



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-T0603QBC

样品编号 Lot No.: \_\_\_\_\_

编号 No.: \_\_\_\_\_ SM-CG-0122

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-T0603QBC BLUE**  
**(GYX-SD-T0603QBC 蓝光)**

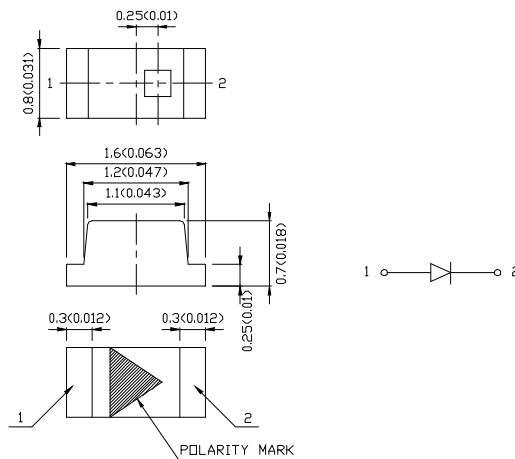
**Features (特征)**

- 1) 1.6mmx0.8mm SMD LED, 0.7mm THICKNESS.  
(1.6mmx0.8mm SMD 发光二极管, 总高 0.7mm)
- 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: 4000PCS/REEL.  
(装带: 4000 个/卷)

**Description (说明)**

The Blue source color devices are made with GaN Light Emitting Diode.  
(此种蓝光之光颜色来源于由 GaN 化合物制成的发光二极管.)

**Package Dimensions (封装尺寸)**



**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-T0603QBC	Blue <GaN> (蓝色)	Water Clear (无色透明)	-	130	-	120°

Note:

1.  $\theta$  1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

( $\theta$  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 T<sub>A</sub>=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)
$\lambda$ peak	Peak Wavelength (峰值波长)	Blue (蓝色)	/	462	/	nm	IF=20mA
$\lambda$ D	Dominate Wavelength (主波长)	Blue (蓝色)	465	-	473	nm	IF=20mA
$\Delta \lambda$ 1/2	Spectral Line Half-width (波宽)	Blue (蓝色)	/	25	/	nm	IF=20mA
C	Capacitance (电容)	Blue (蓝色)	/	105	/	PF	VF=0V;f=1MHz
VF	Forward (正向电压)	Blue (蓝色)	2. 8	-	3.5	V	IF=20mA
IR	Reverse Current (反向电流)	Blue (蓝色)	/	/	10	uA	VR=5V

**Absolute Maximum Ratings at T<sub>A</sub>=25° C(在 25° C 环境下之绝对最大额定值)**

Parameter (参数)	Blue (蓝色)	Units (单位)
Power dissipation (功率消耗)	105	mW
DC Forward Current (正向直流电流)	30	mA
Peak Forward Current (1) (正向电流峰值)	150	mA
Reverse Voltage (反向电压)	5	V
Operating/Storage Temperature (操作/贮藏温度)	-40° C To +85° C	

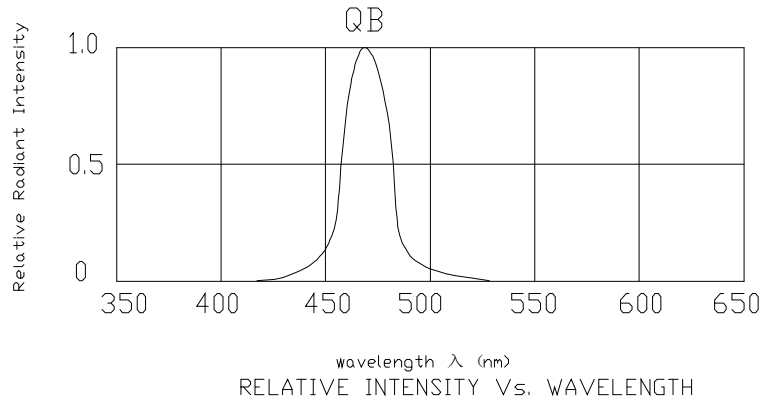
Note:

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



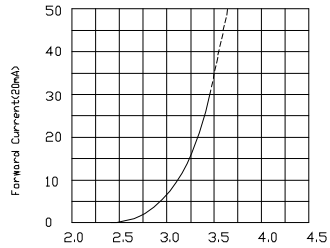
**Relative Intensity Vs Wavelength Chart**

(相对亮度与波长关系曲线图)



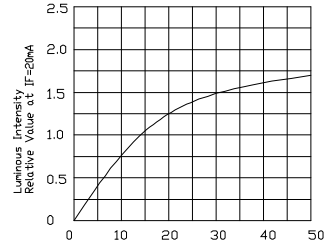
**BLUE GYX-SD-T0603QBC**

(蓝光 GYX-SD-T0603QBC)



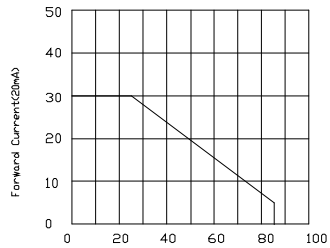
FORWARD CURRENT VS FORWARD VOLTAGE

正向电流与正向电压关系曲线图



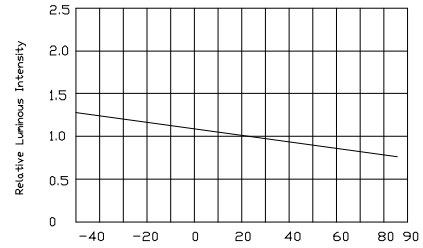
LUMINOUS INTENSITY VS FORWARD CURRENT

亮度与正向电流关系曲线图



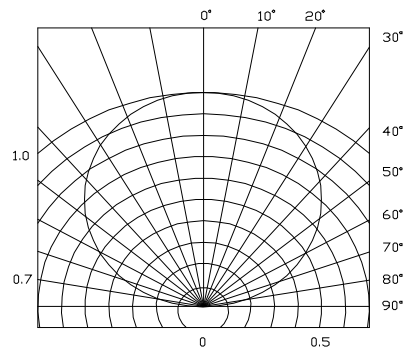
FORWARD CURRENT DERATING CURVE

正向电流递减曲线图



LUMINOUS INTENSITY VS AMBIENT TEMPERATURE

亮度与环境温度关系曲线图



SPATIAL DISTRIBUTION

发光角度图解



### GYX-SD-T0603QBC

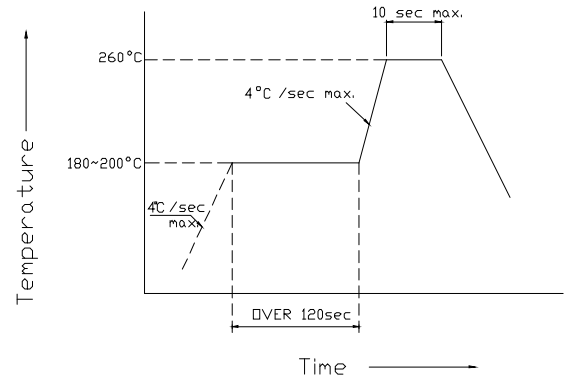
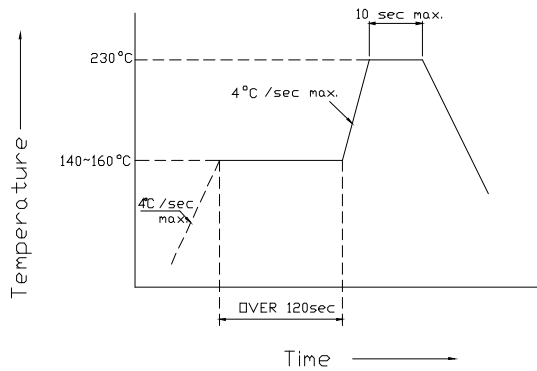
#### SMT Reflow Soldering Instructions (SMT 回流焊说明)

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.)

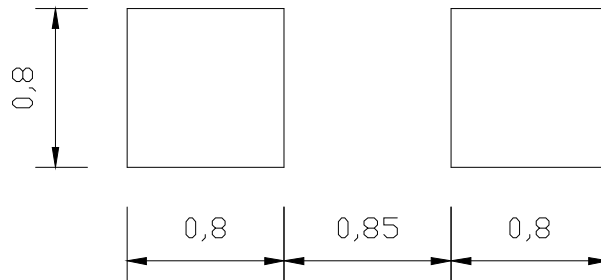
1>Lead Solder (有铅回焊)

2>Lead-Free Solder(无铅回焊)



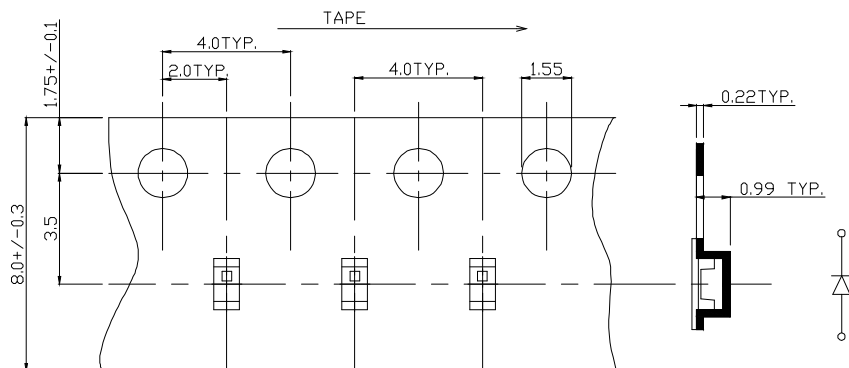
#### Recommended Soldering Pattern (推荐焊盘式样)

<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>	VR=5V	-	U.S.L.*)X2.0
Luminous Intensity	I <sub>V</sub>	If=20mA	L.S.L.**))X0.7	-

\*) 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)	
	min.	Max.
M	90	120
N	120	180

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

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

COLOR CODE FOR BLUE LEDS + DISPLAYS		
Group	Dom. WaveLength (nm)	
	min.	max.
2	465	468
3	468	470
4	470	472
5	472	475

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

**Forward Voltage Bin limits(IF=20mA) < VF 值等级 >**

Grade (等级)	F	G	H	I
Range (范围)	2.7-2.9	2.9-3.1	3.1-3.3	3.3-3.5

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