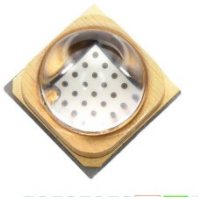
HK385S35CL-S45



Specification Datasheet

CFCL Optoelectronics (Shenzhen) Co., Ltd.

Model No.: HK385S35CL-S45

Product: 3535 Round Lens Package UVA LED (45*45mil Chip)

Revision: V1.1

Date: November 2026

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
8	Characteristic Curve	5
9	Packaging & Storage	5
10	Notes & Precautions	6

1. General Description

This is a high-power mid-band UVA solid-state light source designed for 500 mA continuous operation, with a typical peak wavelength of 385 nm. It adopts a standard 3535 SMD package with a high-purity aluminum nitride (AlN) ceramic substrate and a 60° spherical fused silica lens, delivering a radiant output of 980 – 1140 mW with balanced photon energy and depth of penetration.

The AlN substrate provides ultra-low thermal resistance (12 °C/W typical, junction to board), ensuring stable radiant power and long service life under continuous operation. This wavelength band offers an optimized balance between photochemical activity and material penetration, making it a versatile source for general industrial UV curing, fluorescence excitation and precision photopolymerization.

2. Key Features

- Peak wavelength: typical 385.0 nm, full binning range 380.0 – 390.0 nm (mid UVA band)
- 3535 SMD aluminum nitride (AlN) ceramic package, thermal conductivity ≥ 170 W/m·K and 12 °C/W typical thermal resistance
- 60° half-intensity beam angle with high-purity fused silica spherical lens
- Radiant output power 980 – 1140 mW at 500 mA continuous operation
- Balanced photon energy and penetration depth for broad material compatibility
- Low luminous degradation under continuous high-current driving
- 100% electrical and optical inspection before shipment
- RoHS, CE and REACH compliant

3. Application Fields

- General UV curing of UV inks, varnishes, adhesives and functional coatings
- Electronic component encapsulation and precision adhesive curing
- Fluorescence excitation and industrial fluorescent inspection
- Anti-counterfeiting verification of currency, documents and security labels
- Photopolymerization and post-curing of 3D printing resins
- Accelerated weathering and photodegradation testing of materials
- Photobiological research and biochemical analysis instruments

4. Absolute Maximum Ratings

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

Parameter	Symbol	Rating	Unit
Forward Current	I_F	700	mA
Peak Forward Current (10% duty cycle, 1ms pulse)	$I_{F(peak)}$	⩽1500	mA
Reverse Voltage	V_R	5.0	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 = 500 mA)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_p	380.0	385.0	390.0	nm
Spectral Half-Width	Δλ	-	12	-	nm
Forward Voltage	V_F	3.1	3.4	3.6	V
Radiant Output Power	P_e	980.0	1060.0	1140.0	mW
Viewing Angle (Half Intensity)	$2\theta_{1/2}$	-	60	-	deg
Reverse Leakage Current	I_R	-	-	1.0	μA
Thermal Resistance (Junction to Board)	$R_{th(j-b)}$	-	12	15	°C/W

6. Binning Specifications

(Test condition: Ta = 25°C, I_F = 500 mA)

6.1 Forward Voltage Binning

Level	A01	A02	A03	A04	A05
Min. (V)	3.1	3.2	3.3	3.4	3.5
Max. (V)	3.2	3.3	3.4	3.5	3.6

6.2 Radiometric Power Binning

Level	S45-98	S45-102	S45-106	S45-110
Min.(mW)	980.0	1020.0	1060.0	1100.0
Max.(mW)	1020.0	1060.0	1100.0	1140.0

6.3 Dominant Wavelength Binning

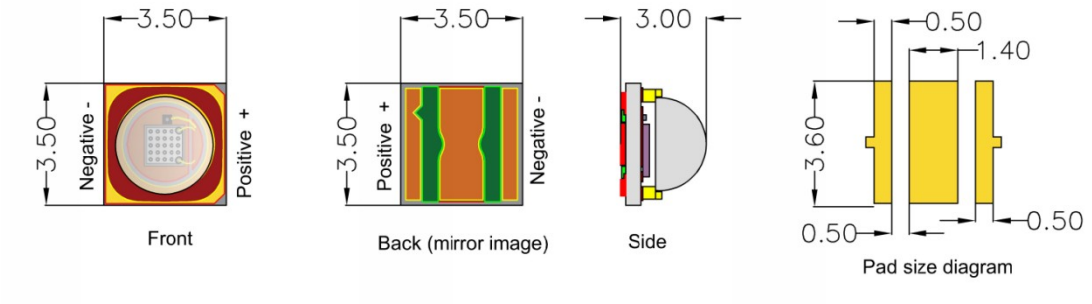
Level	380A	385B
Min.	380.0 nm	385.0 nm
Max.	385.0 nm	390.0 nm

Default supply: 385B bin; 380A bin available upon custom request.

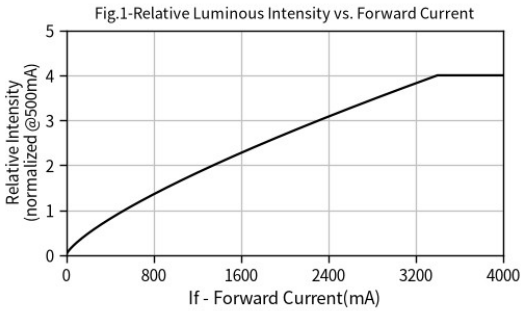
7. Outline Dimensions

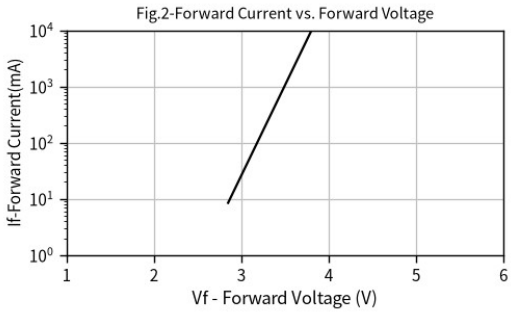
- **Package Type:** 3535 SMD Round Lens
- **Overall Dimensions:** 3.50 ± 0.10 mm (Length) × 3.50 ± 0.10 mm (Width) × 3.00 ± 0.10 mm (Height)
- **Lens Diameter:** φ2.8mm (High-purity quartz glass)
- **Pad Layout:** Standard 3535 SMD footprint

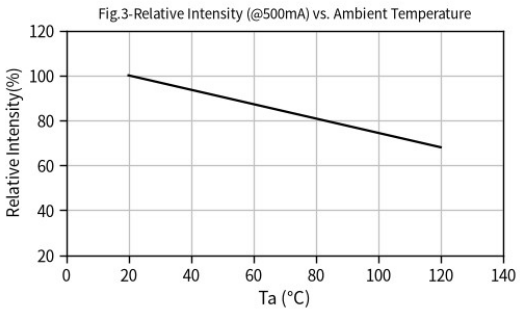
- **Polarity Marking:** Anode (+) and Cathode (-) marked on the back of the package (mirror view)
- **Pad Size:** Symmetrical pad design compatible with standard 3535 SMD reflow soldering processes

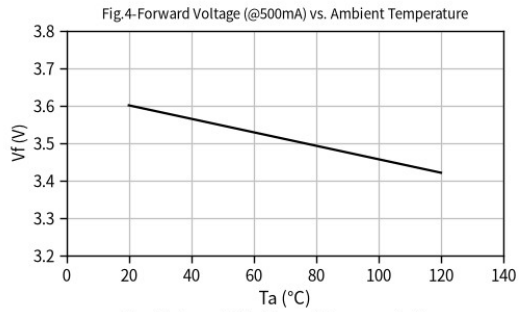


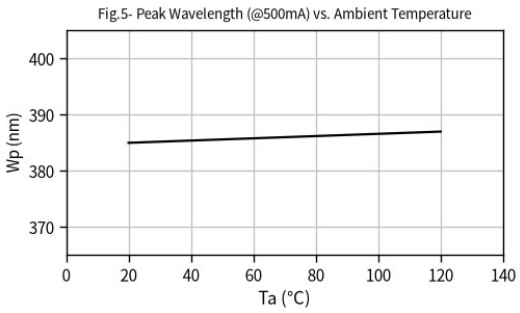
8. Characteristic Curve

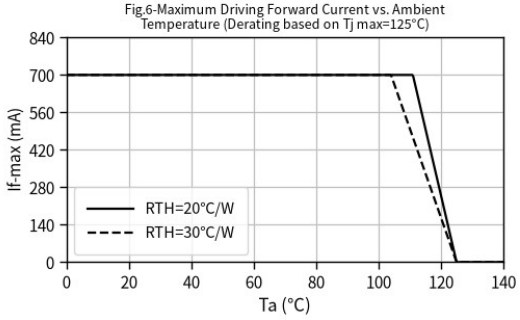












9. Packaging & Storage

9.1 Packaging

- Packaging form: Tape and reel
- Quantity per reel: 600 pieces
- Reel diameter: 178 mm (7 inch)
- Moisture Sensitivity Level: MSL 3

9.2 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 moisture barrier bag properly after opening
- For MSL 3 devices, complete soldering within 168 hours after opening the bag under factory environment (≤ 30°C / 60% RH); bake before use if expired.

10. Notes & Precautions

- Peak wavelength measurement tolerance: ± 2.0 nm
- Radiant power measurement tolerance: ± 10%
- Forward voltage measurement tolerance: ± 10%
- All parameters are tested on finished devices under standard conditions (Ta = 25 °C, IF = 500 mA) via integrating sphere system.
- UVA LEDs emit high-energy ultraviolet radiation. Avoid direct exposure to eyes or skin during operation.
- This device is sensitive to electrostatic discharge (ESD). ESD withstand voltage: HBM ± 2000 V. Proper ESD protection is required during handling and assembly.
- Operating beyond absolute maximum ratings may cause permanent damage to the device.
- Proper thermal design is required to ensure junction temperature does not exceed 105°C under continuous operation.
- Chip-level maximum ratings (S-45AUPUT-A): DC forward current ≤ 1500 mA, junction temperature ≤ 125 °C. The package-level limits stated in Section 4 govern continuous operation of this device.