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# SPECIFICATION

Model Name: Multi Emitters

Model NO. : HL5060-2P058W-F

Customer No.:

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# Multi Emitters

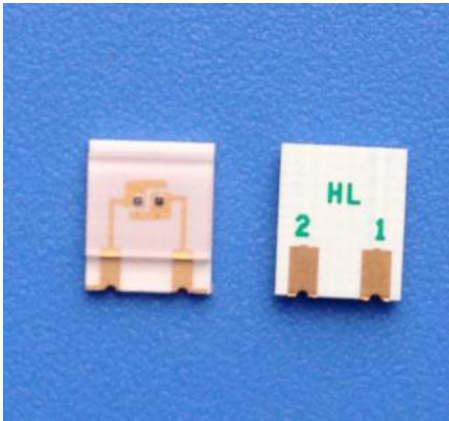
## HL5060-2P058W-F

### ■Features

- Lead frame molded packages
- Two and three or four leads designs
- Bi-wavelengths or triple wavelengths LEDs
- Matching detector response

### ■Applications

- SPO2
- Blood analysis
- Medical instrumentation
- Radiometric instruments



| Name           | Model           | RED    | IR     | Package    |
|----------------|-----------------|--------|--------|------------|
| Multi Emitters | HL5060-2P058W-F | 660 nm | 905 nm | 2-Pin, COB |

### ■Absolute Maximum Ratings

(Ta= 25°C)

| Parameter             | Symbol           | Max.     | Unit | Note                              |
|-----------------------|------------------|----------|------|-----------------------------------|
| Power Dissipation     | P <sub>d</sub>   | 60       | mW   | ---                               |
| Forward Current       | I <sub>F</sub>   | 20       | mA   | ---                               |
| Peak Forward Current  | I <sub>FP</sub>  | 100      | mA   | 1/10 Duty cycle,0.1ms pulse width |
| Reverse Voltage       | V <sub>R</sub>   | 5        | V    | ---                               |
| Operating Temperature | T <sub>opr</sub> | -25~+85  | °C   | ---                               |
| Storage Temperature   | T <sub>Stg</sub> | -40~+100 | °C   | ---                               |

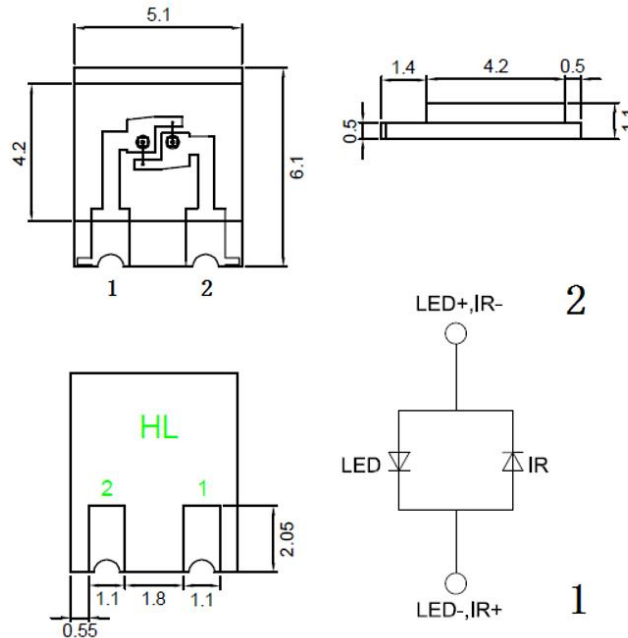
### ■Electrical/Optical Characteristics

(Ta= 25°C)

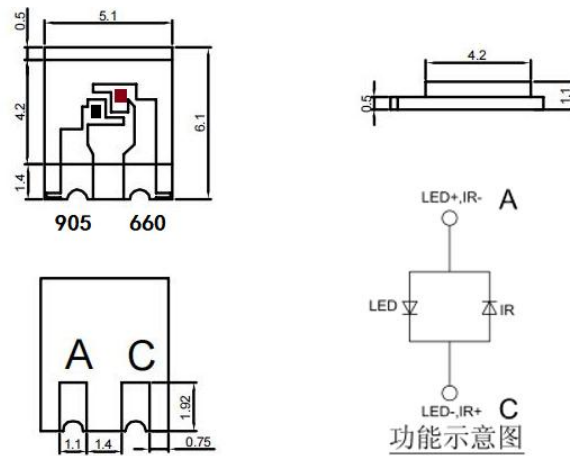
| Parameter                | Symbol         | Min. |     | Typ. |      | Max. |     | Units | Test Conditions      |
|--------------------------|----------------|------|-----|------|------|------|-----|-------|----------------------|
|                          |                | IRED | RED | IRED | RED  | IRED | RED |       |                      |
| Forward Voltage          | V <sub>F</sub> | 1.2  | 1.7 | 1.40 | 1.80 | 1.55 | 2.4 | V     | I <sub>F</sub> =20mA |
| Reverse Current          | I <sub>R</sub> | --   | --  | --   | --   | 10   | 10  | uA    | V <sub>R</sub> =5V   |
| Radiant Power            | P <sub>o</sub> | 1.5  | 2.0 | 2.0  | 3.5  | 3.0  | 5.0 | mW    | I <sub>F</sub> =20mA |
| Peak Wavelength          | λ <sub>p</sub> | 890  | 657 | 900  | 660  | 910  | 665 | nm    | I <sub>F</sub> =20mA |
| Spectral Line Half-width | Δλ             | --   | --  | 47   | 25   | --   | --  | nm    | I <sub>F</sub> =20mA |

### ■Dimension:

#### 1、背面印字 HL



#### 2、背面印字 AC



**Notes:** 1.All dimensions are in millimeters

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

根据库存情况，以上两种印字都会出货（备注：两种印字的电性参数都一样）。

■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℃<br>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℃<br>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℃<br>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%<br>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<br>3mm 距离              | 焊接一次       | 20  | 0/20  |
|       | 可焊性      | JEITA ED-4701 300 303 | Tsld=235±5℃,5 秒<br>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<br>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 welding instructions SMD LED 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 InGaNchips are static sensitive device.ESD protection or surge voltages shall be considered and taken care in the initial design stage,and whole production process.

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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, InGaP 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。

The LEDs should be used within 6 months.

LED 应在 6 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. It should be used within 168 hours (7 days).

打开包装后, LED 或 PD 应保存在 30°C 或以下, 30%RH 或以下, 在 168 小时 (7 天) 内使用。

5、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±5°C, 24 小时。

### 四、Soldering Iron 烙铁

1、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。

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。

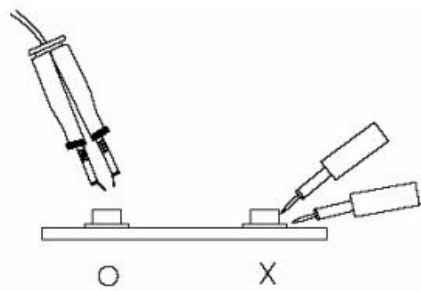
3、After soldering, do not warp the circuit board.

焊接后, 不要扭曲电路板。

五、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。



六、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  | 2020-6-22  | 新发行       | Ver.01 |
| 2  | 2024-08-05 | 修订存储及焊接条件 | Ver.02 |
|    |            |           |        |
|    |            |           |        |