



# RODAN(TAIWAN)LTD.

## VISIBLE LED

審查	作成
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1.ELEMENT APPEARANCE

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DATE : 2021.03.11

Model No.	Material		Lighting Color	Resin Color
RT-IC5050RGB	R	AlGaInP	Red	Water Clear
	G	InGaN	Green	
	B	InGaN	Blue	

2.ABSOLUTE MAXIMUM RATINGS AT Ta=25°C

Characteristic	Symbol	Rating	Unit
Forward direct current	IFM	25	mA
Reverse voltage	VRM	5	V
Operating temperature	Topr	-25 to +85	°C
Storage temperature	Tstg	-25 to +100	°C
Power dissipation	Pd	R65 / G95 / B95	mW

3.ELECTRO-OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Luminous intensity	Iv	IF=20 mA	R	500		mcd
			G	600		
			B	250		
Forward voltage	VF	IF=20 mA	R	2.1	2.6	V
			G	3.3	3.8	
			B	3.3	3.8	
Reverse current	IR	VR=5V			10	μ A
Dominant wavelength	λ d	IF=20 mA	R	624		nm
			G	525		
			B	460		
Spectral line half width	Δ λ	IF=20 mA	R	20		nm
			G	35		
			B	-		
Viewing angle	2θ 1/2	IF=20 mA		130		deg.

\* Forward voltage Measurement allowance is ±0.1V

\* Luminous Intensity Measurement allowance is ±15%

\* Dominant wavelength Measurement allowance is ±1nm



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**Model : RT-IC5050RGB**

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## ABSOLUTE MAXIMUM RATINGS AT Ta=25°C, VSS= 0V

Characteristic	Symbol	Rating	Unit
邏輯電源電壓	Vin	3.0 - 7.5	V
R/G/B 輸出端口耐壓	Vds	9	V
邏輯輸入電壓	V <sub>il</sub>	-0.5 - 5.5	V
RGB 輸出電流	I <sub>ol</sub>	12	mA
工作溫度	T <sub>opt</sub>	-40 to +85	°C
儲存溫度	T <sub>stg</sub>	-50 to +150	°C
ESD 耐壓	V <sub>ESD</sub>	5 k	mW

## ELECTRO-OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Min.	Typ.	Max.	Unit
晶片輸入電壓	Vin		5	7.5	V
R/G/B 輸出端口耐壓	Vds			9	V
R/G/B 輸出驅動電流	I <sub>o</sub>		12		mA
高電頻輸入電壓	V <sub>ih</sub>	0.7 V <sub>DD</sub>			V
低電頻輸入電壓	V <sub>il</sub>			0.3 V <sub>DD</sub>	V
PWM 頻率	F <sub>pwm</sub>		4		KHZ
靜態功率	I <sub>dd</sub>		0.3		mA
數據傳輸速率	F <sub>DIN</sub>		800	1000	KHZ
傳輸延遲時間	T <sub>PLZ</sub>			500	ns

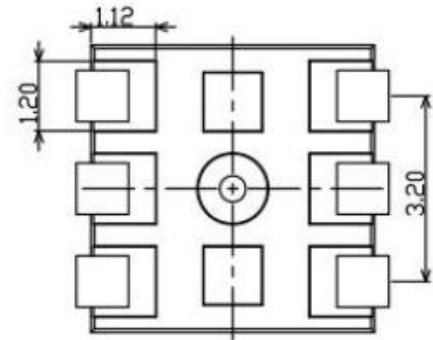
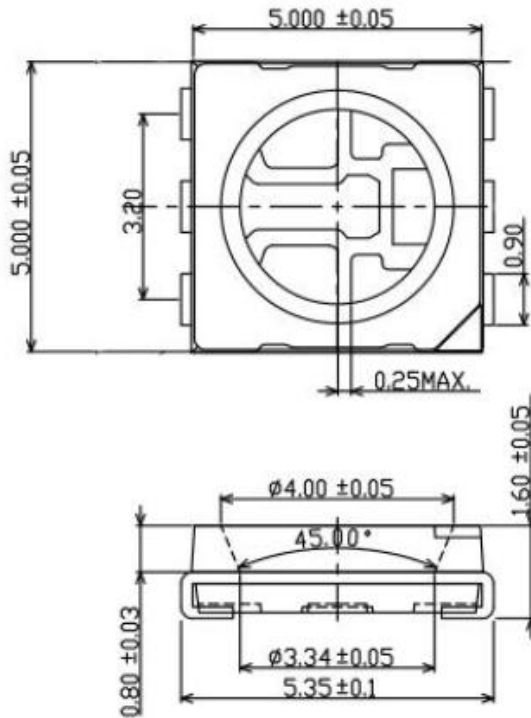


# RODAN(TAIWAN)LTD.

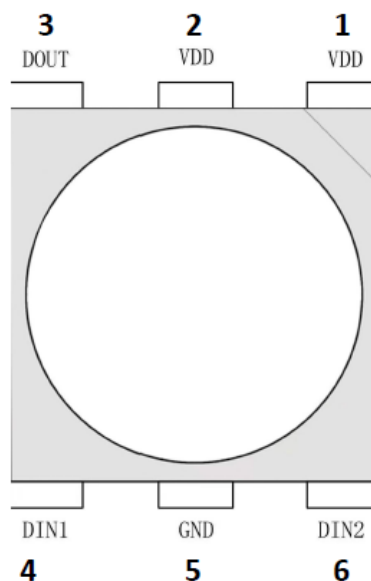
**Model : RT-IC5050RGB**

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**4.DIMENSIONS UNIT : m/m TOLERANCE :  $\pm 0.25$ mm**

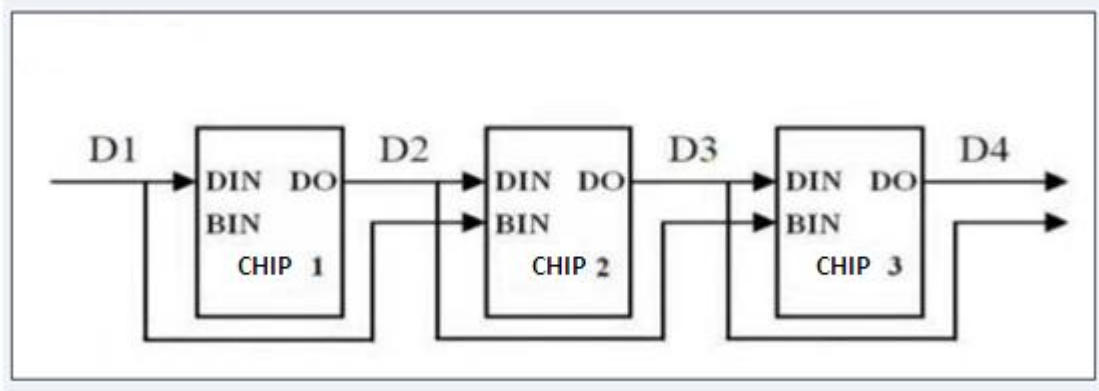


Pin figure



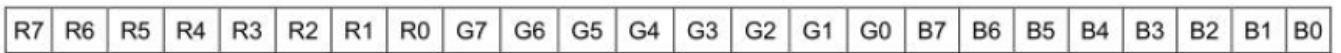


6. 連接方式:



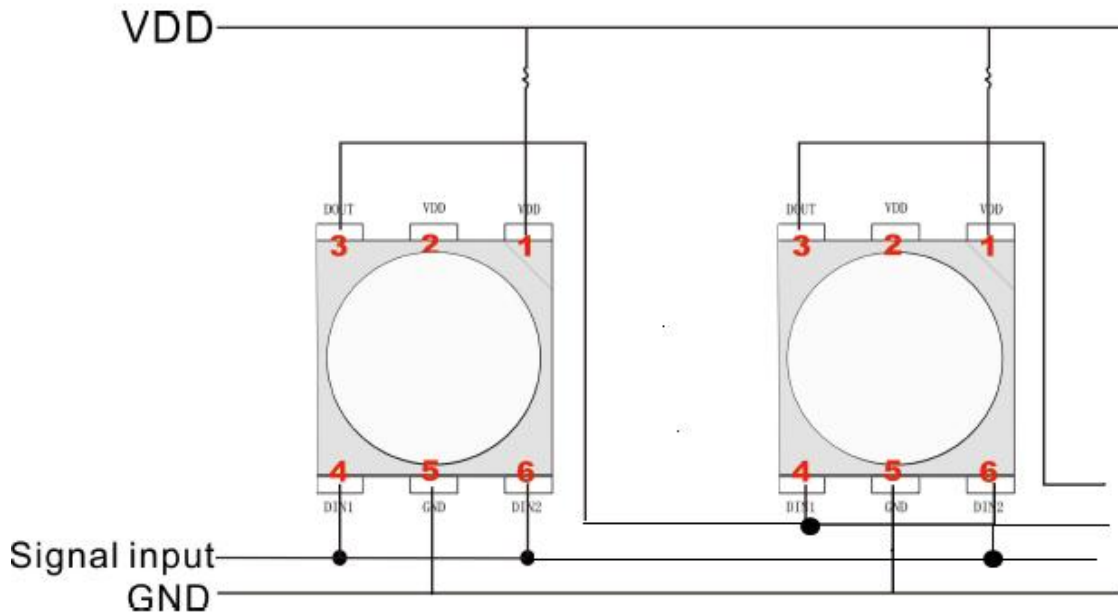
7. 數據傳輸方法:

24 bit 的數據結構



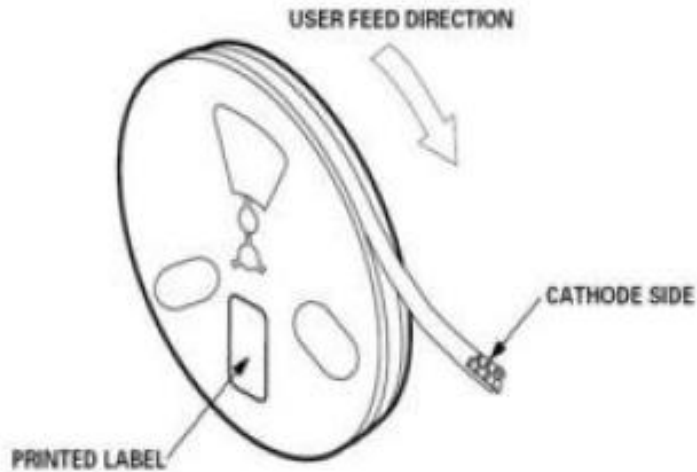
高位先發,按照 RGB 的順序發送數據

8. 應用電路:

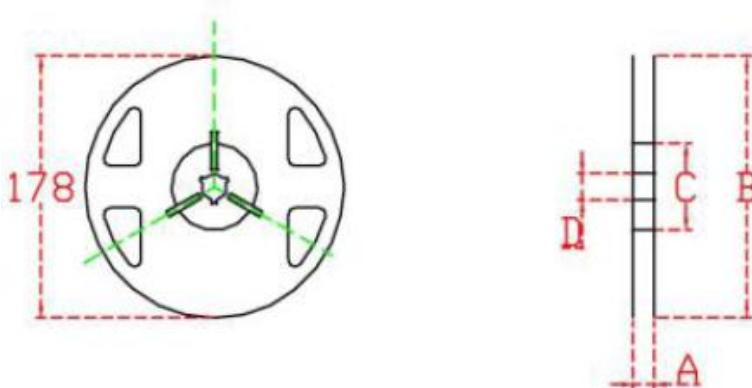




## 6. Reel Dimensions :



**Carrier Tape Dimensions: Loaded Quantity 1000 pcs Per Reel**



A	8.0±0.1mm
B	178±1mm
C	60±1mm
D	13.0±0.5mm



## Soldering Profile

**Compliant with the following condition :**

**(1) Leaded quantity of product below 100 ppm**

**(2) Lead-free process**

Shape	Lead Frame Type / Holder Type
Hand soldering	1.Temp.at tip of iron : 300 °C MAX. 2.Soldering time : 3 sec MAX. 3.Distance : 3 mm MIN (from solder joint to case)
DIP soldering	1.Preheat temp : 100 °C MAX , 60 sec MAX. 2.Bath temp : 260 °C MAX. 3.Bath time : 5 sec MAX. 4.Distance : 3 mm MIN (From solder joint to case).
Reflow soldering	NO
Shape	SMD Type
Hand soldering	1.Temp.at tip of iron : 300 °C MAX. 2.Soldering time : 3 sec MAX.
DIP soldering	1.Preheat temp. : 120-150 °C , 60-120 sec. 2.Bath temp. : 260 °C MAX. 3.Bath time : 5 sec
Reflow soldering	1.Preheat temp. : 150-180 °C , 120 sec MAX. 2.Peak temp. : 260 °C MAX. 3.Peak time : 10 sec MAX.

### **SMD reflow soldering profile :**

