



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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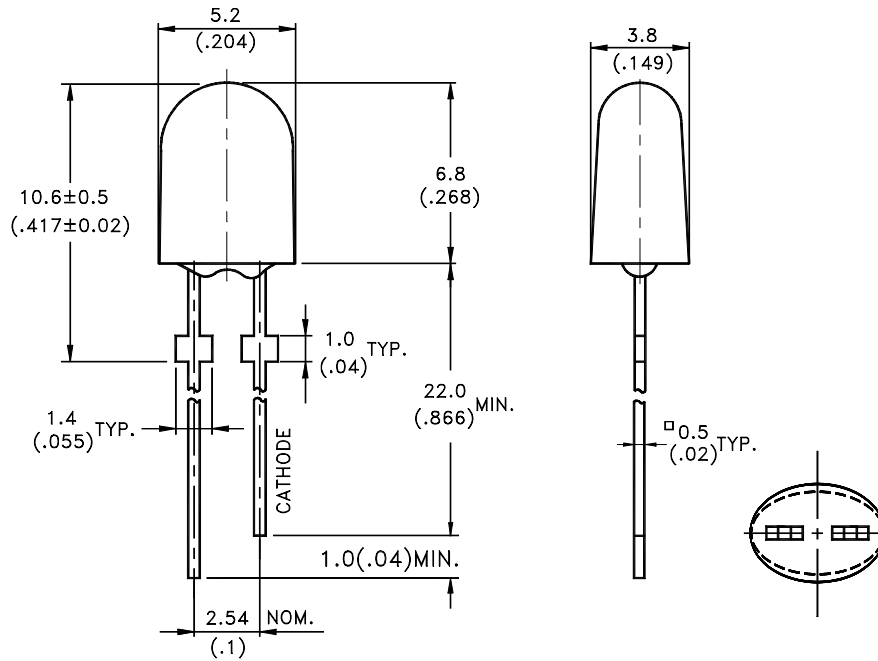
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Features

- \* High Luminous intensity output.
- \* Low power consumption.
- \* High efficiency.
- \* Wide Viewing Angle  
Major Axis 100° / Minor Axis 40°
- \* Versatile mounting on P.C. board or panel.
- \* I.C. Compatible/low current requirements.

## Package Dimensions



Part No.	Lens	Source Color
LTL5H3SRKS	Water Clear	AlInGaP Red

### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm(.010") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.



# LITE-ON TECHNOLOGY CORPORATION

Property of Lite-On Only

## Absolute Maximum Ratings at $T_A=25^{\circ}\text{C}$

Parameter	Maximum Rating	Unit
Power Dissipation	130	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	100	mA
Continuous Forward Current	50	mA
Derating Linear From $50^{\circ}\text{C}$	0.6	mA/ $^{\circ}\text{C}$
Reverse Voltage	5	V
Operating Temperature Range	$-40^{\circ}\text{C}$ to $+100^{\circ}\text{C}$	
Storage Temperature Range	$-55^{\circ}\text{C}$ to $+100^{\circ}\text{C}$	
Lead Soldering Temperature [1.6mm(.063") From Body]	260 $^{\circ}\text{C}$ for 5 Seconds	

## Electrical / Optical Characteristics at T<sub>A</sub>=25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	I <sub>v</sub>	400	880		mcd	I <sub>F</sub> = 20mA Note 1,5
Viewing Angle	2θ <sub>1/2</sub>		100 / 40		deg	Note 2 (Fig.5)
Peak Emission Wavelength	λ <sub>P</sub>		639		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λ <sub>d</sub>		630		nm	Note 4
Spectral Line Half-Width	Δλ		17		nm	
Forward Voltage	V <sub>F</sub>		2.2	2.6	V	I <sub>F</sub> = 20mA
Reverse Current	I <sub>R</sub>			100	μA	V <sub>R</sub> = 5V
Capacitance	C		40		pF	V <sub>F</sub> = 0, f = 1MHz

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

2. θ<sub>1/2</sub> is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

3. I<sub>v</sub> classification code is marked on each packing bag.

4. The dominant wavelength, λ<sub>d</sub> is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

5. The I<sub>v</sub> guarantee should be added ± 15% .

## Typical Electrical / Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

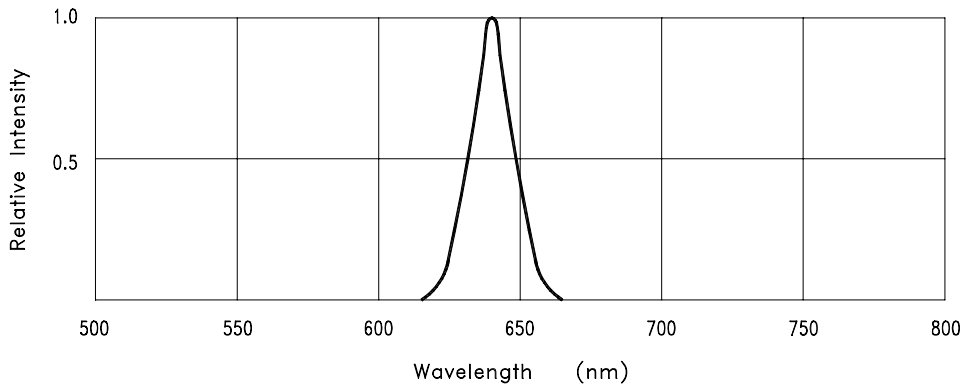


Fig.1 Relative Intensity vs. Wavelength

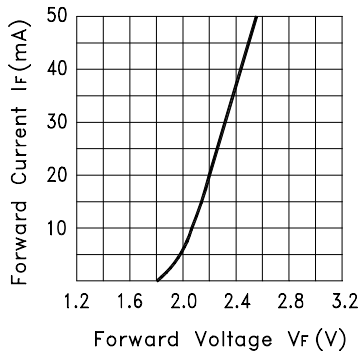


Fig.2 Forward Current vs. Forward Voltage

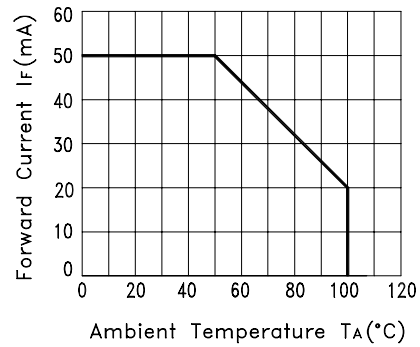


Fig.3 Forward Current Derating Curve

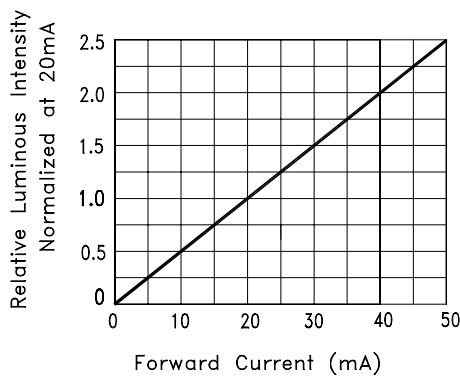


Fig.4 Relative Luminous Intensity vs. Forward Current

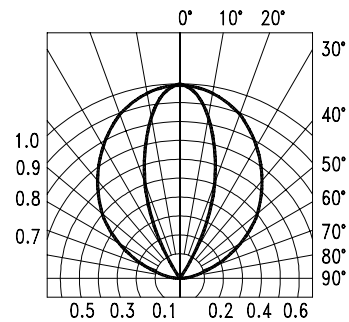
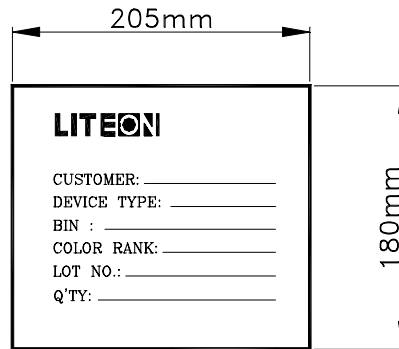


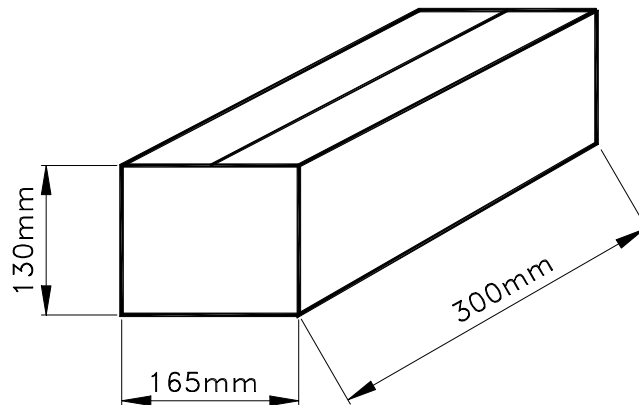
Fig.5 Spatial Distribution

## Packing Spec

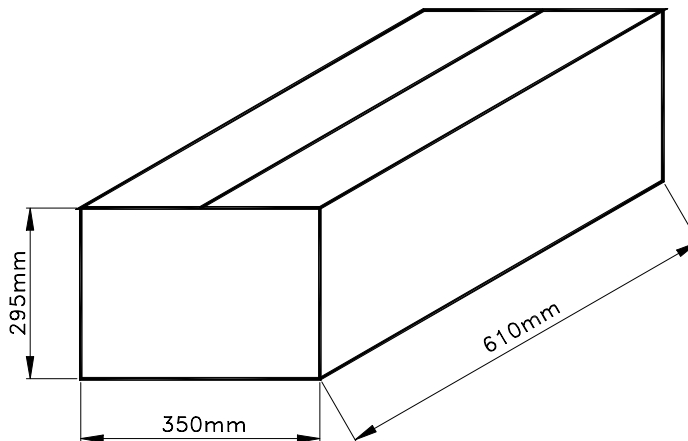
**1000, 500 or 250 pcs per packing bag**



**8 packing bags per inner carton  
total 8000 pcs per inner carton**



**8 Inner cartons per outer carton  
total 64000 pcs per outer carton**



**Bin Code List For Reference**

Luminous Intensity      Unit : mcd @20mA		
Bin Code	Min.	Max.
L	400	520
M	520	680
N	680	880
P	880	1150
Q	1150	1500
R	1500	1900

Dominant Wavelength      Unit : nm @20mA		
Bin Code	Min.	Max.
H029	621.0	625.0
H030	625.0	629.0
H031	629.0	633.0
H032	633.0	637.0



## 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°C 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

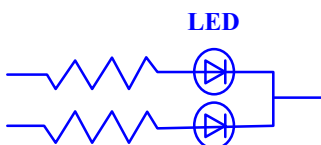
Soldering iron		Wave soldering	
Temperature	300°C Max.	Pre-heat	100°C Max.
Soldering time	3 sec. Max. (one time only)	Pre-heat time	60 sec. Max.
		Solder wave	260°C Max.
		Soldering time	10 sec. Max.

### 6. Drive Method

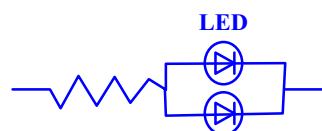
LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the drive circuit. This current limiting typically takes the form of a current limiter resistor placed in series with the LED. Consider worst case voltage variations that could occur across the current limiting resistor.

The forward current should not be allowed to change by more than 40% of its desired value.

**Circuit model A**



**Circuit model B**



(A) Recommended circuit.

(B) The difference of brightness between LEDs could be found due to the Vf-If characteristics of LED



**7. ESD (Electrostatic Discharge)**

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti- electrostatic glove is recommended when handling these LED. All devices, equipment and machinery must be properly grounded.

**8. Reliability Test**

Classification	Test Item	Test Condition	Duration / Cycle
Endurance Test	Room Temp. Operation Life	If = 50mA DC, Ta= 25°C	1000 hrs
	High Temp. Operation Life	If = 30mA DC, Ta= 55°C	1000 hrs
	High Temperature High Humidity with Bias	If =15 mA, Ta=85°C, RH ≥ 85%	1000 hrs
	High Temperature High Humidity with Reverse Bias	Ta=85°C, RH ≥ 85%, VR = -5V	1000 hrs
Environmental Test	High Temperature Storage	Ta= 100°C	1000 hrs
	Low Temperature Storage	Ta= -55°C	1000 hrs
	Solder Resistance	Solder temperature is 260± 5 °C	10 sec
	Solderability	Solder temperature is 230± 5 °C	5 sec
	Thermal Shock	Ta=(105°C / 15min ~ -40°C / 15min) 10 seconds transfer time	500 cycles

**9. Others**

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