HK255S50CG-Z209-PCBA



Specification Datasheet

CFCL Optoelectronics (Shenzhen) Co., Ltd.

Model No.: HK255S50CG-Z209-PCBA

Product: φ20mm blossom board - copper substrate UVC LED Module(20*20mil Chip*9 Pcs)

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Table of Contents

No.	Item	Page
1	General Description	2
2	Key Features	2
3	Application Fields	2
4	Absolute Maximum Ratings	3
5	Electro-Optical Characteristics	3
6	Binning Specifications	4
7	Outline Dimensions	4、5
8	Packaging & Storage	5
9	Notes & Precautions	5

Address: 6th Floor, Building D, No. 48 Paotai Road, Lisonglang Community, Gongming Sub-district, Guangming District, Shenzhen, Guangdong, P.R. China
Website: www.cfclopot.com E-mail:uvclcd@qq.com

1. General Description

HK255S50CG-Z209-PCBA is a UVC high-power 254nm purple flashlight professional for mineral detection fluorescence flashlight ultraviolet lamp beads. The lamp beads use φ20mm blossom board - copper substrate and integrate 9 pieces of 20*20 mil high-brightness 254nm UVC chips.

- This device is fully compatible with standard surface mount technology (SMT) assembly processes, and is suitable for Gemstone Authentication & Fluorescence Grading applications. All products undergo 100% testing and sorting by forward voltage, optical power and wavelength before delivery.

2. Key Features

- Peak wavelength range: 250.0 – 260.0 nm
- Standard φ20mm blossom board - copper substrate
- Package dimensions: 20.00 × 20.00 × 3.00 mm (Diameter × Thickness)
- Gold (Au) positive and negative electrodes for high reliability
- Low thermal resistance ceramic substrate
- RoHS, CE and REACH compliant
- 100% visual and electrical inspection before shipment

3. Application Fields

- Molecular Biochemical Detection
- Gemstone Authentication & Fluorescence Grading
- Mineral Prospecting & Ore Identification
- Industrial Non-Destructive Quality Testing
- Forensic Evidence & Anti-Counterfeiting Detection
- High-power UVC LED modules for large-area treatment; specialty short-wave UV curing
- Dual-mechanism disinfection via simultaneous DNA damage and protein denaturation

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4. Absolute Maximum Ratings

(Test condition: Ambient temperature Ta = 25°C)

Parameter	Symbol	Rating	Unit
Forward Current	I_F	900	mA
Peak Forward Current (10% duty cycle, 1ms pulse)	$I_{F(peak)}$	1400	mA
Reverse Voltage	V_R	5	V
Operating Temperature Range	T_{opr}	-40 ~ +85	°C
Storage Temperature Range	T_{stg}	-40 ~ +100	°C
Maximum Junction Temperature	T_j	105	°C

5. Electro-Optical Characteristics

(Test condition: Ta = 25°C, Forward current I_F = 900 mA)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_p	250.0	254.0	260.0	nm
Spectral Half-Width	Δλ	-	12	-	nm
Forward Voltage	V_F	4.8	5.4	6.0	V
Radiant Output Power	P_e	72.0	108.0	144.0	mW
Viewing Angle (Half Intensity)	$2\theta_{1/2}$	-	120	-	deg
Reverse Leakage Current	I_R	-	-	10	μA
Thermal Resistance (Junction to Board)	$R_{th(j-b)}$	-	18	-	°C/W

6. Binning Specifications

(Test condition: Ta = 25°C, I_F = 900 mA)

6.1 Forward Voltage Binning

Level	A01	A02	A03	A04	A05	A06
Min. (V)	4.8	5.0	5.2	5.4	5.6	5.8
Max. (V)	5.0	5.2	5.4	5.6	5.8	6.0

6.2 Radiometric Power Binning

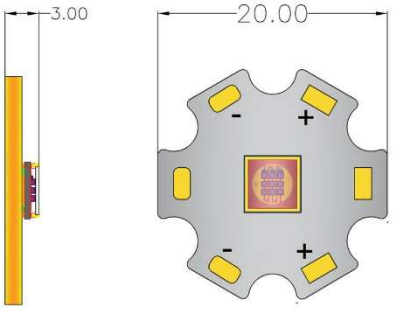
Level	-Z209				
Min.	72.0 mW	90.0 mW	108.0 mW	126.0 mW -	-
Max.	90.0 mW	108.0 mW	126.0 mW	144.0 mW	-

6.3 Dominant Wavelength Binning

Level	255A	255B
Min.	250.0 nm	255.0 nm
Max.	255.0 nm	260.0 nm

7. Outline Dimensions

- **Package Type:**φ20mm blossom board - copper substrate
- **Overall Dimensions:** 20.00 ± 0.10 mm (Length) × 20.00 ± 0.10 mm (Width) × 3.00 ± 0.10 mm (Height)
- **Lens Diameter:** 3.80 mm (Sapphire Plano Lens)
- **Pad Layout:** φ20mm blossom board - copper substrate



8. Packaging & Storage

8.1 Packaging

- Packaging Type: Panel
- Quantity per Panel: 30
- Arrangement: 5*6
- Moisture Sensitivity Level: MSL 3

8.2 Storage Conditions

- Store in a dry environment at room temperature
- Recommended storage: 5°C ~ 30°C, 30% ~ 70% RH
- Avoid direct sunlight, corrosive gases and high humidity
- Reseal the bag properly after opening to prevent moisture absorption

9. Notes & Precautions

1. Peak wavelength tolerance: ± 3.5 nm
2. Radiant flux measurement tolerance: ± 10%
3. Forward voltage tolerance: ± 10%
4. All parameters are measured at chip level by UV-CHIPS
5. UVC LEDs emit high-energy ultraviolet radiation. Avoid direct exposure to eyes or skin during operation.
6. The device is sensitive to electrostatic discharge (ESD). Proper ESD protection is required during handling and assembly.
7. Operating beyond absolute maximum ratings may cause permanent damage to the device.