



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	NCD2516RGI1
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			



NCD2516RGI1

Chip Light Emitting Diode

技术数据表 Technical Data Sheet

本产品主要作为健康监测，广泛应用于各类健康监测的电子产品中，如心率监测、脉搏血氧仪等。

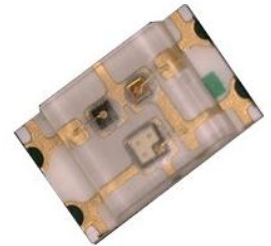
This product is generally used as indicator and luminance for surface mounted electronic equipment, such as household appliance, communication equipment, and dashboard.

特性:

管芯材料:	红色 Red	绿色 Green	红外 IR
Material:	AlGaInP	GaN	AlGaAs

Features:

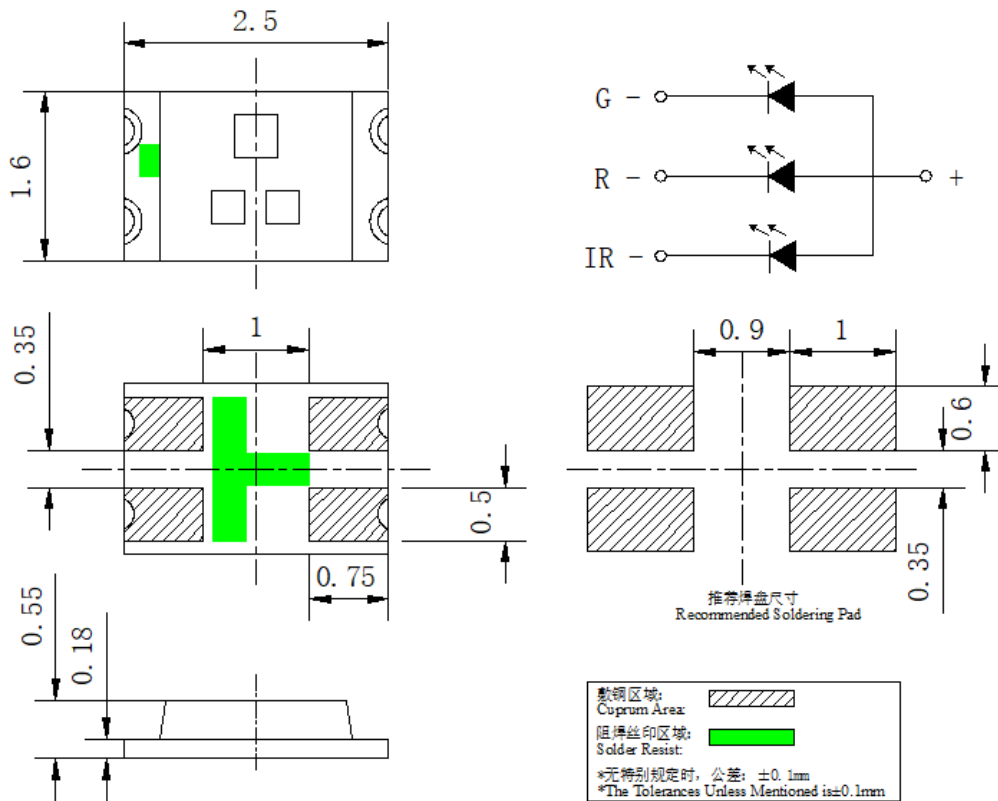
- 封装材料: 硅树脂
Encapsulation: silicone
- 焊接方法: 无铅回流焊
Soldering methods: Pb-Free reflow soldering
- 光强高, 功耗低, 可靠性好, 寿命长
High Luminous Intensity, Low Power Dissipation, Good Reliability and Long Lifespan
- 符合欧盟公布的 RoHS 指令要求
Complied With RoHS Directive



* 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



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(R)}	150	mA
	I _{FP(UG)}	200	
	I _{FP(IR)}	150	
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	红 Red	104
		绿 Green	330
		红外 IR	85

* 注: 脉冲宽度≤0.1ms, 占空比≤1/10 * Note: Pulse Width≤0.1ms, Duty≤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	颜色 Color	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 =5	红 Red	-	-	10	μA
			绿 Green	-	-	10	
			红外 IR	-	-	10	
正向电压 Forward Voltage	V _F	I _F =20mA	红 Red		2.1	2.6	V
		I _F =20mA	绿 Green		2.5	3.3	
		I _F =20mA	红外 IR		1.4	1.7	
峰值波长 Peak Wavelength	λ _p	I _F =20mA	红 Red	640	656	700	nm
		I _F =20mA	绿 Green	517	522	537	
		I _F =20mA	红外 IR	930	947	970	
半波宽度 Spectrum Radiation Bandwidth	Δλ	I _F =20mA	红 Red	-	18	-	nm
		I _F =20mA	绿 Green	-	28	-	
		I _F =20mA	红外 IR	-	30	-	
辐射强度 Radiant Intensity	I _e	I _F =20mA	红 Red	1.5	2.5		mW/sr
		I _F =20mA	红外 IR	1.5	2.4		
光强 Luminous Intensity	IV	I _F =20mA	绿 Green	900	1600		mcd
视角角度 View Angle	2θ1/2	-	红 Red	-	130	-	deg
		-	绿 Green	-	130	-	
		-	红外 IR	-	130	-	

* 注 1: 辐射强度偏差±15%; 压降偏差±0.1V; (X,Y)坐标偏差±0.01; 峰值波长偏差±1nm; 视角角度偏差±10°。
 * Note1: Tolerance on each Luminous Intensity bin is ±15%; Tolerance on each Forward Voltage bin is ±0.1V; Tolerance on each Hue(X,Y) bin is ±0.01; Tolerance of Dominant Wavelength ±1nm; Tolerance of View Angle±10.
 * 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=20 mA)

Forward Voltage (Ta=25 °C, IF=20mA)

典型电压档范围 Voltage Classification Range		
V _F (R)	V1	1.6-2.6 V
V _F (UG)	U1	2.3-2.4 V
	U2	2.4-2.5 V
	U3	2.5-2.6 V
	U4	2.6-2.7 V
	U5	2.7-2.8 V
V _F (IR)	F1	1.2-1.7 V

◇ 辐射强度 (温度=25℃, 测试电流=20mA)

Radiant Intensity (Ta=25 °C,IF=20mA)

典型辐射强度档范围 Radiant Intensity		
I _e (R)	A1	1.5-4.5 mW/sr
I _e (IR)	B1	1.5-4.5 mW/sr

◇ 光强 (温度=25℃, 测试电流=20 mA)

Luminous Intensity (Ta=25 °C,IF=20mA)

典型辐射强度档范围 Radiant Intensity		
IV (UG)	C1	900-1200 mcd
	C2	1200-1560 mcd
	C3	1560-2100 mcd

◇ 峰值波长 (温度=25℃, 测试电流=20 mA)

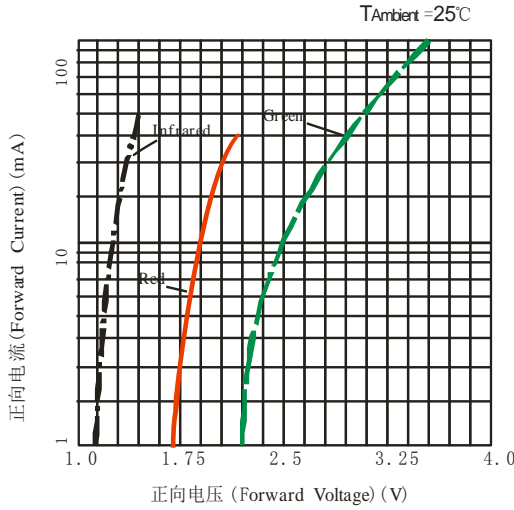
Peak Wavelength (Ta=25 °C,IF=20mA)

典型波长档范围 Peak Wavelength Range		
λ _p (R)	R1	640-700 nm
λ _p (UG)	G1	517-537 nm
λ _p (IR)	IR1	930-970 nm

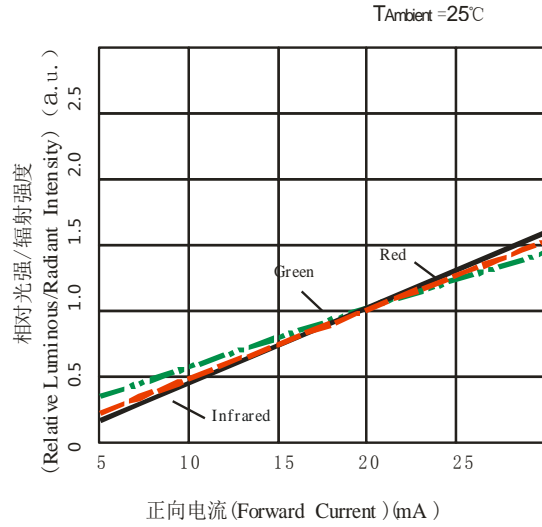
典型特性曲线

Typical Characteristics Curves

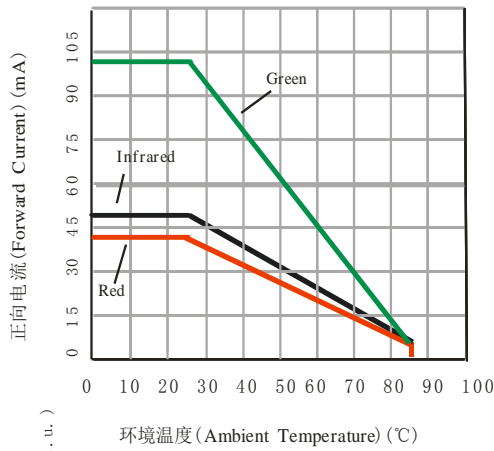
伏安特性
Volt-Ampere Characteristics



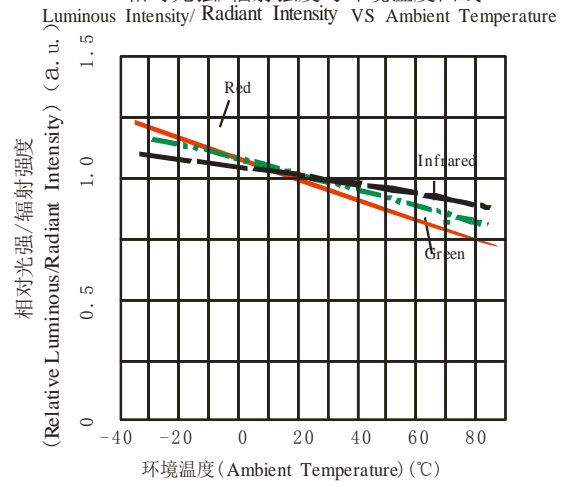
相对光强/辐射强度与正向电流特性
Relative Luminous/Radiant Intensity VS Forward Current



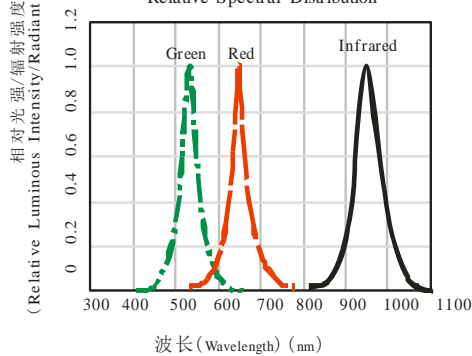
正向电流降额曲线
Forward Current Derating Curve



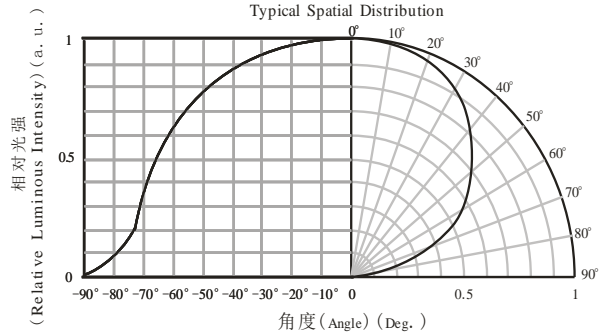
相对光强/辐射强度与环境温度曲线
Luminous Intensity/Radiant Intensity VS Ambient Temperature



光谱分布特性曲线
Relative Spectral Distribution



光强分布特性曲线
Typical Spatial Distribution





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
辐射强度 Radiant Intensity	I _e	I _F = I _{FT}	I _e 衰减 ≤ 50% I _e degradation ≤ 50%
光强 Luminous Intensity	I _v	I _F = I _{FT}	I _v 衰减 ≤ 50% I _v degradation ≤ 50%
耐焊接热 Resistance to Soldering Heat	/	/	无死灯 No dead light

* 注: T_{sol}-锡液温度; I_{FT}: 典型电流

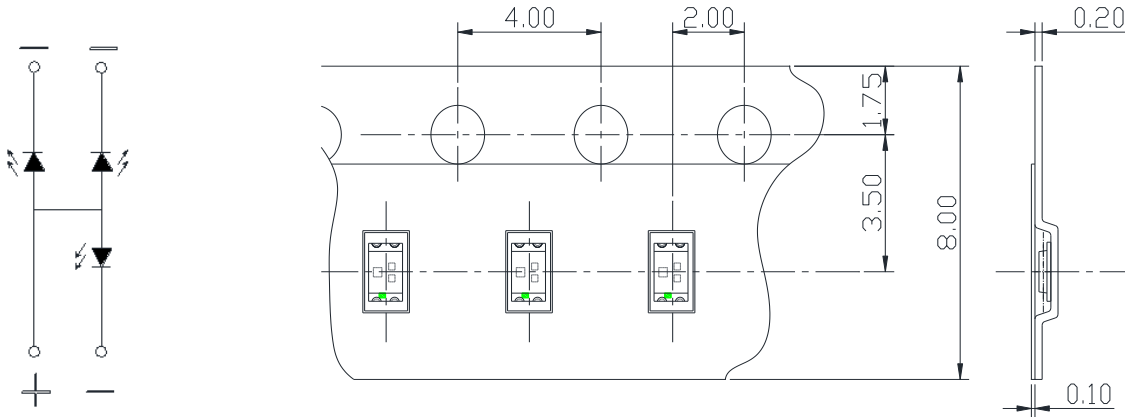
* Note: T_{sol}-Temperature of tin liquid; I_{FT}: Typical current.



包装 (1)

Packaging (1)

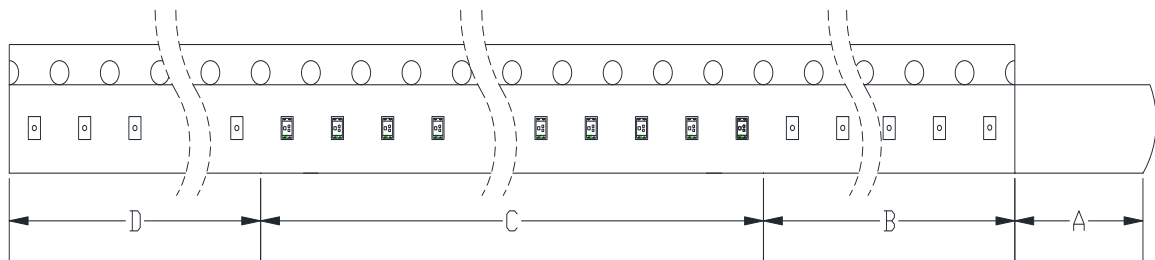
◇ 载带 Carrier Tape



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

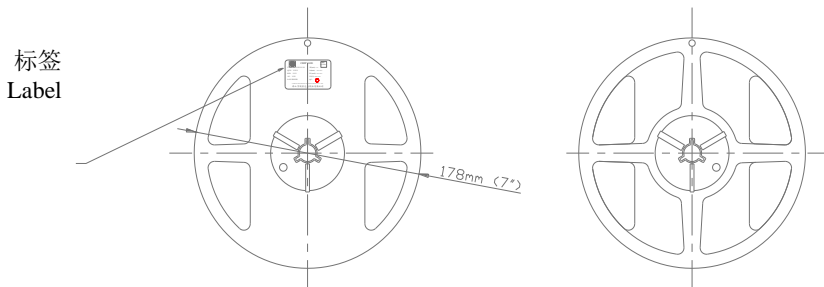
前进方向 Progressive Direction \longrightarrow



A: 盖带, 100 mm; B: 引导, 空带, 300mm; C: 编载产品 4000 只; D: 尾部, 空带, 200mm
 A: Top Cover Tape, 100mm; B: Leader, Empty, 300mm; C: 4000 Lamps Loaded; D: Trailer, Empty, 200mm.

◇ 带盘 Reel Dimension

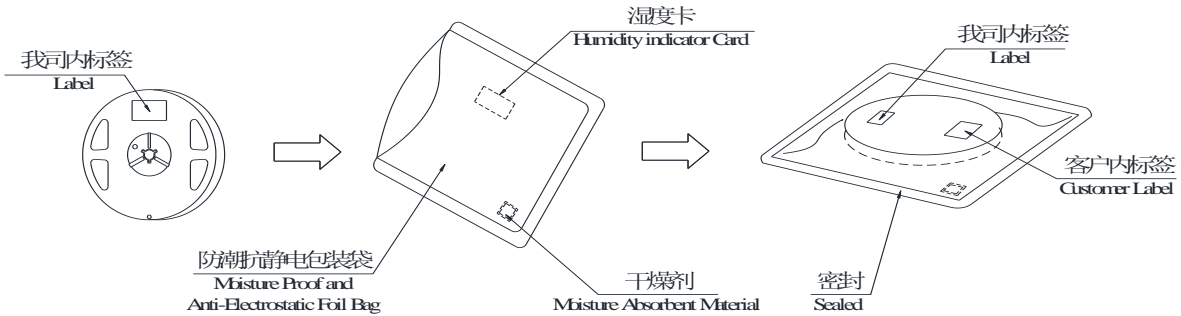
前进方向 Progressive Direction \longrightarrow



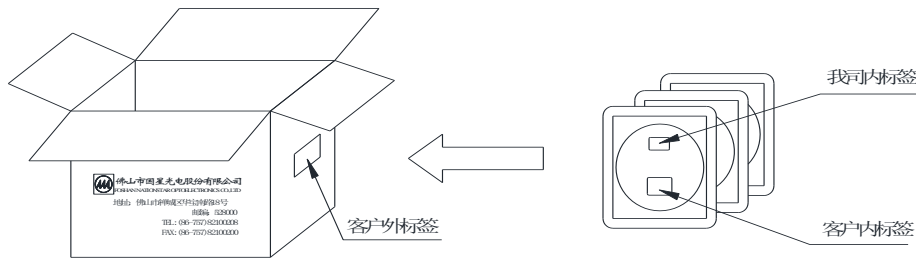
包装 (2)

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

- 1、外箱标签贴客户专用外标签;
- 2、防静电包装袋上标签贴客户专用内标签和我司内标签;
- 3、料盘标签贴我司内标签;
- 4、标签模板举例:

备注: 我司内标签主要字段说明:

TYPE: 产品型号

IF: 测试电流 Testing Current

QTY: 数量 Quantity

Ie: 辐射强度范围 Radiant Intensity

BIN: 分档 Rank

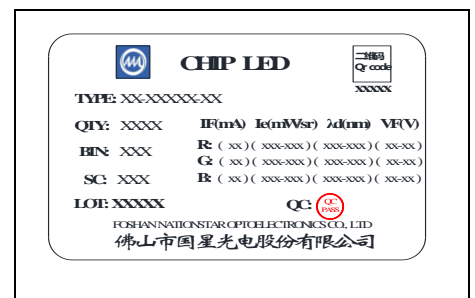
λ_p : 波长范围 Wavelength Range

SC: 分档编号 Step Code

VF: 正向电压范围 Forward Voltage Range

LOT: 批号 Lot Number

IV: 光强 Luminous Intensity



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