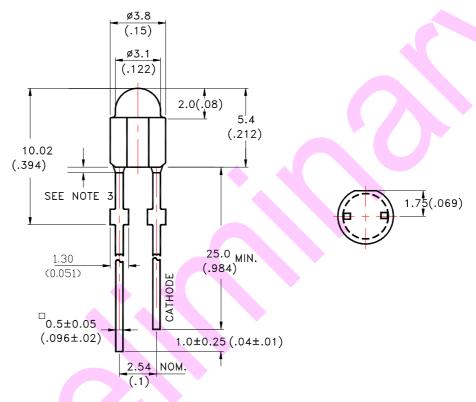


Features

- * Lead (Pb) free product RoHS compliant.
- * High luminous intensity output.
- * Low power consumption.
- * High efficiency.
- * Versatile mounting on P.C. Board or panel.
- * I.C. Compatible/low current requirement.
- * Popular T-1 diameter package.

Package Dimensions



Part No.	Lens	Source Color
LTL17KTGX3KS-032A	Green Diffused	InGaN Green

Notes:

- 1. All dimensions are in millimeters (inches).
- 2. Tolerance is ± 0.25 mm(.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.

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Absolute Maximum Ratings at TA=25°C

Parameter	Maximum Rating	Unit
Power Dissipation	105	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	100	mA
Continuous Forward Current	30	mA
Derating Linear From 50°C	0.43	mA/°C
Operating Temperature Range	-30°C to + 85°C	
Storage Temperature Range	-40°C to + 100°C	
Lead Soldering Temperature [2 mm(.078") From Body]	260°C for 5 Seconds Max.	

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Electrical / Optical Characteristics at Ta=25°C

Parameter	Symbol	Min.	Тур.	Max.	Unit	Test Condition
Luminous Intensity	Iv	7200	19000	-	mcd	IF = 20mA Note 1
Viewing Angle	2θ1/2	-	30	-	deg	Note 2 (Fig.5)
Peak Emission Wavelength	λР	-	526	-	nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λd	524	ı	536	nm	Note 4
Spectral Line Half-Width	Δλ	-	35		nm	
Forward Voltage	V_{F}	2.75	-	3.5	V	I _F = 20mA
Reverse Current	I_R	-	-	100	μΑ	$V_R = 5V$, Note 6

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. 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. The Iv guarantee should be added $\pm 15\%$.
- 6. Reverse voltage (V_R) condition is applied for IR test only. The device is not designed for reverse operation.

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Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

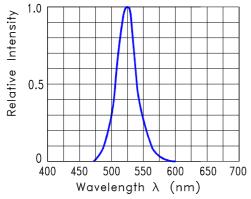


Fig.1 Relative Intensity VS. Wavelength

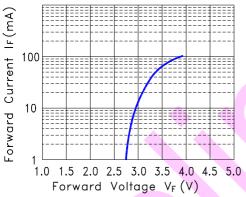


Fig.3 Forward Current vs. Forward Voltage

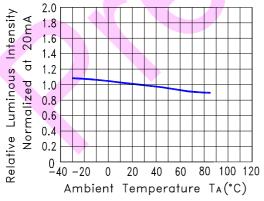


Fig.5 Relative Luminous Intensity VS. Ambient Temperature

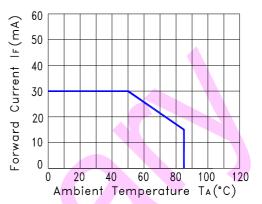


Fig.2 Forward Current
Derating Curve

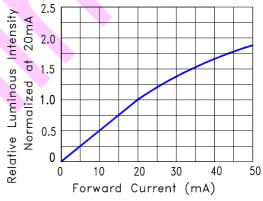


Fig.4 Relative Luminous Intensity vs. Forward Current

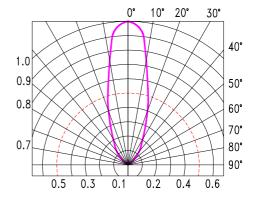


Fig.6 Spatial Distribution

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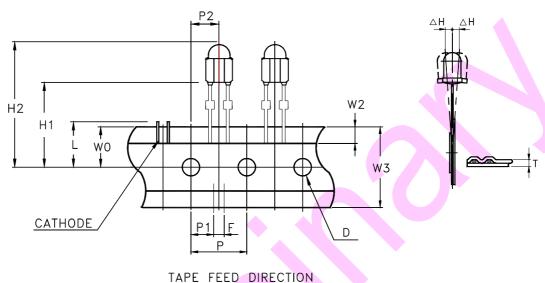


Features

- * 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

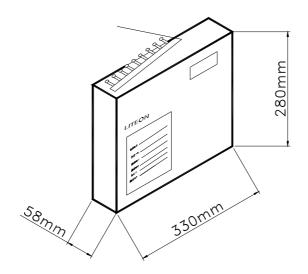


		Specification				
Item	Symbol	Mini	Minimum		Maximum	
		mm	inch	mm	inch	
Tape Feed Hole Diameter	D	3.8	0.149	4.2	0.165	
Component Lead Pitch	F	2.3	0.091	3.0	0.118	
Front to Rear Deflection	ΔН			2.0	0.079	
Feed Hole to Bottom of Component	H1	20.0	0.787	21.0	0.827	
Feed Hole to Overall Component Height	H2	25.6	1.007	27.2	1.071	
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	4.4	0.173	5.8	0.228	
Center of Component Location	P2	5.05	0.199	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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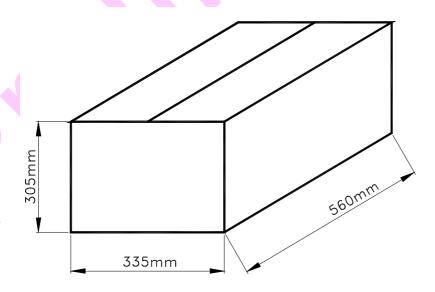
Packing Spec

2000 pcs per inner carton



Tolerance: ±5mm

10 Inner cartons per outer carton total 20000 pcs per outer carton In every shipping lot, only the last pack will be non-full packing



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Bin Table Specification

Luminous Int	ensity Unit	mcd @20mA
Bin Code	Min.	Max.
X	7200	9300
Y	9300	12000
Z	12000	16000
1	16000	21000

Note: Tolerance of each bin limit is $\pm 15\%$

Hue Spec. Table Specification. Dominant Wavelength \(\lambda \text{(nm) IF@20mA} \)

Bin Code	Min.	Max.
G11	524	528
G12	528	532
G13	532	536

Note: Tolerance of each bin limit is ± 1 nm

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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°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. 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.

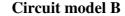
Part No.: LTL17KTGX3KS-032A	Page:	8	of	11
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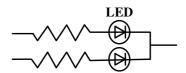


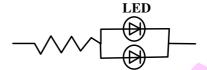
6. Drive Method

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
- (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

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Suggested checking list:

Training and Certification

- 1. Everyone working in a static-safe area is ESD-certified?
- 2. Training records kept and re-certification dates monitored?

Static-Safe Workstation & Work Areas

- 1. Static-safe workstation or work-areas have ESD signs?
- 2. All surfaces and objects at all static-safe workstation and within 1 ft measure less than 100V?
- 3. All ionizer activated, positioned towards the units?
- 4. Each work surface mats grounding is good?

Personnel Grounding

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

 Note: *50V for Blue LED.

Device Handling

- 1. Every ESDS items identified by EIA-471 labels on item or packaging?
 - 2. All ESDS items completely inside properly closed static-shielding containers when not at static-safe workstation?
- 3. No static charge generators (e.g. plastics) inside shielding containers with ESDS items?
- 4. All flexible conductive and dissipative package materials inspected before reuse or recycle?

Others

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

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LITEON ** LITE-ON TECHNOLOGY CORPORATION

Property of Lite-On Only

Classification	Test Item	Test Condition	Sample Size	Reference Standard
		Ta = 25°C	45 PCS	MIL-STD-750D:1026 (1995)
	Operation Life	IF = 30mA	(CL=90%;	MIL-STD-883G:1005 (2006)
		*Test Time= 1000hrs	LTPD=5%)	WIL-31D-883G.1003 (2006)
	High Temperature/	Ta = 85°C	45 PCS	MIL-STD-202G:103B (2002)
	High Humidity storage (THB)	RH = 85% *Test Time= 500hrs	(CL=90%; LTPD=5%)	JEITA ED-4701:100 103 (2001)
	Steady state	Ta = 85°C, RH= 85 %	76 PCS	
	Operation Life of	IF = 10mA	(CL=90%;	JESD22-A101C (2009)
Endurance	High Humidity Heat	*Test Time= 500hrs	LTPD=3%)	
Test	Low Temperature	Ta = -30°C, IF = 30mA	45 PCS	
	Operation Life	*Test Time= 1000hrs	(CL=90%; LTPD=5%)	
			45 PCS	MIL-STD-750D:1031 (1995)
	High Temperature	Ta= 105 ± 5°C	(CL=90%;	MIL-STD-883G:1008 (2006)
	Storage	*Test Time= 1000hrs	LTPD=5%)	JEITA ED-4701:200 201 (2001
	Low Temperature	Ta= -55 ± 5°C	45 PCS	
	Storage	*Test Time= 1000hrs	(CL=90%; LTPD=5%)	JEITA ED-4701:200 202 (2001
		100°C ∼ 25°C ∼ -40°C ∼ 25°C		MIL-STD-750D:1051 (1995)
	Temperature	30mins 5mins 30mins 5mins	76 PCS	MIL-STD-883G:1010 (2006)
	Cycling	*Test time: 200 Cycles	(CL=90%; LTPD=3%)	JEITA ED-4701:100 105 (2001
		rest time. 200 Gycles		JESD22-A104C (2005)
		100 ± 5°C ∼ -30°C ± 5°C	70 DOC	MIL-STD-750D:1056 (1995)
	Thermal	15mins ~ 15mins	76 PCS	MIL-STD-883G:1011 (2006)
	Shock	*Test time: 200 Cycles	(CL=90%; LTPD=3%)	MIL-STD-202G:107G (2002)
		(<20 secs transfer)		JESD22-A106B (2004)
Environmental	Solder	T.sol = 260 ± 5°C	11 PCS	MIL-STD-750D:2031(1995)
Test	Resistance	Dwell Time= 10±1 seconds	(CL=90%;	JEITA ED-4701: 300 302 (200
	1 lesistarioe	2mm from the bace of the enexy built	I TPD=18.9%)	ULITA LD-4701. 300 302 (200

Λ	$\Delta 1$
u	()thers

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

3mm from the base of the epoxy buib

(Lead Free Solder, Coverage ≥95% of

Dwell Time= 5 ± 0.5 seconds

T. sol = $245 \pm 5^{\circ}$ C

the dipped surface)

T. sol = 350 ± 5 °C

11 PCS

11 PCS

D=18.9%)

(CL=90%;

LTPD=18.9%)

(CL=90%;LTP

MIL-STD-750D:2026 (1995)

MIL-STD-883G:2003 (2006)

MIL-STD-202G:208H (2002)

IPC/EIA J-STD-002 (2004)

MIL-STD-202G:208H (2002)

JEITA ED-4701:300 302 (2001)

Part No.: LTL17KTGX3KS-032A Page: 11 of 11

Dwell Time= 3.5 ± 0.5 seconds

Solder ability

Soldering Iron