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LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

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Data Sheet

Through Hole Lamp LTL2V3EU3J-DL-032A

Through Hole Lamp

LTL2V3EU3J-DL-032A

<u>Rev</u>	Description	By	<u>Date</u>
-001	Update IV bin spec	Papatsara	08/30/2016
-002	Update VF bin spec	Papatsara	10/03/2016
	Above data for PD and Customer track	ing only	
-	OPNC upload	PACHINEEC	02/22/2011
А	OPNC upload	Papatsara	24/01/2017





Through Hole Lamp LTL2V3EU3J-DL-032A

1. Description

5mm round lamp is a popular design with a smooth uniform view angle radiation pattern suitable in Full color signboard, Billboard sign, Message sign and bus sign. High luminous intensity output has a higher emitting efficiency to save power energy. Advanced epoxy technology has a good moisture resistance and UV protection to be used in package, and it can reduce the effect of long term exposure in outdoor environment.

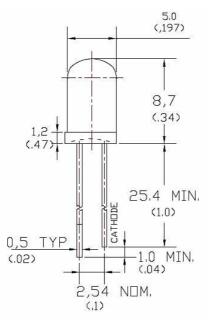
1.1. Features

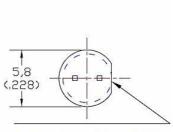
- High Luminous intensity output.
- Low power consumption & High efficiency.
- Superior resistance to moisture
- Good UV inhibitor
- Lead free & RoHS Compliant
- Popular T-1 _{3/4}diameter, Red AllnGaP 625nm Lamp, Water clear package.
- Typical viewing angle 30°.

1.2. Applications

- Video message sign
- Traffic sign
- Message sign
- Bus sign

2. Outline Dimensions





FLAT DENOTES CATHODE

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. Specifications are subject to change without notice.





Through Hole Lamp LTL2V3EU3J-DL-032A

3. Absolute Maximum Ratings at TA=25 $^\circ\!\mathrm{C}$

Parameter	Maximum Rating	Unit		
Power Dissipation	110	mW		
Peak Forward Current				
(Duty Cycle \leq 1/10, Pulse Width \leq 10ms)	150	mA		
DC Forward Current	50	mA		
Derating Linear From 50 $^\circ\!\mathrm{C}$	0.67	mA/°C		
Reverse Voltage	5	V		
Operating Temperature Range	-40℃ to + 100%	-40℃ to + 100℃		
Storage Temperature Range	-55℃ to + 1009	-55℃ to + 100℃		
Lead Soldering Temperature				
[2.0mm (.079") From Body]	260℃ for 5 Seco	260°C for 5 Seconds.		

4. Electrica I / Optical Characteristics at TA=25℃

Parameter	Symbol	Min.	Тур.	Max.	Unit	Test Condition
Luminous Intensity	IV	2500	4000	5500	mcd	IF = 20mA Note 1,5
Viewing Angle	201/2		30		deg	Note 2,7 (Fig.6)
Peak Emission Wavelength	λP		626		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λd	619	625	630	nm	Note 4
Spectral Line Half-Width	Δλ		20		nm	
Forward Voltage	VF	1.9	2.0	2.2	V	IF = 20mA
Reverse Current	IR			10	μA	VR = 5V

NOTE:

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

2. $\theta1/2$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

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

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

5. Iv guarantee must be included with $\pm 15\%$ testing tolerance.

6. Reverse voltage (VR) condition is applied for IR test only. The device is not designed for reverse operation.

7. View angle measurement is ± 2 degree tolerance.

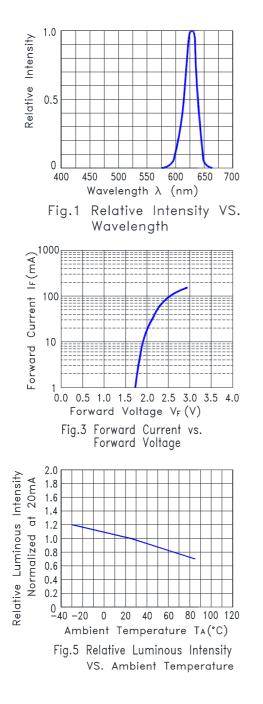


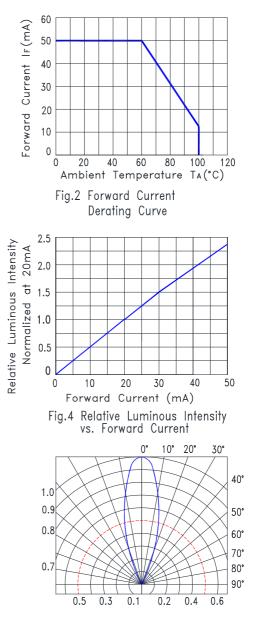


Through Hole Lamp LTL2V3EU3J-DL-032A

5. Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)







Part No. : LTL2V3EU3J-DL-032A BNS-OD-FC002/A4

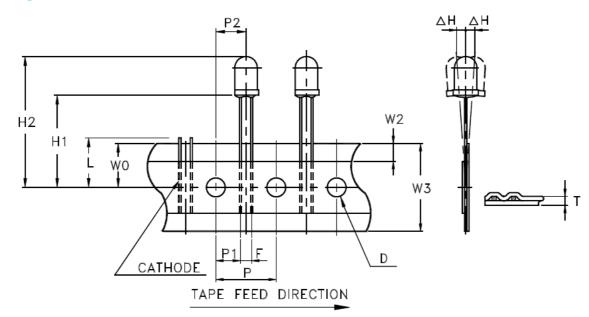


Through Hole Lamp LTL2V3EU3J-DL-032A

6. Taping Features

- * Compatible with radial lead automatic insertion equipment.
- * Most radial lead plastic lead lamps available packaged in tape and folding.
- * 2.54mm (0.1") straight lead spacing available.
- * Folding packaging simplifies handling and testing.
- * Reel packaging is available by removing suffix "A" on option.

Package Dimensions



		Specification			
Item	Symbol	Minimum		Maximum	
		mm	inch	mm	inch
Tape Feed Hole Diameter	D	3.8	0.149	4.2	0.165
Component Lead Pitch	F	2.3	0.091	3.0	0.118
Front to Rear Deflection	∆H			2.0	0.078
Feed Hole to Bottom of Component	H1	20.0	0.787	21.0	0.827
Feed Hole to Overall Component Height	H2	28.4	1.118	30.0	1.181
Lead Length After Component Height	L	V	VO	11.0	0.433
Feed Hole Pitch	Р	12.4	0.488	13.0	0.511
Lead Location	P1	4.4	0.173	5.8	0.228
Center of Component Location	P2	5.05	0.198	7.65	0.301
Total Tape Thickness	Т			0.90	0.035
Feed Hole Location	WO	8.5	0.334	9.75	0.384
Adhesive Tape Position	W2	0	0	3.0	0.118
Tape Width	W3	17.5	0.689	19.0	0.748

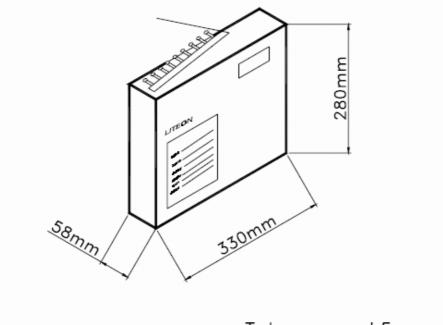




Through Hole Lamp LTL2V3EU3J-DL-032A

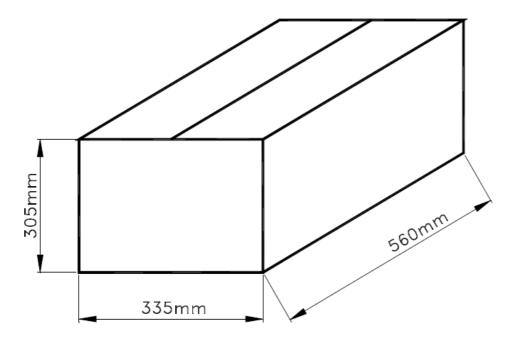
7. Packing Spec.

Total 2,000 pcs per inner carton



Tolerance: ±5mm

10 Inner cartons per outer carton Total 20,000 pcs per outer carton In every shipping lot, only the last pack will be non-full packing





6/1



Through Hole Lamp LTL2V3EU3J-DL-032A

8. Bin Table Specification

Luminous Intensity Iv (mcd) IF@20mA					
Bin Code	Min.	Max.			
Т	2500	3200			
U	3200	4200			
V	4200	5500			

Note: Tolerance of each bin limit is ±15%

Forward Voltage Vf Unit : V @20mA					
Bin Code	Min	Мах			
2	1.9	2.0			
3	2.0	2.1			
4	2.1	2.2			

Note: Tolerance of each bin limit is ±0.1V





Through Hole Lamp LTL2V3EU3J-DL-032A

9. CAUTIONS

9.1. Application

This LED lamp is good for application of indoor and outdoor sign, also ordinary electronic equipment.

9.2. 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.

9.3. Cleaning

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

9.4. 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.

9.5. 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:

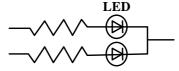
	Soldering iron	Wave soldering		
Temperature Soldering time	350℃ Max. 3 seconds Max. (one time only)	Pre-heat Pre-heat time Solder wave	100℃ Max. 60 seconds Max. 260℃ Max.	
Position	No closer than 2mm from the base of the epoxy bulb	Soldering time Dipping Position	5 seconds Max. No lower than 2mm from the base of the epoxy bulb	

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.

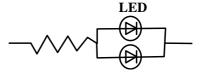
9.6. Drive Method

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.



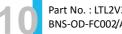


Circuit model (B)



(A) Recommended circuit

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





Through Hole Lamp LTL2V3EU3J-DL-032A

9.7. 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

Suggested checking list:

Training and Certification

9.7.1.1. Everyone working in a static-safe area is ESD-certified?

9.7.1.2. Training records kept and re-certification dates monitored?

Static-Safe Workstation & Work Areas

9.7.2.1. Static-safe workstation or work-areas have ESD signs?

- 9.7.2.2. All surfaces and objects at all static-safe workstation and within 1 ft measure less than 100V?
- 9.7.2.3. All ionizer activated, positioned towards the units?
- 9.7.2.4. Each work surface mats grounding is good?

Personnel Grounding

- 9.7.3.1. Every person (including visitors) handling ESD sensitive (ESDS) items wear wrist strap, heel strap or conductive shoes with conductive flooring?
- 9.7.3.1. If conductive footwear used, conductive flooring also present where operator stand or walk?
- 9.7.3.2. Garments, hairs or anything closer than 1 ft to ESD items measure less than 100V*?
- 9.7.3.3. Every wrist strap or heel strap/conductive shoes checked daily and result recorded for all DLs?
- 9.7.3.4. All wrist strap or heel strap checkers calibration up to date?

Note: *50V for Blue LED.

Device Handling

9.7.4.1. Every ESDS items identified by EIA-471 labels on item or packaging?

- 9.7.4.2. All ESDS items completely inside properly closed static-shielding containers when not at static-safe workstation?
- 9.7.4.3. No static charge generators (e.g. plastics) inside shielding containers with ESDS items?
- 9.7.4.4. All flexible conductive and dissipative package materials inspected before reuse or recycle?

Others

- 9.7.5.1. Audit result reported to entity ESD control coordinator?
- 9.7.5.2. Corrective action from previous audits completed?
- 9.7.5.3. Are audit records complete and on file?





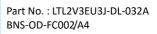
Through Hole Lamp LTL2V3EU3J-DL-032A

10. Reliability Test

Classification	Test Item	Test Condition	Sample Size	Reference Standard
	Operation Life	Ta = 25℃ IF = 50mA Test Time= 1000hrs	45 PCS (CL=90%; LTPD=5%)	MIL-STD-750D:1026 (1995) MIL-STD-883G:1005 (2006)
	High Temperature High Humidity storage (THB)	Ta = 85℃ RH = 85% Test Time= 1000hrs	45 PCS (CL=90%; LTPD=5%)	MIL-STD-202G:103B (2002) JEITA ED-4701:100 103 (2001)
Endurance	Steady state Operation Life of High Humidity Heat	Ta = 85℃, RH= 85 % IF = 20mA Test Time= 500hrs	76 PCS (CL=90%; LTPD=3%)	JESD22-A101C (2009)
Test	Low Temperature Operation Life of	Ta = -30℃ IF = 30mA Test Time= 1000hrs	45 PCS (CL=90%; LTPD=5%)	
	High Temperature Storage	Ta= 105 ± 5℃ Test Time= 1000hrs	45 PCS (CL=90%; LTPD=5%)	MIL-STD-750D:1031 (1995) MIL-STD-883G:1008 (2006) JEITA ED-4701:200 201 (2001)
	Low Temperature Storage	Ta= -55 ± 5℃ Test Time= 1000hrs	45 PCS (CL=90%; LTPD=5%)	JEITA ED-4701:200 202 (2001)
	Temperature Cycling	100° $\sim 25^{\circ}$ $\sim -40^{\circ}$ $\sim 25^{\circ}$ 30mins 5mins 30mins 5mins Test time: 200 Cycles	76 PCS (CL=90%; LTPD=3%)	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℃ 15mins 15mins Test time: 200 Cycles	76 PCS (CL=90%; LTPD=3%)	MIL-STD-750D:1056 (1995) MIL-STD-883G:1011 (2006) MIL-STD-202G:107G (2002) JESD22-A106B (2004)
Environmental Test	Solder Resistance	T.sol = 260 ± 5 °C Dwell Time= 10 ± 1 seconds 3mm from the base of the epoxy bulb	11 PCS (CL=90%; LTPD=18.9%)	MIL-STD-750D:2031(1995) JEITA ED-4701: 300 302 (2001)
	Solderability	T. sol = 245 ± 5 °C Dwell Time= 5 ± 0.5 seconds (Lead Free Solder, Coverage $\ge 95\%$ of the dipped surface)	11 PCS (CL=90%; LTPD=18.9%)	MIL-STD-750D:2026 (1995) MIL-STD-883G:2003 (2006) MIL-STD-202G:208H (2002) IPC/EIA J-STD-002 (2004)
	Soldering Iron	T. sol = $350 \pm 5^{\circ}$ Dwell Time= 3.5 ± 0.5 seconds	11 PCS (CL=90%; LTPD=18.9%)	MIL-STD-202G:208H (2002) JEITA ED-4701:300 302 (2001)

11. Others

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



10/1