

# PPM225-30

## UVC LED Purple Planet Mods

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PRELIMINARY SPECIFICATIONS



Elphoton  
INNOVATE HUMAN LIFE

CONTENTS

1. Description (Features & Applications)	3/9
2. Product Information	4/9
3. Outline Dimensions and Physical Structure	5/9
4. Internal Drive Architecture Overview	6/9
5. Electro Optical Characteristics	7/9
6. Sterilization Performance	7/9
7. Reliability & Environmental Conditions	7/9
8. Handling Precautions	8/9
9. Safety warning	8/9
10. Revision Sheet	9/9

## 1. Description

- The Elphoton UV sterilization Lamp.
- The PPM225-30 is a compact, high-performance UVC LED sterilization lamp designed for surface, air, and point-of-use disinfection applications..
- It operates with an external constant-voltage DC12V power source and provides stable UV output through an optimized LED configuration, featuring UVC emitters.

### ◆ Features

- External constant-voltage DC input (12V) with wide compatibility for low-voltage systems.
- LED array:
  - ✓ 12 × 3535 UVC LEDs (270–280 nm)
- Optimized current balancing circuit ensuring uniform illumination and extended LED lifetime.
- Aluminum-core PCB (190×7 mm) for efficient heat dissipation.
- Quartz glass cover and anodized aluminum housing for UV transparency and mechanical durability.

### ◆ Application

- Disinfection of instrument panels, surfaces, and confined spaces.
- Integration into mobile or battery-powered sterilization units.
- Compact UV disinfection modules for embedded system use.

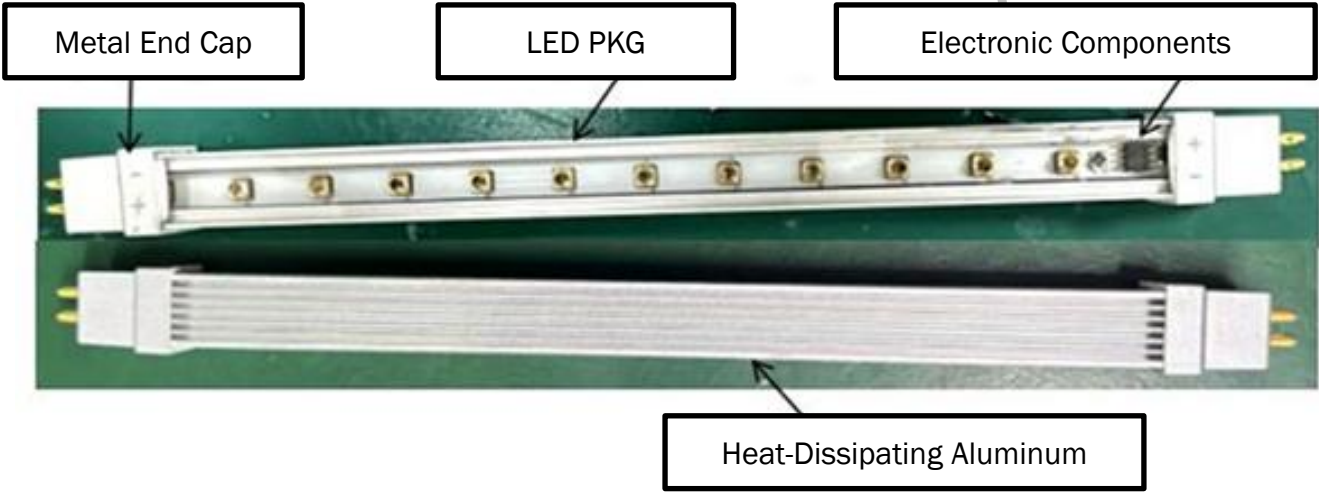
## 2. Product information

- Lamp type
  - ✓ UVC LED double-ended tube lamp (T5 form factor)
- Lamp size:
  - ✓ Diameter × Length = 14 mm × 210 mm (excluding pins)
  - ✓ Overall length including pins: 225 mm
- Lamp Material:
  - ✓ Housing: Aluminum alloy (aviation-grade)
  - ✓ Cover: Quartz glass
- PCB Specification
  - ✓ Dimensions: 190 mm × 7 mm × 1.2 mm
  - ✓ Material: Single-sided aluminum-based PCB
- LED Configuration
  - ✓ 12 × 3535 UVC LEDs (270–280 nm), connected in series
    - Configured as 5 parallel strings of 2 series-connected LEDs (2S6P)
  - ✓ Other components: Passive current balancing elements (resistors, Zeners, capacitors)
- Drive Mode
  - ✓ External constant-voltage DC12 input
  - ✓ This model does not include an internal AC–DC converter

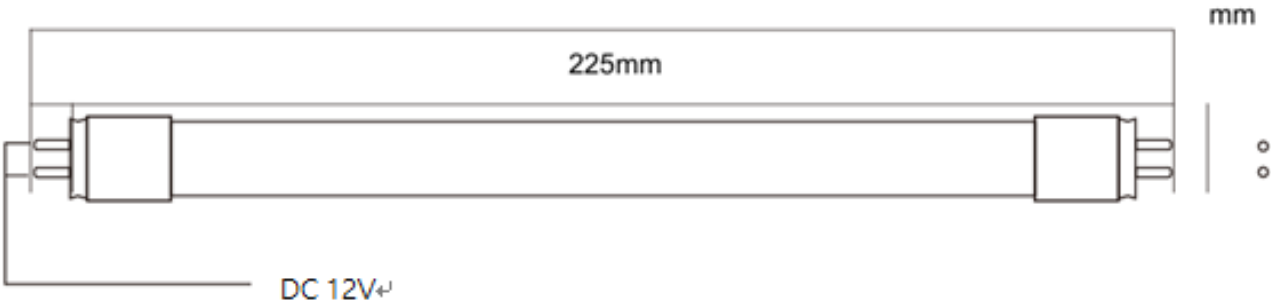
3. Outline Dimensions and Physical Structure

Item	Value	Conditions / Note
Lamp Body Size	225 x 14 mm	Including pins
PCB Dimensions	190 × 7 × 1.2 mm	Aluminum-core PCB

◆ Actual Product Images

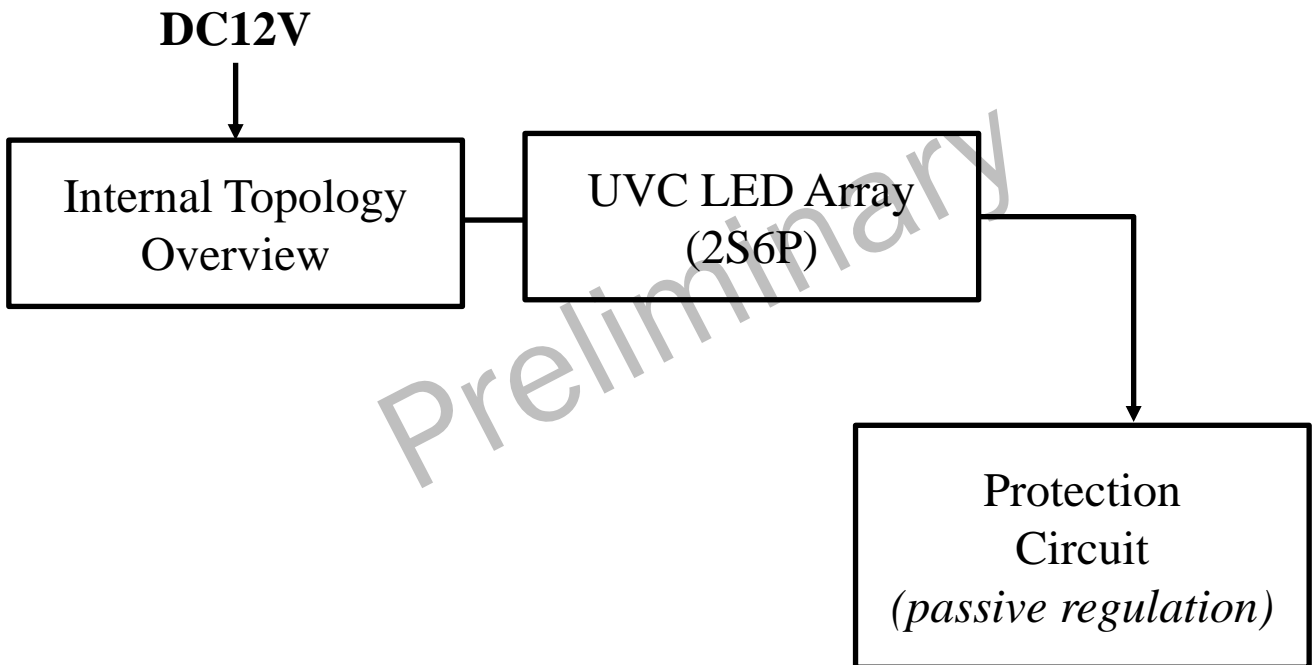


◆ Outline Dimensions & Lighting Configuration



## 4. Internal Drive Architecture Overview

- The PPM225-30 model operates with an external constant-voltage DC12 input.
- It employs a passive protection and regulation circuit with a direct parallel LED configuration:
  - ✓ UVC LED Array (6 parallel strings of 2 series)
- This architecture ensures safe operation, basic surge suppression, and balanced optical output.



*Functional diagram for conceptual reference. LED strings are independently regulated with passive components.*

5. Electro Optical Characteristics

Item	Value	Conditions / Note
Rated Input Voltage	DC12	Constant-voltage input from external power supply
UVC Radiant Flux ( $\Phi_e$ )	550 - 600 mW	Measured at 12V, 25°C ambient
Peak Wavelength (UVC, WLP1)	270 - 280nm	Measured at 12V, 25°C ambient

- The product operates with an external DC12 constant-voltage source.
- All optical values are measured under standard 12V input and ambient lab conditions.

6. Sterilization Performance

- E. coli inactivation.
  - ✓  $\geq 99.99\%$  reduction after 8-minute exposure at 30 cm distance
- Natural microbial inhibition.
  - ✓ Microbial colony count maintained below 50 cfu/mL over 200 hours with 8 min/hour exposure at 30 cm

7. Reliability & Environmental Conditions

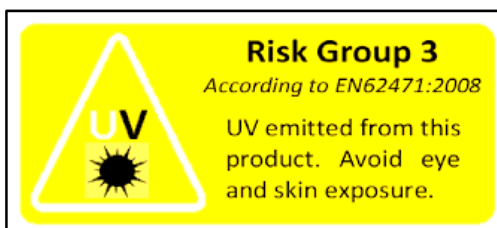
Item	Value	Conditions / Note
LED Lifetime (L70)	$\geq 10,000$ hours	Under rated DC operation
Operating Temperature	-30°C to +60°C	Ambient
Storage Temperature	-30°C to +60°C	Non-operating

## 8. Handling Precautions

- Do not subject the lamp to impact, vibration, or excessive pressure. The quartz structure is fragile.
- Power is supplied internally via regulated DC12–24V. Observe polarity when connecting directly to driver terminals.
- Avoid continuous operation in sealed, high-temperature environments.
- The product is ESD-sensitive. Proper grounding and anti-static measures are required during handling and installation.
- Keep the quartz surface clean. Organic residues may absorb UVC and significantly degrade performance. Use IPA or alcohol-based agents for cleaning.
- Do not expose the lamp to high humidity or direct moisture. Apply waterproof sealing where necessary.

## 9. Safety Warning

- This product emits deep ultraviolet (UVC) radiation when powered on.
- Direct exposure to UVC light can cause serious injury to skin and eyes.
- Do not look directly at the light source under any circumstances.
- Ensure that appropriate shielding, interlocks, or protective measures are applied during operation.
- UVC radiation is invisible. Do not assume the lamp is safe when it appears off.
- Keep the product away from children or unauthorized personnel during use.





## 10. Revision Sheet

[illegible]