UV-CHIPS-4040A UV LED Chip Specification Sheet

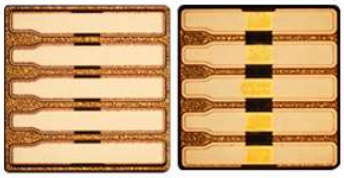
Manufacturer: Anhui UV-CHIPS Semiconductor Technology Co., Ltd.

Product Model: UV-CHIPS-4040A (A-Mask)

Product Type: Surface Mount UV LED Chip

Chip Format: 4040mil

Revision: Official Release



1. Features & Applications

1.1 Key Features

- Broad peak wavelength range: 250 – 320 nm
- Large 4040 chip footprint: 1018.0 × 1018.0 × 415.0 μm
- High radiant power output up to 120mW @ 350mA driving current
- AuSn (Gold-Tin alloy) P & N electrodes for high reliability
- Sapphire substrate with AlGaN/AlN/GaN MQW epitaxial structure
- Precision multi-parameter binning (voltage, power, wavelength)
- Compatible with high-volume SMT assembly

1.2 Typical Applications

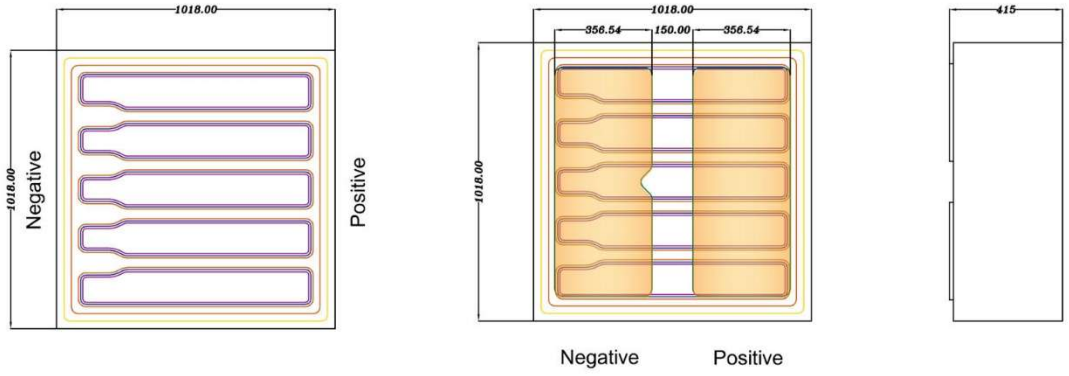
- Industrial water sterilization & large-flow water treatment
- Central air purification & HVAC disinfection systems
- High-power surface disinfection equipment
- High-speed UV curing for adhesives, inks and coatings
- Large-area photochemical reactors & industrial UV systems
- Medical-grade sterilization devices

2. Mechanical Dimensions & Structure

Reference Condition: Ta = 25°C

Parameter	Value	Tolerance	Unit
Chip Size (L × W)	1018.0 × 1018.0	±25.0	μm
Chip Thickness	415.0	±20.0	μm
P Pad Size	980.0 × 356.54	±25.0	μm
N Pad Size	980.0 × 356.54	±25.0	μm
Pad Spacing	150.0	±10.0	μm
Substrate Material	Sapphire	—	—
Epitaxial Structure	AlGaN/AlN/GaN MQW	—	—
P Electrode	AuSn	—	—
N Electrode	AuSn	—	—

Unit:μm



3. Absolute Maximum Ratings

Ta = 25°C unless otherwise noted

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
DC Forward Current	IF	TC = 220°C	—	350	500	mA
Junction Temperature	Tj	—	—	—	85	°C
Operating Temperature	Topr	—	-30	55	60	°C

4. Electro-Optical Characteristics

Standard Test Condition: Ta = 22°C, If = 350 mA

Parameter	Symbol	Unit	Min.	Typ.	Max.
Peak Wavelength	λp	nm	250	—	310
Radiant Flux	Φe	mW	60	—	120
Forward Voltage	VF	V	5.0	6.0	6.4
Spectrum Half-Width	Δλ	nm	11	12.3	13

5. Parameter Binning Specifications

5.1 Forward Voltage Binning

Test Condition: Ta = 22°C, If = 350 mA

Level	A01	A02	A03	A04	A05	A06	A07
Min. Voltage (V)	5.0	5.2	5.4	5.6	5.8	6.0	6.2
Max. Voltage (V)	5.2	5.4	5.6	5.8	6.0	6.2	6.4

5.2 Radiant Power Binning

Test Condition: Ta = 22°C, If = 350 mA

Level	B01	B02	B03	B04	B05	B06
Min. Power (mW)	60.0	70.0	80.0	90.0	100.0	110.0
Max. Power (mW)	70.0	80.0	90.0	100.0	110.0	120.0

5.3 Dominant Wavelength Binning

Test Condition: Ta = 22°C, If = 350 mA

Level	C255	C265	C275	C285	C295	C305	C315
Min. Wavelength (nm)	250.0	260.0	270.0	280.0	290.0	300.0	310.0
Max. Wavelength (nm)	260.0	270.0	280.0	290.0	300.0	310.0	320.0

6. Notes

1. Peak wavelength tolerance: ±3.5 nm
2. Radiant flux measurement tolerance: ±10%
3. Forward voltage tolerance: ±10%
4. All characteristics are measured and calibrated by ROOTIN under standard test conditions.

7. Manufacturer Information

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