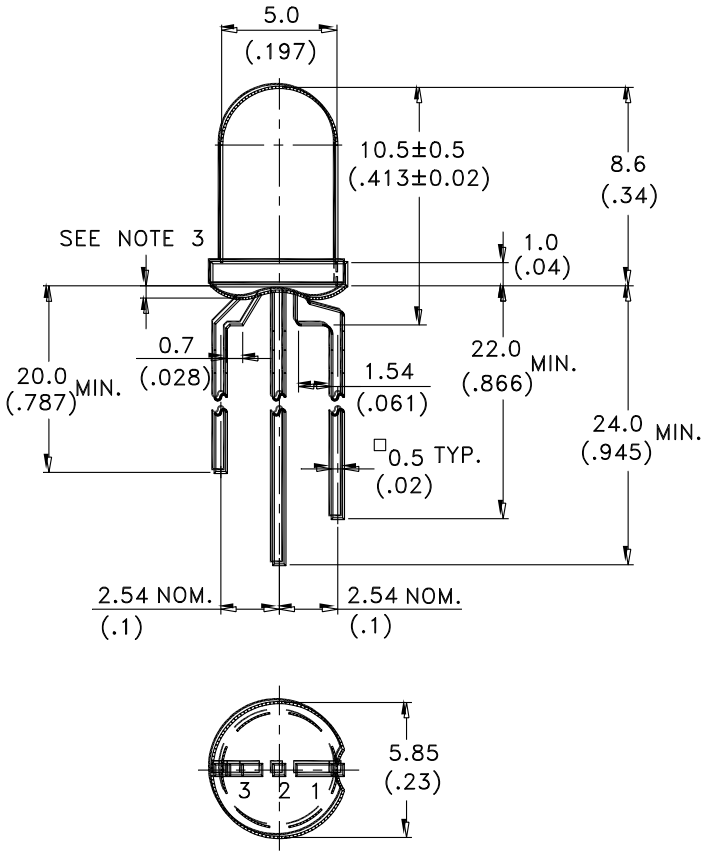
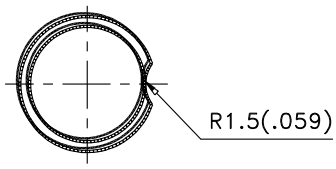
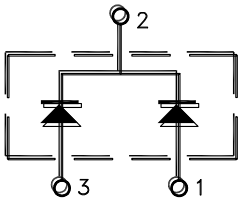
Features

* Yellow and Green chips are matched for uniform light output.
* T-1 3/4 type package.
* Long life-solid state reliability.
* Low power consumption.
* Lead (Pb) Free product RoHS compliant.

Package Dimensions







1. YELLOW ANODE
2. COMMON CATHODE
3. GREEN ANODE

Part No.	Lens	Source Color
LTL30EJ9NN	White Diffused	AlInGaP Yellow / Green

Notes:

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

Absolute Maximum Ratings at T_A=25℃

Parameter	Yellow	Green	Unit
Power Dissipation	75	75	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	60	60	mA
Continuous Forward Current	30	30	mA
Derating Linear From 30℃	0.4	0.4	mA/℃
Operating Temperature Range	-40℃ to + 100℃		
Storage Temperature Range	-55℃ to + 100℃		
Lead Soldering Temperature [1.6mm(.063") From Body]	260℃ for 5 Seconds Max		

Electrical Optical Characteristics at T_A=25℃

Parameter	Symbol	Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	Yellow Green	240 120	400 240		mcd	I_F = 20mA I_F = 20mA Note 1,4
Viewing Angle	$2\theta_{1/2}$	Yellow Green		30 30		deg	Note 2 (Fig.6)
Peak Emission	λ p	Yellow Green		591 565		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λ d	Yellow Green		590 569		nm	Note 3
Spectral Line Half-Width	$\Delta\lambda$	Yellow Green		15 30		nm	
Forward Voltage	V_F	Yellow Green		2.1 2.1	2.4 2.4	V	I_F = 20mA
Reverse Current	I_R	Yellow Green			100	μA	V_R = 5V Note 5

Note: 1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission International De L'Eclairage) 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. The Iv guarantee should be added ±15%.

5. Reverse voltage (V_R) Condition is applied for IR test only. The devices is not designed for reverse Operation.

Typical Electrical / Optical Characteristics Curves

(25℃ Ambient Temperature Unless Otherwise Noted)

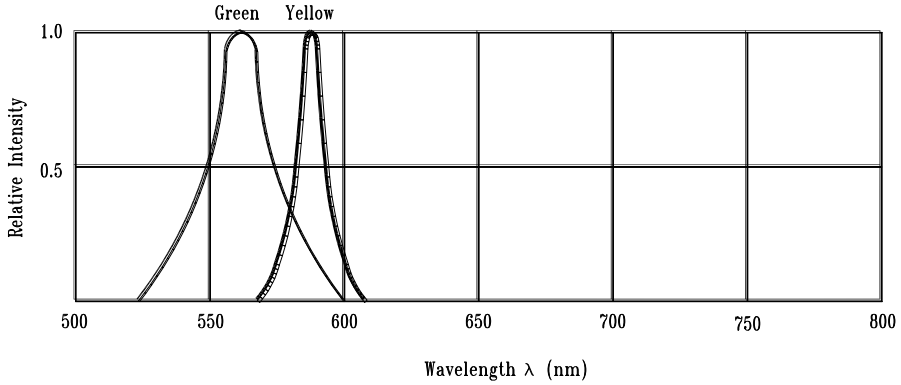


Fig.1 Relative Intensity vs. Wavelength

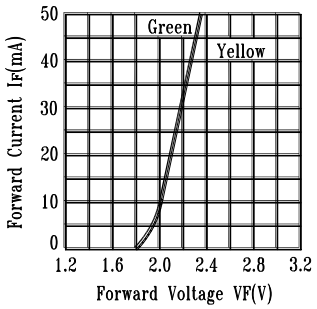


Fig.2 Forward Current vs. Forward Voltage

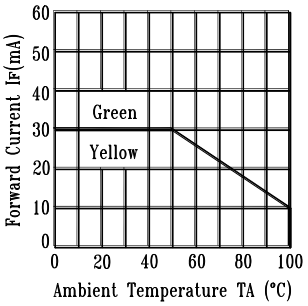


Fig.3 Forward Current Derating Curve

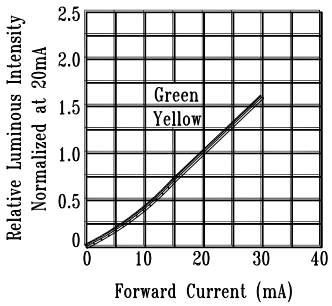


Fig.4 Relative Luminous Intensity vs. Forward Current

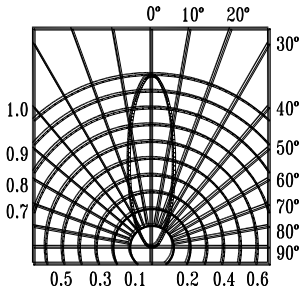
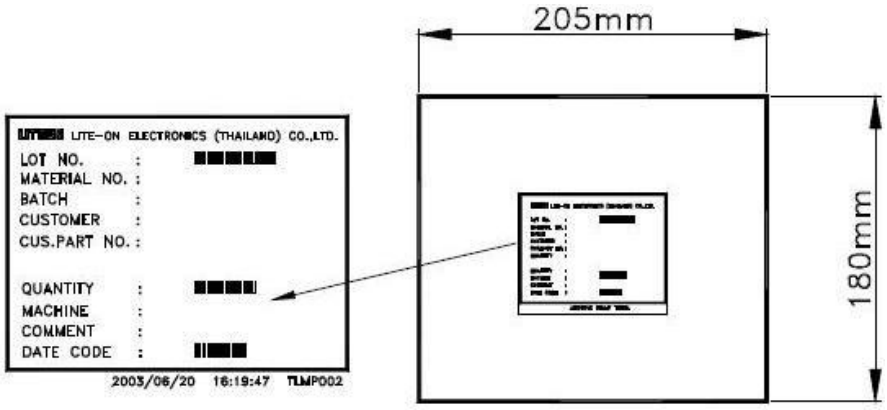


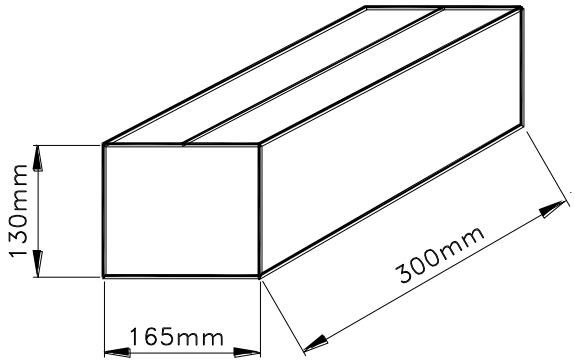
Fig.6 Spatial Distribution

Packing Spec

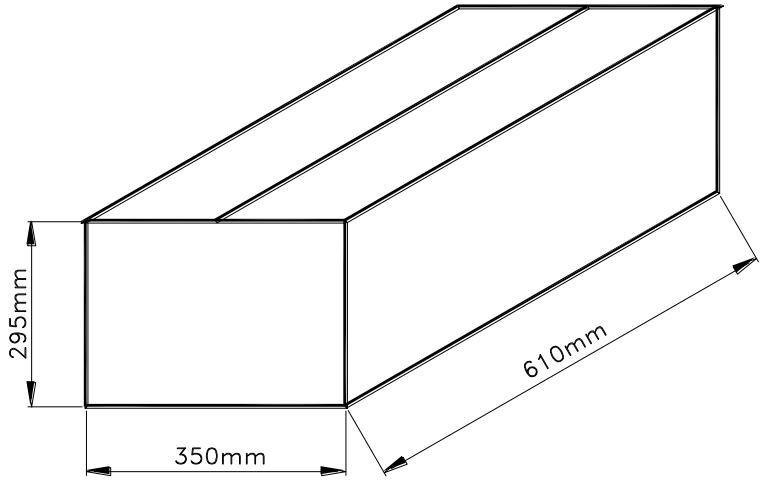
500 ,200 or 100 pcs per packing bag



10 packing bags per inner carton
total 5000 pcs per inner carton



8 Inner cartons per outer carton
total 40000 pcs per outer carton



Bin Table For Reference.

Bin Code	Luminous Intensity (Iv. Green) Unit : mCd.		Dominant wavelength (Wd. Green) unit : nm		Luminous Intensity (Iv. Yellow) Unit : mCd.		Dominant wavelength (Wd. Yellow) unit : nm	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
2B-11	240	400	566	569	400	680	586	589.5
2B-12	240	400	566	569	400	680	589.5	593
2C-11	240	400	566	569	240	400	586	589.5
2C-12	240	400	566	569	240	400	589.5	593
2B-21	240	400	569	572	400	680	586	589.5
2B-22	240	400	569	572	400	680	589.5	593
2C-21	240	400	569	572	240	400	586	589.5
2C-22	240	400	569	572	240	400	589.5	593
3B-11	120	240	566	569	400	680	586	589.5
3B-12	120	240	566	569	400	680	589.5	593
3C-11	120	240	566	569	240	400	586	589.5
3C-12	120	240	566	569	240	400	589.5	593
3B-21	120	240	569	572	400	680	586	589.5
3B-22	120	240	569	572	400	680	589.5	593
3C-21	120	240	569	572	240	400	586	589.5
3C-22	120	240	569	572	240	400	589.5	593

The Luminous Intensity, Iv. tolerance = ±15% ., The Dominant wavelength, Wd. tolerance = ± 1 nm

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℃ 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

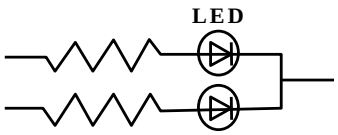
Soldering iron		Wave soldering	
Temperature Soldering time	350℃ Max. 3 sec. Max. (one time only)	Pre-heat Pre-heat time Solder wave Soldering time	100℃ Max. 60 sec. Max. 260℃ Max. 5 sec. Max.

Note: Excessive soldering temperature and/or time might result in deformation of the LED lens or catastrophic failure of the LED.IR reflow is not suitable process for through hole type LED lamp product.

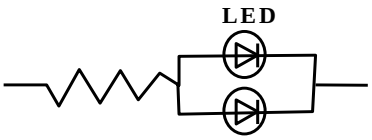
6. Drive Method

An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.

Circuit model A



Circuit model B



(A) Recommended circuit

(B) The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs

7. ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED.

Suggestions to prevent ESD damage:

- Use a conductive wrist band or anti- electrostatic glove when handling these LEDs
- All devices, equipment, and machinery must be properly grounded
- Work tables, storage racks, etc. should be properly grounded
- Use ion blower to neutralize the static charge which might have built up on surface of the LEDs plastic lens as a result of friction between LEDs during storage and handing

8. Reliability Test

Classification	Test Item	Test Condition	Reference Standard
Endurance Test	Operation Life (LT)	Ta = under room temperature IF = per datasheet maximum drive current *Test time = 1000 hrs	MIL-STD-750D:1026 (1995) MIL-STD-883G:1005 (2006)
	High temperature/ High humidity storage (THB)	Ta = 60 °C RH = 90% Test time = 240hrs	MIL-STD-202G:103B (2002) JEITA ED-4701:100 103 (2001)
	High temperature storage	Ta = 105 ± 5℃ Test time = 1000 hrs	MIL-STD-750D:1031 (1995) MIL-STD-883G:1008 (2006) JEITA ED-4701:200 201 (2001)
	Low temperature storage	Ta= -55 ± 5℃ Test time = 1000 hrs	JEITA ED-4701: 200 202 (2001)
Environmental Test	Temperature cycling	100℃ ~ 25℃ ~ -40℃ ~ 25℃ 30 mins 5 mins 30 mins 5 mins 30 cycles	MIL-STD-750D:1051 (1995) MIL-STD-883G:1010 (2006) JEITA ED-4701:100 105 (2001) JESD22-A104C (2005)
	Thermal shock	100 ± 5℃ ~ -30 ± 5℃ 15 mins 15 mins 30 cycles (< 20 secs transfer)	MIL-STD-750D:1056 (1995) MIL-STD-883G:1011 (2006) MIL-STD-202G:107G (2002) JESD22-A106B (2004)
	Solder resistance (no pre-condition)	T.sol = 260 ± 5℃ Dwell time = 10 ± 1 sec 3mm from the base of the epoxy bulb	MIL-STD-750D:2031 (1995) JEITA ED-4701: 300 302 (2001)
	Solderability (no pre-condition)	T.sol = 245 ± 5℃ Dwell time = 5 ± 0.5 sec	MIL-STD-750D:2026 (1995) MIL-STD-883G:2003 (2006) MIL-STD-202G:208H (2002) IPC/EIA J-STD-002 (2004)
	Soldering Iron (no pre-condition)	T.sol = 350 ± 5℃ Dwell time = 3.5 ± 0.5 sec	MIL-STD-202G:208H (2002) JEITA ED-4701: 300 302 (2001)

9. Others

The appearance and specifications of the product may be modified for improvement, without prior notice.