

Issue No.: DS-NB012

Issued Date: 2024-08-26

SPECIFICATION

Model Name: 660/905+PD Reflector Sensor

Model NO. : HL3912-6P166B

Customer No.:

Prepared by: Caiyemin

Approved by: Xiezhongwu

Customer approved by: _____



Add: 7F, Bldg B, JinKe Industrial Park WuHe Road, LongHua District,
Shenzhen, Guangdong Prov., China PostCode: 518110

Tel: 86-0755-28147404

Fax: 86-0755-28149249

E-mail: xwjma@163.com

<http://www.szwhaley.com/>

Reflector Sensor

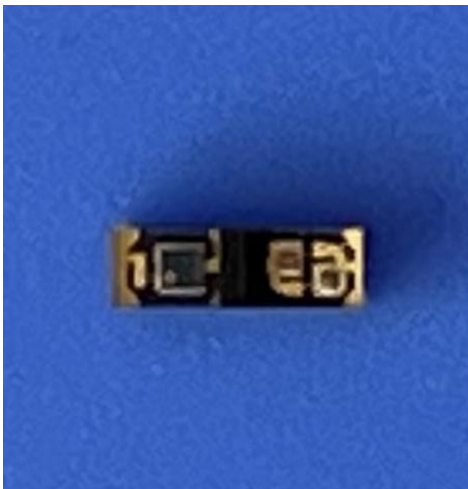
HL3912-6P166B

■Features

- Multi chip package featuring 2 emitters and one detector
- Small package: (WxDxH) 3.9mmx1.2mmx1.0mm
- Light Barrier to block optical crosstalk
- Matching detector response

■Applications

- Heart rate monitoring
- Pulse Oximetry



Name	Model	RED	IR	PD	Package
Reflector Sensor	HL3912-6P166B	660 nm	905 nm	PD	6-Pin, COB

■Absolute Maximum Ratings

(Ta= 25℃)

Parameter	Symbol	Max.	Unit	Note
Power Dissipation	P _d	60	mW	---
Forward Current	I _F	20	mA	---
Peak Forward Current	IFP	100	mA	1/10 Duty cycle,0.1ms pulse width
Reverse Voltage	V _R	5	V	---
Operating Temperature	T _{opr}	-25~+85	℃	---
Storage Temperature	T _{Stg}	-40~+100	℃	---

Reflector Sensor

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■Electrical/Optical Characteristics - Emitters

(Ta= 25°C)

Parameter	Symbol	Min.		Typ.		Max.		Units	Test Conditions
		660	905	660	905	660	905		
Forward Voltage	VF	1.8	1.0	2.0	1.3	2.4	1.6	V	IF=20mA
Reverse Current	IR	--	--	--	--	10	10	uA	VR=5V
Radiant Power	Po	6	2	10	3.8	13	6	mW	IF=20mA
Peak Wavelength	λp	657	895	662	905	666	915	nm	IF=20mA
Spectral Line Half-width	Δλ	--	--	18	24	--	--	nm	IF=20mA

■Electrical/Optical Characteristics - PD

(Ta= 25°C)

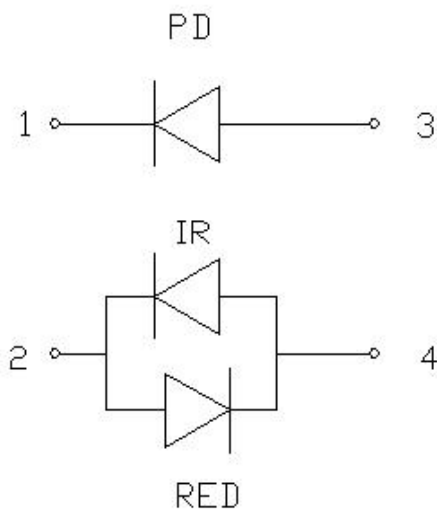
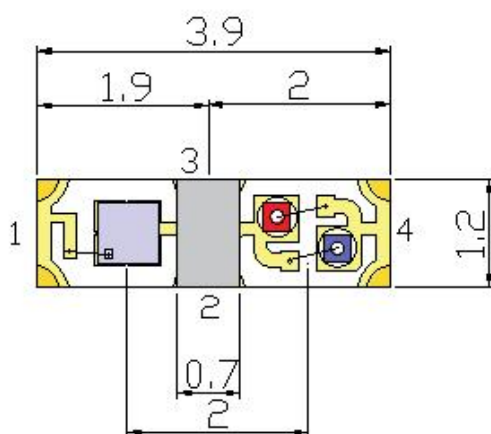
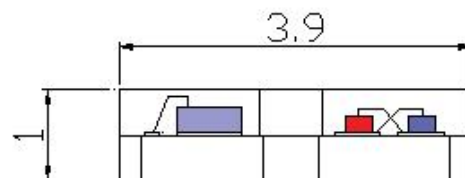
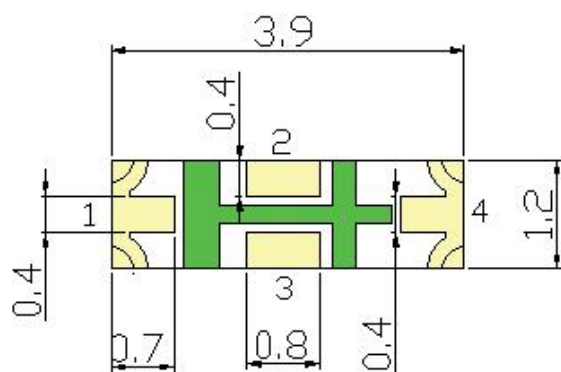
Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage	VF	0.5	--	1.2	V	IF=20mA
Reverse Breakdown Voltage	VBR	60	--	--	V	IR=100uA
Reverse Dark Current	ID	--	--	10	nA	VR=10V
Peak Sensing Wavelength	λp	--	940	--	nm	--
Spectral Bandwidth	λ	430	--	1100	nm	--
Open Circuit Voltage	VOP	250	300	--	mV	Note
Short Circuit Voltage	ISC	--	3.5	--	uA	Note
Junction Temperature	TJ	--	--	150	°C	--

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

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■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、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 in 3 months.

LED应在3个月内使用。

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 24 hours (1 days) after opening the package.

打开包装后, LED或PD应在24小时(1天)内使用。

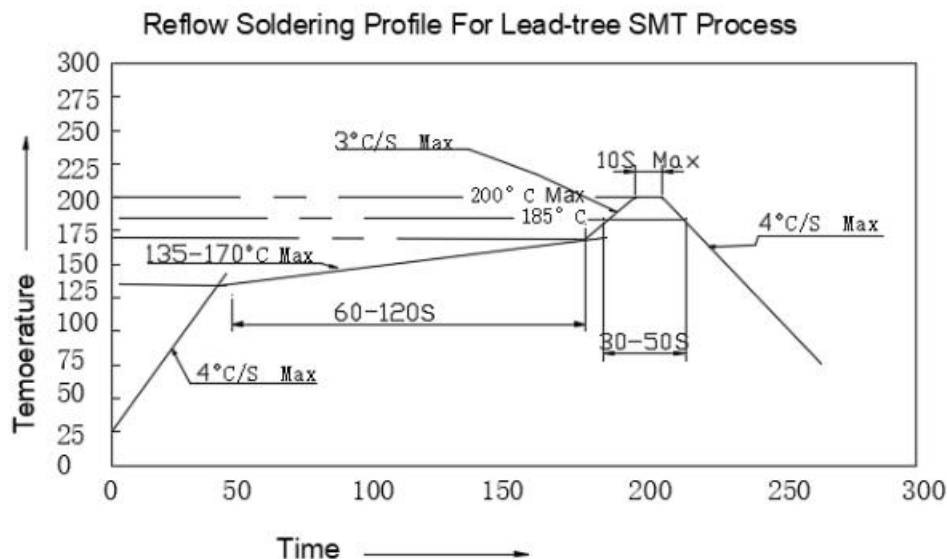
6、If the desiccant has failed or the LEDs has exceeded its storage time, the following conditions should be used for baking.

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。

Low temperature baking for tape packaging: 60±5°C, 24 hours; high temperature dehumidification for bulk packaging: 130±5°C/6 hours.

载带包装低温烘烤: 60±5°C, 24小时, 散料包装高温除湿: 130±5°C/6小时

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



- 1、We recommend using low temperature solder paste.The reflow temperature $190\pm5^{\circ}\text{C}$.The maximum soldering temperature should be limited to 200°C within 10 seconds.The reflow temperature above 185°C should not exceed 50 seconds.
- 我们推荐使用低温锡膏，回流焊温度 $190\pm5^{\circ}\text{C}$ ，最高焊接温度 200°C ，时间不超过10秒。 185°C 以上回流温度不可超过50秒。
- 2、Don' t cause stress too the epoxy resin while it is exposed to high temperature.
- 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。

四、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，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。

五、Heating platform welding加热平台焊接

If the high temperature platform is used, the medium temperature solder paste is used within 230-240 degrees, and the best control is completed within 5 seconds.

如果用加热平台焊接，就用中温锡膏；230-240度内使用，控制5秒内完成最佳。

六、Repairing维修

LED or PD should not be repaired after soldering. When repair is unavoidable, a heating platform or hot air gun should be used. The temperature of the hot air gun should not be too high, and the air head should not be blown towards the LED or PD lamp body, otherwise it will damage the product. Products with bottom solder pads are not suitable for soldering iron repair. It should be confirmed in advance whether the LED or PD will be damaged due to repair.

LED或PD 焊接后不应进行维修。当维修不可避免时，应使用加热平台或热风枪，热风枪温度不要过高，风头不可对着LED or PD灯身吹，否则会损坏产品，底部焊盘的产品不适合烙铁维修。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	2024-08-26	新发行	Ver.01