



安徽省紫芯半导体技术有限公司

Anhui UV-CHIPS semiconductor technology Co., Ltd

HK-T039-X-Z3

(3030mil AlGaN铝镓氮-紫外探测器光源)

说明书

Specifications



UV-CHIPS





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1、功能和优势 Features & Benefits

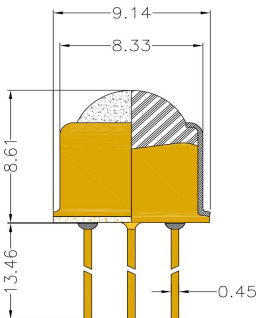
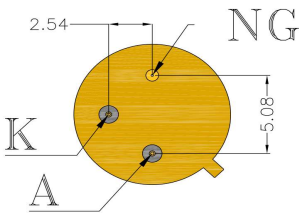
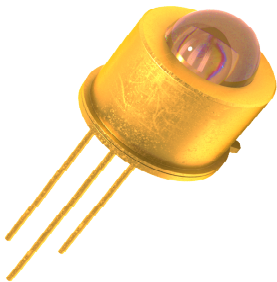
功能 Features

- Tight Radiation Pattern of 7°
超窄发光角度：7°
- Precise peak wavelength bins from 235 nm | 255nm | 265nm | 280 nm
精准的发光波长：235 nm | 255nm | 265nm | 280 nm
- Bounded low Signal-to-Noise Ratio
低信噪比
- Robust, hermetic through-hole package
高温无机熔融焊接，气密性好

优势 Benefits

- Integrated optics reduce assembly cost and size requirements
集成光学器件降低了组装成本和尺寸要求
- Narrow emission spectrum is ideal for fixed wavelength detectors
窄发射光谱是理想的固定波长探测器光源
- Instant on/off measurement capability
快速响应
- Low power, long life emitter ideal for remote and field systems
低功率、长寿命发射器，是远程和现场系统的理想选择

2、外形尺寸 Outline Dimensions



3、常用参数的建议波长范围 Suggested wavelength for common paramenters

Parameter	230 nm - 240 nm	250 nm - 260 nm	250 nm - 260 nm	270 nm - 280 nm
EPA UV 254/SAC		☆		
COD	☆	☆		
Ozone		☆		
TOC	☆	☆		
DNA	☆		☆	
BOD				☆
Oil-in-Water				☆
Oil-in-Water				☆
Uric Acid				☆

4、产品命名法则 Product nomenclature

Part Number1	Peak Wavelength			Optical output	
	Min	Typical	Max	Min	Max
230nm Series					
HK-TO39-230nm-Z3	230.0nm	236.9nm	240.0nm	150mA 0.1mW	150mA 0.8mW
255nm Series					
HK-TO39-255nm-Z3	250.0nm	256.9nm	260.0nm	150mA 2.0mW	150mA 4.0mW
265nm Series					
HK-TO39-265nm-Z3	260.0nm	268.4nm	270.0nm	150mA 2.0mW	150mA 4.0mW
275nm Series					
HK-TO39-275nm-Z3	270.0nm	276.9nm	280.0nm	150mA 2.0mW	150mA 4.0mW





5、LED特性 LED Characteristics

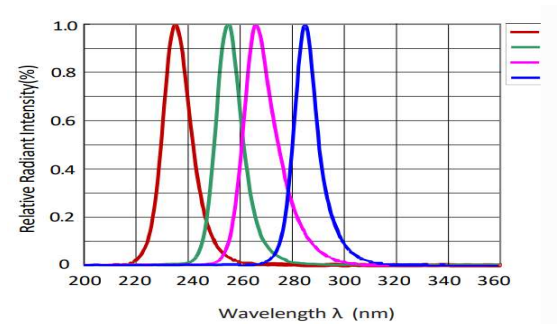
Characteristic	Unit	Min	Typical	Max
Viewing Angle	degrees		7	
Full width at half maximum	nm		10	
Forward voltage at 150mA	V	5	6	6.5
Forward voltage at 150 mA	°C/W		20	
Forward voltage at 150 mA	W			

6、绝对最大额定功率 Absolute maximum ratings

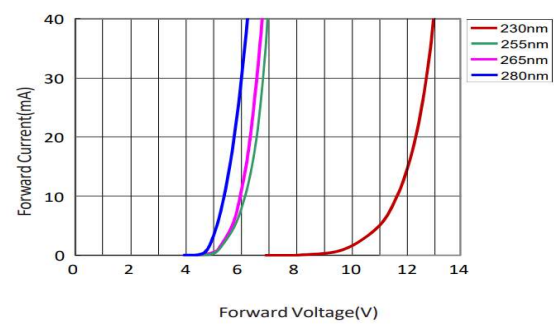
Characteristic	Unit	Min	Max
Forward Current (continuous or CW)	mA		150
Reverse Voltage	V		-5
Operating case temperature range	°C	-10	60
Storage temperature	°C	-40	95
Junction temperature	°C		85

7、典型辐射图 Typical radiation pattern

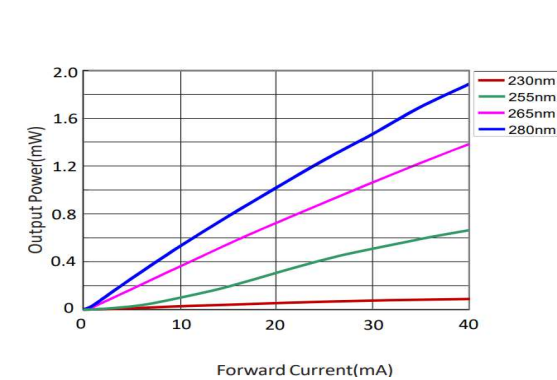
(1) 相对光谱分布 Spectral Distribution (Ta=25°C)



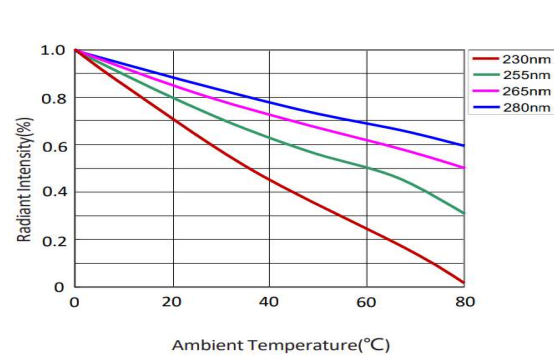
(2) I-V特性 I-V Characteristic



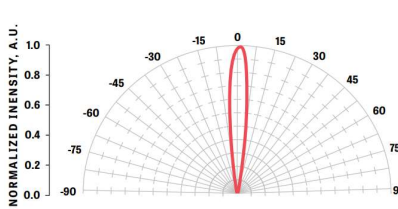
(3) 辐射强度VS电流 Radiated power VS current



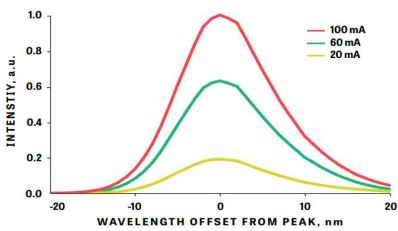
(4) 辐射强度 VS 温度 Radiant Intensity vs. Ambient Temperature(If=20mA)



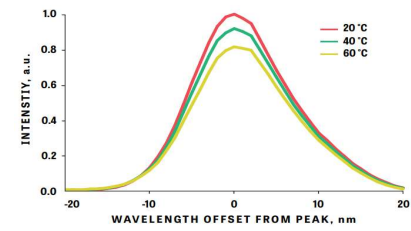
(5) 配光曲线图 Radiation Pattern



(6) 频谱与电流 Spectrum vs. Current



(7) 光谱与温度 Spectrum vs. Temperature





8、可靠性试验项目及条件 Reliability Test Items and Conditions

(1) 损伤判断标准 Criteria for Judging the Damage

参数 Parameter	符号 Symbol	条件 Condition	判定标准 Criteria for Judgement	
			Min.	Max.
正向电压 Forward Voltage	VF	I _F =150mA		H.S.R..(1) *1.1
辐射功率 Radiometric Power	IV	I _F =150mA	H.S.L(1) *0.5	

备注3 Note3:
[1] H.S.R: 规格上限 Upper Specification Level
[2] H.S.L: 规格下限 Lower Specification Level

(2) 可靠性试验 Reliability Tests

试验项目 Test Item	试验条件 Test Conditions	试验时间 Test Time	样品数量 Sample Q' ty
室温及工作寿命 Room Temperature Operating Life1	Ta=25℃ , If=150mA	6000 hrs	20 Pcs
室温及工作寿命 Room Temperature Operating Life2	Ta=25℃ , If=150mA	6000 hrs	20 Pcs
高温及工作寿命 High Temperature Operating Life	Ta=60℃ , If=150mA	6000 hrs	20 Pcs
低温及工作寿命 Low Temperature Operating Life	Ta=40℃ , If=150mA	6000 hrs	20 Pcs
高温及存储寿命 High Temperature Operating Life	Ta=95℃	6000 hrs	20 Pcs
低温及存储寿命 Low Temperature Operating Life	Ta=-40℃	6000 hrs	20 Pcs
热冲击 Thermal Shock	Ta max=120℃, Ta min=-40℃ 30min dwell/transfer time: 10sec. 1 cycle = 1 hour	100 cycle	20 Pcs

9、使用说明 Instructions

(1) LED储存: 建议存储温度10摄氏度-55摄氏度, 湿度: 30%-65%, 包装袋密封保存。为了保证产品质量, 外包装袋打开前, 出厂后一年内使用, 外包装袋打开后, 建议28天内使用。

LED storage: suggest to sealed stock in under the temperature of 10℃-55℃ , humidity of 30%-65%.In order to keep a good quality, pls use it within 1 year after the prodcution date; and use it out within 28days after open the package.

(2) 拿取方法: 接触LED检查时需戴手套或者手指套, 工作台面也要接地, 包装袋开口后要及时封口, 防止引脚氧化。打开包装后, 操作人员应该使用镊子夹持LED两侧, 避免手接触LED正面。

When taking or touch the LED, pls make sure to wear the gloves. Seal the package in time in orde to avoid the pin oxidation. When opening the package, need to use the weezers clamped on both sides of LED in order not to touch the face of the LED.

(3) 安装: 这一过程主要是静电的防护

Installation: This process is mainly to protect the static electricity





- ①

生产前检查机台设备接地线是否正常；
Check if the grounding wire of the machine equipment is normal before production;
- ②

检查人员静电环是否正常，检查静电的金属与人的皮肤接触紧密；
Check if the static ring is normal, check static metal and human skin contact closely;
- ③

在安装时最好要求作业人员戴好防静电手套或者防静电手指套；
Check if the workers wear anti-static gloves;
- ④

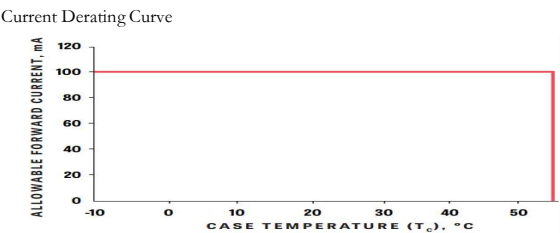
作业台面铺好静电胶布，胶布之间应相互连接接地；
Check if the working table is paved with electrostatic rubber cloth, and the rubber cloth is connected to each other.
- ⑤

开封后最好在二十四小时内用完，否则可能会引起灯脚氧化生锈。
After opening the seal, it is better to use it out in 24 hours, otherwise it may cause the oxidation of the foot.

(4) 推荐的操作

Recommend operation
UV-CHIPS LEDs should be operated at currents below 150 mA and mounted on a heat sink to keep the case temperature below 60 ° C
紫芯半导体 LED 应该低于 150mA 使用，并使用散热装置，保持使用温度在 60℃ 之内。
Circuits should be designed for constant current.

(5) 电流降额曲线



(6) The UV-CHIPS package is comprised of a header with a copper slug and a Kovar cap that is welded to the header to provide hermetic sealing. The cap contains a fused silica ball lens which provides the nominal viewing angle of 7° .

UV-CHIPS 封装由管座和管帽组成，通过熔融焊接以提供密封。该帽包含一个熔融硅球镜头，提供 7° 的标称视角

(7) 焊接指导 Recommended soldering guidelines

- ①

在元器件放置过程中，LED 引线的间距应与 PCB 上安装孔的间距相匹配。
The pitch of the LED lead should match the pitch of the mounting holes on the PCB during component placement.
- ②

烙铁头不应接触透镜。
The tip of the soldering iron should never touch the lens.
- ③

推荐的焊接模式如图 1 所示。此外，请确保集管中的中央铜塞通过热膏或润滑脂与板热连接。应使用散热器将 LED 的外壳温度保持在 150 mA 的正向电流下低于 55 ° C。
Recommended soldering pattern is illustrated in Figure 1. In addition, please ensure that the central copper slug in the header is thermally connected to the board with thermal paste or grease. A heat sink should be used to keep the case temperature of the LED below 55 ° C at a forward current of 150 mA.
- ④

焊接后，在产品恢复到环境温度之前，避免施加外力、应力和过度振动。
After soldering, avoid applying external force, stress, and excessive vibration until the product has returned to ambient temperature.

(8) 熔化的焊料边到 LED 底部的距离应为 3 毫米或更长 Distance between melted solder sides to bottom of LED should be 3 mm or longer.

Parameter	Dip Soldering (Lead Free Solder)	Hand Soldering (Lead Free Solder)
Pre Heat	90 ° C max. (Backside of PCB)	
Pre Heat Time	60 seconds max.	
Soldering Time	5 seconds max.	3 seconds max.
Temperature	260 ° C max. (Solder Bath)	300 ° C max.

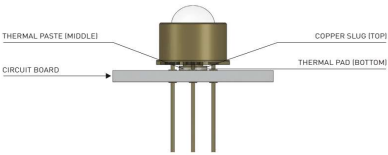
(9) 清洗推荐 Recommended cleaning

- ①

建议使用异丙醇清洗，内醇和乙醇也可以使用。
Cleaning with isopropyl alcohol is recommended. Propanol and ethyl alcohol may also be used.
- ②

不能使用超声波清洗
DO NOT use ultrasonic cleaners with UV-CHIPS LEDs.
- ③

不要使用丙酮和三氯乙烯清洗，只要在这些条件下焊接 LED，可以有效防止焊接导致的问题，例如短路，发光效率低等
DO NOT use acetone or trichloroethylene to clean UV-CHIPS LEDs. Problems with LEDs such as reduction in light output, opens, or shorts can be prevented as long as the LEDs are soldered under these conditions.





(5) LED随着电流的增加和温度的升高，他的使用寿命会呈某种曲线下降，导致LED衰减加快。

With the increase of current and temperature, the life of LED will decrease, which leads to the acceleration of the attenuation of LED.

(6) 建议在设计PCB时要有接地电路。特别注意LED的使用环境：温度在零下30摄氏度-55摄氏度之间，湿度在65%之间，否则将会有静电击穿和大电流击穿导致死灯。

It is suggested that a grounding circuit should be used in the design of PCB. Pay special attention to the usage environment of LED: the temperature is between -30℃ to 55℃, and the humidity is between 65%. Otherwise, the LED will be broken by electrostatic and high current breakdown.

(7) 产品光电性能级别由**UV-CHIPS™**公司自行决定，各不同级别的产品光电性能有所差异，请客户根据自己使用条件自行决定使用方法。

The photoelectric properties levels are decided by **UV-CHIPS™**. There are differences between the different levels of products, please use it in a suitable way according to the using conditions of the clients.

(8) 我们一直在不断努力，以改善LED产品的性能，规格如有变更，恕不另行通知。

We have been making constant efforts to improve the performance of LED products. Pls contact us for the latest specifications.

10、主要的安全提示 Major security tips

☆☆主要的安全提示☆☆ Major security tips

本产品为深紫外LED，在正确操作通电后会产生紫外线，这种紫外线对人体的皮肤和眼睛都有危害。应避免未加防护措施直接暴露在深紫外线中。

This product is a deep ultraviolet LED, which will produce ultraviolet light after the correct operation of electricity. Thus it is harmful to the skin and eyes of the human body. No protective measures should be avoided directly in deep ultraviolet light.

建议在操作时身穿防护衣，配套防护手套和防护眼镜。

It is recommended to wear protective clothing, gloves and glasses during operation.

