

Approval Sheet

承認書

Product/产品 **RGB SMD LED**

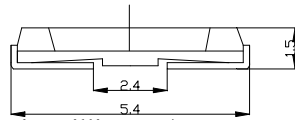
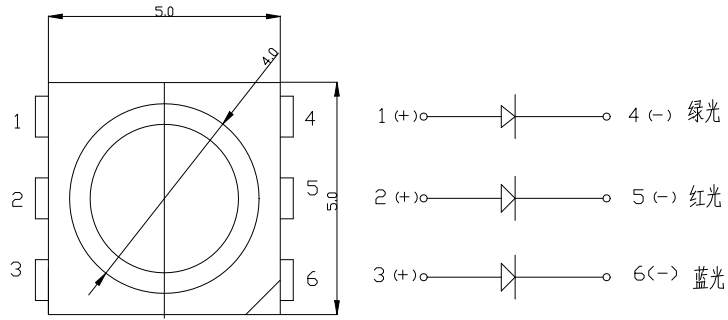
Part Number/型号 **WS-5050RGB**

Customer/客户

Issue Date /发行日期 **2014-05-20**

MAKER 制定			CUSTOMER 客户		
Prepared 製作	Checked 審核	Approved 核准	Prepared 製作	Checked 審核	Approved 核准

Dimensional drawing/尺寸圖

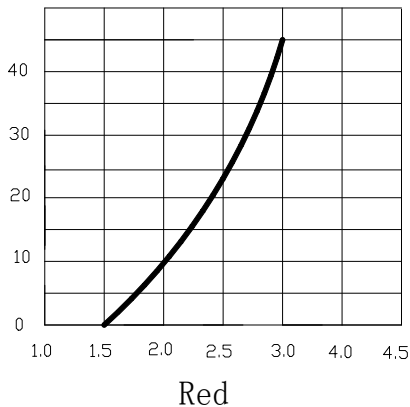


All dimensions are in millimeter/圖中所有尺寸均以毫米為單位
Tolerance is $\pm 0.25\text{mm}$ (0.10") unless otherwise noted/若無特別標注，圖中尺寸公差為 $\pm 0.2\text{mm}$

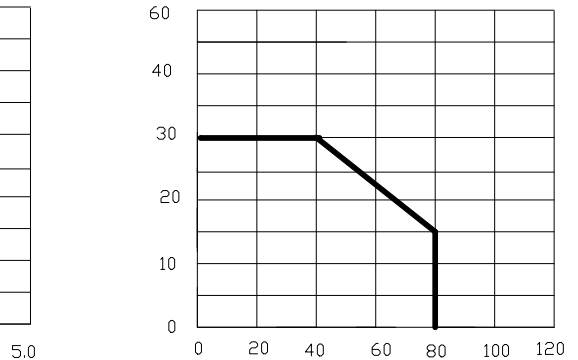
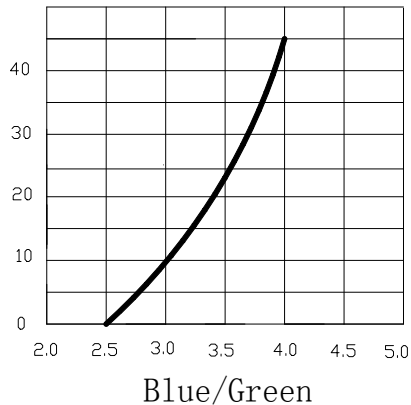
Shape Specification /外觀要求,胶体结构

No. 序號	ITEM 項目	SPEC OR DESCRIPTION 規格要求描述
1	Lens 膠體	<ul style="list-style-type: none"> ◆ No change color/不可有膠體變色 ◆ No Disrepair/不可有破損 ◆ Scratch/劃傷 (length $\leq 2.0\text{mm}$, Width $\leq 0.25\text{mm}$) ◆ macula/黑點、異物 ($\leq 0.25\text{mm}$ and $\leq 2\text{EA}$ in Encapsulation reverse) ◆ bubble/氣泡 ($\leq 0.3\text{mm}$ and $\leq 2\text{EA}$ Encapsulation reverse)
2	PIN PIN 腳	<ul style="list-style-type: none"> ◆ No oxidation/不可有氧化 ◆ No electropolar reverse/不可有極性反
3	Configuration 結構	<ul style="list-style-type: none"> ◆ No Encapsulation reverse/不可封反 ◆ No PIN loosen/PIN 腳不可鬆動
4	硅胶	<ul style="list-style-type: none"> ◆ 硬度 70 软硅胶，混合粘度 4000

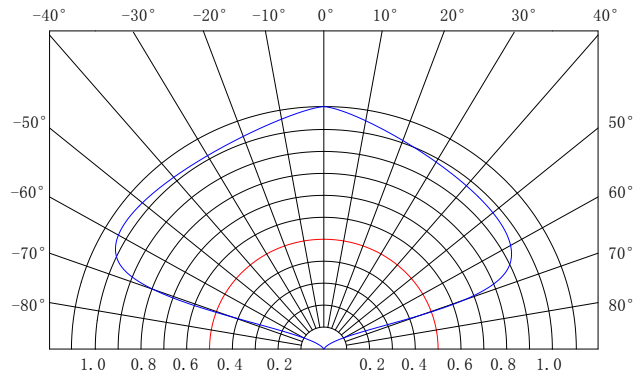
Opto-Electrical Characteristics /光電特性



LED Chip Forward Current vs. Forward Voltage
芯片伏安特性



LED Chip Maximum Forward Current vs. Ambient Temperature
芯片環境溫度與電流的關係



Lighting Angle / 發光角度:

Absolute maximum ratings/最大絕對額定值

Parameter 參數	Symbol 符號	Value 數值	Unit 單位
Forward Current 正向電流	If	R/G/B=20	mA
Reverse Voltage 反向電壓	Vr	5	V
Operating Temperature 工作溫度	Topr	-25~+85	°C
Storage Temperature 儲存溫度	Tstg	-35~+85	°C
Soldering temperature 焊接溫度	Tsol	260±5°C (for 4sec)	°C
Power Dissipation 功率消耗	Pd	R=40 G/B=60	mW
Pulse Current 脈衝電流	I _{FP}	100	mA

Opto-Electrical Specification/光電參數規格

Parameter 參數	Symbol 符號	Category 类型	Min 最小值	Typ 平均值	Max 最大值	Unit 單位	Tolerance 误差值	Test Conditions 測試條件
Forward Voltage 正向電壓	Vf	R	1.80	--	2.10	V	±0.05V	IF/正向電流 R/G/B=20 mA Test Temperature 測試溫度=25°C
		G	2.80	--	3.20			
		B	3.0	--	3.40			
Luminous Intensity 發光強度	IV	R	400	--	--	mcd	±60 mcd	
		G	1000	--	--			
		B	300	--	--			
Wavelength 波長	WD	R	620	--	625	nm	±1nm	
		G	515	--	520			
		B	460	--	465			
Chromatic current 光譜座標	X	/	--	--	--	/	±0.005	
	Y	/	--	--	--	/	±0.005	
Luminous Flux 光通量	Φ	R	--	--	--	Lm	±0.1 Lm	
		G	--	--	--			
		B	--	--	--			
Lighting Angle 發光角度	θ	/	115	120	125	deg	±2	
Reverse Current 反向電流	IR	/	--	--	20	μA	±0.1μA	Vr=5V

■ Opto-Electrical Grading Specification /光电分级规格

Forward Voltage 正向電壓	Luminous Intensity 發光強度	Wavelength 波長	Chromatic current 光譜座標		Test Conditions 測試條件
			X	Y	
/	/	/	/	/	IF/正向電流=60mA Test Temperature 測試溫度=25°C

■ Reliability Test Items/可靠度測試項目

No.	Item 測度項目	Condition 測試條件	Time/Cycle 測試時間或週期	Number of Damaged 不良數/測試數
1.	Soldering Heat Test 焊接試驗	260±5 °C	10 sec	0/60
2	Thermal Shock 熱衝擊	0 °C (15sec) ~ 100 oC(15sec)	20 cycle	0/60
3	High Temp. Storage 高溫儲存	100 °C	1000Hrs	0/60
4	Low Temp. Storage 低溫儲存	-40 °C	1000Hrs	0/60
5	Temperature Cycle Test 高低溫循環	-40 °C ~ 80 °C	100 Cycles, 200 Hrs	0/60
6	High Temp. High Humidity Test 高溫高濕	60 °C, 90 % RH	1000 Hrs	0/60
7	Operation Life Test 1 常溫老化	Room Temp., 20mA	1000 Hrs	0/60
8	Operation Life Test 2 常溫老化	Room Temp., 30mA	500 Hrs	0/60
9	High Temp. Operation Life Test 高溫老化	85 °C , 5mA	1000 Hrs	0/60
10	Low Temp. Operation Life Test 低溫老化	-30 °C , 20mA	1000 Hrs	0/60

Judgment Criteria/判定標準：

Item 項目	Symbol	Test Conditions	Judgment Criteria
Forward Voltage 正向電壓	Vf	I _F = 60 mA	Δ% < 10 %
Leakage Current 反向漏電流	I _r	V _r = 5V	< 20 uA
Luminous Intensity 發光強度	I _v	I _F = 60 mA	Δ% < 10 %
Luminous Flux 光通量	lm	I _F = 60 mA	Δ% < 10 %

Caution/注意事項

- 1、 After open the package, the LED should be kept at 25°C, 65 % RH environment or less.
打開包裝後請在溫度 25±3 °C 濕度 65±5%的環境下使用。
- 2、 The LED should be soldered within 6 hours after opening the package.
打開包裝後請在 6 小時內作焊接。
- 3、 The LAMP LED is an ESD sensitive device. All the equipment and machine must be properly grounded.
LED 是靜電敏感器件，使用時所有設備、機構都需有適當的接地導電措施。
- 4、 when make use of it, please use static-free container, operator should wear antistatic clothes and rope-satic-ring also should make effective ground.
使用時請使用防靜電的盛裝容器，作業人員應穿著防靜電服裝及佩戴有繩之靜電環並作有效接地。
- 5、 Damaged device will appear some symptoms, lower forward voltage, higher leak current, or even short circuit
受靜電與突波破壞之 LED 的電性特性上，會有明顯的漏電流，或驅動電壓明顯變低，甚至是短路現象。
- 6、 ferrochromium soldering :power keep no more than 40W, tip temperature should not pass 280 °C, soldering time within 3 second
銲鐵焊接時銲鐵功率不要超過 40W，尖端溫度不要超過 280 °C，銲接時間不要超過 3 秒。
- 7、 wave-soldering: temperature should not pass 265 °C, soldering time within 5 second,
波峰銲接時溫度不超過 265 °C，銲接時間不要超過 5 秒。
- 8、 After soldering the LED should keep out off any shake or outer force before it come to normal temperture
在銲接溫度回到正常以前，必須避免使 LED 受到任何震動或外力。
- 9、 LED is one-way continuity, please check electrode before mount, if amount wrong ,the LED chip will damage or fail when LED applied voltage
單嚮導通性，安裝前確認極性，若裝反，在施加電壓時容易造成 LED 晶片損傷或失效。
- 10、 please design the PCB board to keep a distance between LED and other emit heat component
線路設計時，請不要將 LED 與發熱元件靠得過近。
- 11、 strongly recommend design the board according setting current other than setting voltage .if you are really need setting voltage type please consider there may cause influence arise by difference voltage of difference LED
電路設計上，建議以定電流設計，若為定電壓設計，請考慮 LED 之間不同正向電壓所可能造成之影響。
- 12、 the outer voltage change will bring the current index change .unsuitable design and current control, easy cause LED fail .for example excess current will cause LED life short or even burn down , too little electricity will cause lacking light
LED 之外加電壓變化，會造成電流指數級變化，不當之設計與電流控制，易造成 LED 失效，如電流過大引起壽命問題甚至燒毀，電流過小引起亮度不足。
- 13、 If you need make difference BIN LED in the one module .please confirm whether it can meet the electric and optics characteristic require such as the current balance, emitting and brightness consistency.
不同 BIN 號之 LED 需安裝在同一個組件時，請先確認是否可滿足相關電氣及光學之特性要求，如電流是否均衡，光色、亮度的一致性。