

惠州市鑫永诚光电科技有限公司
Huizhou Newpoto Optoelectronic Technology Co., Ltd.

产品承认书
SPEC FOR APPROVAL

| | |
|-------------------|--------------------------|
| 客户名称 Customer | |
| 产品型号 Model | XYC-IR5HC940DC-S2 |
| 承认编号 Part No. | IR712-B |
| 编制日期 Send Date | 2022-07-13 |
| 版本 Edition | A0 |

| 核准(Approval) | 审核(Checked) | 编制(Drawn) |
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鑫永诚 IR940 红外 LED 是一款低功耗，插件式外型封装的二极管，它具有发射功率强、受光角度均匀等优点，该款器件适用于应用小家电产品对射反射，红外遥控发射电子产品等其应用。

NEW OPTO IR940 infrared LED is a low power consumption diode, which molded in DIP package. The utility model has the advantages of strong transmitting power and uniform light angle, Application of small household electrical appliances to the reflection, Infrared remote control transmitter electronic products other applications.

特性 Features

- 峰值波长 940nm Peak wavelength $\lambda_p=940\text{nm}$
- 高可靠性 High reliability
- 低功耗 Low Power Consumption
- 符合 RoHS RoHS compliant

应用 Applications

- 红外应用系统 Infrared applications systems
- 红外遥控发射电子产品 Infrared remote control transmitter electronic products
- 红外相机 Infrared Illumination for cameras
- 适用于各种对射反射应用小家电产品 Application of small household electrical appliances to the reflection

量身订制 Tailor made

- 品种齐全,生产周期短,小批量库存备货
Variety complete, production cycle is short, small batch inventory stocking
- 可按要求提供不同外型,角度,方便安装于产品的任何位置
Can be provided in different shapes, angles, easy to install in any position of the product
- 可按需求提供最佳的规格,以便让产品效果更好,更具市场竞争力
The best specifications can be provided in order to make the product better and more competitive

极限参数 Absolute Maximum Ratings at (Ta=25°C)

| 电气特性 Electrical characteristics | 符号 Symbol | 额定值 Rated Value | 单位 Unit |
|--|--------------|--------------------|------------|
| 最大持续工作电流 Max continuous working current | IF | 60 | mA |
| 最大脉冲工作电流* Max pulse current | IFP | 1000 | mA |
| 反向击穿电压 Reverse voltage | VR | 5 | V |
| 最大功耗 Power dissipation | Pd | 75 | mW |
| 工作温度 Operating Temperature | Topr | -30--+85 | °C |
| 储存温度 Storage Temperature | Tstg | -40--+100 | °C |

Note : * Pulse width \leq 100 μ s, Duty \leq 1%

光学特性 Optical Characteristics (Ta=25°C)

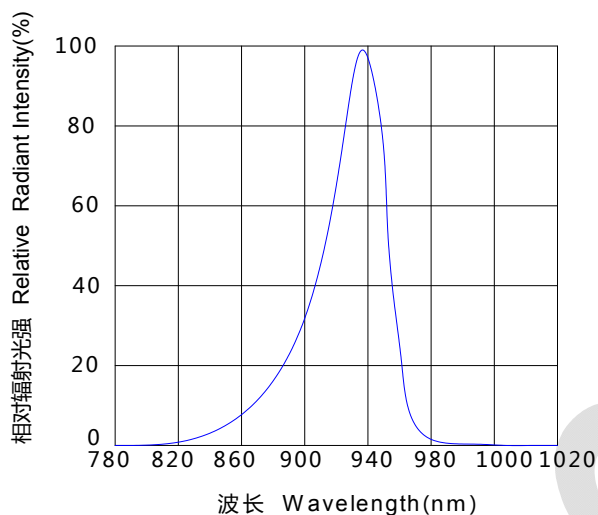
| 参数 Parameter | 符号 Symbol | 测试条件 Test Condition | 最小 Min | 典型 Typ | 最大 Max | 单位 Unit |
|---------------------------|--------------------------|---|-----------|-----------|-----------|------------|
| 发射波长 Wavelength | λ | IF=20mA | -- | 940 | -- | nm |
| 辐射强度 Radiant Intensity | Ie | IF=60mA | 7 | 12 | -- | mW/sr |
| | | IF=500mA Pulse width \leq 100 μ s, Duty \leq 1% | -- | 100 | -- | mW/sr |
| | | IF=1000mA Pulse width \leq 100 μ s, Duty \leq 1% | -- | 200 | -- | mW/sr |
| 工作电压 Forward Voltage | VF | IF=40mA | -- | 1.23 | 1.35 | V |
| | | IF=100mA | -- | 1.3 | 1.65 | V |
| | | IF=500mA Pulse width \leq 100 μ s, Duty \leq 1% | -- | 1.8 | 2.05 | V |
| 反向电流 Reverse current | IR | VR=5V | -- | -- | 10 | μ A |
| 发射角度 Viewing Angle | 2 θ $\frac{1}{2}$ | IF=20mA | -- | 33 | -- | deg |
| 全功能角 Full Angle | θ | IF=20mA | -- | 60 | -- | deg |

可靠性试验 Reliability Test

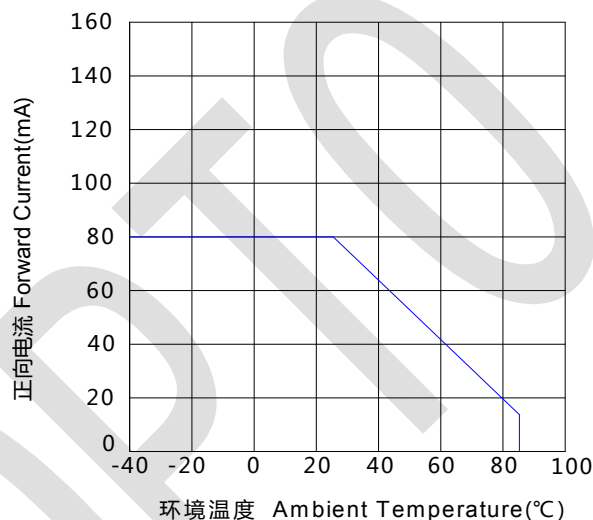
| 测试项目 Test Parameter | 参考标准 Reference Criterion | 测试条件 Test Condition | 时间 Time | 样品数 Quantity | Ac/Re |
|--|-----------------------------|---------------------------------------|------------|-----------------|-------|
| 耐焊接热 Resistance to Soldering Heat | JESD22-B106 | 260°C±5°C | 10 sec | 22PCS | 0/1 |
| 冷热循环 Temperature | JESD22-A104 | +100°C(15min) 5min -10°C(15min) | 50 cycles | 22PCS | 0/1 |
| 冷热冲击 Thermal Shock | JESD22-A104 | +105°C(30min) 5min -45°C(30min) | 50 cycles | 22PCS | 0/1 |
| 高温贮存 High Temperature storage | JESD22-A103 | +100°C | 1000H | 22PCS | 0/1 |
| 低温贮存 Low Temperature storage | JESD22-A119 | -40°C | 1000H | 22PCS | 0/1 |
| 寿命测试 Temperature Operating Life | JESD22-A108 | IF=100mA | 1000H | 22PCS | 0/1 |
| 高温老化 High Temperature High Humidity | JESD22-A101 | 85°C | 1000H | 22PCS | 0/1 |

光电特性曲线 Typical electro-optical characteristics curves

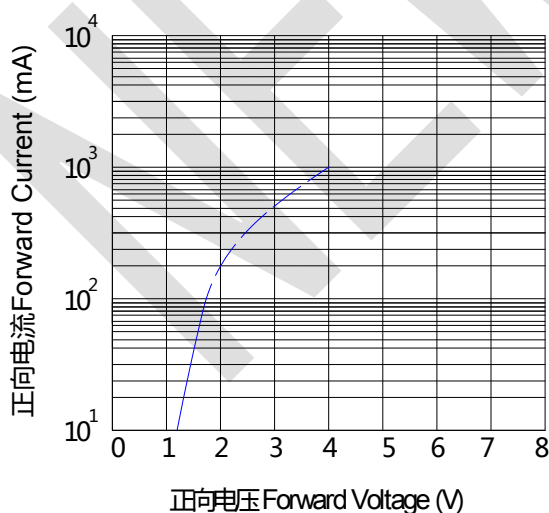
光谱分布特性曲线
Relative Spectral Distribution



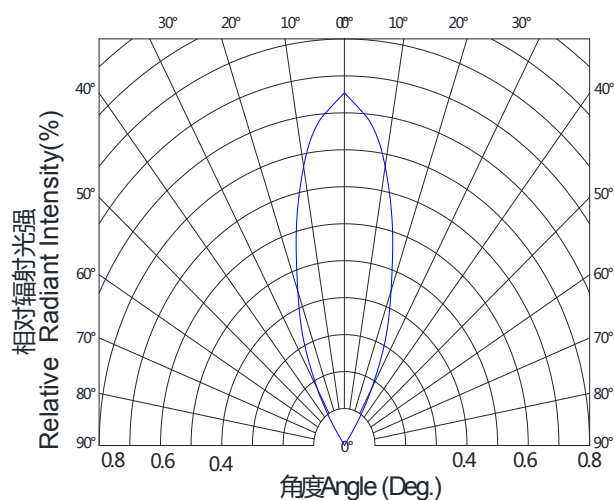
正向电流降额曲线
Forward Current Derating Curve



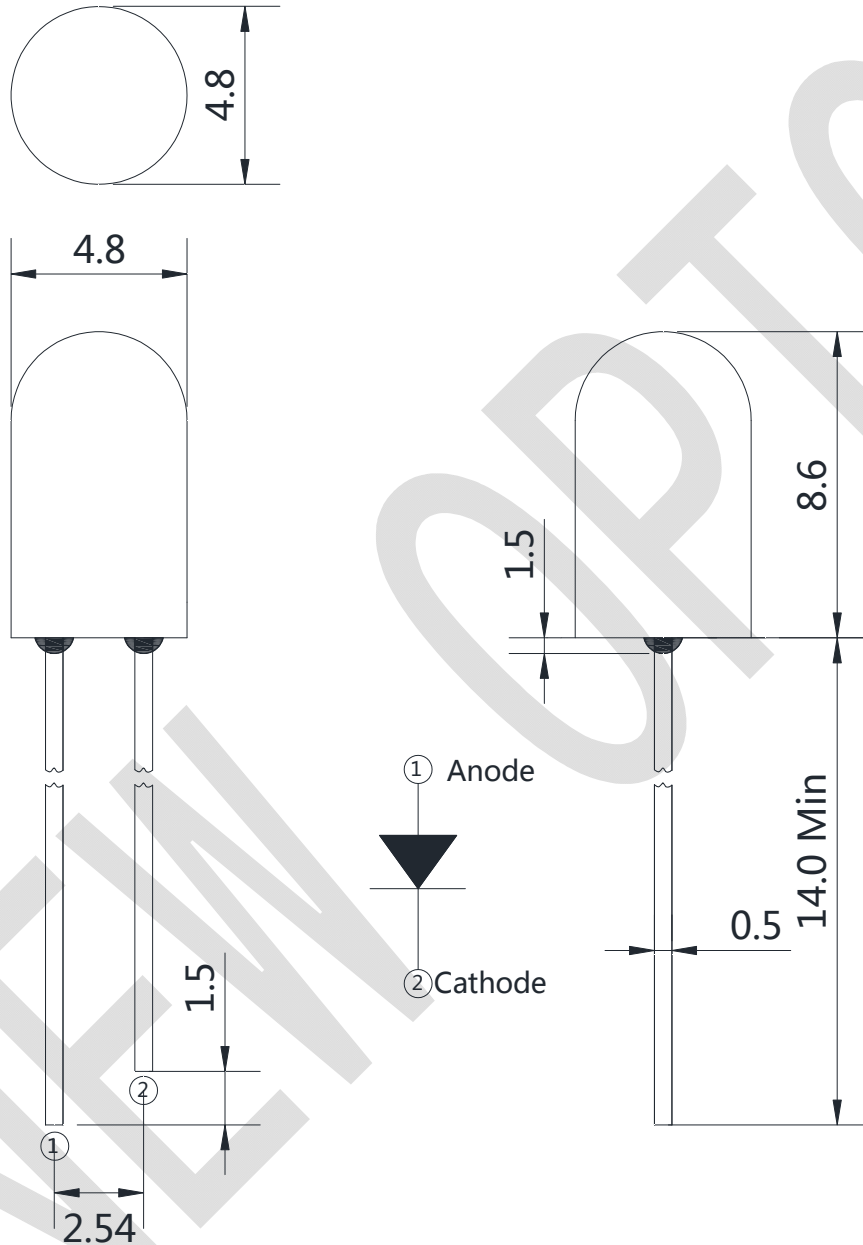
电流vs电压曲线图
Current & Voltage Curve



辐射强度分布特性曲线
Radiant Intensity Spatial Distribution



产品外型尺寸 Package outline dimensions



备注：所有尺寸单位均为 mm，如无特殊说明误差范围为 ± 0.15 mm

Note : All dimensions in mm, tolerance is ± 0.15 mm unless otherwise noted

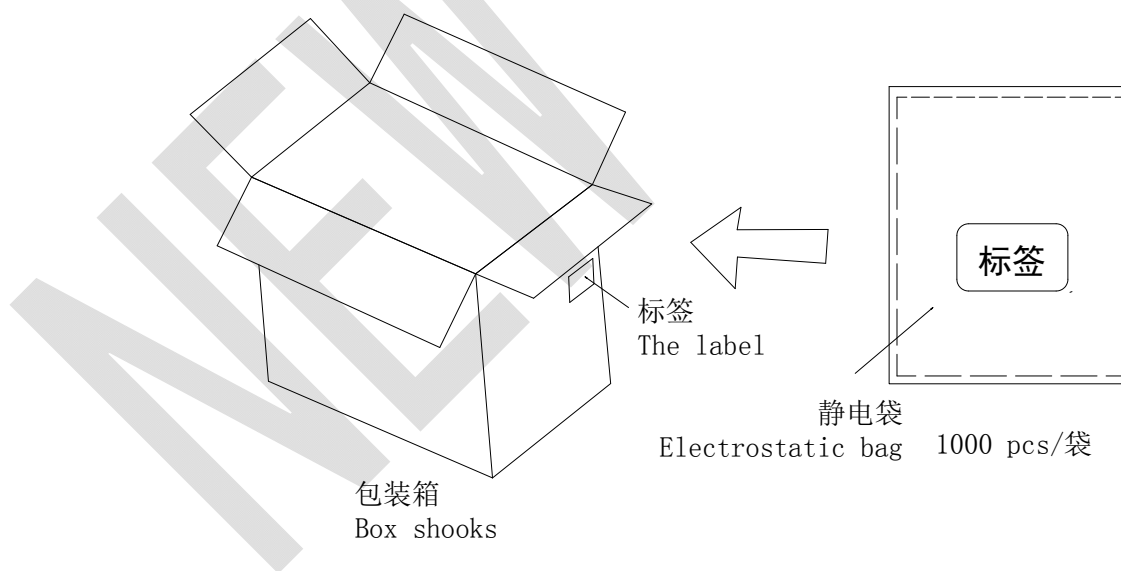
包装规格 Packing Specification

■ 标签规格 Label specification

| | |
|--|-----------------|
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| Tel : 0752-7987222 Fax : 0752-7987000 | |
| http://www.xycgd.com | |
| 料号 | Material Number |
| 型号 | Model Number |
| 单号 | Lot.Number |
| 箱号 | Box Number |
| 数量 | Quantity |
| 日期 | Date |



■ 静电袋包装



焊接 Soldering

焊接过程中的不慎操作将会引起产品的损坏，请务必注意。焊接过程中应避免对产品支架或封装部分施加压力。焊接时，请保证焊接位置与封装树脂底部有一定的距离，该距离因不同的焊接方法而有所不同，请参照以下推荐焊接条件。

Be careful because damages always caused during soldering. Please note that stress to the leads and expose bulb should be avoided during soldering particularly when heated. When soldering, leave certain distance from soldering joint to base, the distance is determined by different soldering techniques. It is recommended that soldering be performed based on the following conditions.

推荐焊接条件 Recommended Soldering Conditions

| 焊接模式 Mode | | 固定形式 Fixed form |
|------------------------|-----------------------------|---|
| 手工焊接 Hand Soldering | 烙铁温度 Temperature | 最高温度 300°C(功率最大 30 瓦) 300°C Max(30w Max) |
| | 焊接时间 soldering Time | 时间不超过 3 秒 3 sec Max |
| | 焊接位置 Soldering Position | 大于 3mm (从焊点到胶体) 3mm Min.(Form soldering joint to case) |
| 波峰焊接 DIP Soldering | 预热 PreHeat | 最高温度 100°C 不超过 60 秒 100°C Max.60 sec.Max |
| | 温度 Dipping Time | 最高 260°C 260°C Max. |
| | 焊接时间 Soldering time | 不超过 5 秒 5 sec Max |
| 锡炉焊接 DIP Soldering | 预热 PreHeat | 最高温度 100°C 不超过 60 秒 100°C Max.60 sec.Max |
| | PreHeat Temperature 浸焊温度 | 最高 260°C 260°C Max. |
| | 浸焊时间 Soldering time | 不超过 5 秒 5 sec Max |
| | 焊接位置 Soldering Position | 大于 2mm (从焊点到胶体) 2mm Min.(Form soldering joint to case) |

- 本产品不适合做回流焊接。
It's unsuitable for circumfluence soldering.
- 手工焊接只可焊接一次。
The hand solder should be done only one time
- 器件外部温度在 40°C 以下时，才可以对其进行处理。避免高温时操作对 LED 造成损伤。
Handling of the SMD LED should be done when the package has been cooled down to below 40°C or less. This is to prevent LED failures due to thermal-mechanical stress during handling.
- 在焊接温度回到正常以前，必须避免使 LED 受到任何震动或外力
After soldering the LED should keep out off any shake or outer force before it come to normal temperature
- 在焊接后推荐使用酒精进行清洗，在温度不高于 30°C 的条件下持续 1 分钟，不高于 50°C 的条件下持续 30 秒。使用其他类似溶剂清洗前，请先确认使用的溶剂不会对 LED 的封装和环氧树脂部分造成损伤。
It is recommended that alcohol be used as a solvent for cleaning after soldering. Cleaning is to go under 30°C for 3 minutes or 50°C for 30 seconds. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.

注意：此一般指导原则并不适用于所有 PCB 设计和焊接设备的配置。具体工艺受到诸多因素的影响，请根据特定的 PCB 设计和焊接设备来确定焊接方案。

Note : This general guideline may not apply to all PCB designs and configurations of all soldering equipment. The technique in practice is influenced by many factors, it should be specialized base on the PCB designs and configurations of the soldering equipment.

使用注意事项 Precautions

感谢您使用深圳市鑫永诚光电科技有限公司的系列 LED 产品，为增进您对我公司产品特性的了解，也为方便您快速掌握产品的基本操作，为尽量减少或避免因人为等因素造成不必要的产品损坏，使其能够更好的为您的生产服务，特针对使用过程中的一些规范使用作相应说明，同时即使是同一规格 LED，在实际应用领域其可靠性与整体系统设计水平、作业方式、使用条件均相关。本使用说明不可能涵盖客户使用过程中可能碰到的所有问题，由此带来的不便，敬请谅解！

Thanks for using relevant LED products of Shenzhen Newpoto Optoelectronic Technology Co., Ltd. in order to enhance your understanding of the characteristics of our products, as far as possible to reduce or avoid unnecessary damage to the product due to human factors, and make it can better service your production. we give corresponding instructions, According to the characteristic in the process of standard use. At the same time, even if the same specifications LED, in the practical application field its reliability are related to overall system design level, mode of operation and conditions of use. This Instructions can't cover all questions may encounter during customer use process, We sincerely apologize for any inconvenience this may cause !

■ 产品声明

- 使用本产品之前，请贵司务必预先进行测试，以便确认是否适合使用目的，产品介绍的用途并不保证不抵触任何专利，有关 LED 产品的进出口法律责任应由客户担负，请预先查清每个国家或地区的有关规定，产品可能会因性能提供或规格参数改变等缘故，恕不经预告更改，我们要求量产前签订正式的产品规格书

In order to confirm if it is right for the purpose, Pretest is necessary before use the product. This product presentation does not guarantee not contravene any patent. Relate to imports and exports LED product Legal liability should be responsible by customer please verify relevant provision about the LED product in your Target market. we may change specifications from time to time in the interest of product development, without prior notification or public announcement. An agreement of formal product specifications is required prior to mass production.

■ 储存 Storage

- 在温度不高于 30°C，湿度不高于 60%RH 的条件下，产品保存期限为 6 个月。将产品保存在密封的容器中并附带干燥剂可以在一定程度上延续产品的储存日期。不良的储存条件会导致产品引脚的腐蚀或产品性能的改变。

Under the storage conditions of 30°C or less and humidity less than 60%RH, the LEDs can be storage for 6months. Storage in a sealed container with moisture absorbent material can prolong the storage time to a certain extent bad storage conditions may cause the lead frames to corrode or degradation of LED characteristics. It is recommended that the LEDs be used as soon as possible.

- 开封后，产品必须 24 小时内使用完(建议工作环境温度不高于 30°C,湿度不高于 60%)，如未使用完，余料须存放在温度不高于 30°C,湿度不高于 10%的环境中。

After opening the package, the product should be soldered within 24 hours. If not, please store at 30°C or less and humidity less than 10%RH. It is recommended that the product be operated at the workshop condition of 30°C or less and humidity less than 60%RH.

- 对于尚未焊接的 LED,如果吸湿剂或包装失效,或者产品没有符合以上有效存储条件,烘烤可以起到一定的性能恢复效果. 烘烤条件:65±5°C,持续时间 24H.

If the moisture absorbent material has fade away or the LEDs have exceeded the storage time, baking treatment should be performed based on the following condition : 65±5°C for 24 hours.

■ 静电 Static electricity

- 静电和电涌会导致产品特性发生改变，例如正向电压降低等，如果情况严重甚至会损毁产品，所以在使用时必须采取有效的防静电措施。所有相关的设备和机器都应该正确的接地，同时必须采取其他防静电和电涌的措施。使用防静电手环，防静电垫子，防静电工作服，工作鞋，手套，防静电容器，都是有效的防止静电和电涌的措施。

Static electricity of surge voltage damages the LED .Damaged LED will show some unusual chrematistics such as the forward voltage becomes lower or the LED do not light at the low current even not light. All devices equipment and machinery must be properly grounded. At the same time, it is recommended that wrist Bands or anti-electrostatic gloves anti-electrostatic containers be used when dealing with the LED.

■ 设计建议 Design Consideration

- 设计电路时，通过 LED 的电流不能超过规定的最大值，同时还需要使用保护电阻，否则微小的电压变化将会引起较大的电流变化，可能导致产品损毁。

When designing a circuit, the current through each LED must not exceed the absolute maximum rating specified for each LED .In the meanwhile , resistors for protection should be applied otherwise slight voltage shift will cause big current change, bum out may happen.

- LED 的特性容易因为自身的发热和环境的温度的改变而发生改变。温度的升高会降低 LED 的发光效率，影响发光颜色等，所以在设计时应充分考虑散热的问题。

Thermal Design is paramount important in because heat generation may result in the Characteristics decline, such as brightness decreased, Color changed and so on. Please consider the heat generation of the LED when making the system design.

■ 支架整形 Lead Forming

- 支架的整形必须在焊接之前进行。整形时，支架的弯曲位置必须至少在封装树脂底部 3mm 处，同时避免对同一位置进行多次的弯曲。

Any lead forming must be done before soldering, not during or after soldering. When forming leads ,the leads should bent at a point at least 3mm from the base of the expose bulb. Bending at the same point twice or even more should be avoided.

- 整形时请使用合适的工具固定支架，避免对树脂施加压力。特别是不能管脚与树脂的连接部分作为支点，这样产生的应力会直接对产品内部的发光结构造成损伤，导致产品特性的改变甚至损毁。

Please use proper tools to hold and bent the leads, do not use the base of the lead frame as a fulcrum during lead forming .Bending s tress to the base of the lead frame may cause character is tics change on LED or even break it.

- 基于同样的原因，在装配产品的时候，PCB 板上焊孔间的距离必须于产品的管脚间距严格匹配。

Just for the same reason, when mounting the LED on to printed circuit board, the holes on the circuit board should be exactly aligned with the leads of the LED.