



佛山市国星光电股份有限公司
FOSHAN NATIONSTAR OPTOELECTRONICS CO., LTD

产品规格书 SPECIFICATION

顾客名称 Customer		产品名称 Product	Chip LED
顾客型号 Customer Type		产品型号 Type	NCD1005I1
顾客部品号 Customer No.		版本号 Version NO	A 版



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研发中心 Research & Development Center			客户 (加盖公章) Customer (Stamp)
制定 DRAW	审核 CHECK	批准 APPROVE	确认 CONFIRM
发放日期 (Release Date): 2022-12-05			

NCD1005I1

技术数据表 Technical Data Sheet

本产品主要将电能直接转换成近红外光（不可见光）并能辐射出去的发光器件，主要应用于各种消费电子、传感器及可穿戴设备中。

The product is mainly to convert electrical energy directly to near-infrared light (not visible) ,and radiation out of the light-emitting device, mainly used in all kinds of consumer electronics, sensors and wearable devices.

- 特性:**
- 管芯材料: InGaAs
Material:
 - 封装材料: 环氧树脂
Encapsulation: Epoxy Resin
 - 焊接方法: 无铅回流焊
Soldering methods: Pb-Free reflow soldering
 - 光强高, 功耗低, 可靠性好, 寿命长
High Luminous Intensity ,Low Power Dissipation, Good Reliability and Long Lifespan
 - 符合欧盟公布的 ROHS 指令要求
Complied With ROHS Directive

垂直腔表面发射激光器
VCSEL

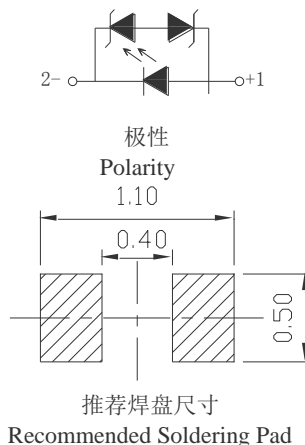
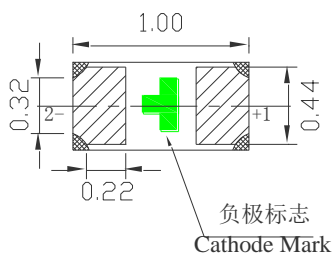
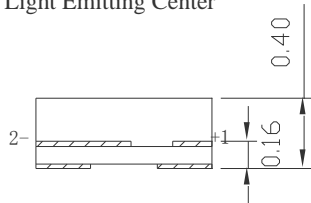
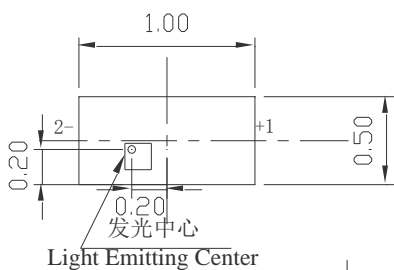


* 产品规格如因工艺改进而有所改变, 恕不另行通知。

* The specifications of the product may be modified for improvement without notice.

外形尺寸

Outline Dimension



敷铜区域:

Cuprum Area:

阻焊丝印区域:

Solder Resist:

无特别规定时, 公差: ±0.10mm

The Tolerances Unless Mentioned is : ±0.10mm



光电参数(1)

Electro-Optical Characteristics(1)

极限参数 (温度=25℃)



Absolute Maximum Ratings (Temperature=25 °C)

参数名称 Parameter	符号 Symbol	数值 Rating	单位 Unit
正向脉冲电流* Pulse Forward Current*	I_{FP}	25	mA
反向电压 Reverse Voltage	V_R	5	V
工作温度 Operating Temperature	T_{OPR}	-40 ~ +85	°C
贮存温度 Storage Temperature	T_{stg}	-40 ~ +100	°C
功耗 Power Dissipation	P_D	36	mW

* 注: 脉冲宽度 $\leq 0.1ms$, 占空比 $\leq 1/10$ * Note: Pulse Width $\leq 0.1ms$, Duty $\leq 1/10$

光电参数 (温度=25℃)



Electro-Optical Characteristics (Temperature=25 °C)

参数名称 Parameter	符号 Symbol	条件 Condition	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
反向电流 Reverse Current	I_R	$V_R=5V$	-	-	10	μA
发光面积直径 Luminescent Area Diameter	-	-	-	-	0.3	mm
视角 Beam Divergency	θ	-	-	-	25	deg.
正向电压 Forward Voltage	V_F	$I_F=15mA$	1.8	2.0	2.4	V
光功率 Output Optical Power	P_O		7			mW
峰值波长 Peak Wavelength	λ_P		930	940	950	nm
半波宽度 Spectrum Radiation Bandwidth	$\Delta\lambda$		-	-	10	nm

* 注 1: 光功率偏差 $\pm 15\%$; 压降偏差 $\pm 0.1V$ 。

* Note1: Tolerance on each Output Optical Power bin is $\pm 15\%$; Tolerance on each Forward Voltage bin is $\pm 0.1V$.

* 注 2: 以上参数仅供参考, 请以实物标签为准。我司给出的参数均由国星测试系统测得。

* Note2: The parameters above are only for your reference. In case of any discrepancy, please adhere to the label of our actual products. All parameters are tested by the standard testing system of NationStar.



光电参数(2)

Electro-Optical Characteristics(2)

- ✧ 正向电压 (温度=25℃, 测试电流=15 mA)
Forward Voltage (Ta=25 °C, IF=15mA)

典型电压档范围 Voltage Classification Range	
V_F	1.8-1.9 V
	1.9-2.0 V
	2.0-2.1 V
	2.1-2.2 V
	2.2-2.3 V
	2.3-2.4 V

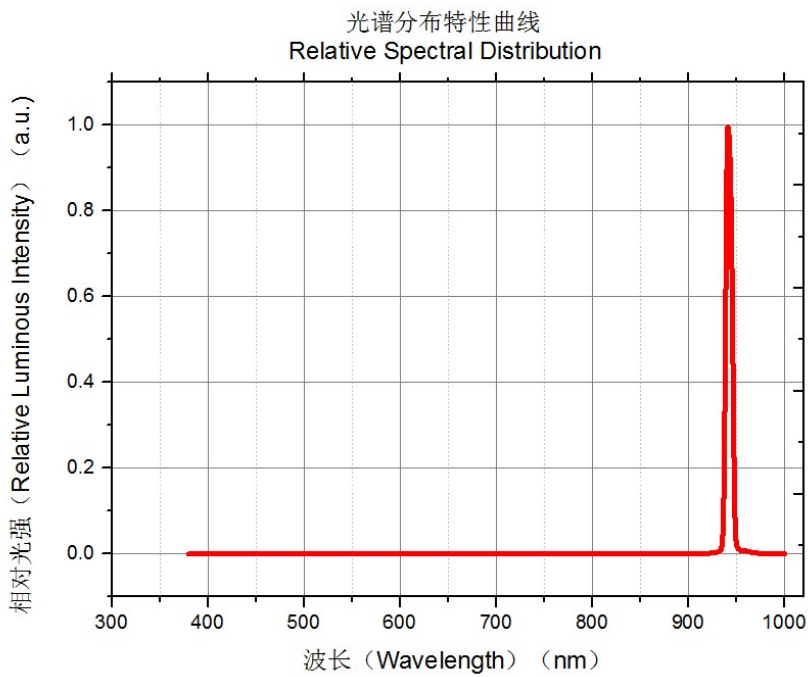
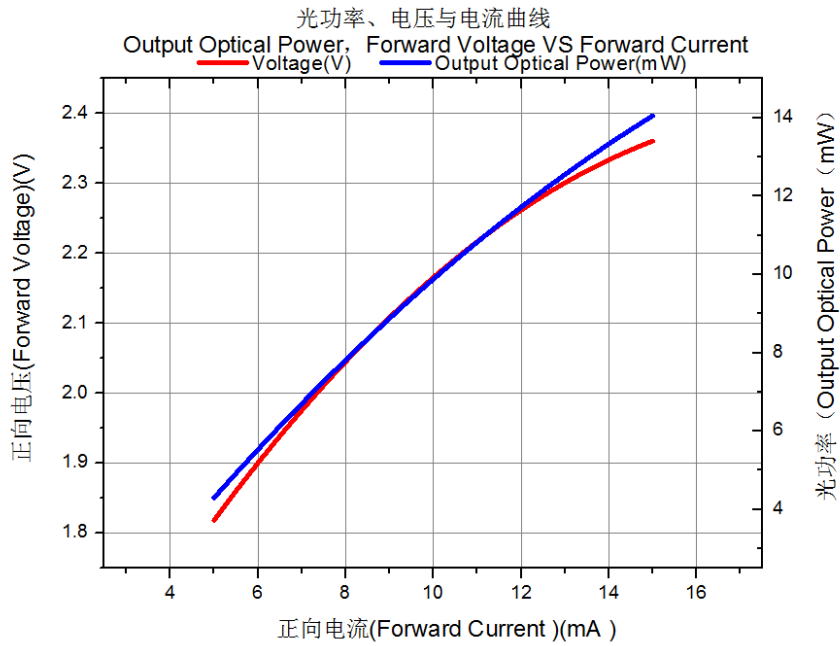
- ✧ 光功率 (温度=25℃, 测试电流=15 mA)
Luminous Intensity (Ta=25 °C, IF=15mA)

典型光功率档范围 Output Optical Power Classification Range	
P_o	7.35-40 mW



典型特性曲线

Typical Characteristics Curves





可靠性试验

Reliability Test Items And Conditions

实验项目 Test Items	参考标准 Reference	实验条件 Test Conditions	时间 Time	样品数 Quantity	判据 Criterion
耐焊接热 Resistance to Soldering Heat	GB/T 4937, II, 2.2&2.3	Tsol*=260°C 10secs.	2次 2 times	22	0/22
湿热循环 Temperature And Humidity Cyclic	JEITA ED-4701 200 203	(-10~65)°C , (0~90)%RH 24hrs./1cycle	循环 10 次 10 cycles	22	0/22
高温贮存 High Temperature Storage	JEITA ED-4701 200 201	Ta=100°C	1000h	22	0/22
低温贮存 Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40°C	1000h	22	0/22
冷热冲击 Thermal Shock	MIL-STD-202G	-40°C (15min) ← → 100°C (15min)	循环 200 次 200 cycles	22	0/22
常温寿命 Lifespan Test	JESD22-A108D	T=25°C, IF=10mA	1000h	22	0/22

失效判断标准 Criteria For Judging Damage

测试项目 Test Items	符号 Symbol	测试条件 Test Conditions	判定标准 Criteria For Judging Damage
正向电压 Forward Voltage	V _F	I _F = I _{FT}	初始值±10% Initial Data±10%
反向电流 Reverse Current	I _R	V _R = 5V	I _R ≤ 10μA
光功率 Output Optical Power	P _O	I _F = I _{FT}	P _O 衰减 ≤ 50% Po degradation ≤ 50%
耐焊接热 Resistance to Soldering Heat			材料无内部裂痕、无材料间爆裂、剥离、无死灯。 Material without internal cracks, no material between stripped, no dead light .

* 注: T_{sol}-锡液温度; I_{FT}: 典型电流

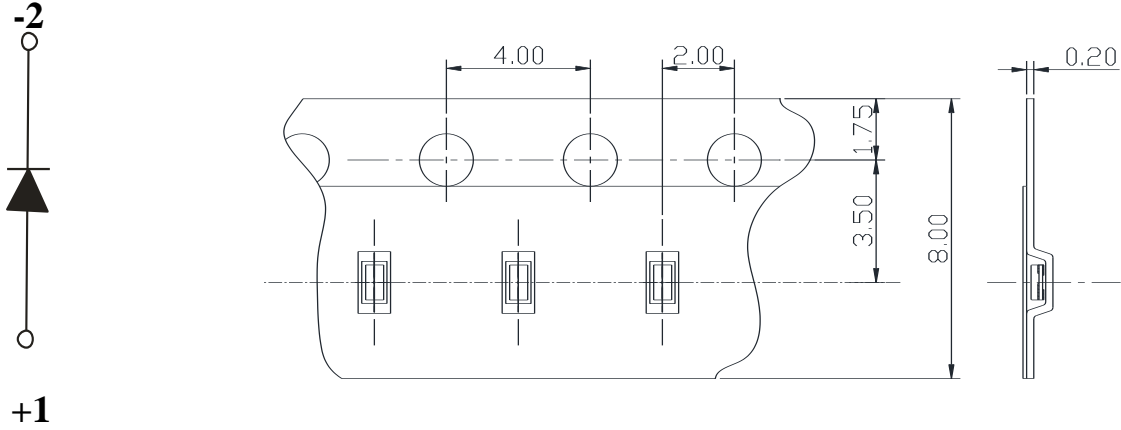
* Note: T_{sol}-Temperature of tin liquid; I_{FT}: Typical current.



包装 (1)

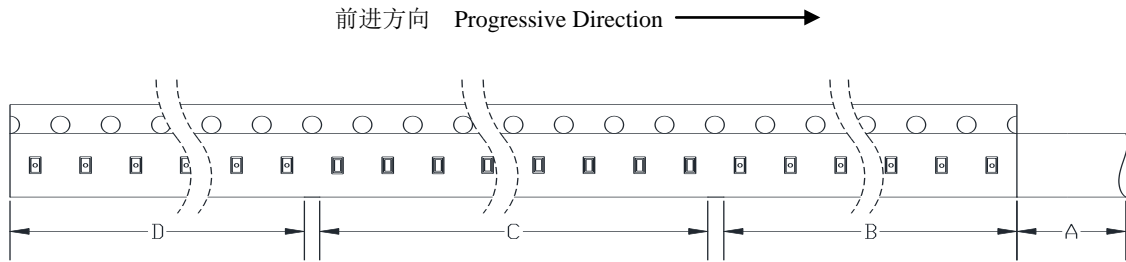
Packaging (1)

◇ 载带 Carrier Tape



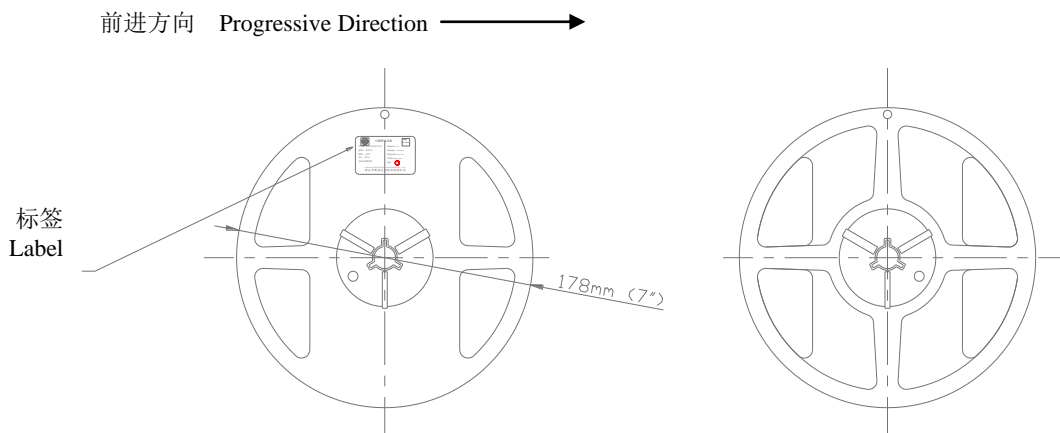
单位: mm, 未注公差: ± 0.1 mm
All dimensions in mm, tolerances unless mentioned is ± 0.1 mm.

◇ 编带细节 Details Of Carrier Tape



A: 盖带, 100 mm; B: 引导, 空带, 300mm; C: 编载产品 3000 只; D: 尾部, 空带, 8000mm
A: Top Cover Tape, 100mm; B: Leader, Empty, 300mm; C: 3000 Lamps Loaded; D: Trailer, Empty, 8000mm.

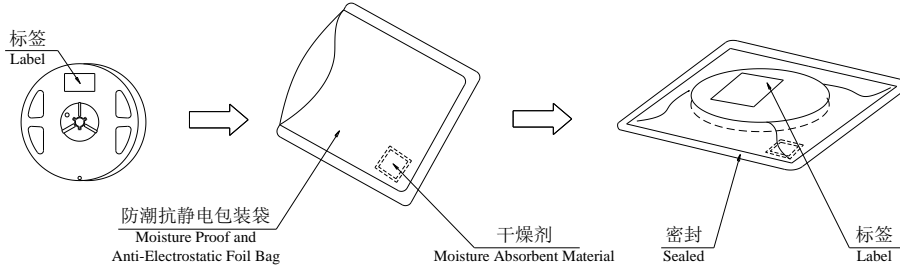
◇ 带盘 Reel Dimension



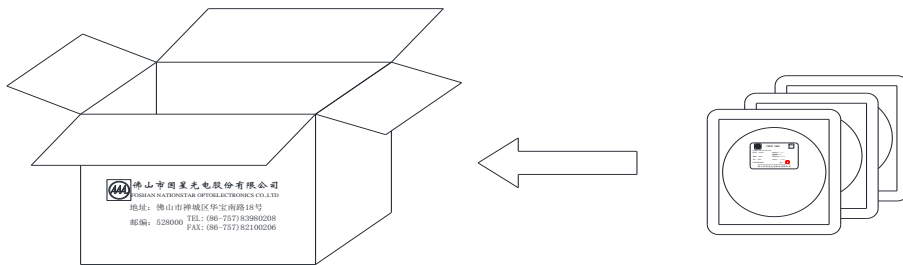
包装(2)

Packaging (2)

防潮抗静电包装 Moisture Proof and Anti-Electrostatic Foil Bag



外包装箱 Cardboard Box



标签说明 Label Explanation

- TYPE: 产品型号
- IF: 测试电流 Testing Current
- QTY: 数量 Quantity
- Po: 光功率 Output Optical Power
- BIN: 分档 Rank
- VF: 正向电压范围 Forward Voltage Range
- SC: 分档编号 Step Code
- LOT: 批号 Lot Number

