



Through Hole Lamp
Product Data Sheet
LTL30SETG3JA-132A

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LITE-ON DCC

RELEASE

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Through-Hole Lamp
LTL30SETG3JA-132A

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<u>Rev</u>	<u>Description</u>	<u>By</u>	<u>Date</u>
Above data for PD and Customer tracking only			
-	Upload OPNC	Craig	09/03/2014
A	Update IV Spec, & Bin Table Spec(RDR-20170287)	Henry	03/03/2017

1. Description

Through-Hole Lamp LTL30SETG3JA-132A

6.2mm round Lamp is a popular design with a uniformed view angle radiation pattern suitable in Traffic 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.

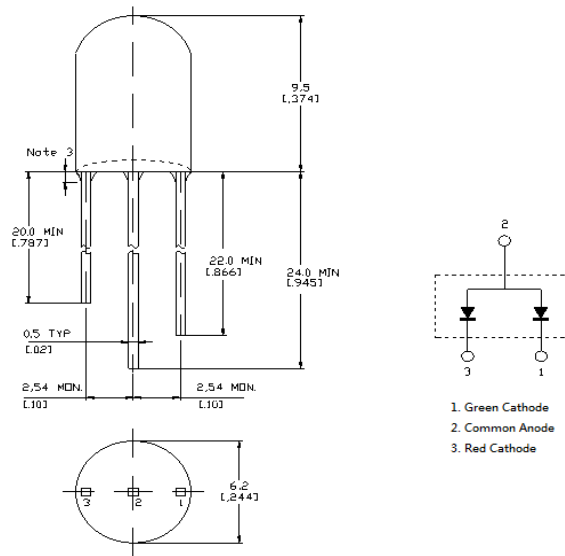
1.1. Features

- High Luminous intensity output.
- Low power consumption & High efficiency.
- Superior resistance to moisture
- Good UV inhibitor
- Lead free & RoHS Compliant
- 6.2mm round package, with AlGaInP Red 625nm and InGaN green 530nm. White diffused.
- Chip size: Green: 14mil x11mil, 154mil² area, Red: 12mil x12mil, 144mil² area.
- Minimum viewing angle 30°, ±2 deg. tolerance

1.2. Applications

- Traffic sign
- Message sign

2. Outline Dimensions



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.

3. Absolute Maximum Ratings at TA=25°C

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Parameter	Maximum Rating(AlInGaP Red/InGaN Green)		Unit
Power Dissipation	125	112	mW
Peak Forward Current (Duty Cycle \leq 1/10, Pulse Width \leq 10ms)	100	100	mA
DC Forward Current	50	30	mA
Derating Linear From 50°C	0.84	0.36	mA/°C
Operating Temperature Range	-30°C to + 85°C		
Storage Temperature Range	-40°C to + 100°C		
Lead Soldering Temperature [2.0mm (.079") From Body]	260°C for 5 Seconds Max.		

4. Electrical / Optical Characteristics at TA=25°C

Parameter	Symbol	Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	Red Green	1500 5300		4200 11000	mcd	IF = 20mA Note 1,5
Viewing Angle	$\theta_{1/2}$	Red Green	30 30			deg	Note 2,7 (Fig.6)
Peak Emission Wavelength	λ_P	Red Green		627 525		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λ_d	Red Green	620 525		630 535	nm	Note 4
Spectral Line Half-Width	$\Delta\lambda$	Red Green		17 35		nm	
Forward Voltage	VF	Red Green	1.5	3.0	2.5 3.5	V	IF = 20mA
Reverse Current	IR	Red Green			100	μ A	VR = 5V

NOTE:

- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
- $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
- Iv classification code is marked on each packing bag.
- The dominant wavelength, λ_d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
- Iv guarantee must be included with $\pm 15\%$ testing tolerance.
- Reverse voltage (VR) condition is applied for IR test only. The device is not designed for reverse operation.
- View angle measurement is ± 2 degree tolerance.

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5. Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

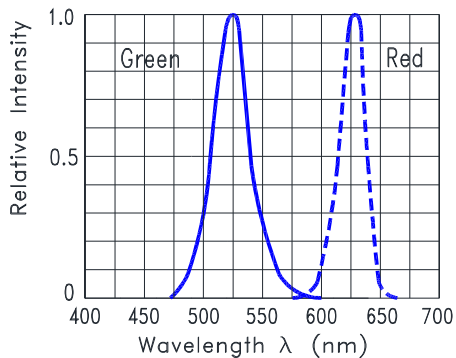


Fig.1 Relative Intensity VS. Wavelength

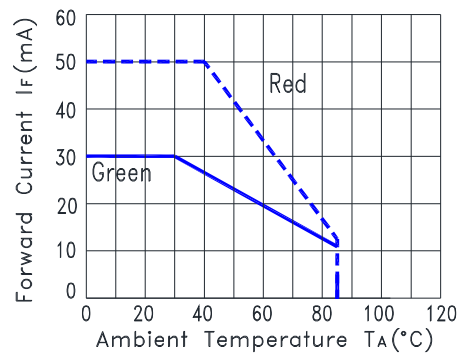


Fig.2 Forward Current Derating Curve

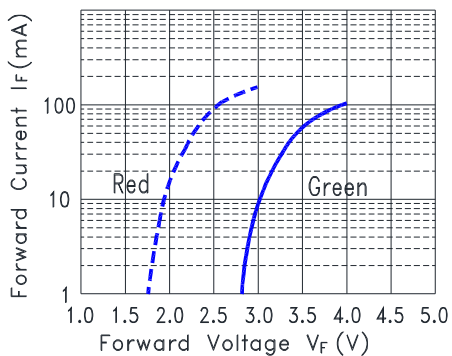


Fig.3 Forward Current vs. Forward Voltage

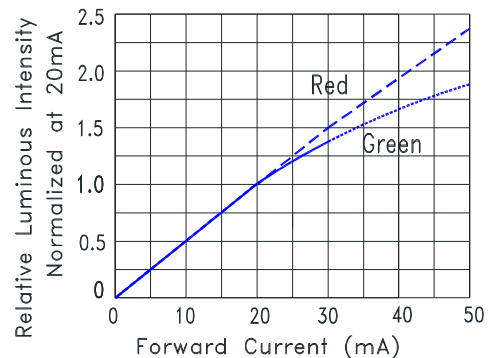


Fig.4 Relative Luminous Intensity vs. Forward Current

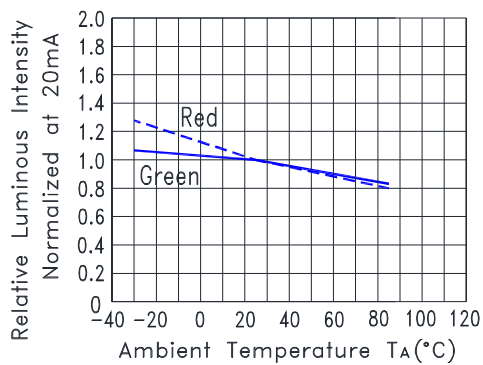


Fig.5 Relative Luminous Intensity VS. Ambient Temperature

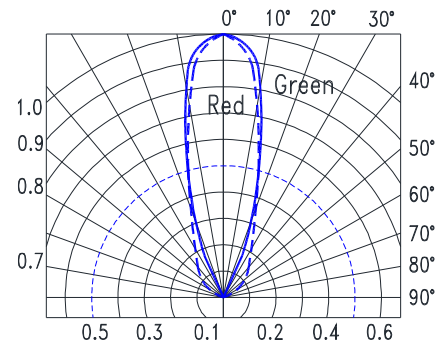


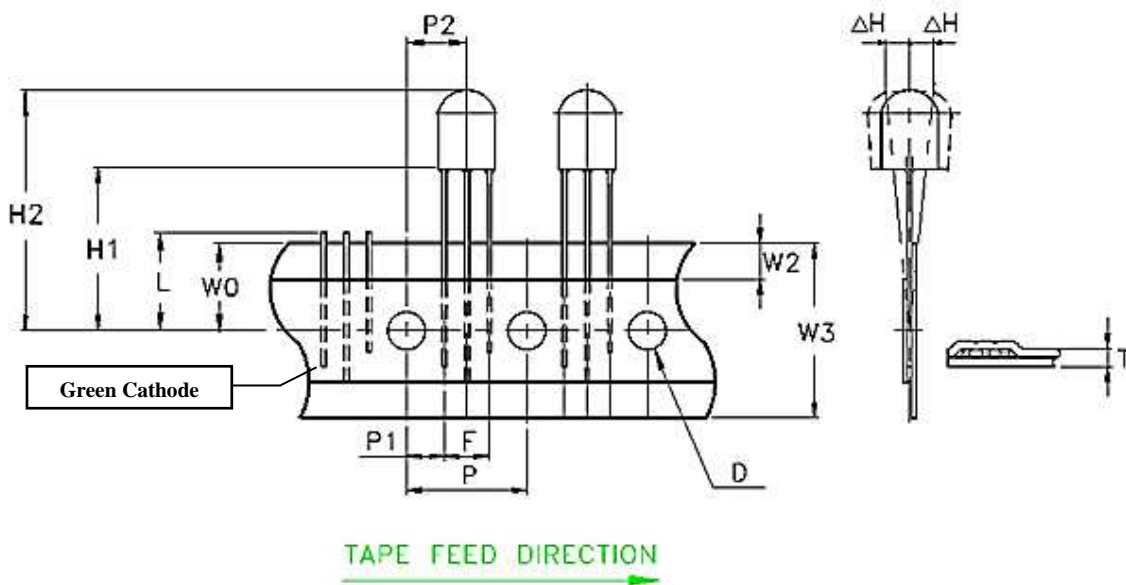
Fig.6 Spatial Distribution

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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

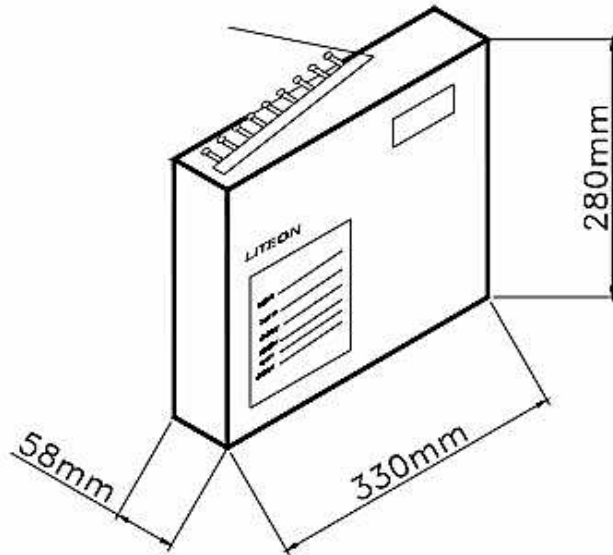


Item	Symbol	Specification			
		Minimum		Maximum	
		mm	inch	mm	inch
Tape Feed Hole Diameter	D	3.8	0.149	4.2	0.165
Component Lead Pitch	F	4.8	0.189	5.8	0.228
Front to Rear Deflection	ΔH	--	--	2.0	0.078
Feed Hole to Bottom of Component	H1	20.0	0.787	21.0	0.827
Feed Hole to Overall Component Height	H2	28.4	1.228	30.0	1.181
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	4.5	0.177
Center of Component Location	P2	5.05	0.198	7.65	0.301
Total Tape Thickness	T	--	--	0.90	0.035
Feed Hole Location	W0	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

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7. Packing Spec.

Total 2,000pcs per inner carton

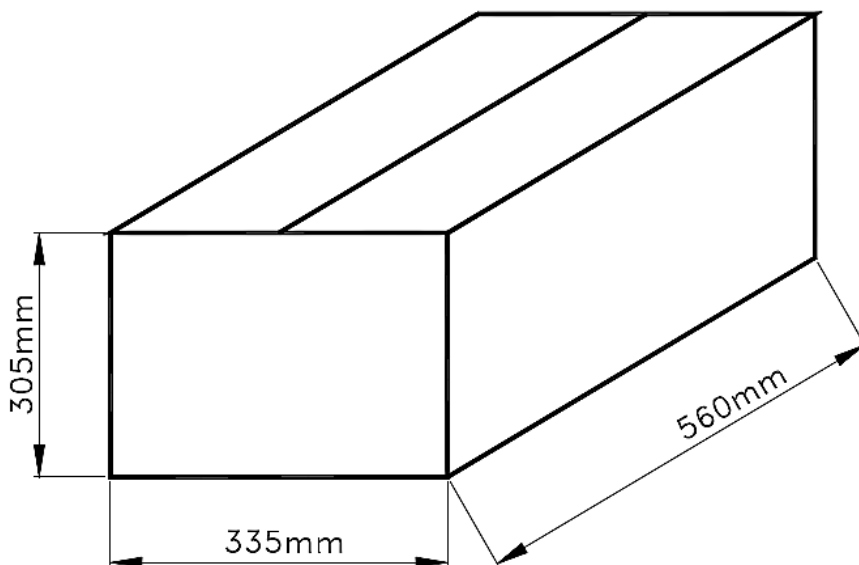


Tolerance: $\pm 5\text{mm}$

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



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8. Bin Table Specification

Iv Spec. Table Specification

Luminous Intensity Iv (mcd) IF@20mA				
Bin	Green		Red	
Code	Min.	Max.	Min	Max
WR	5300	6900	1500	1900
WS	5300	6900	1900	2500
WT	5300	6900	2500	3200
WU	5300	6900	3200	4200
XR	6900	8800	1500	1900
XS	6900	8800	1900	2500
XT	6900	8800	2500	3200
XU	6900	8800	3200	4200
YR	8800	11000	1500	1900
YS	8800	11000	1900	2500
YT	8800	11000	2500	3200
YU	8800	11000	3200	4200

Note: Tolerance of each bin limit is ±15%

Hue Spec. Table Specification

Dominant Wavelength Unit : nm @20mA		
Bin Code	Min	Max
G1	525	530
G2	530	535

Note: Tolerance of each bin limit is ±1nm

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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 3mm 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:

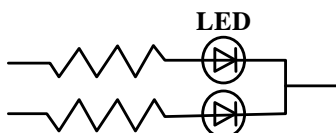
Soldering iron		Wave soldering	
Temperature	350°C Max.	Pre-heat	100°C Max.
Soldering time	3 seconds Max. (one time only)	Pre-heat time	60 seconds Max.
Position	No closer than 2mm from the base of the epoxy bulb	Solder wave	260°C Max.
		Soldering time	5 seconds Max.
		Dipping Position	No lower than 2mm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

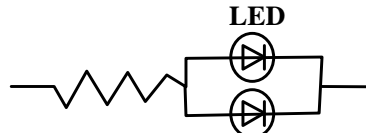
An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.

Circuit model (A)



(A) Recommended circuit

Circuit model (B)



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

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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?

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10. Reliability Test

Classification	Test Item	Test Condition	Sample Size	Reference Standard
Endurance Test	Operation Life	Ta = 25°C IF = 30mA 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°C RH = 85% Test Time= 1000hrs	45 PCS (CL=90%; LTPD=5%)	MIL-STD-202G:103B (2002) JEITA ED-4701:100 103 (2001)
	Steady state Operation Life of High Humidity Heat	Ta = 85°C, RH= 85 % IF = 15mA Test Time= 500hrs	76 PCS (CL=90%; LTPD=3%)	JESD22-A101C (2009)
	Low Temperature Operation Life of	Ta = -30°C IF = 30mA Test Time= 1000hrs	45 PCS (CL=90%; LTPD=5%)	
	High Temperature Storage	Ta= 105 ± 5°C 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°C Test Time= 1000hrs	45 PCS (CL=90%; LTPD=5%)	JEITA ED-4701:200 202 (2001)
Environmental Test	Temperature Cycling	100°C ~ 25°C ~ -40°C ~ 25°C 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°C ~ -30°C ± 5°C 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)
	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 ≥ 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 ± 5°C 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.