

PPZ2020P5S

Product Datasheet SPECIFICATIONS

We take care of your health with UVC

Pueple Planet UVC + UVA LED PKG

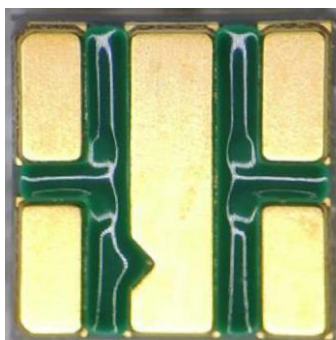
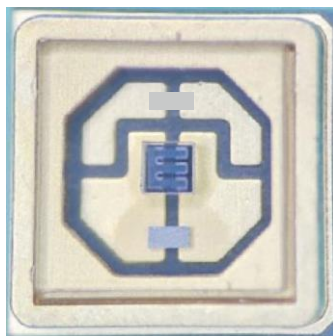
1 PRODUCT FEATURES

Product Features: UVA + UVC Dual Wavelength, Wide Beam Angle, High Reliability, Long Lifetime, Eco-friendly and Energy-efficient

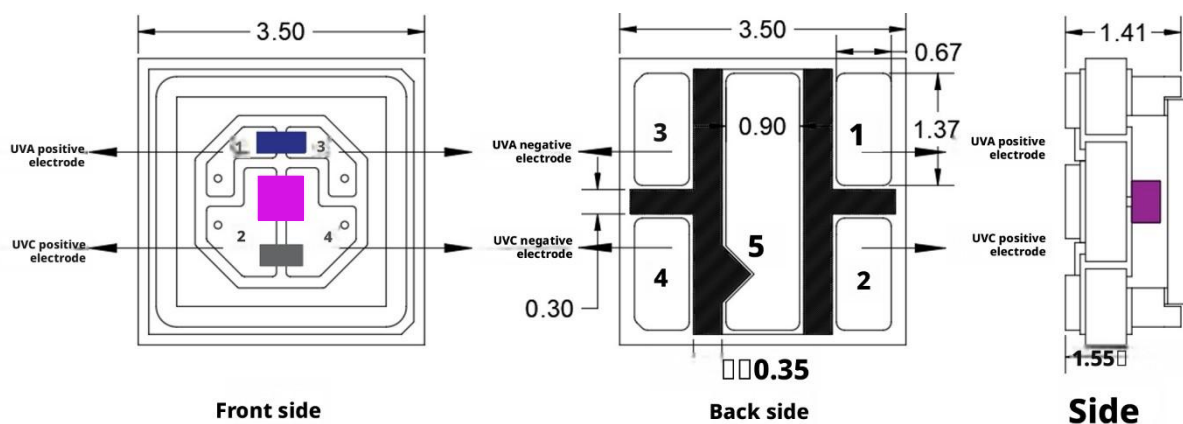
Applications: Sterilization and Disinfection, Medical Phototherapy, Optical Sensors, Bioanalysis and Detection

1 Device Structure

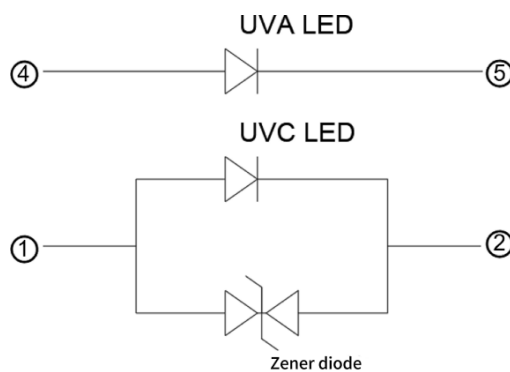
2.1 Product Photos



2.2 Device Dimensions



2.3 Circuit Connection



备注:

- [1] Each device contains two different types of chips: a UVC LED chip and a Zener diode. The Zener diode provides ESD protection for the UVC LED chip.
- [2] Package Dimensions: 3.5 × 3.5 × 1.55 (L × W × H) [Unit: mm]; ;
- [3] As shown in the figure above, ① is the positive electrode, ③ is the negative electrode, and ② is the thermal pad.
- [4] The front notch and back chamfer indicate the negative electrode. For taped products, the round-hole side indicates the negative electrode. If the back chamfer is absent, refer to Section [3] for polarity;
- [5] Slight appearance variations may occur due to different bracket batches. Products remain compatible and functional.;
- [6] Dimensional Tolerance: ±0.2 mm.

2 Optoelectrical Characteristics

1.1 3.1 UVC Optoelectrical Parameters and SPEC Range @ 40mA (Ta = 25°C, RH = 30%)

Parameter	Symbol	Min	Max	Step	Unit
UVC Peak Wavelength	λ_p	270	280	10	nm
UVC Radiant Power	P_o	20	35	/	mW
UVC Forward Voltage	V_f	5.4	6.2	0.2	V

Wavelength Range:

Bin Code	W01
Range (nm)	270~280

Radiant Power Range:

Bin Code	P001	P002	P003
Range (mW)	20~25	25~30	30~35

Forward Voltage Range:

Bin Code	V11	V12	V13	V14
Range (V)	5.4~5.6	5.6~5.8	5.8~6.0	6.0~6.2

Notes:

[1] UVC Maximum Operating Current: 150mA。

3.2 UVA Optoelectrical Parameters @60Ma (Ta=25°C,RH=30%)

Parameter	Symbol	Tye	Unit
UVA Peak Wavelength	λ_P	395-405	nm
UVA Radiant Power	P_0	60-80	mW
UVA Drive Current	I_f	40-60	mA
UVA Drive Current	V_f	3.0-4.0	V
UVA Maximum Operating Current	I_{fmax}	60	mA

3.3 Absolute Maximum Ratings

Parameter	Symbol	Value			单位!
		Min		Max	
Operating Temperature	T_{opr}	-30		60	°C
Storage Temperature	T_{stg}	-40		100	°C
Thermal Resistance	R_{js}				K/W

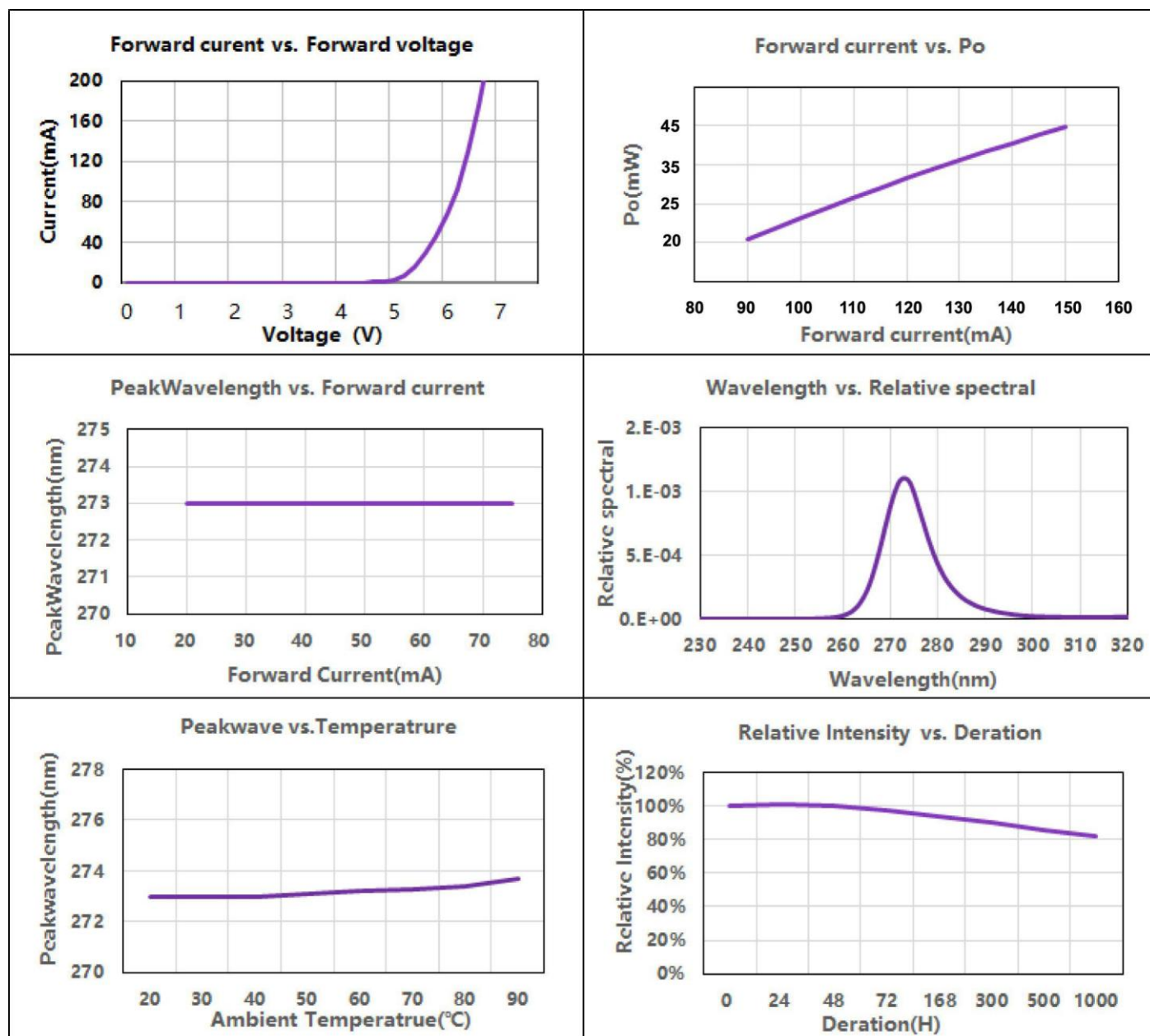
Notes:

[1] Radiant power refers to the total optical output power collected by an integrating sphere.

[2] All data are based on the test results obtained using Huaai Technology testing equipment. The measurement tolerances of forward voltage, peak wavelength, and radiant power are $\pm 0.2V$, $\pm 3nm$, and $\pm 10\%$, respectively. An increase in drive current will result in a higher operating temperature, accelerate LED light degradation, and shorten the product lifetime. Testing or operating the device beyond the above absolute maximum ratings may affect device reliability and cause permanent damage.

[3]A proper heat dissipation environment or thermal management system is recommended during operation to achieve optimal performance.

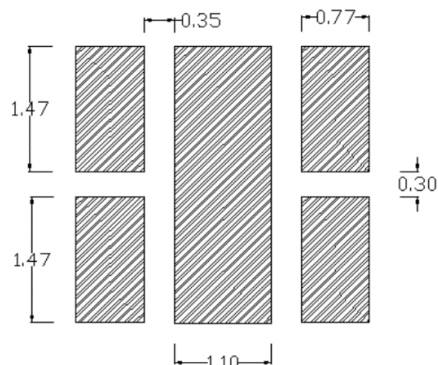
3.4 Characteristic Curve (UVC Chip)



Note:

The actual curve may vary depending on sampling conditions.

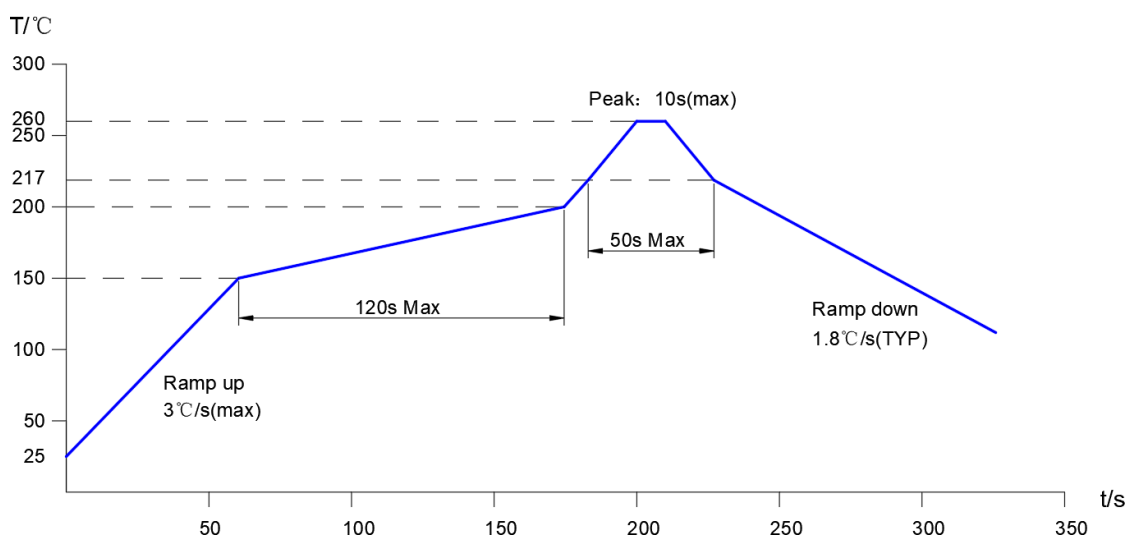
3 Recommended Pad Design



Note:

[1] The above pad design is for reference only.

4 Reflow Process



Surface mounting should use high-temperature solder paste for reflow soldering. The peak temperature should not exceed 260°C, peak time should be controlled within 10 seconds, and total reflow time should not exceed 5 minutes.

备注:

- [1] Reflow soldering should not be performed more than once;
- [2] Repair after UVC soldering is not recommended. If repair is unavoidable, a dual-tip soldering iron must be used, and careful operation is required to avoid damaging the product itself. Reflow soldering should not be performed more than once;
- [3] Do not apply pressure to the LED during heating and soldering;
- [4] A convection reflow oven with more than 7 heating zones is recommended.

5 Reliability Test

Test Item	Test Condition	Criteria	Failure Rate
Normal Drive	T =25°C, Rated Current, Continuous Lighting 1000 Hours	LED Failure	0/35
Thermal Shock	Thermal Shock Test: -40°C ↔ 120°C, 500 cycles, 15 min per cycle	LED Failure	0/35
Reflow Soldering	Peak Temperature <170°C, 10-zone reflow oven, 1 cycle	LED Failure	0/100
ESD Resistance	R=1.5kΩ, C=100pF, Voltage level=2kV	LED Failure	0/10

6 Usage Risks



Note:

- [1] All assembly workers, inspectors, and bystanders must wear eye and skin protection;
- [2] Direct observation with naked eyes (including through a microscope) and exposed handling of deep UV LEDs during operation are strictly prohibited.
- [3] Deep UV light can be easily absorbed by contaminants. Do not touch the optical structure of the deep UV LED;
- [4] This product is moisture-sensitive. The recommended storage conditions are 18°C–30°C with a relative humidity of 30%–60%, and the product should be stored in sealed packaging. To ensure product quality, unopened packages should be used within one year after shipment. Once the package is opened, the product should be used within 24 hours. If the exposure time exceeds 24 hours, the product must be resealed and stored properly. Before reuse, dehumidification is recommended at 65°C for 5 hours.