

Issue No.: DS-NB069

Issued Date: 2024/12/11

SPECIFICATION

Model Name: Detector

Model NO. : HL4041-HPI610A

Customer No.:

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Approved by: Xie Zong Wu

Customer approved by: _____



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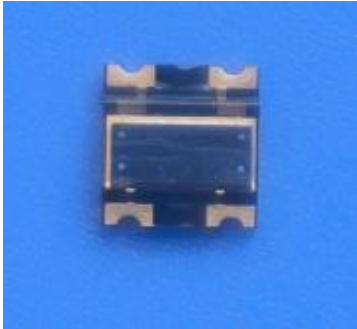
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■Features

- HL4041-HPI610A is a surface mount type silicon PIN photodiode with two active areas (photodiodes) integrated in one chip.
- Small thin SMD package, 4.1(L)x5.4(W) x1.1(H)mm
- Pb free. reflow soldering available



■Applications

- Auto focus. Position sensor

Name	Model No.	Chip Size		Package
Detector	HL4041-HPI610A	5.18mm ²	3.65mm×1.42mm	4-Pin, clear epoxy molded lead frame

★Absolute Maximum Ratings at Ta=25℃

Parameter 参数	symbol 符号	Max.最大值	unit 单位	Note 备注
Operating Temperature	T _{opr}	-25~+85	℃	---
Storage Temperature	T _{Stg}	-40~+100	℃	---
Soldering Temperature	T _{S01}	≤ 300	℃	300℃ for 2Seconds (300 度小于等于 2 秒)

■Electrical / Optical Characteristics at TA=25℃

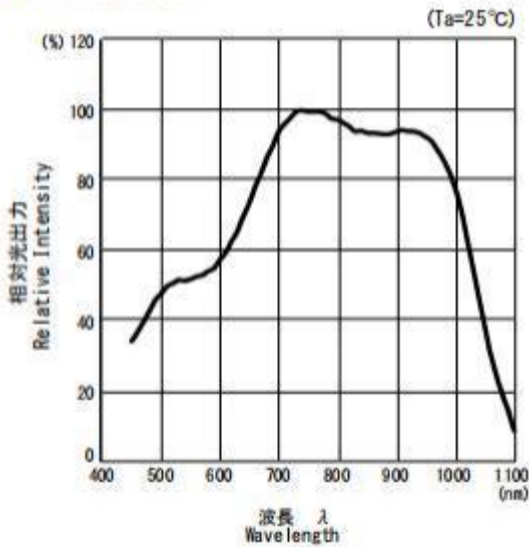
Parameter(参数)	Symbol	Min.	Typ.	Max.	Units	Test Conditions
	符号	最小值	规格值	最大值	单位	测试条件
Forward Voltage	V _F	0.5	--	1.3	v	IF= 10mA, H=0
Reverse Breakdown Voltage	V _{BR}	35	--	--	v	IR= 100uA, H=0
Dark Current	I _D	--	--	10	nA	VR= 10V
Peak Sensing Wavelength	λ _p	--	940	--	nm	--
Spectrum sensitivity	λ _{0.5}	430	--	1100	nm	--
Capacitance	C _J	--	22	--	pF	VR=5V,f= 1MHz

Detector

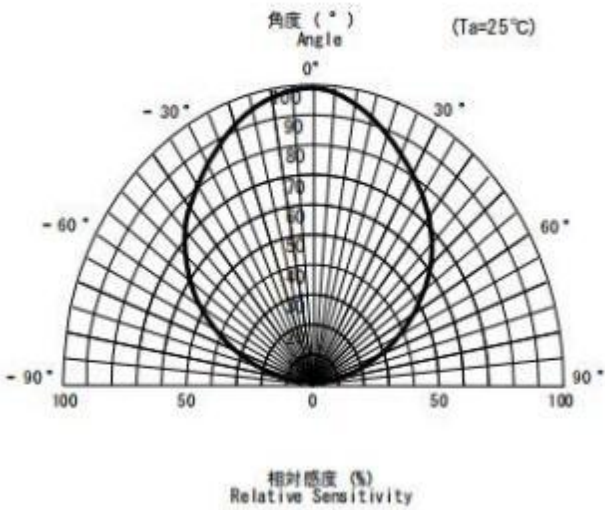
HL4041-HPI610A

Typical Characteristic Curve

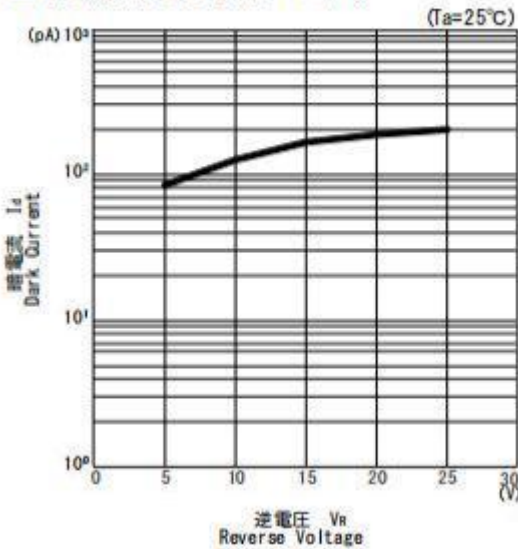
分光感度特性



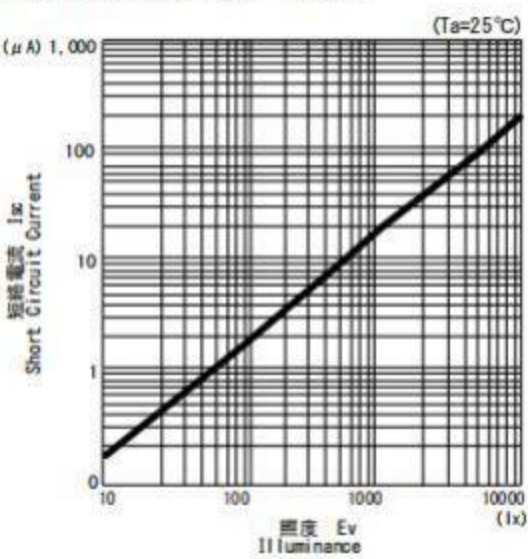
指向性



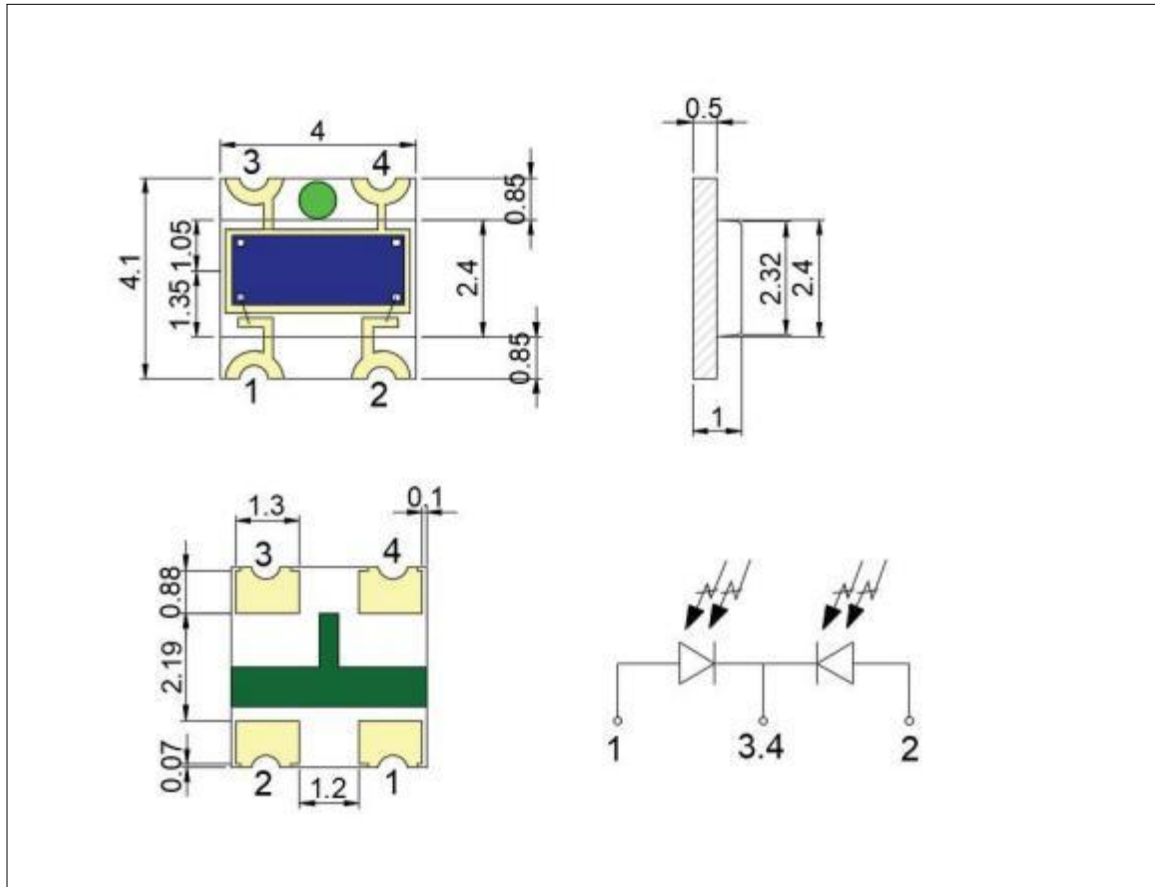
暗電流/逆電圧特性 I_d/V_R



短絡電流/照度特性 I_{sc}/E_v



■Dimension:



Notes: 1.All dimensions are in millimeters

2. Tolerances unless dimensions $\pm 0.1\text{mm}$

■Storage and welding instructions 存储及焊接使用说明

Please read the following notes before using the product: 使用本产品前请阅读以下说明:

一、Over-current-proof 过电流保护

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

客户必须用电阻保护;否则微小的电压变化会引起较大的电流变化(产品可能会烧坏)。

二、Electrostatic discharge (ESD) protection 静电放电 (ESD) 保护

All kinds of LED materials, such as GaP, AlGaAs, AlInGaP, GaN, or InGaN chips are static sensitive device. ESD protection or surge voltages shall be considered and taken care in the initial design stage, and whole production process.

The following protection is recommended:

- (1) Bracelets or anti-static gloves should be used when handling leds
- (2) All installations, equipment and machines must be grounded.

If the LED is damaged by electrostatic discharge or surge voltage, the damaged LED may display some unusual characteristics. It may have leakage and LED

It doesn't glow at low current.

When the drive current is low, when the damaged LED chip is examined with a microscope, there may be some black spots in the luminous area.

各种 LED 材料, 如 GaP, AlGaAs, AlInGaP, GaN, InGaN 芯片, 是静电敏感器件。静电放电保护或浪涌电压应在初始设计阶段和整个生产过程中加以考虑和采取措施。

建议采取以下防护措施:

- (1) 在处理 LED 时应使用手环或防静电手套
- (2) 所有装置、设备和机器必须接地。

如果 LED 被静电放电或浪涌电压损坏, 损坏的 LED 可能会显示一些不寻常的特性。它可能出现漏电, 并且 LED 在低电流时不会发光的。

低驱动电流时, 当用显微镜检查受损 LED 芯片, 可能会在发光区域内有一些黑点。

三、Storage 储存

- 1、Do not open moisture proof bag before the products are ready to use.

在产品准备使用前, 请勿打开防潮袋。

- 2、Before opening the package, the LEDs or PDs should be kept at 30°C or less and 60%RH or less. 打开包装前, LED 或 PD 应保存在 30°C 或以下, 60%RH 或以下。

- 3、The LEDs should be used within a year. LED 应在一年内使用。

- 4、After opening the package, the LEDs or PDs should be kept at 30°C or less and 30%RH or less. 打开包装后, LED 或 PD 应保存在 30°C 或以下, 30%RH 或以下。

- 5、The LEDs or PDs should be used within 168 hours (7 days) after opening the package. 打开包装后, LED 或 PD 应在 168 小时 (7 天) 内使用。

- 6、If the desiccant has failed or the led has exceeded its storage time, the following conditions should be used for baking.

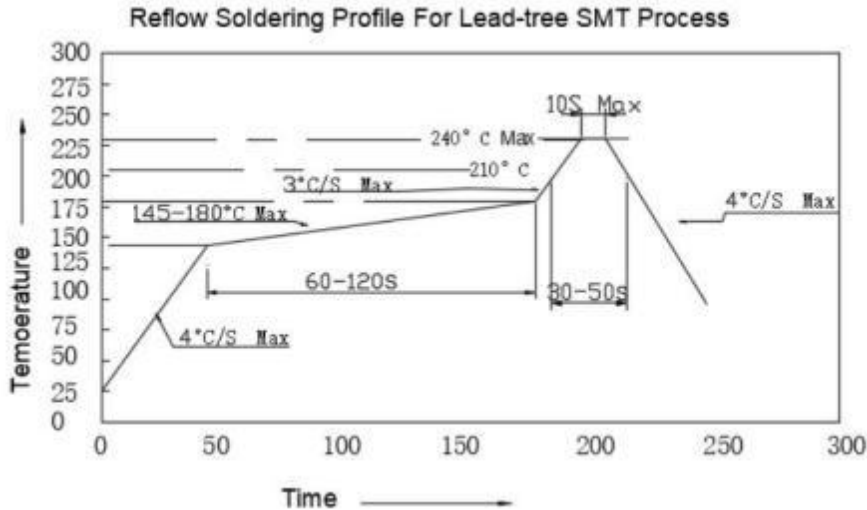
如果干燥剂已挥发或 LED 已超过存储时间, 应使用以下条件进行烘烤处理。

Baking treatment : 60±5°C for 24 hours.

烘烤处理: $60 \pm 5^\circ\text{C}$, 24小时。

四、Pb-free solder temperature profile 无铅焊接温度曲线

(Medium temperature solder paste is recommended 建议使用中温锡膏)



1、We recommend the reflow temperature $220 \pm 5^\circ\text{C}$. The maximum soldering temperature should be limited to 235°C within 10 seconds.

我们推荐回流温度 $220 \pm 5^\circ\text{C}$ ，最高焊接温度 235°C ，时间不超过10秒。

2、Do not stress the epoxy while it is exposed to high temperatures.

当环氧树脂暴露在高温下时，不要对其施加压力。

3、We recommended that reflow welding once. Twice or more will damage the product.

我们建议回流焊一次，两次或以上会对产品有损伤。

4、After soldering, do not warp the circuit board.

焊接后，不要扭曲电路板。

五、Soldering Iron 烙铁

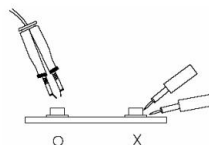
A soldering iron with a power of less than 25W should be used for welding, and the temperature of the soldering iron head should be lower than 300°C and the welding should be completed within 2 seconds. Leave 2 seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

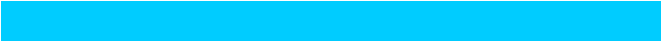
应使用功率小于25W的烙铁焊接，要求烙铁头的温度低于 300°C ，2秒内完成焊接，然后留出两秒以上的间隔，对每个端子进行焊接。请小心焊接，因为产品的损坏通常在手焊时开始。

六、Repairing 维修

Repair should not be done after the LEDs or PDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs or PDs will or will not be damaged by repairing.

LED或PD 焊接后不应进行维修。当维修不可避免时，应使用双头烙铁（如下图所示）。应事先确认LED or PD 是否会因维修而损坏。





七、Important Tips重要提示

In order to improve the yield of mass production, please be sure to do the first confirmation before production, only the first confirmation OK can be mass production.

为了提升批量生产的良品率，请一定要在生产前做好首件确认，只有首件确认 OK 的情况下才能批量生产。

修订记录

项次	日期	内 容	版本号
1	2024-12-11	新发行	Ver.01