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SPECIFICATION

Model Name: Multi Emitters

Model NO. : HL5060-2P133W-F

Customer No.:

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Approved by: Xizongwu

Customer approved by: _____



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Multi Emitters

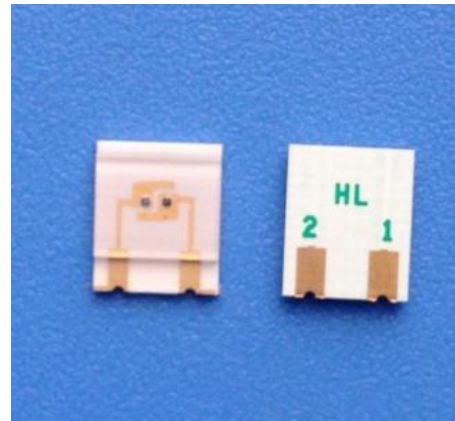
HL5060-2P133W-F

■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	HL5060-2P133W-F	660 nm	905 nm	2-Pin, COB

■Absolute Maximum Ratings

(Ta= 25°C)

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	°C	---
Storage Temperature	T _{Stg}	-40~+100	°C	---
Soldering Temperature	T _{S01}	300	°C	300°C for 2 Seconds

■Electrical/Optical Characteristics

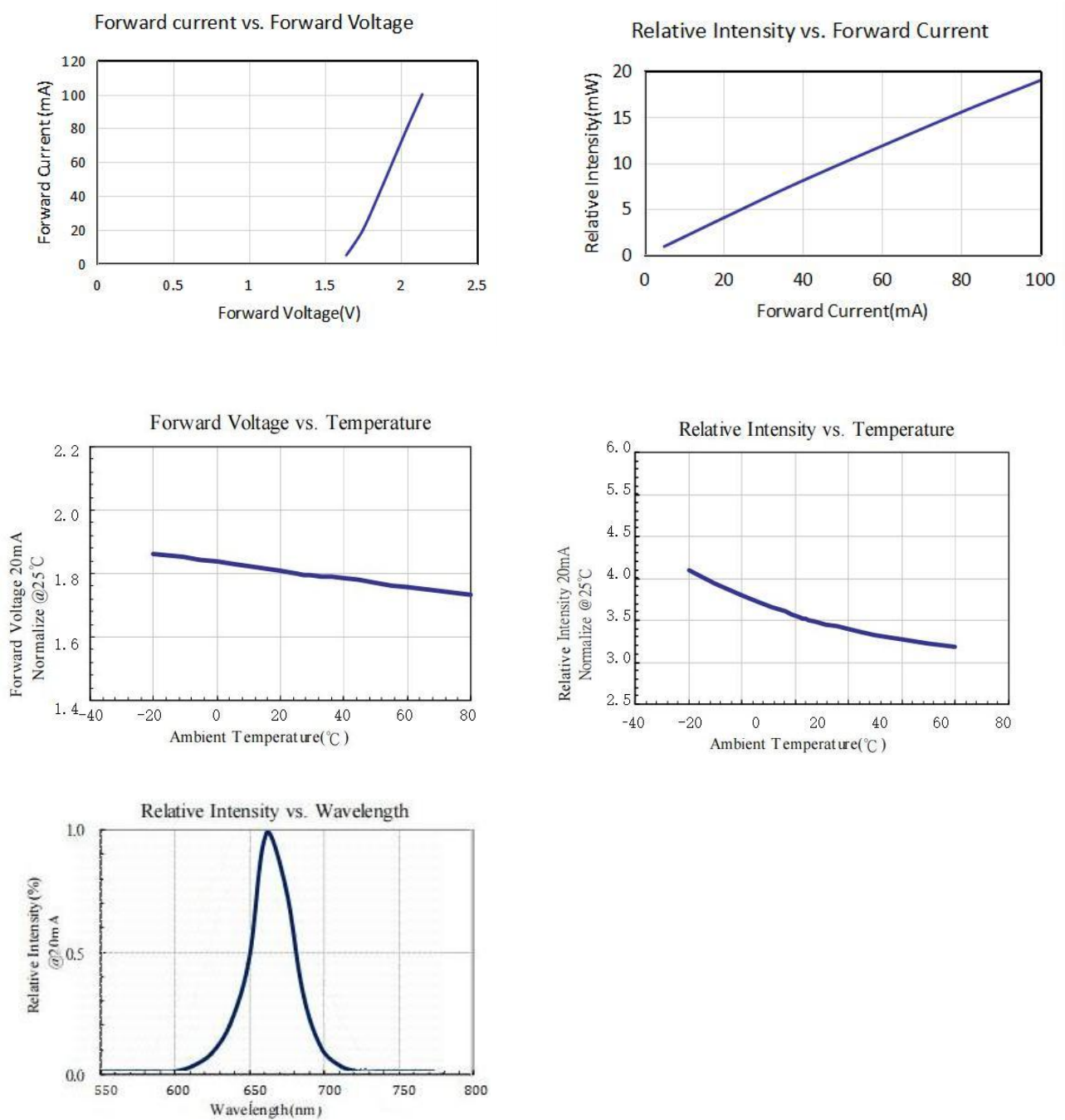
(Ta= 25°C)

Parameter	Symbol	Min.		Typ.		Max.		Units	Test Conditions
		IRED	RED	IRED	RED	IRED	RED		
Forward Voltage	V _F	1.3	1.70	1.40	1.80	1.55	2.3	V	I _F =20mA
Reverse Current	I _R	--	--	--	--	10	10	uA	V _R =5V
Radiant Power	P _o	1.5	2.0	2.4	3.5	3.4	4.5	mW	I _F =20mA
Peak Wavelength	λ _p	890	657	898	660	908	665	nm	I _F =20mA
Spectral Line Half-width	Δλ	--	--	68	25	--	--	nm	I _F =20mA

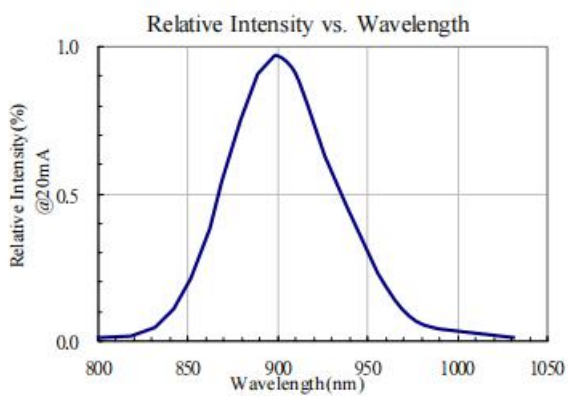
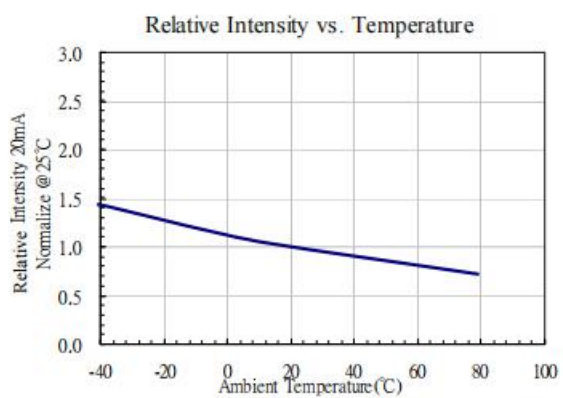
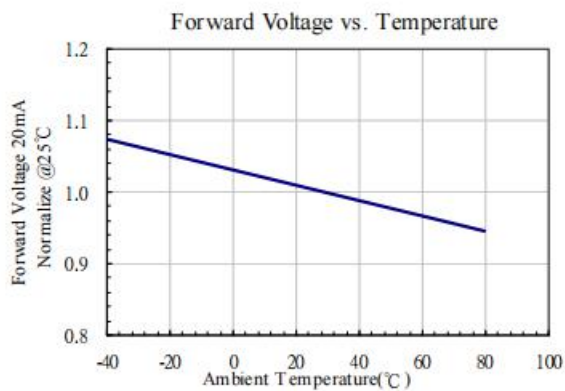
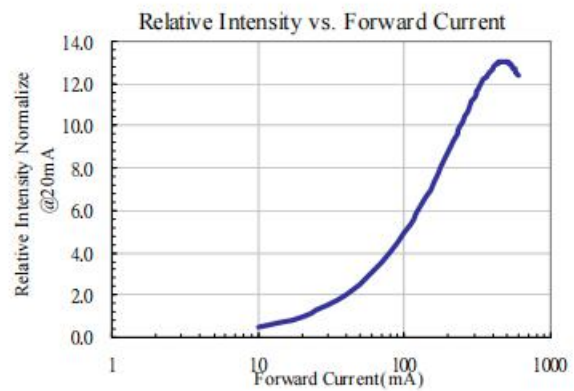
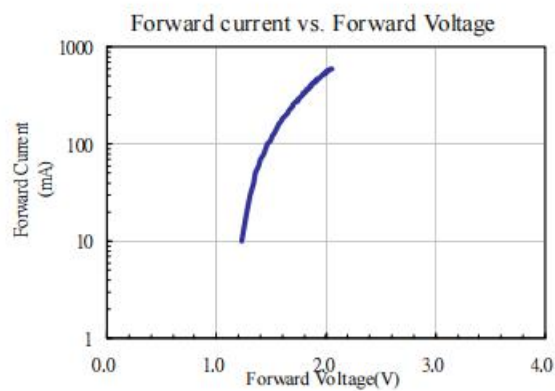
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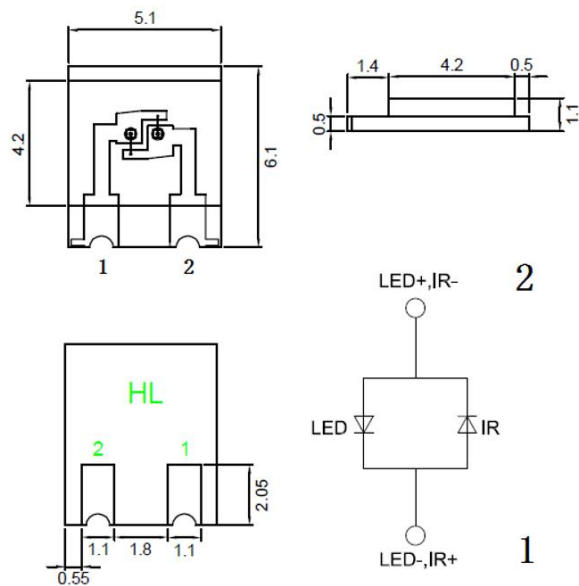
Electro-Optical Characteristics Curve For Red LED



Electro-Optical Characteristics Curve For IR



Dimension:



- Notes: 1.All dimensions are in millimeters
2. Tolerances unless dimensions $\pm 0.1\text{mm}$

潮敏等级: LEVEL 2a

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

■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

■ 焊接及儲存說明

Storage and welding instructions SMD LED存储及焊接使用說明

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.

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 or less and 60%RH or less.

打开包装前，LED 或 PD应保存在30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 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 for 24 hours.

烘烤处理：60±5，24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℃ 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℃，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	2023/2/20	新发行	Ver.01
2	2024/8/05	修订和存储焊接说明	Ver.02