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# UVK5050O37-G0

## 3W UV Power LED

### Features

- High efficiency
- Viewing Angle =  $\pm 30^\circ$
- Thermal resistance (junction to Slug):  $6^\circ\text{C/W}$
- AlN Ceramic Substrate
- Low Thermal Resistance and good Thermal Dissipation
- RoHS compliance

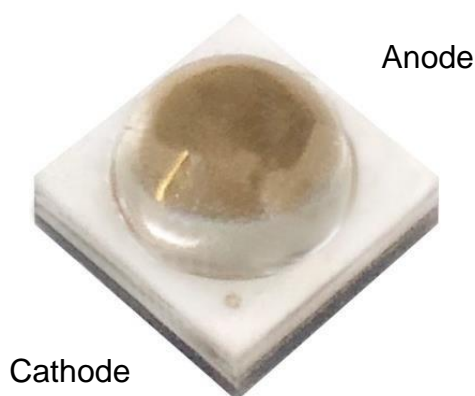
### Description

The UVK5050O37-G0 is 3W UV LED housed in a miniature SMD package. The device has a peak wavelength of 265-280nm

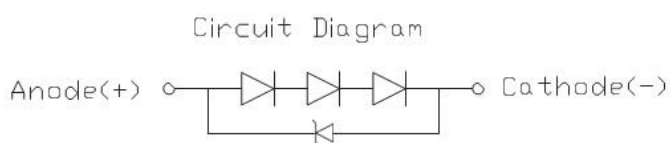
### Applications

- Disinfection
- Phototherapy
- Bio-Analysis/Detection

### Package Outline



### Schematic





## UVK5050O37-G0

### 3W UV Power LED

#### Absolute Maximum Rating at 25°C

<i>Symbol</i>	<i>Parameters</i>	<i>Ratings</i>	<i>Units</i>	<i>Notes</i>
I <sub>F</sub>	Continuous Forward Current	150	mA	
T <sub>opr</sub>	Operating Temperature	-40 ~ +60	°C	
T <sub>stg</sub>	Storage Temperature	-40 ~ +85	°C	
T <sub>sol</sub>	Soldering Temperature	260	°C	1
V <sub>R</sub>	Reverse Voltage	Not designed to be driven in reverse bias	V	
P <sub>D</sub>	Power Dissipation at(or below) 25°C Free Air Temperature	3	W	
ESD	Human Body Model	±4000	V	
R <sub>THJL</sub>	Junction to Slug Thermal Resistance	6	°C/W	



### Electro-Optical Characteristics *TA = 25°C (unless otherwise specified)*

#### Optical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
P <sub>o</sub>	Total Radiated Power	I <sub>F</sub> =100mA	20	30	-	mW	
λ <sub>p</sub>	Peak Wavelength	I <sub>F</sub> =100mA	265	275	280	nm	2
Δλ	Spectral Bandwidth	I <sub>F</sub> =100mA	-	12	-	nm	
θ <sub>1/2</sub>	Angle of Half Intensity	I <sub>F</sub> =100mA	-	±30	-	deg	

#### Electrical Characteristics

Symbol	Parameters	Test Conditions	Min	Typ	Max	Units	Notes
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =100mA	15	20	24	V	3

#### Notes:

- Soldering time ≤ 5 seconds.
- Wp Bin Rank :

Bin Code	Min	Max
A	265	270
B	270	275
C	275	280

ProLight maintains a tolerance of ±3nm for peak wavelength measurements.

- VF Bin Rank :

Bin Code	Min	Max
A	15.0	16.5
B	16.5	18.0
C	18.0	19.5
D	19.5	21.0
E	21.0	22.5
F	22.5	24.0

ProLight maintains a tolerance of ±0.1V for Voltage measurements.



### Typical Characteristic Curves

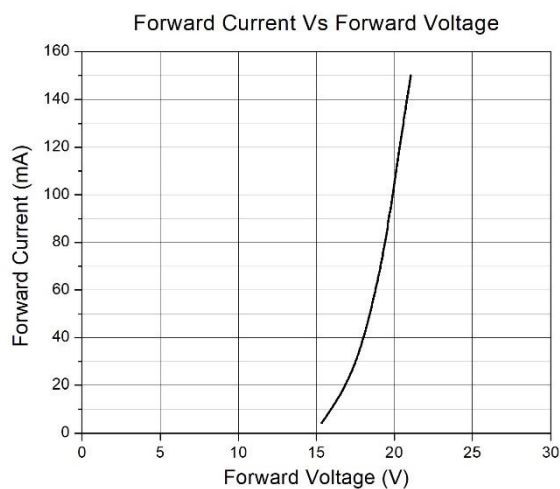


Figure 1

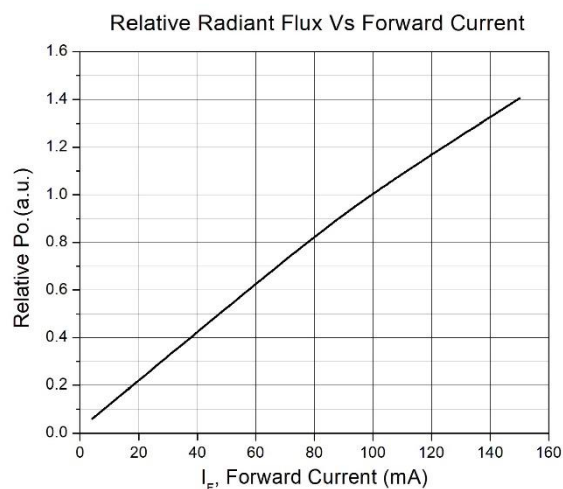


Figure 2

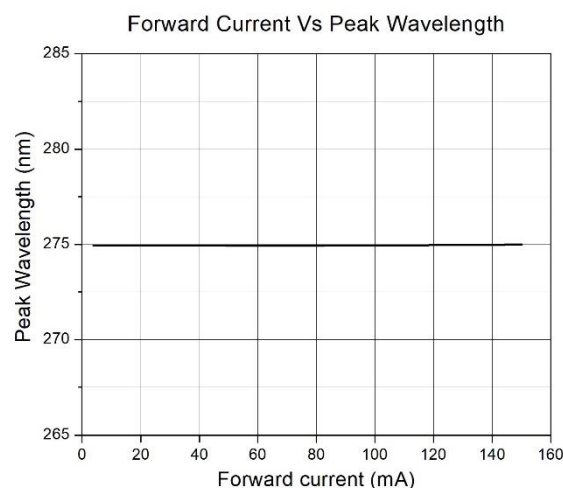


Figure 3

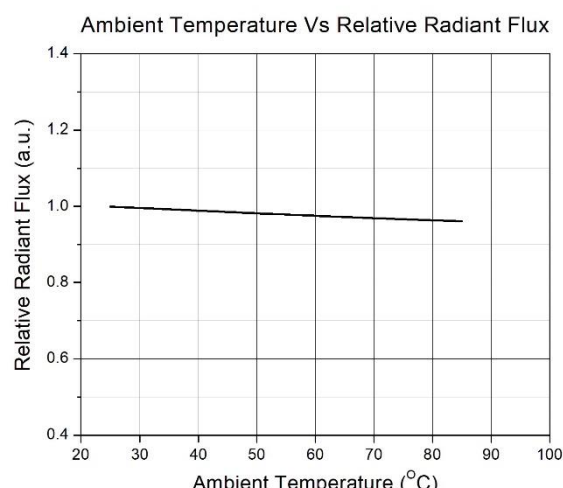


Figure 4

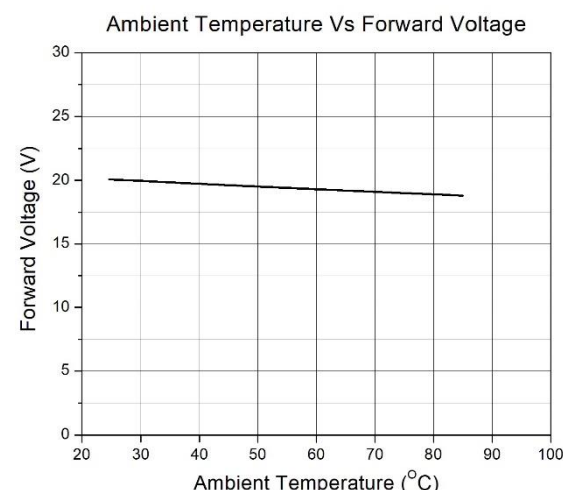


Figure 5

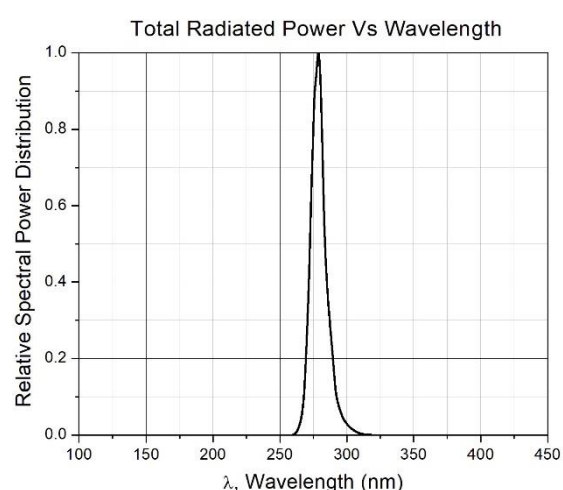


Figure 6



### Typical Characteristic Curves

Ambient Temperature Vs Peak Wavelength

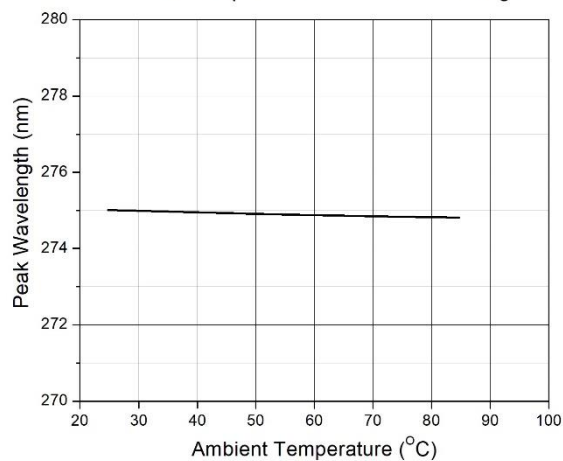


Figure 7

Case Temperature Vs Maximum Forward Current

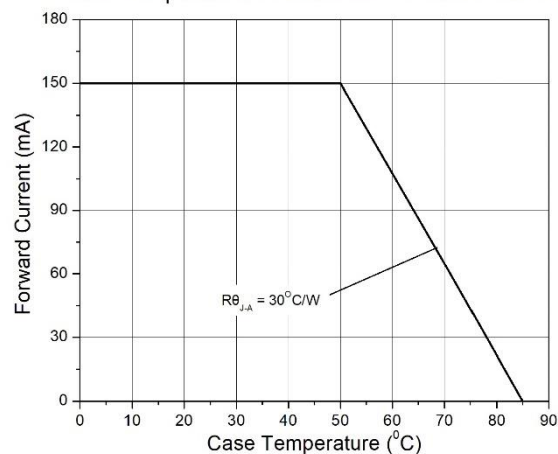


Figure 8

Angular Displacement

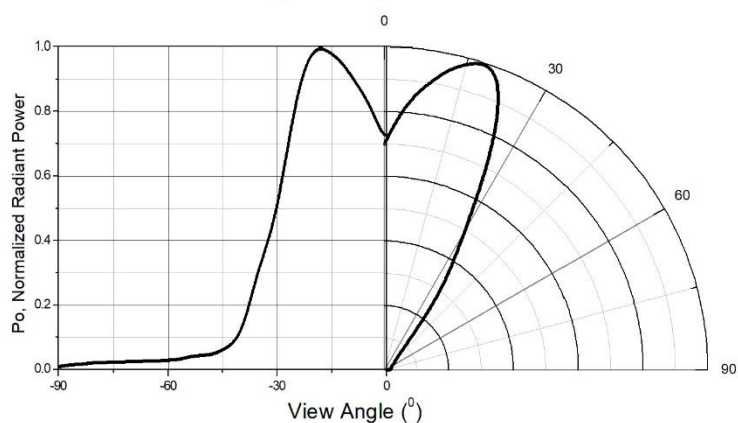


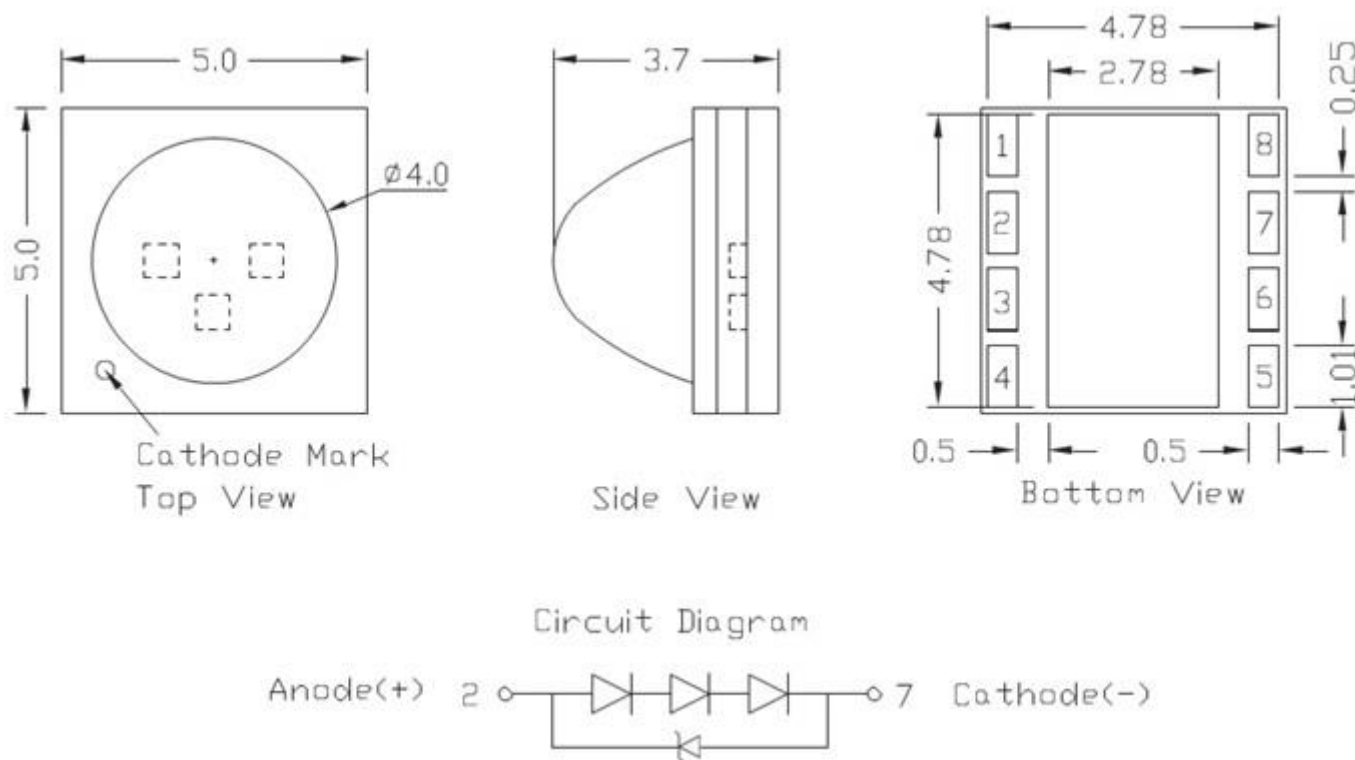
Figure 9



# UVK5050O37-G0

## 3W UV Power LED

### Package Dimension *All dimensions are in mm, unless otherwise stated*



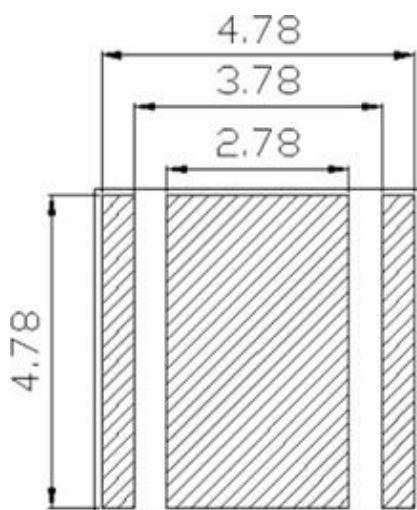
#### Notes:

1. The cathode side of the device is denoted by the chamfer on the part body.
  2. Electrical insulation between the case and the board is required. Do not electrically connect either the anode or cathode to the slug.
  3. Drawing not to scale.
  4. All dimensions are in millimeters.
  5. Unless otherwise indicated, tolerances are  $\pm 0.10\text{mm}$ .
  6. Please do not solder the emitter by manual hand soldering, otherwise it will damage the emitter.
  7. The UV LED is not protected by a lens and requires careful handling
    - (1) Do not handle the LED with bare hands as it may contaminate the LED surface and affect the optical characteristics.
    - (2) Avoid touching the LED die
- \*The appearance and specifications of the product may be modified for improvement without notice

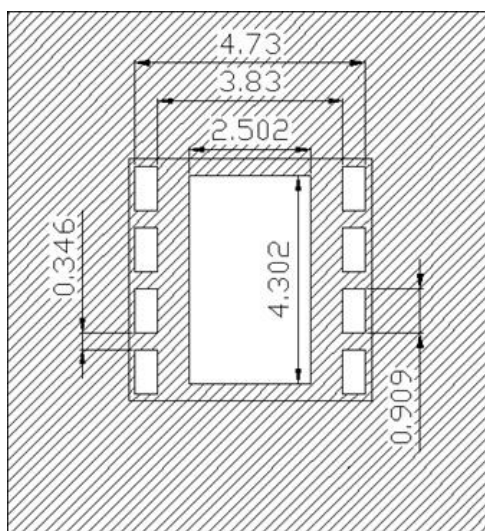


## Recommended Soldering Mask *All dimensions are in mm, unless otherwise stated*

### Solder Pad Design



### Solder Mask Design

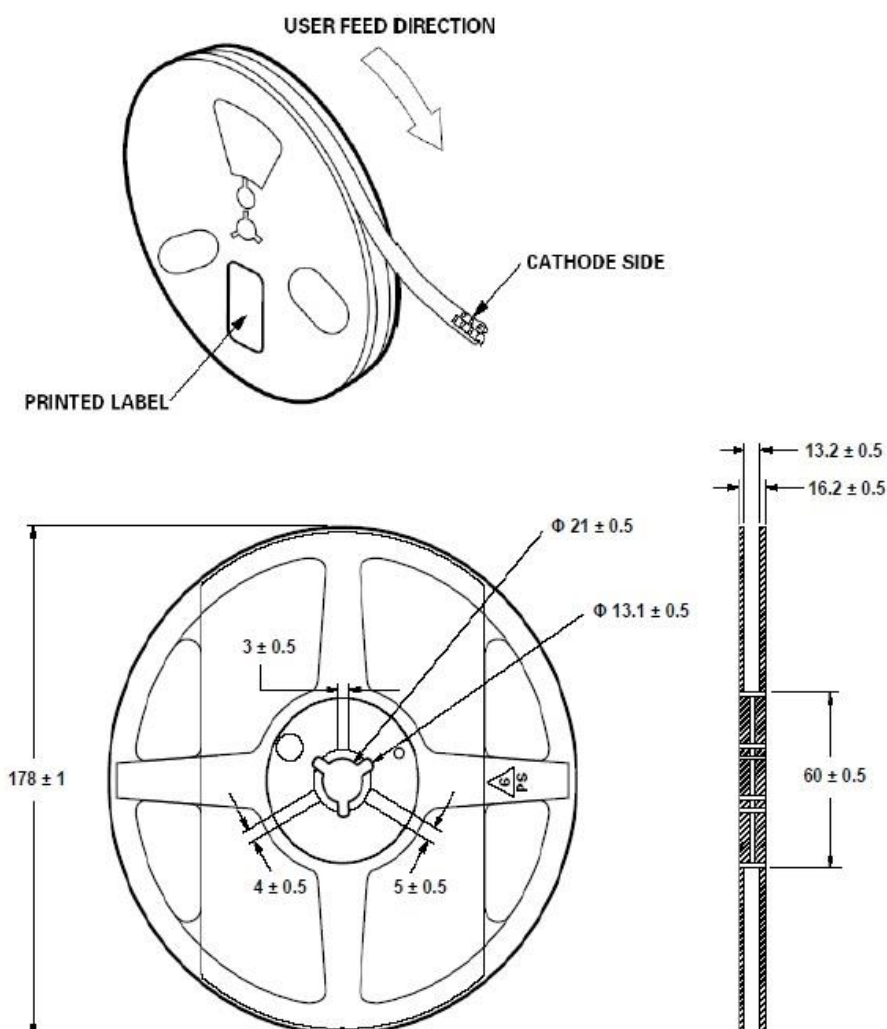




### Ordering Information

Part Number	Description	Quantity
UVK5050O37-G0	Tape & Reel	250 pcs

### Reel Dimension *All dimensions are in mm, unless otherwise stated*



#### Notes:

1. Empty component pockets sealed with top cover tape.
2. Drawing not to scale.





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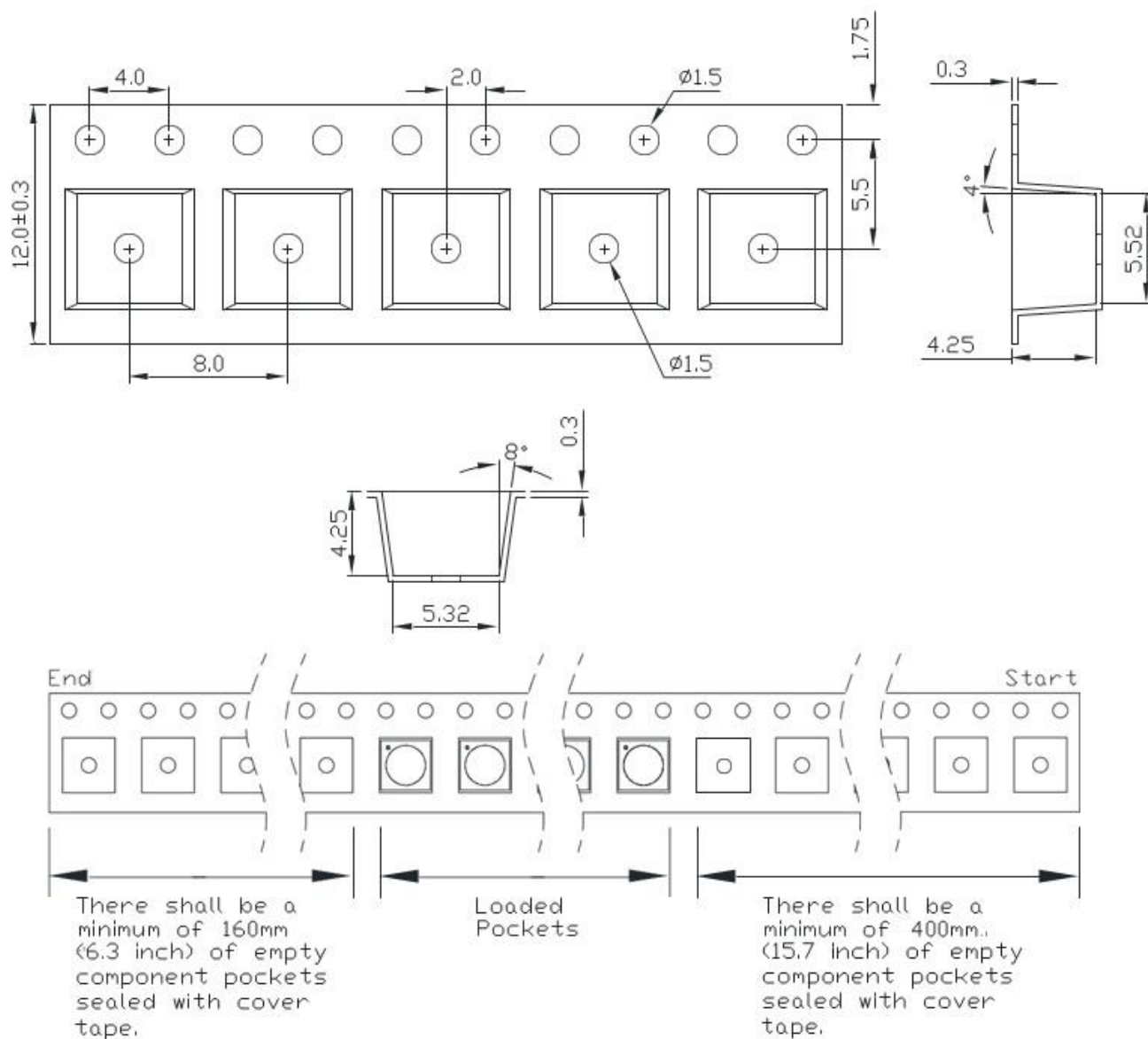
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## UVK5050O37-G0 3W UV Power LED

3. All dimensions are in millimeters.



### Tape Dimension *All dimensions are in mm, unless otherwise stated*

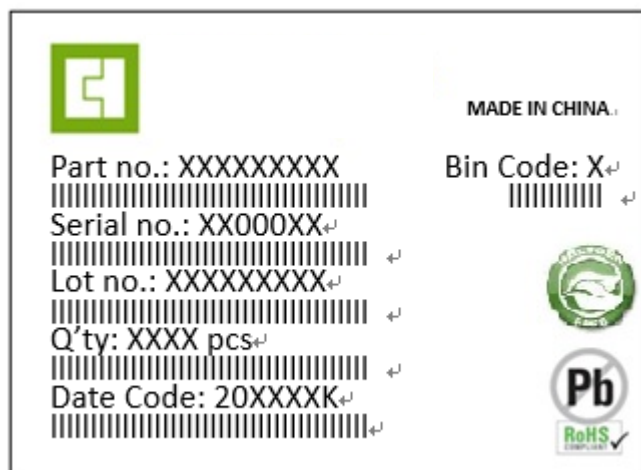


#### Notes:

1. Drawing not to scale.
2. All dimensions are in millimeters.
3. Unless otherwise indicated, tolerances are  $\pm 0.10$ mm.



## Label Form Specification



Part no: CTM Production Number  
Serial no: Production Number  
Lot no: Lot number  
Q'ty: Packing Quantity  
Date Code: Manufacture Date  
Bin Code: Po Ranks  
MADE IN CHINA: Production Place

## Precaution for Use

### ● Storage

Please do not open the moisture barrier bag (MBB) more than one week. This may cause the leads of LED discoloration. We recommend storing ProLight's LEDs in a dry box after opening the MBB. The recommended storage conditions are temperature 5 to 30°C and humidity less than 40% RH. It is also recommended to return the LEDs to the MBB and to reseat the MBB.

● LEDs are ESD (electrostatic discharge) sensitive; static electricity and surge voltages seriously damage UV LEDs and can result in product failure.

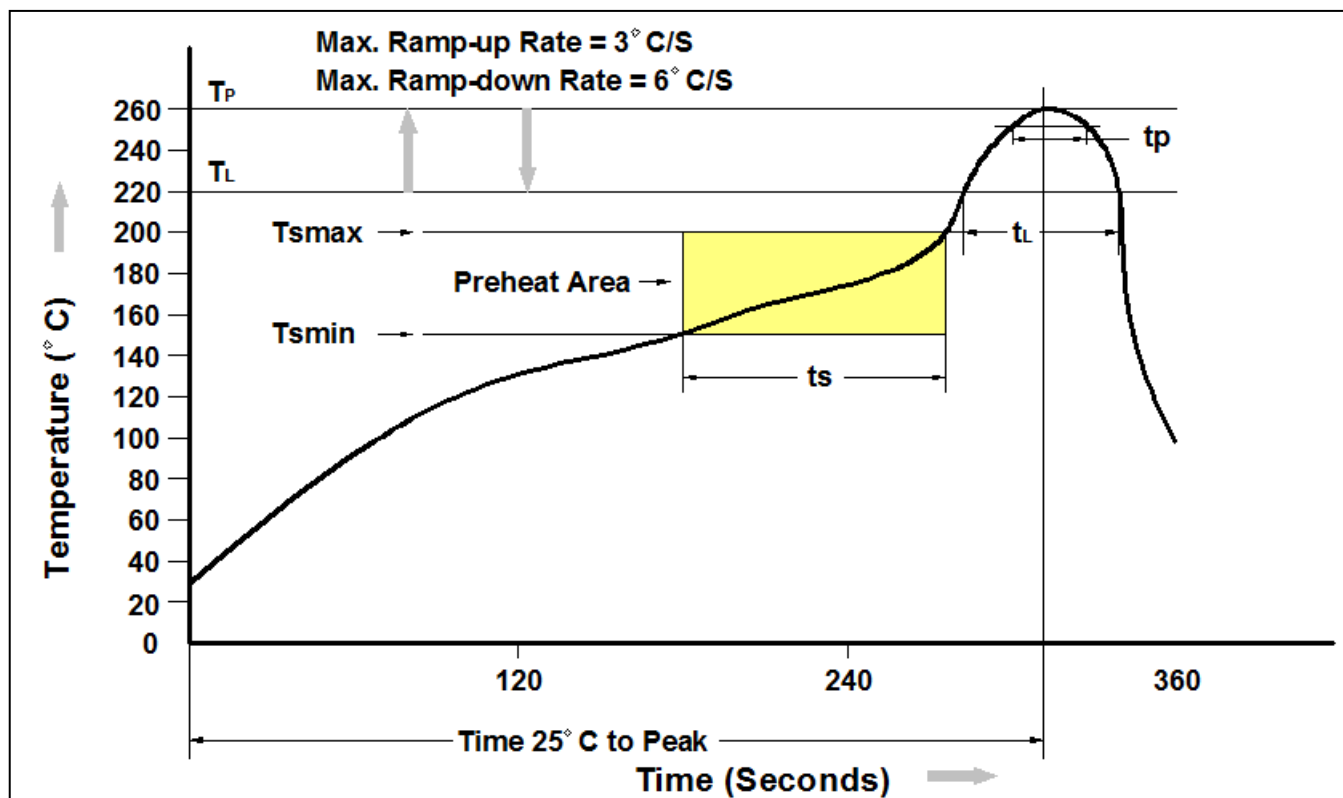
- (1) Ensure that tools, jigs and machines being used are properly grounded
- (2) LED mounting equipment should include protection against voltage surge
- (3) Use proper ESD protection, including grounded wrist straps, ESD footwear and clothes

● We recommend using the M705-S101-S4 solder paste from SMIC (Senju Metal Industry Co., Ltd.) for lead-free soldering.

● Do not use solder pastes with post reflow flux residue > 47%. (58Bi-42Sn eutectic alloy, etc)  
This kind of solder pastes may cause a reliability problem to LED.



## Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. ( $T_{smin}$ )	150°C
Temperature Max. ( $T_{smax}$ )	200°C
Time ( $t_s$ ) from ( $T_{smin}$ to $T_{smax}$ )	60-120 seconds
Ramp-up Rate ( $t_L$ to $t_P$ )	3°C/second max.
Liquidous Temperature ( $T_L$ )	217°C
Time ( $t_L$ ) Maintained Above ( $T_L$ )	60 – 150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time ( $t_P$ ) within 5°C of 260°C	30 seconds
Ramp-down Rate ( $T_P$ to $T_L$ )	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.



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