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DATA SHEET

PART NO.: LS2812LBCT-U1

REV: A / 0

CUSTOMER'S APPROVAL : _____ DCC : _____

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SURFACE MOUNT DEVICE LED

Part No. : LS2812LBCT-U1

REV: A / 0

● **Features**

Package (L/W/H) : 2.8 × 0.8 × 1.2 mm

Color : Ultra High Bright Blue

Lens: Water Clear Flat Mold

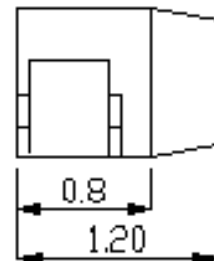
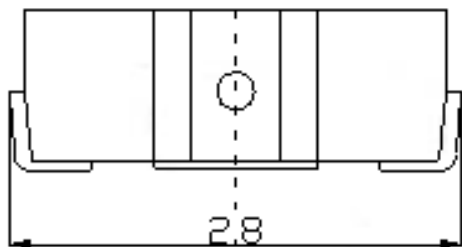
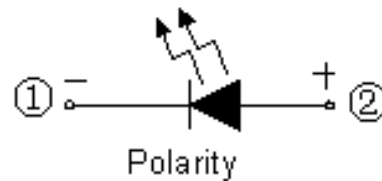
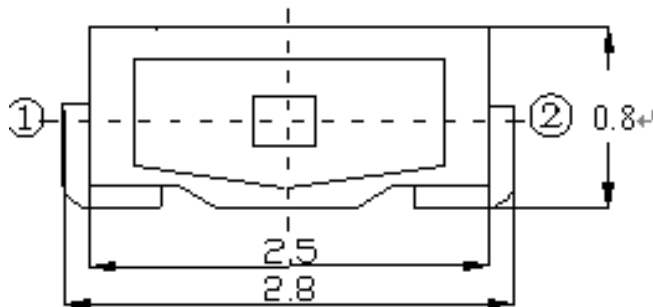
EIA STD Package

Meet ROHS, Green Product

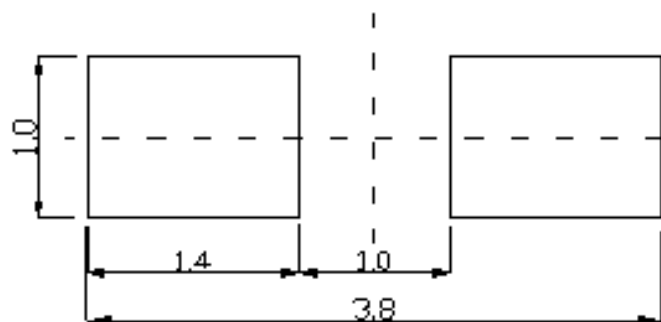
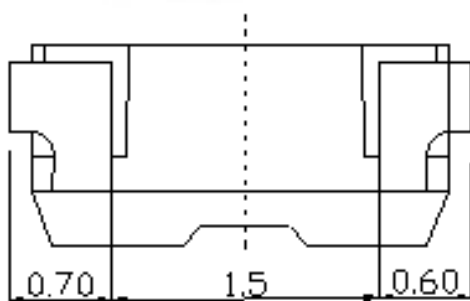
Compatible With SMT Automatic Equipment

Compatible With Infrared Reflow Solder Process

● **Package Outline Dimensions**



Soldering PAD Suggested: ↗



Notes: 1. All dimensions are in millimeters ;
2. Tolerance is ± 0.10 mm unless otherwise noted...



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● Absolute Maximum Ratings(Ta=25°C)

Parameter [Ⓢ]	Symbol [Ⓢ]	Rating [Ⓢ]	Unit [Ⓢ]
Power Dissipation [Ⓢ]	Pd [Ⓢ]	102 [Ⓢ]	mW [Ⓢ]
Peak Forward Current [Ⓢ] (1/10 Duty Cycle, 0.1ms Pulse Width) [Ⓢ]	IFP [Ⓢ]	100 [Ⓢ]	mA [Ⓢ]
DC Forward Current [Ⓢ]	IF [Ⓢ]	30 [Ⓢ]	mA [Ⓢ]
Reverse Voltage [Ⓢ]	VR [Ⓢ]	5 [Ⓢ]	V [Ⓢ]
Operating Temperature Range [Ⓢ]	Topr [Ⓢ]	-30°C ~ +85°C [Ⓢ]	
Storage Temperature Range [Ⓢ]	Tstg [Ⓢ]	-40°C ~ +90°C [Ⓢ]	
Soldering Condition [Ⓢ]	Tsol [Ⓢ]	Reflow soldering : 260°C For 5 Seconds [Ⓢ] Hand soldering: 300°C For 3 Seconds [Ⓢ]	
ESD CLASS [Ⓢ]	ESD [Ⓢ]	2000 [Ⓢ]	V [Ⓢ]

● Electro-Optical Characteristics (Ta=25°C)

Parameter [Ⓢ]	Symbol [Ⓢ]	Min. [Ⓢ]	Typ. [Ⓢ]	Max. [Ⓢ]	Unit [Ⓢ]	Test Condition [Ⓢ]
Luminous Intensity [Ⓢ]	IV [Ⓢ]	Ⓢ	--230-- [Ⓢ]	Ⓢ	mcd [Ⓢ]	IF = 20mA [Ⓢ]
Viewing Angle [Ⓢ]	2θ1/2 [Ⓢ]	--- [Ⓢ]	110 [Ⓢ]	--- [Ⓢ]	deg [Ⓢ]	IF = 20mA [Ⓢ]
Dominant Wavelength [Ⓢ]	λd [Ⓢ]	--- [Ⓢ]	472 [Ⓢ]	--- [Ⓢ]	nm [Ⓢ]	IF=20mA [Ⓢ]
Peak Wavelength [Ⓢ]	λp [Ⓢ]	--461-- [Ⓢ]	Ⓢ	--473-- [Ⓢ]	nm [Ⓢ]	IF=20mA [Ⓢ]
Spectral Line Half-Width [Ⓢ]	Δλ [Ⓢ]	--- [Ⓢ]	30 [Ⓢ]	--- [Ⓢ]	nm [Ⓢ]	IF=20mA [Ⓢ]
Forward Voltage [Ⓢ]	VF [Ⓢ]	2.8 [Ⓢ]	--- [Ⓢ]	3.4 [Ⓢ]	V [Ⓢ]	IF=20mA [Ⓢ]
Reverse Current [Ⓢ]	IR [Ⓢ]	--- [Ⓢ]	--- [Ⓢ]	5 [Ⓢ]	uA [Ⓢ]	VR=5V [Ⓢ]



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● Electrical Optical Characteristics Curves At Ta=25°C

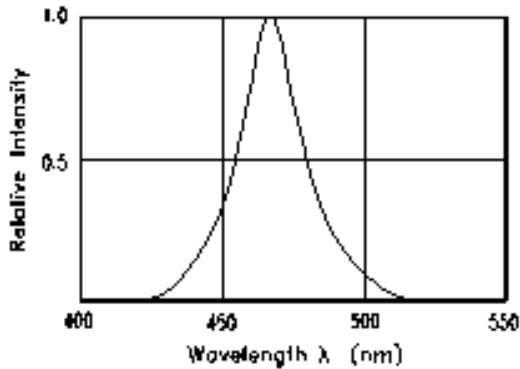


Fig.1. RELATIVE INTENSITY VS. WAVELENGTH

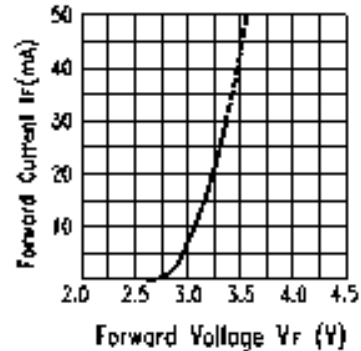


Fig.2 Forward Current vs. Forward Voltage

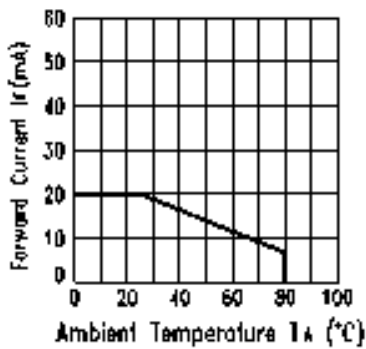


Fig.3 Forward Current Derating Curve

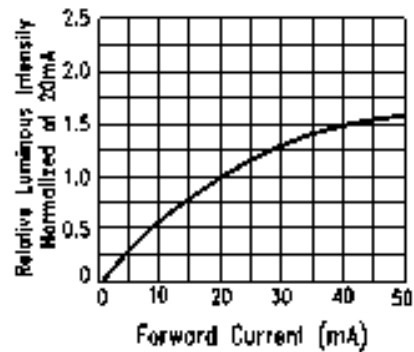


Fig.4 Relative Luminous Intensity vs. Forward Current

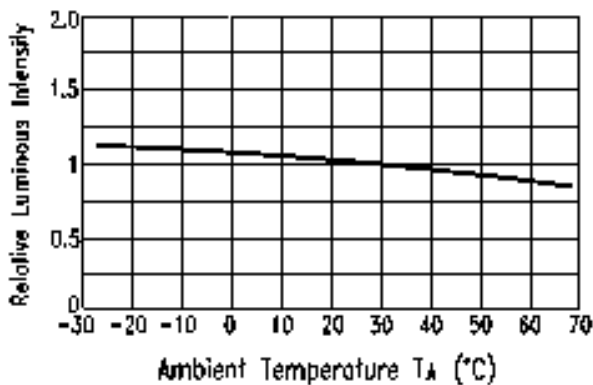


Fig.5 Luminous Intensity vs. Ambient Temperature

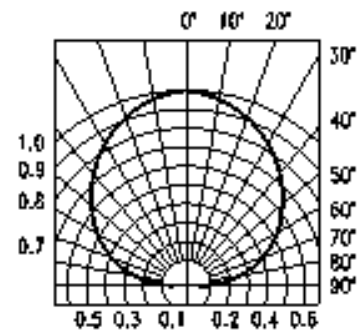


Fig.6 Spatial Distribution



SURFACE MOUNT DEVICE LED

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● **Bin Range**

IV

Luminous Intensity(Flux), Unit:lm@20mA		
Bin Code	Min	Max
M1	180	230
M2	230	285
N1	285	350

Tolerance of each bin are $\pm 15\%$

VF

Forward Voltage(VF), Unit:V@20m A		
Bin Code	Min	Max
6	2.8	3.0
7	3.0	3.2
8	3.2	3.4

Tolerance of each bin are ± 0.1 Volt

WLD

Bin	Min	Max
B	461	464
C	464	467
D	467	470
E	470	473

Tolerance of each bin are ± 1 nm

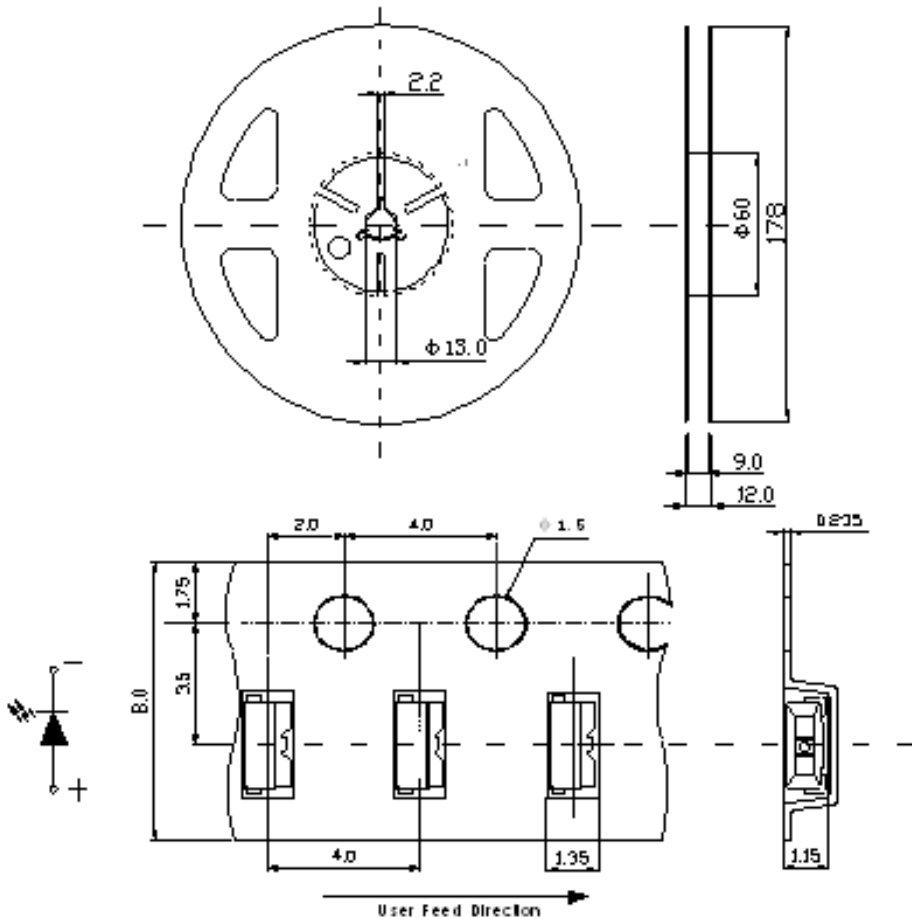


SURFACE MOUNT DEVICE LED

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REV: A / 0

● Reel And Tape Dimensions:



Notes:

1. All dimensions are in millimeters ;
2. Tolerance is ± 0.1 mm unless otherwise noted.



SURFACE MOUNT DEVICE LED

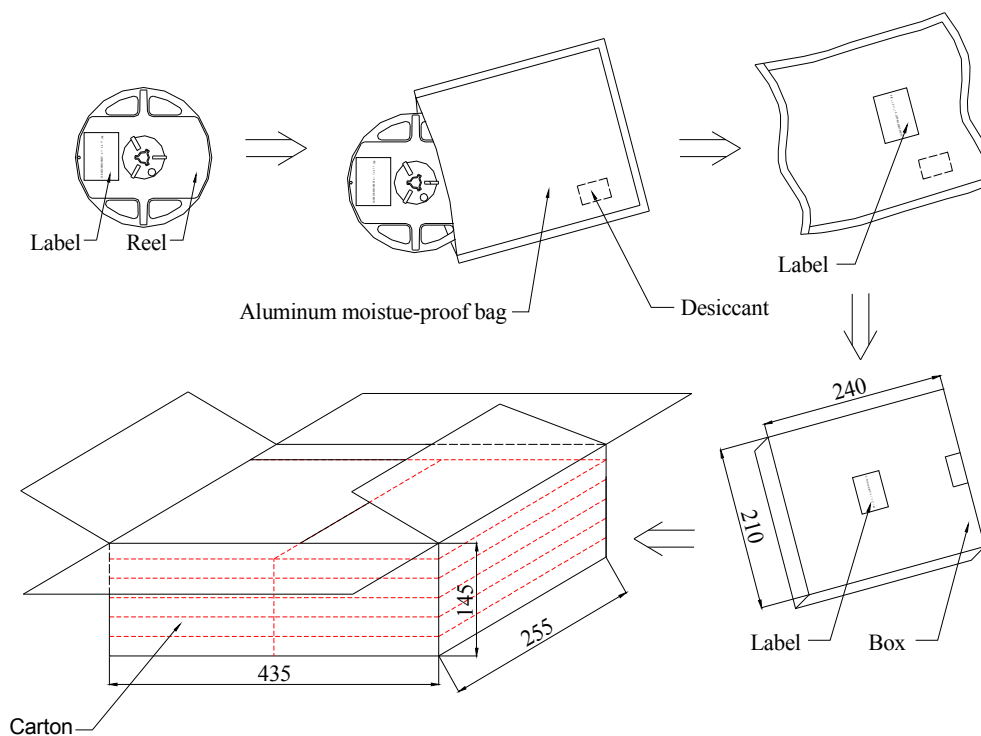
Part No. : LS2812LBCT-U1

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● Label Explanation



● Moisture Resistant Packaging



Notes : One reel in a bag, one bag in a inner box, ten inner boxes in a carton. Unit : mm.

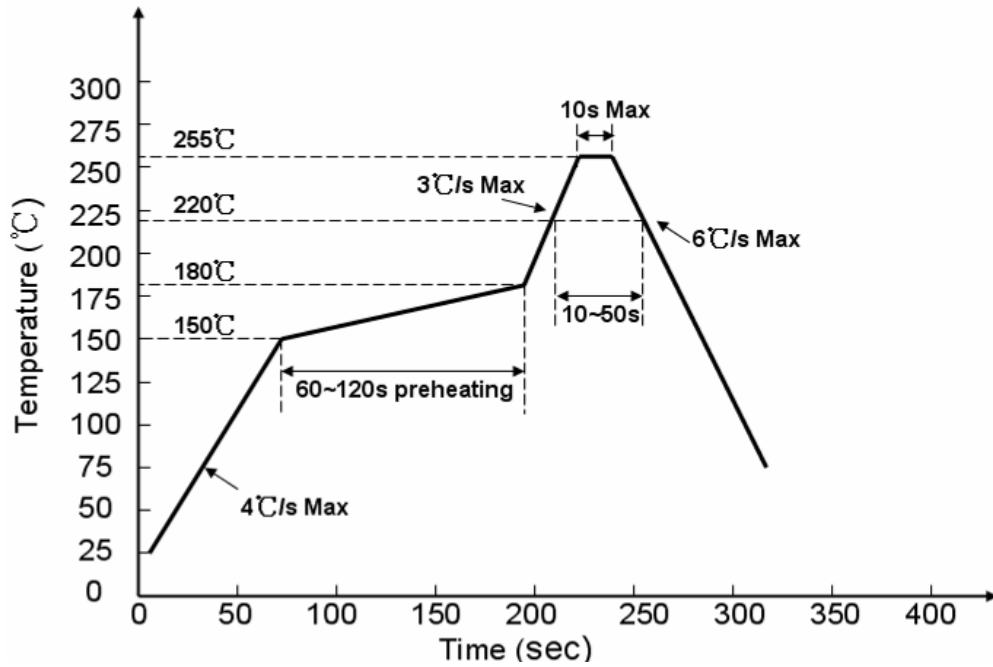


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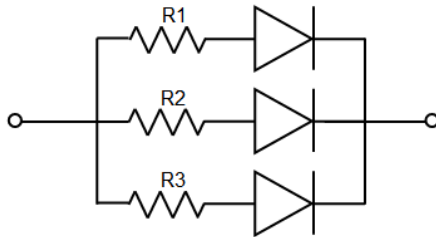
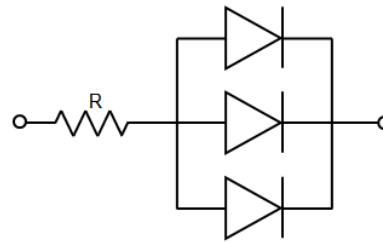
REV: A / 0

Soldering Profile Suggested (For Lead Free Solder)



Application

1. A LED is a current-operated device. The slight shift of voltage will cause big change of current, which will damage LEDs. Customer should use resistors in series for the Over-Current-Proof.
2. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended to use individual resistor separately, as shown in Circuit A below. The brightness of each LED shown in Circuit B might appear difference due to the differences in the I-V characteristics of those LEDs.

**Circuit model A****Circuit model B**

3. High temperature may reduce LEDs' intensity and other performances, so keeping it away from heat source to get good performance is necessary.

Storage

1. Before opening original package, it is recommended to store them in the following environment:
Temperature: 5°C~30°C; Humidity: 85%RH max. When the inventory over 2 months, should be done before treatment using dehumidification, Temperature: 60°C/8 hours.
2. After opening original package, the storage ambient for the LEDs should be in 5~30°C temperature and 60% or less relative humidity.
3. In order to avoid moisture absorption, it is recommended that the LEDs that out of the original package should be stored in a sealed container with appropriate desiccant, or in desiccators with nitrogen ambient.
4. The LEDs should be used within 48hrs (2 days) after opening the package. Once been mounted, soldering should be quick.
5. If the moisture absorbent material (silica gel) has faded away or the LEDs stored out of original package for more than 48hrs (2 days), baking treatment should be performed using the conditions: 60°C at least 24 hours.



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Cleaning

Use alcohol-based cleaning solvents such as IPA (isopropyl alcohol) to clean LEDs if necessary.

Soldering

1. Soldering condition refer to the draft "Soldering Profile Suggested" on page 1.
2. Reflow soldering should not be done more than 2 times.
3. Manual soldering is only suggested on repair and rework. The maximum soldering temperature should not exceed 300°C within 3 sec. And the maximum capacity of soldering iron is 30W in power.
4. During the soldering process, do not touch the lens at high temperature.
5. After soldering, any mechanical force on the lens or any excessive vibration shall not be accepted to apply, also the circuit board shall not be bent as well.

Others

1. The LEDs described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household applications). Consult Harvatek's Sales in advance for the 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. The light output from the high luminous intensity LEDs may cause injury to human eyes when viewed directly.
3. The appearance and specifications of the product may be modified for improvement without prior notice.
4. When PLCC 335 Side-View is used in led strip, the angle of bending cannot be over 60 degree
5. LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating