



Spec No. :DS23-2016-0060 Effective Date: 06/08/2022

**Revision: D** 

**LITE-ON DCC** 

RELEASE

BNS-OD-FC001/A4



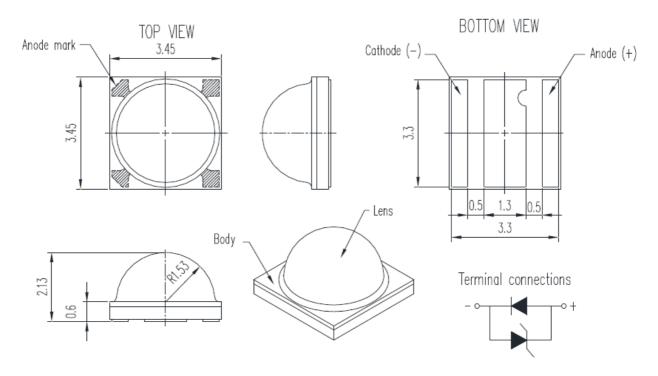
## 1. Description

The LiteON C03 UV Product series is a revolutionary, energy efficient light source for UV curing and common UV application, combining the lifetime and reliability advantages of Light Emitting Diodes with the brightness of conventional light source. It gives you design freedom, and creating a new opportunities for solid state UV light source to displace conventional UV technologies

#### **Features**

- I.C. compatible
- RoHS compliant and Pb free
- Lower operating costs
- Reduced maintenance costs

## 2. Outline Dimensions



### Notes:

- All dimensions are in millimeters and dimension tolerances are ± 0.2mm except lens height and ceramic length / width dimension tolerance are ± 0.1mm
- Thermal pad of the device is electrically neutral from the anode and cathode pads



## 3. Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Rating	Unit
DC Forward Current	If	500	mA
Power Consumption	Po	2	W
Operating Temp Range	Topr	-40 ~ +85	$\mathcal C$
Storage Temp Range	Tstg	-55 ~ +100	C
Junction Temperature	Tj	110	Ĉ

### Notes:

Operating the LED under reverse bias condition long time might result in damage or failure of the component.



## 4. Electro-Optical Characteristics at Ta=25℃

Parameter	Symbol	Values		Test Condition	Unit
Forward Voltage	Vf	Min.	2.8	If = 350mA	
		Тур.	3.8		V
		Max.	4.4		
Radiant Flux	Фе	Min.	470	If = 350mA	mW
		Тур.	580		
		Max	745		
Peak Wavelength	Wp	Min.	360	If = 350mA	nm
		Max	370		
Viewing Angle	2θ <sub>1/2</sub>	Тур.	130	If = 350mA	o
Thermal Resistance	Rthjc	Тур	14.7		°C/W

### Notes:

- 1. Radiant flux ( $\Phi$ e) is the total Radiant flux output as measured with an integrating sphere.
- 2. Thermal resistance (Junction to case) measurement tolerance is  $\pm 10\%$



## 5. Bin Code List

## Specific Lighting LTPL-C034UVD365

Vf : Forward Voltage Spec. Table			
Vf Bin	Vf (V) @ If = 350mA		
	Min.	Max.	
V0	2.8	3.2	
V1	3.2	3.6	
V2	3.6	4.0	
V3	4.0	4.4	

Forward Voltage Tolerance: +/- 0.1 V

Фе : Radiant Flux Spec. Table			
Фе Bin	Фе (mW) @ If = 350mA		
	Min.	Max.	
R6	470	500	
R7	500	530	
R8	530	560	
R9	560	590	
S1	590	620	
S2	620	660	
S3	660	700	
S4	700	745	

Radiant Flux Tolerance: +/- 10%

Wp: Peak Wavelength Spec table			
IA/n Din	<i>Wp</i> (nm) @ <i>If</i> = 350mA		
<i>Wp</i> Bin	Min.	Max.	
P3M	360	365	
P3N	365	370	

Peak Wavelength Tolerance: +/- 3nm

Notes:Bin classification code is marked on each packing bag.



## 6. Typical Electrical / Optical Characteristics Curves

100

0

0

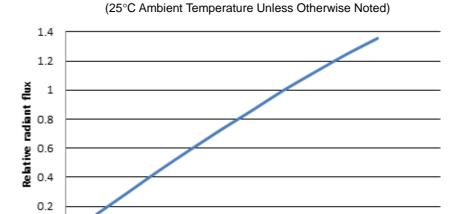


Fig 1. Relative Radiant Flux vs. Forward Current

300

Foward current(mA)

400

500

600

200

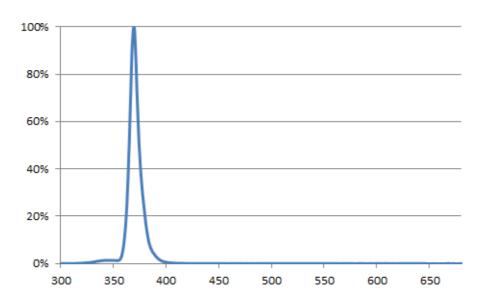


Fig 2. Relative Spectral Distribution



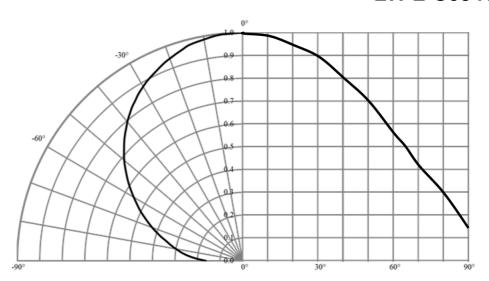


Fig 3. Radiation Characteristics

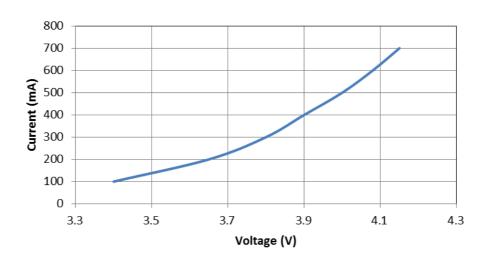


Fig 4. Forward Current vs. Forward Voltage



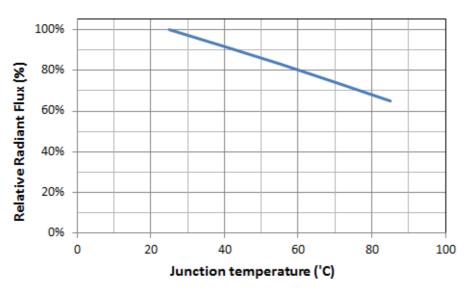
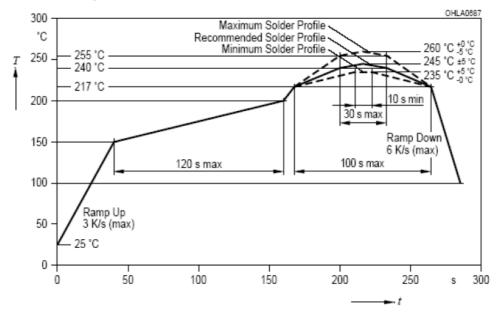


Fig.5 Relative Radiant Flux vs Junction Temperature



## 8. User Guide

## **Suggested Reflow Soldering Characteristics**

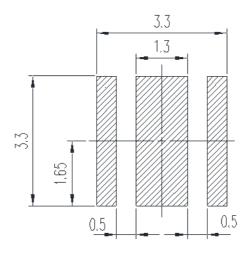


### Notes:

- 1. All temperatures refer to topside of the package, measured on the package body surface.
- 2. The soldering profile could be further referred to different soldering grease material characteristic. The grease vendor will provide this information.
- 3. A rapid-rate process is not recommended for the LEDs cooling down from the peak temperature.
- 4. Although the recommended reflow conditions are specified above, the reflow or hand soldering condition at the lowest possible temperature is desirable for the LEDs.
- 5. LiteOn cannot make a guarantee on the LEDs which have been already assembled using the dip soldering method.



### **Recommend Printed Circuit Board Attachment Pad**

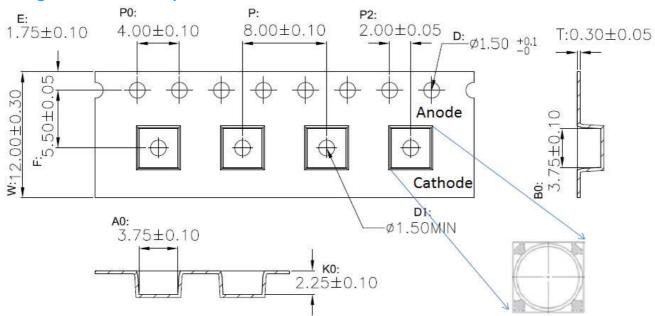


#### Notes:

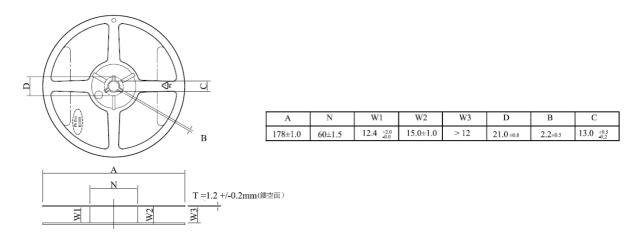
- 1. The LEDs can be soldered using the reflow soldering or hand soldering method. The recommended hand soldering condition is 300°C max. and 2secs max. only once, and the operation of reflow soldering is only up to three times at maximum.
- 2. All temperatures refer to topside of the package, measured on the package body surface.
- 3. The soldering profile could be further referred to different soldering grease material characteristic. The grease vendor will provide this information.
- A rapid-rate process is not recommended for the LEDs cooling down from the peak temperature. 4.
- Although the recommended reflow conditions are specified above, the reflow or hand soldering condition at 5. the lowest possible temperature is desirable for the LEDs.
- 6. LiteOn cannot make a guarantee on the LEDs which have been already assembled using the dip soldering method.



## **Package Dimensions of Tape**



## **Package Dimensions of Reel**



### Notes:

- 1. Empty component pockets sealed with top cover tape.
- 2. 7 inch reel-maximum 500 pieces per reel.
- 3. Minimum packing quantity is 100 pieces for remainders.
- 4. The maximum number of consecutive missing lamps is two.
- 5. In accordance with EIA-481-1-B specifications.



## 9. Cautions

## **Cleaning**

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

Do not use unspecified chemical liquid to clean LED, it could harm the package.

### **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 below.



Circuit model A

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.
- © This LED should be used under forward current, particularly not used under continuous reverse current to avoid the damage to LED.

The electrode pads are plated with gold, but it is still not recommended to the use under any of the following conditions, please confirm the performance and reliability are well enough if you use it under any of the following conditions

- · Do not use sulfur-containing materials in commercial products including the materials such as seals and adhesives that may contain sulfur.
- · Do not put this product in a place with a lot of moisture (over 85% relative humidity), dew condensation, briny air, and corrosive gas (CI, H2S, NH3, SO2, NOX, etc.).

### **Manual Handling Remark**

The LED should only be picked up by making contact with the sides of the LED body. It should not put any pressure on the lens either by finger or any hand tool. Do not puncture or push the lens.



## **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 LED's plastic lens as a result of friction between LEDs during storage and handling.

ESD-damaged LEDs will exhibit abnormal characteristics such as high reverse leakage current, low forward voltage, or "no light up" at low currents. To verify for ESD damage, check for "light up" and V<sub>F</sub> of the suspect LEDs at low currents. The V<sub>F</sub> of "good" LEDs should be > 2.0V at 0.5mA.

#### Training and Certification

- 1. Working area is ESD-certified.
- Training records and re-certification dates monitored.

#### Static-Safe Workstation & Work Areas

- 1. Static-safe working stations 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.
- Each work surface mats grounding is good.

#### Personnel Grounding

- 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.
- Garments, hairs or anything closer than 1 ft to ESD items measure less than 100V. 3.
- The wrist strap or heel strap/conductive shoes are checked daily and result recorded. 4.
- All wrist strap or heel strap checkers calibration up to date.

#### **Device Handling**

- Each ESDS items identified by EIA-471 labels on item or packaging.. 1.
- No static charge generators (e.g. plastics) inside shielding containers with ESDS items. 2.
- 3. All flexible conductive and dissipative package materials are inspected before reuse or recycles



### **Storage**

This product is qualified as Moisture sensitive Level 3 per JEDEC J-STD-020 Precaution when handling this moisture sensitive product is important to ensure the reliability of the product.

The package is sealed:

The LEDs should be stored at 30℃ or less and 85%RH or less. And the LEDs are limited to use within one year, while the LEDs is packed in moisture-proof package with the desiccants inside.

The package is opened:

The LEDs should be stored at 30°C or less and 60%RH or less. The LEDs are limited to solder process within 168hrs. If the Humidity Indicator shows the pink color in 10% even higher or exceed the storage limiting time since opened, we recommended to baking LEDs at 60°C at least 24hours before solder. To seal the remainder LEDs return to package, it's recommended to be with workable desiccants in original package.

### **Safety**

**Do NOT** directly look at the UV light from LED or optical instrument because it is harmful to human eyes. And it is recommended to use UV goggles protective glasses for avoiding eye damage.





## 10. Datasheet Version:

Version	Date	Owner	Change Item	
-	2016/06/20	ChunChieh	Preliminary specification	
А	2016/10/04	ChunChieh	Update Radiant Flux as R3 to R7 Bin	Page.4
В	2017/10/01	ChunChieh	Add Radiant Flux Bin R8 & R9	Page.4
С	2019/03/28	Perse	Add Radiant Flux Bin S1	Page.4
D	2022/05/31	Perse	Add Radiant Flux Bin S2,S3,S4, delete R3 R4, R5 bin	Page.4