



深圳市国冶星光电子有限公司

SHENZHEN GUOYEXING OPTOELECTRONICS CO., LTD.

# 承认书

## SPECIFICATION FOR APPROVAL

客户名称 Customer: \_\_\_\_\_

产品名称 Description: \_\_\_\_\_ SMD LED

产品型号 Model: \_\_\_\_\_ GYX-SD-K1311SURKC

样品编号 Not No.: \_\_\_\_\_

编号 No.: \_\_\_\_\_ SM-CG-0545

日期 Date: \_\_\_\_\_ 2008-08-06

附产品规格书 Enclosure is the specification

深圳市国冶星光电子有限公司 SHENZHEN GUOYEXING OPTOELECTRONICS CO., LTD.			
生产部 Production Dept.	质量部 Quality Dept.	工程部 Engineering Dept.	市场部 Marketing Dept.

客户确认签名 APPROVED SIGNATURES			

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**GYX-SD-K1311SURKC Super Bright Red**  
(GYX-SD-K1311SURKC 高亮红色光)

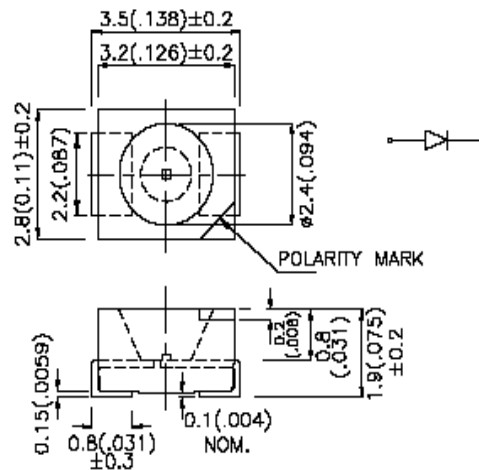
### Features

- 1)3.5x2.8mm SMD LED, 1.9mm THICKNESS.  
(3.5mmx2.8mm SMD 发光二极管, 总高 1.9mm)
- 2)LOW POWER CONSUMPTION.  
(低功率消耗)
- 3)WIDE VIEWING ANGLE.  
(宽角度发光)
- 4)IDEAL FOR BACKLIGHT AND INDICATOR.  
(背光源和指示灯的理想选择)
- 5)VARIOUS COLORS AND LENS TYPES AVAILABLE.  
(多种发光颜色及胶体颜色可供选择)
- 6)PACKAGE: 2000PCS/REEL.  
(装带: 2000 个/卷)

### Description

The Super Bright Red source color devices are made with GaAlAs Light Emitting Diode.  
(此种高亮度红色光之颜色来源于由 GaAlAs 化合物制成的发光二极管.)

### Package Dimensions



### Notes:

- 1.All dimensions are in millimeters (inches).  
(单位: 毫米<英寸>)
- 2.Tolerance is  $\pm 0.1$  (  $0.004''$  ) unless otherwise noted.  
(允差:  $\pm 0.1 < 0.004'' >$ , 另有标注除外.)
- 3.Specifications are subject to change without notice.  
(规格若有变动, 恕不另行通知.)



注：此页参数仅对样品，出货范围参照最后一页

Part No. (产品型号)	Dice (发光颜色)	Lens Type (胶体颜色)	Iv (mcd) @20mA (亮度)			Viewing Angle (发光角度)
			Min. (最小值)	Typ (规格值)	Max (最大值)	2 θ 1/2
GYX-SD-K1311SURKC	Super Bright Red <GaAlAs>(高亮度红色)	Water Clear (无色透明)	140	-	300	120°

Note:

1. θ 1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

(θ 1/2 是指当亮度减到一半时与发光特性曲线相交所对应的角度值。)

**Electrical / Optical Characteristics at TA=25° C(25° C 环境下之电性/光学特性)**

Symbol (符号)	Parameter (参数)	Device (发光颜色)	Min. (最小值)	Typ (规格值)	Max. (最大值)	Units (单位)	Test Conditions (测试条件)
λ peak	Peak Wavelength (峰值波长)	Super Bright Red (高亮度红色)	/	627	/	nm	IF=20mA
λ D	Dominate Wavelength (主波长)	Super Bright Red (高亮度红色)	620	-	630	nm	IF=20mA
Δ λ 1/2	Spectral Line Half-width (波宽)	Super Bright Red (高亮度红色)	/	20	/	nm	IF=20mA
C	Capacitance (电容)	Super Bright Red (高亮度红色)	/	45	/	PF	VF=0V;f=1MHz
VF	Forward (正向电压)	Super Bright Red (高亮度红色)	1.8	-	2.3	V	IF=20mA
IR	Reverse Current (反向电流)	Super Bright Red (高亮度红色)	/	/	10	uA	VR=5V

**Absolute Maximum Ratings at TA=25° C(在 25° C 环境下之绝对最大额定值)**

Parameter (参数)	Super Bright Red (高亮度红色)	Units (单位)
Power dissipation (功率消耗)	75	mW
DC Forward Current (正向直流电流)	30	mA
Peak Forward Current (I) (正向电流峰值)	155	mA
Reverse Voltage (反向电压)	5	V
Operating/Storage Temperature (操作/贮藏温度)	-40° C To + 85° C	

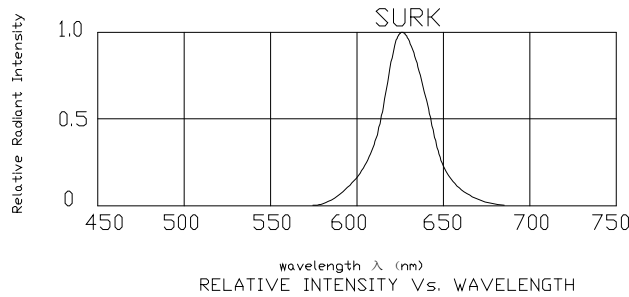
Note:

1. 1/10 Duty Cycle, 0.1ms Pulse Width. (1/10 周期, 0.1ms 脉宽)



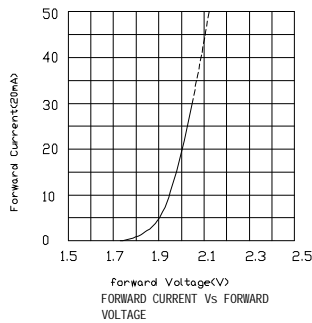
**Relative Intensity Vs Wavelength Chart**

(相对亮度与波长关系曲线图)

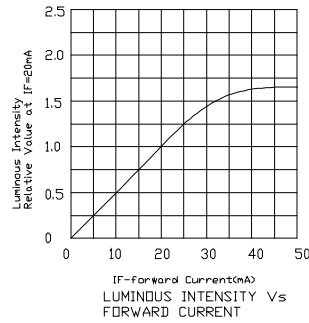


**Super Bright Red GYX-SD-K1311SURKC**

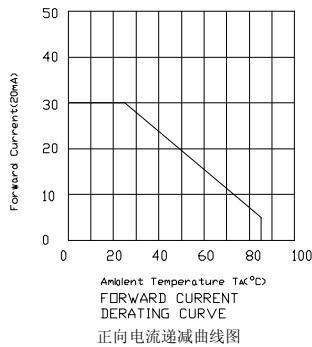
(高亮度红色光 GYX-SD-K1311SURKC)



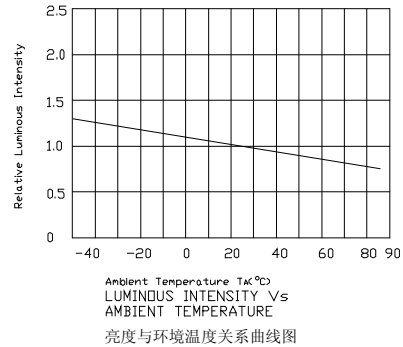
正向电流与正向电压关系曲线图



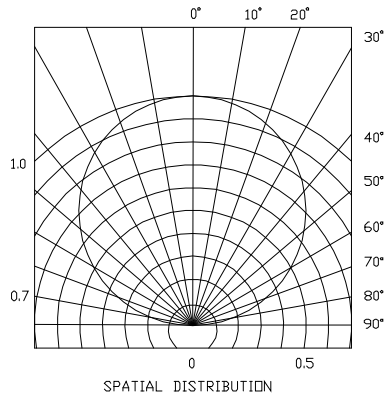
亮度与正向电流关系曲线图



正向电流递减曲线图



亮度与环境温度关系曲线图



发光角度图解



### GYX-SD-K1311SURKC

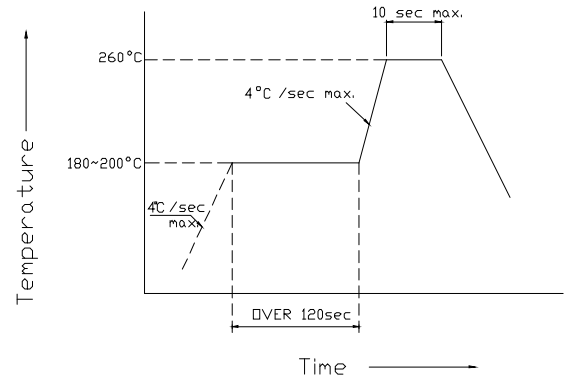
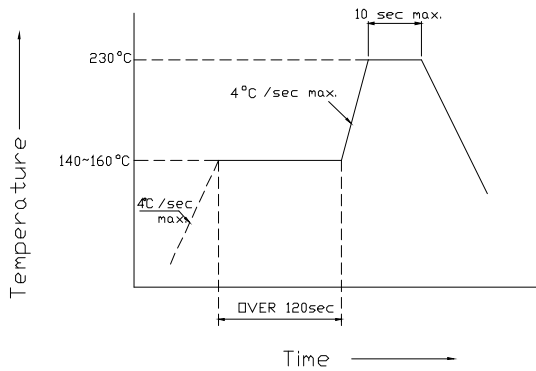
#### SMT Reflow Soldering Instructions (SMT 回流焊说明)

Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

(本产品最多只可回焊两次,且在首次回焊后须冷却至室温之后方可进行第二次回焊.)

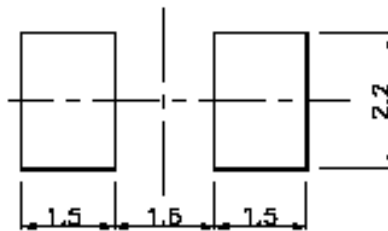
1>Lead Solder (有铅回焊)

2>Lead-Free Solder(无铅回焊)



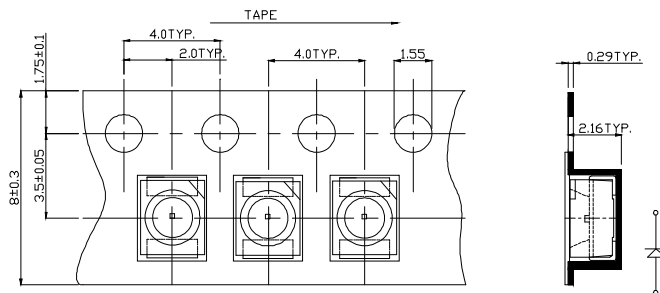
#### Recommended Soldering Pattern (推荐焊盘式样)

<Units:mm> (单位:毫米)



#### Tape Specifications(装带规格)

<Units:mm> (单位:毫米)



Adhesion Strength of Cover Tape : Adhesion strength to be 0.1 – 0.7N when the cover tape is turned off from the carrier at 10° angle to be the carrier tape.(盖带力度: 当盖带与载带成 10 度角时力度为 0.1 – 0.7N)



**RELIABILITY (可靠性)**

**(1) TEST ITEMS AND RESULTS (测试项目及结果)**

Test Item	Standard Test Method	Test Conditions	Note	Number of Damaged
Resistance to Soldering Heat (Reflow Soldering)	JEITA ED-4701 300 301	Tsld=260°C, 10sec. (Pre treatment 30°C,70%,168hrs)	2 times	0/50
Solderability (Reflow Soldering)	JEITA ED-4701 300 303	Tsld=215±5°C, 3sec. (Leader Solder)	1time over 95%	0/50
Thermal Shock	JEITA ED-4701 300 307	-40°C~100°C 5min. 5min.	100cycles	0/50
Temperature Cycle	JEITA ED-4701 100 105	-40°C~25°C~100°C~25°C 30min. 5min. 30min. 5min.	100cycles	0/50
Moisture Resistance Cycle	JEITA ED-4701 200 203	25°C~65°C~-10°C 90%RH 24hrs./1cycle	10 cycles	0/50
High Temperature Storage	JEITA ED-4701 200 201	Ta=100°C	1000 hrs	0/50
High Temperature High Humidity Storage	JEITA ED-4701 100 103	Ta=60°C, 90%RH	1000 hrs	0/50
Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40°C	1000 hrs	0/50
Steady State Operating Life		Ta=25°C, If=20mA	1000 hrs	0/50
Steady State Operating Life of High Temperature		Ta=85°C, If=5mA	1000 hrs	0/50
Steady State Operating Life of High Humidity Heat		60°C, 90%RH, If=15mA	500 hrs	0/50
Steady State Operating Life of Low Temperature		Ta=-30°C, If=20mA	1000 hrs	0/50
Drop		H=75cm	3 cycles	0/50
Substrate Bending	JEITA ED-4702	3mm, 5 ± 1 sec.	1 time	0/50
Stick	JEITA ED-4702	5N, 10 ± 1 sec.	1 time	0/50

**(2) CRITERIA FOR JUDGING THE DAMAGE(损伤判断标准)**

Item	Symbol	Test Conditions	Criteria for Judgement	
			Min.	Max.
Forward Voltage	V <sub>F</sub>	If=20mA	-	U.S.L.*)X1.1
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	-	U.S.L.*)X2.0
Luminous Intensity	I <sub>V</sub>	If=20mA	L.S.L.**))X0.9	-

\*) U.S.L.: Upper Standard Level

\*\*)) L.S.L.: Lower Standard Level



**Intensity And Color Bin Limits(亮度及波长等级)**

**(1)Intensity Bin Limits (If=20mA)**

SELECTION CODE FOR SUPER BRIGHT LEDS		
Group	Light intensity in mcd(20mA) Super Bright Red	
	Min.	Max.
N	120	180
P	180	240
Q	240	320

Tolerance for each Bin limit is  $\pm 10\%$ .

**(2)Color Bin Limits (If=20mA)**

COLOR CODE FOR RED LEDS + DISPLAYS		
Group	Dom. WaveLength (nm)	
	min.	max.
1	620	625
2	625	630

Tolerance for each Bin limit is  $\pm 1\text{nm}$ .

**Forward Voltage Bin limits(If=20mA) < V<sub>F</sub> 值等级 >**

Grade (等级)	A	B	C	D
Range (范围)	1.7-1.9	1.9~2.1	2.1~2.3	2.3-2.5

Tolerance for each Bin limit is  $\pm 0.1\text{v}$ .