

Spec. No.: HL5060-2PE13B-NNNN

Issued Date: 2022-10-11

# SPECIFICATION

Model Name: Detector

Model NO. : HL5060-2PE13B

Customer No.:

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## Detector

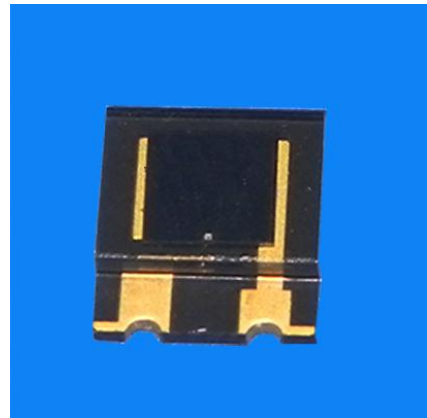
## HL5060-2PE13B

### ■Features

- Especially suitable for applications of 940nm.
- Short switching time

### ■Applications

- SPO2
- Optical module
- IR Remote controls of various equipment



Name	Model No.	Chip Size		Package
Detector	HL5060-2PE13B	9mm <sup>2</sup>	3.00*3.00mm/120mil	2-Pin, COB

### ■Absolute Maximum Ratings at Ta=25℃

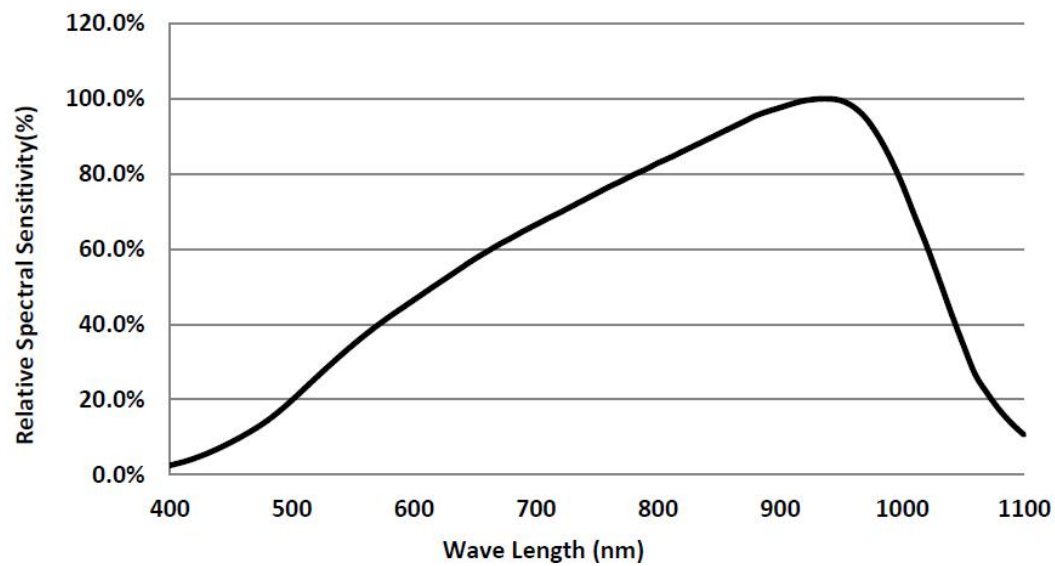
Parameter 参数	symbol 符号	Max.最大值	unit 单位	Note 备注
Operating Temperature	T <sub>opr</sub>	-25~+85	℃	---
Storage Temperature	T <sub>Stg</sub>	-40~+100	℃	---
Soldering Temperature	T <sub>S01</sub>	≤260	℃	260℃ for 5 Seconds (260 度小于等于 5 秒)

### ■Electrical / Optical Characteristics at TA=25℃

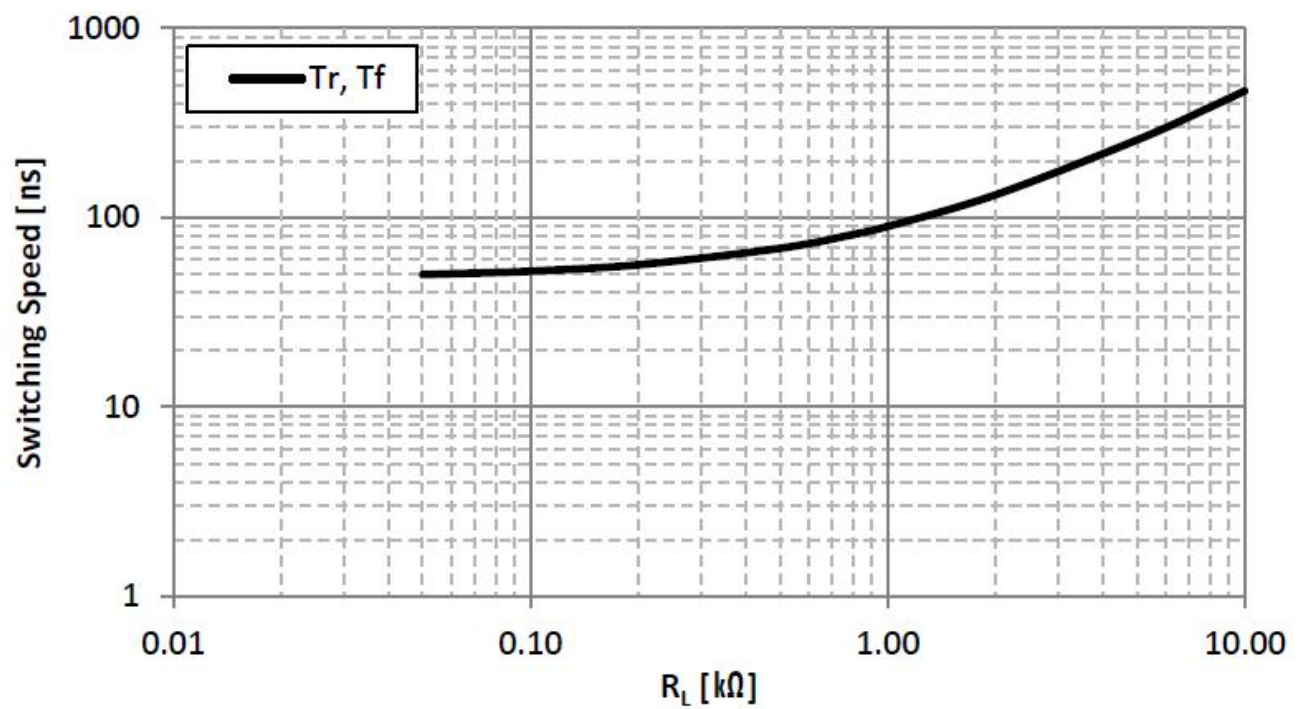
Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Open Circuit Voltage	V <sub>op</sub>	Note(1)	0.3	0.32		V
Short Circuit Current	I <sub>sc</sub>	Note(1)	70	87		uA
Spectrum Sensitivity	λ		430~1100			nm
Peak Sensing Wavelength	λ <sub>p</sub>			940		nm
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =10mA	0.5		1.3	v
Dark Current	I <sub>D</sub>	V <sub>R</sub> =10v			10	nA
Reverse Breakdown Voltage	B <sub>VR</sub>	I <sub>R</sub> =10uA	30			V

Note(1):Parallel Light of 1000lux illumination is applied by a tungsten lamp of 2856k

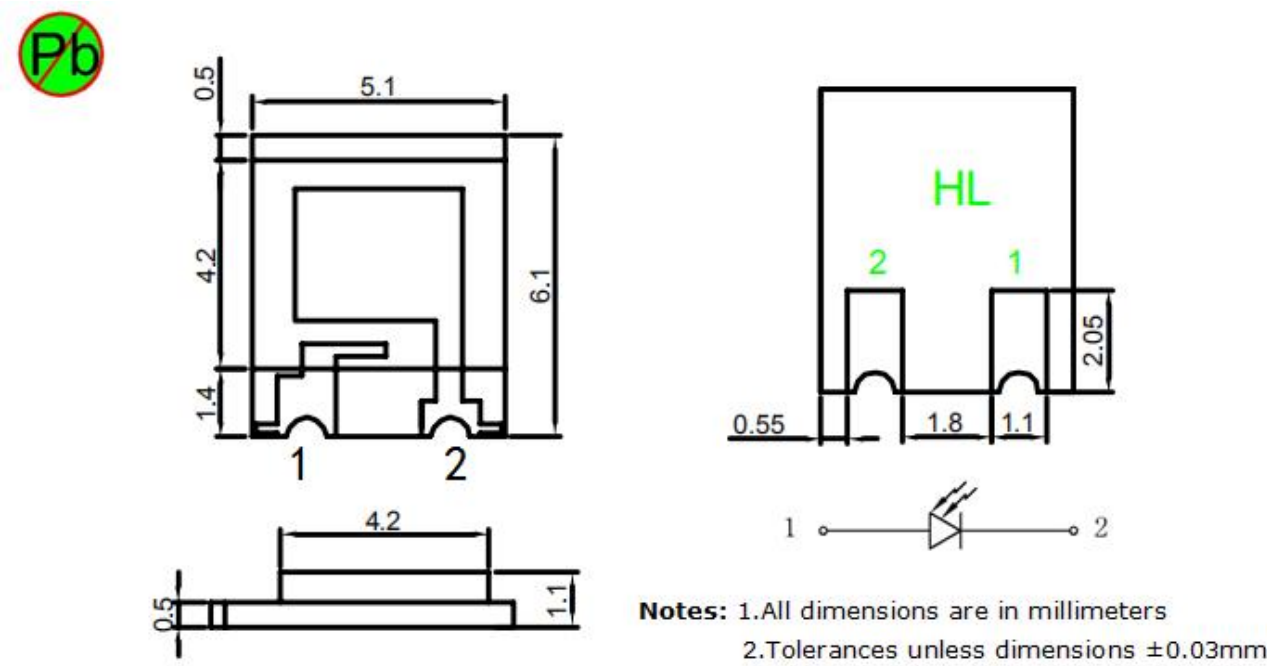
### ■ Relative Spectral Sensitivity



### ■ Switching Speed



Dimension:



潮敏等级：LEVEL 2a

防潮等级	包装拆封后车间寿命	
	时间	条件
LEVEL1	无限制	$\leq 30^{\circ}\text{C}/85\%\text{RH}$
LEVEL2	1年	$\leq 30^{\circ}\text{C}/60\%\text{RH}$
LEVEL2a	4周	$\leq 30^{\circ}\text{C}/60\%\text{RH}$
LEVEL3	168小时	$\leq 30^{\circ}\text{C}/60\%\text{RH}$
LEVEL4	72小时	$\leq 30^{\circ}\text{C}/60\%\text{RH}$
LEVEL5	48小时	$\leq 30^{\circ}\text{C}/60\%\text{RH}$
LEVEL5a	24小时	$\leq 30^{\circ}\text{C}/60\%\text{RH}$
LEVEL6	取出即用	$\leq 30^{\circ}\text{C}/60\%\text{RH}$

## ■Reliability Test

## 1. 测试项目和结果:

类别	试验项目	参考标准	试验条件	持续时间	取样数	损坏数量
环境试验	温度循环	JEITA ED-4701 100 105	-40℃→25℃→100℃→25℃ 30 分钟 5 分钟 30 分钟 5 分钟	循环 100 回合	100	0/100
	冷热冲击	MIL-STD-202G	-40℃←→100℃ 15 分钟 15 分钟	循环 300 回合	100	0/100
	高湿热循环	JEITA ED-4701 200 203	30℃←→65℃ RH=90% 24 小时/1 回合	循环 50 回合	100	0/100
	高温储存	JEITA ED-4701 200 201	Ta=100℃	1000 小时	100	0/100
	低温储存	JEITA ED-4701 200 202	Ta=-40℃	1000 小时	100	0/100
	高温高湿储存	JEITA ED-4701 100 103	Ta=60℃ RH=90%	1000 小时	100	0/100
寿命试验	常温寿命试验	--	Ta=25℃ IF=20mA(R)	1000 小时	100	0/100
	高温高湿寿命试验	--	Ta=60℃ RH=90% IF=20mA(R)	1000 小时	100	0/100
	低温寿命试验	--	Ta=-30℃ IF=20mA(R)	1000 小时	100	0/100
破坏性试验	耐焊性	JEITA ED-4701 300 302	Tsld=260±5℃,10 秒离胶体 3mm 距离	焊接一次	20	0/20
	可焊性	JEITA ED-4701 300 303	Tsld=235±5℃,5 秒 使用助焊剂	焊接一次	20	0/20
静电	静电放电试验	JEITA ED-4701 300 304	人体放电模式 1000V	正反向各 3 次	10	0/10
机械试验	振动试验	JEITA ED-4701 400 403	20G 20-2000HZ 4 分钟 X,Y,Z 三个方向	每个方向循环 4 次	10	0/10
	跌落试验	--	75 厘米	3 次	10	0/10

### ■ Storage and Soldering Condition

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

#### 1. 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).

客户必须用电阻器保护；否则微小的电压变化会引起较大的电流变化（将会发生烧坏）。

#### 2. Storage 储存

2.1 Do not open moisture proofs bag before the products are ready to use.

2.2 在产品准备使用前不要打开防潮袋

2.3 Before opening the package, the LEDs should be kept at 30°C or less and 85% RH or less. 打开包装前，LED 应保持在 30°C 以下或小于 85%湿度

2.4 The LEDs should be used within a year. 未拆包的 LED 应在一年内使用。

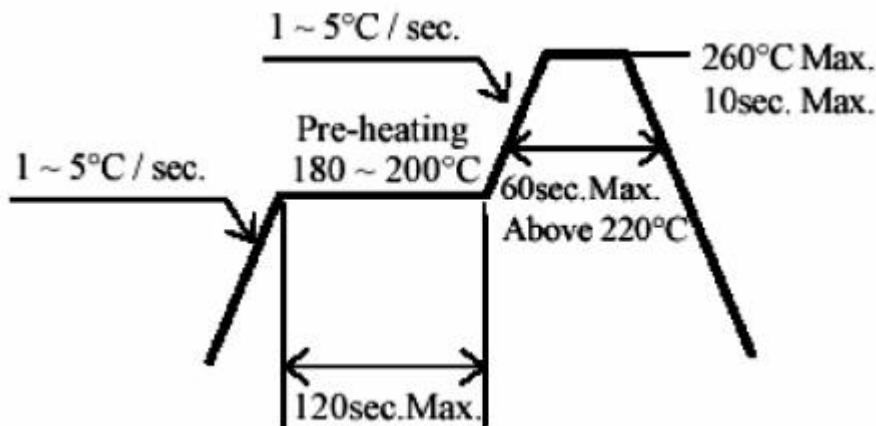
2.5 After opening the package, the LEDs should be kept at 30°C or less and 65% RH or less. 打开包装后，LED 应保持在温度 30°C 以下或湿度小于等于 65%。

2.6 The LEDs should be used within 4 weeks after opening the package. 打开包装后,LED 应在 4 周内使用 If the moisture adsorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. 如果干燥剂挥发完或 LED 已经超过存储时间，应采用下列条件进行烘烤处理。

Baking treatment: 65±5°C for 24 hours. 烘烤处理 65±5°C 24 小时

#### 3. Soldering Condition 焊接条件

3.1 Pb-free solder temperature profile 无铅焊料温度分布



3.2 When soldering, do not put stress on the LEDs during heating. 焊接时，加热期间不要对按压 LED.

3.3 After soldering, do not warp the circuit board. 焊接后，不要扭曲电路板

3.4 It is recommended to use a soldering iron for welding, if you use reflow soldering, please inform in advance.

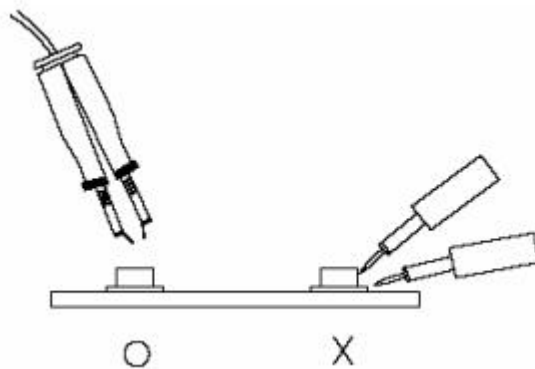
建议用烙铁焊接，如用回流焊请提前沟通。

### 4. Soldering Iron 烙铁焊接

Each terminal is to go to the tip of soldering iron temperature less than 310℃ for 2 seconds. Leave two 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. 烙铁温度小于 310℃，焊接时间少于 2 秒，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。

### 5. Repairing 返工

Repair should not be done after the LEDs 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 will or will not be damaged by repairing. LED 已焊接完成后不应返工。当必须要返工时，应使用双头烙铁（如下图）。应事先确认 LED 的特性是否会因修复而损坏或不会被损坏。



### 修订记录

项次	日期	内 容	版本号
1	2020-6-22	新发行	Ver.01
2	2022-10-11	修订存储及焊接条件	Ver.02