HK-TO39-235NM

Specification Datasheet



CFCL Optoelectronics (Shenzhen) Co., Ltd.

Model No.:HK-TO39-235nm

Product: TO39 package Quartz lens 7° vertical beam (48*48mil Chip)

Revision: V1.0

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1. General Description

The HK-TO39-235nm is a highly reliable deep UV LED, packaged in a standard industrial TO39 metal pin package. It integrates a high-efficiency AlGaN-based deep UV chip that emits shortwave UVC light with a wavelength range of 230–240 nm, offering three selectable peak wavelengths: 230 nm, 235 nm, and 240 nm. It comes with a high-transmittance quartz lens and a 7° vertical emission beam. ...

This 230–240 nm device belongs to the short-wave deep-UV (far-UVC adjacent) sensing family. Its higher photon energy and strong absorption by nitrates, nitrites, dissolved organic matter, proteins and aromatic compounds make it especially suitable for UV absorbance spectroscopy, water-quality monitoring, gas analysis, biochemical and medical diagnostics, as well as short-range surface and instrument disinfection.

2. Key Features

- Peak wavelength range: 230.0 – 240.0 nm
- Mercury-free & RoHS/REACH compliant
- 0zone-free
- Instant on/off & pulse capable
- Compact SMD for flow cells/probes/handheld analyzers
- Long lifetime, vibration-proof vs glass lamps
- Narrow stable spectrum simplifies calibration

3. Application Fields

- Water Quality Monitoring & Analysis
- Gas Analysis & Environmental Sensing
- Medical Diagnostics & Life-Science Instruments
- Chemical & Analytical Instrumentation
- Short-Range Disinfection
- Other Specialty Uses

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4. Absolute Maximum Ratings

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

Parameter	Symbol	Rating	Unit
Forward Current	I_F	100	mA
Peak Forward Current (10% duty cycle, 1ms pulse)	$I_{F(peak)}$	120	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 = 100 mA)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_p	230.0	235.0	240.0	nm
Spectral Half-Width	$\Delta\lambda$	-	12	-	nm
Forward Voltage	V_F	6.0	6.8	9.0	V
Radiant Output Power	P_e	0.3	0.8	1.5	mW
Viewing Angle (Half Intensity)	$2\theta_{1/2}$	-	7	-	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 = 100 mA)

6.1 Forward Voltage Binning

Level	A01	A02	A03	A04	A05	A06
Min. (V)	6.0	6.5	7.0	7.5	8.0	8.5
Max. (V)	6.5	7.0	7.5	8.0	8.5	9.0

6.2 Radiometric Power Binning

Level	-				
Min.	0.3 mW	0.5 mW	0.7 mW	0.9 mW	1.2 mW
Max.	0.5 mW	0.7mW	0.9 mW	1.2 mW	1.5 mW

6.3 Dominant Wavelength Binning

Level	235A	235B
Min.	230.0 nm	235.0 nm
Max.	235.0 nm	240.0 nm

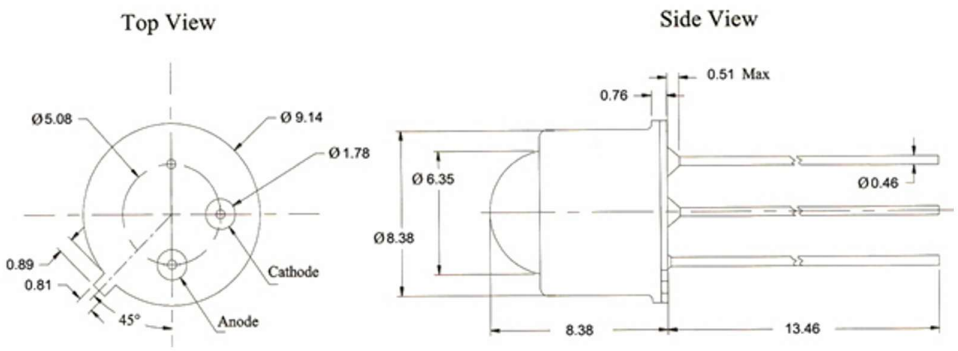
7. Outline Dimensions

- **Package Type:** TO39 package Quartz lens 7° vertical beam
- **Overall Dimensions:** 9.14 ± 0.10 mm (φ) × 8.38 ± 0.10 mm (Shell Height) ×

13.46 ± 0.10 mm (PIN Height)

- **Pad Layout:** Quartz lens 7° vertical beam

8. Packaging & Storage



8.1 Packaging

- Packaging type: Anti-static bag
- Quantity per roll: Up to 50 pieces
- Bag size: 145mm * 100mm
- 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.