LITEON®
OPTOELECTRONICS

Through Hole Lamp

Product Data Sheet

LTL30EKDFGJ

Spec No.: DS20-2007-0123

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Revision: A

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

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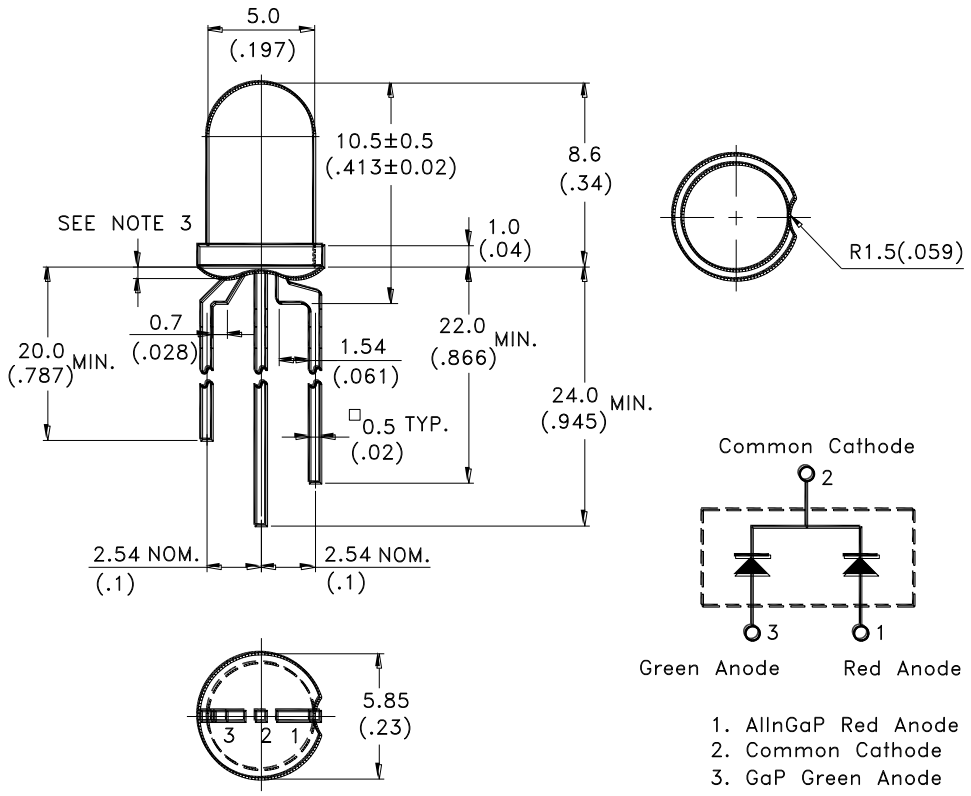
Features

* AllnGaP Red and Gap Green chips are matched for uniform light output.
* T-1 3/4 type package.
* Long life-solid state reliability.
* Low power consumption.
* Pb Free and RoHS compliant

Package Dimensions



Part No.	Lens	Source Color
LTL30EKDFGJ	White Diffused	AllnGaP Red / GaP 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	AllnGaP Red	GaP Green	Unit
Power Dissipation	75	120	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	90	90	mA
Continuous Forward Current	30	30	mA
Derating Linear From 50℃	0.4	0.4	mA/℃
Reverse Voltage	5	5	V
Operating Temperature Range	-55℃ to + 100℃		
Storage Temperature Range	-55℃ to + 100℃		
Lead Soldering Temperature [2.0 mm(.078") From Body]	260℃ for 5 Seconds		

Electrical Optical Characteristics at T_A=25℃

Parameter	Symbol	Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	Red Green	110 30	180 50	310 85	mcd	I_F = 20mA I_F = 20mA Note 1,4
Viewing Angle	$2\theta_{1/2}$	Red Green		30 30		deg	Note 2 (Fig.6)
Peak Emission	λp	Red Green		650 565		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λd	Red Green	634 563	639 569	644 580	nm	Note 3
Spectral Line Half-Width	Δλ	Red Green		20 30		nm	
Forward Voltage	V_F	Red Green		2.0 2.1	2.4 2.6	V	I_F = 20mA
Reverse Current	I_R	Red Green			100	μA	V_R = 5V
Capacitance	C	Red Green		80 35		pF	V_F = 0 , f = 1MHz

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%.

Typical Electrical / Optical Characteristics Curves

(25℃ Ambient Temperature Unless Otherwise Noted)

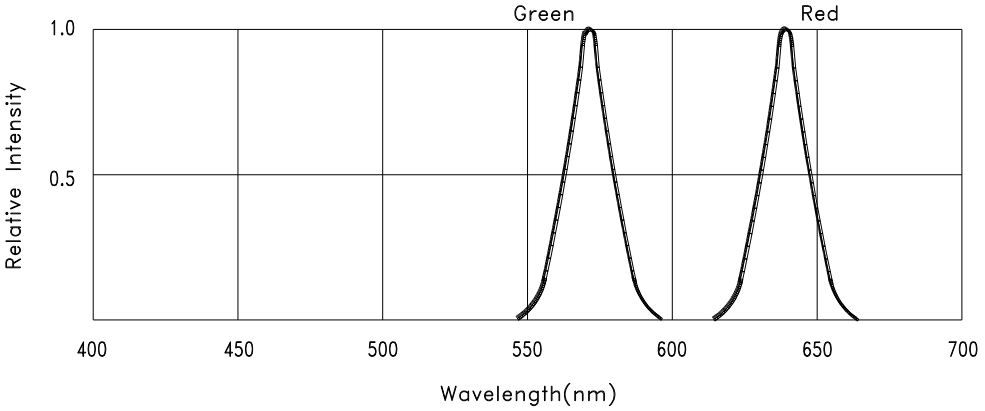


Fig.1 Relative Intensity vs. Wavelength

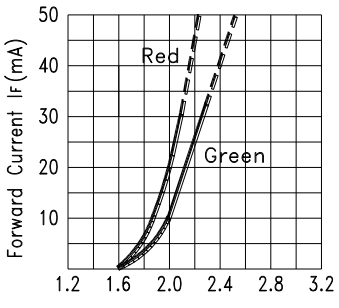


Fig.2 Forward Current vs. Forward Voltage

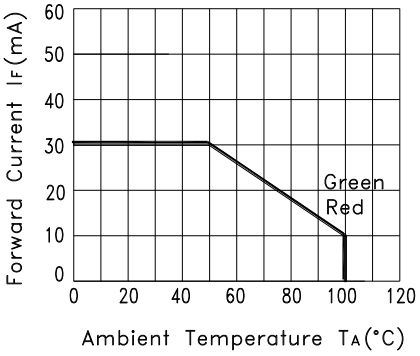


Fig.3 Forward Current Derating Curve

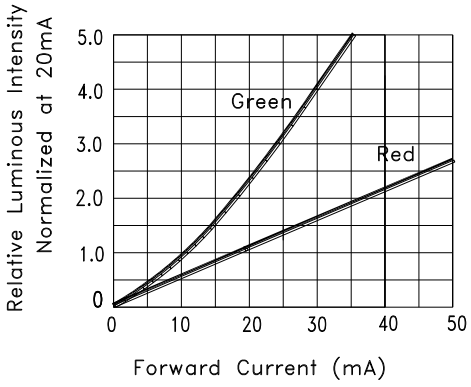


Fig.4 Relative Luminous Intensity vs. Forward Current

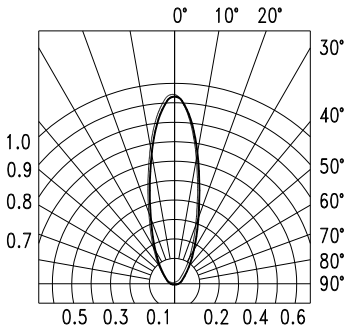


Fig.5 Spatial Distribution

Bin Table Specifications

Luminous Intensity AllnGaP Red Unit : mcd @20mA		
Bin Code	Min.	Max.
F	110	140
G	140	180
H	180	240
J	240	310

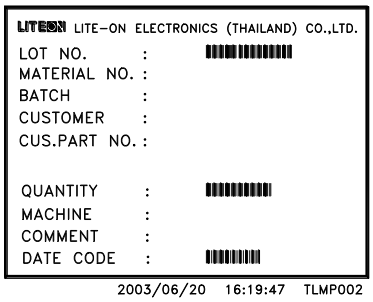
Luminous Intensity GaP Green Unit : mcd @20mA		
Bin Code	Min.	Max.
A	30	38
B	38	50
C	50	65
D	65	85

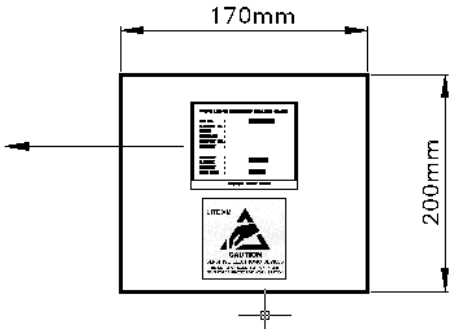
Note: Tolerance of each bin limit is ±15%

Bin Code : X-X (Luminous Intensity RED– Luminous Intensity GREEN)

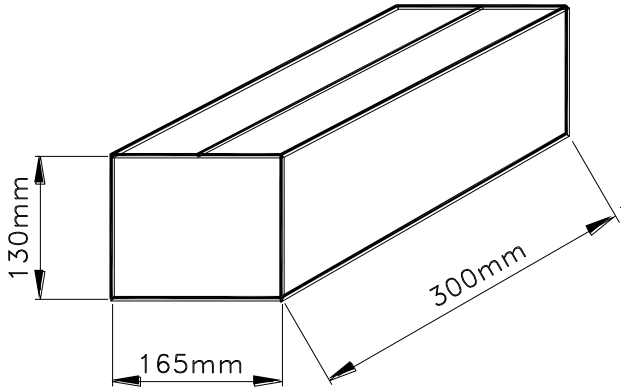
Packing Spec

500 or 250 pcs per packing bag

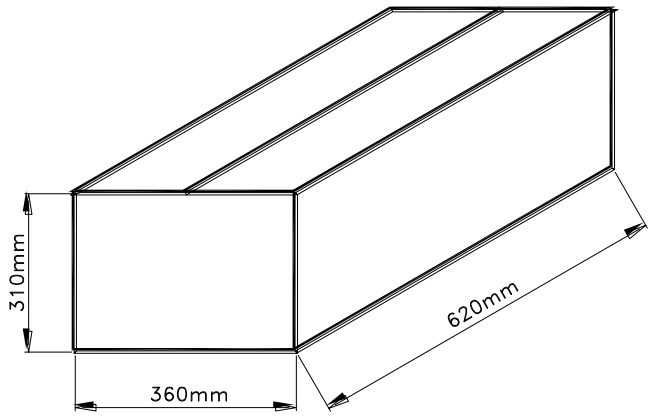




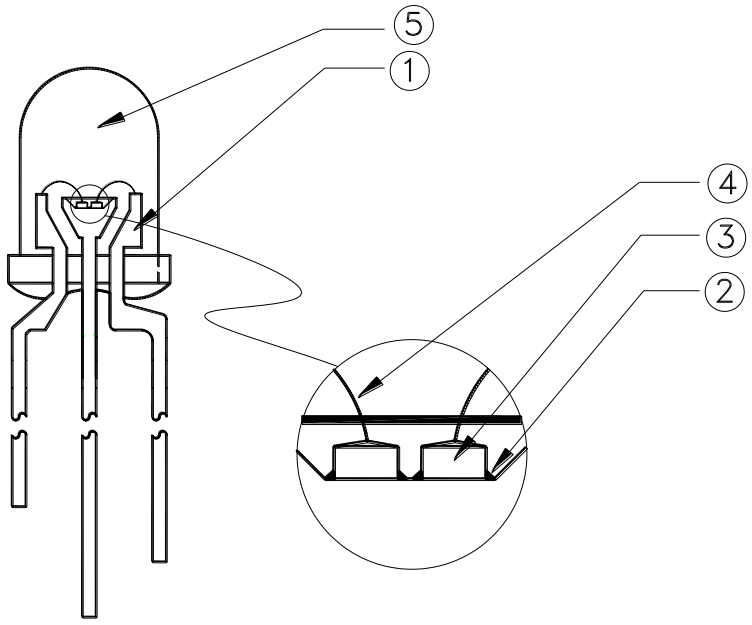
16 packing bags per inner carton
total 8000 pcs per inner carton



8 Inner cartons per outer carton
total 64000 pcs per outer carton
In every shipping lot, only the last pack will be non-full packing



Cross Section & Material List



No.	Items	Material
1	Lead Frame (Taiwan)	Iron /W Copper + Silver Plating / Solder Dip.
	Vendor :	ICHIUN PRECISION INDUSTRY CO.,LTD.
2	Die Bond (Singapore)	Ag Paste
	Vendor :	SMM Bakelite Singapore
3	LED Chip (Taiwan)	AllnGaP Red, GaP Green
	Vendor :	EPISTAR ,OTC
4	Bonding Wire (Singapore)	Au Wire
	Vendor :	SUMITOMO
5	Resin (Taiwan)	Epoxy Resin / Hardener
	Vendor :	ECLAT
6	Product Weight	About 0.36g

CAUTIONS

1. Application

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

2. Storage

The storage ambient for the LEDs should not exceed 30°C temperature or 70% relative humidity.
It is recommended that LEDs out of their original packaging are used within three months.
For extended storage out of their original packaging, it is recommended that the LEDs be stored in a sealed container with appropriate desiccant or in desiccators with nitrogen ambient.

3. Cleaning

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LEDs if necessary.

4. Lead Forming & Assembly

During lead forming, the leads should be bent at a point at least 3mm from the base of LED lens.
Do not use the base of the lead frame as a fulcrum during forming.
Lead forming must be done before soldering, at normal temperature.
During assembly on PCB, use minimum clinch force possible to avoid excessive mechanical stress.

5. Soldering

When soldering, leave a minimum of 2mm clearance from the base of the lens to the soldering point.
Dipping the lens into the solder must be avoided.
Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering conditions :

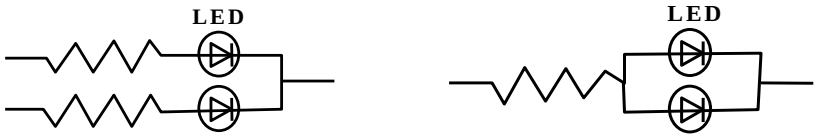
Soldering iron		Wave soldering	
Temperature Soldering time	350 ~ 400℃ Max. 3.2 mm. 3.0 Sce Max. (one time only)	Pre-heat Pre-heat time Solder wave Soldering time	100℃ Max. 60 sec. Max. 260℃ Max. 5 sec. Max.

Note: Excessive soldering temperature and/or time might result in deformation of the LED lens or catastrophic failure of the LED

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. Reliability Test

Classification	Test Item	Test Condition	Reference Standard
Endurance Test	Operation Life	Ta= Under Room Temperature As Per Data Sheet Maximum Rating *Test Time= 1000HRS (-24HRS,+72HRS)	MIL-STD-750D:1026 (1995) MIL-STD-883D:1005 (1991) JIS C 7021:B-1 (1982)
	High Temperature High Humidity Storage	Ta= 65±5°C RH= 90 ～ 95% Test Time= 240HRS±2HRS	MIL-STD-202F: 103B(1980) JIS C 7021 : B-11(1982)
	High Temperature High Humidity Reverse BIAS	Ta= 65±5°C RH= 90 ～ 95% VR=5V Test Time = 500HRS (-24HRS, +48HRS)	JIS C 7021 : B-11(1982)
	High Temperature Storage	Ta= 105±5°C *Test Time= 1000HRS (-24HRS,+72HRS)	MIL-STD-883D:1008 (1991) JIS C 7021:B-10 (1982)
	Low Temperature Storage	Ta= -55±5°C *Test Time=1000HRS (-24HRS,+72HRS)	JIS C 7021:B-12 (1982)
Environmental Test	Temperature Cycling	105°C ～ 25°C ～ -55°C ～ 25°C 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)
	Thermal Shock	105 ± 5°C ～ -55°C ± 5°C 10mins 10mins 10 Cycles	MIL-STD-202F:107D(1980) MIL-STD-750D:1051(1995) MIL-STD-883D:1011 (1991)
	Solder Resistance	T.sol = 260 °C Max. Dwell Time= 5 secs Max. 3 Times dip	MIL-STD-202F:210A(1980) MIL-STD-750D:2031(1995) JIS C 7021: A-1(1982)
	Solderability	T. sol = 230 ± 5°C Dwell Time= 5 ± 1secs	MIL-STD-202F:208D(1980) MIL-STD-750D:2026(1995) MIL-STD-883D:2003(1991) JIS C 7021: A-2(1982)

8. Others

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