

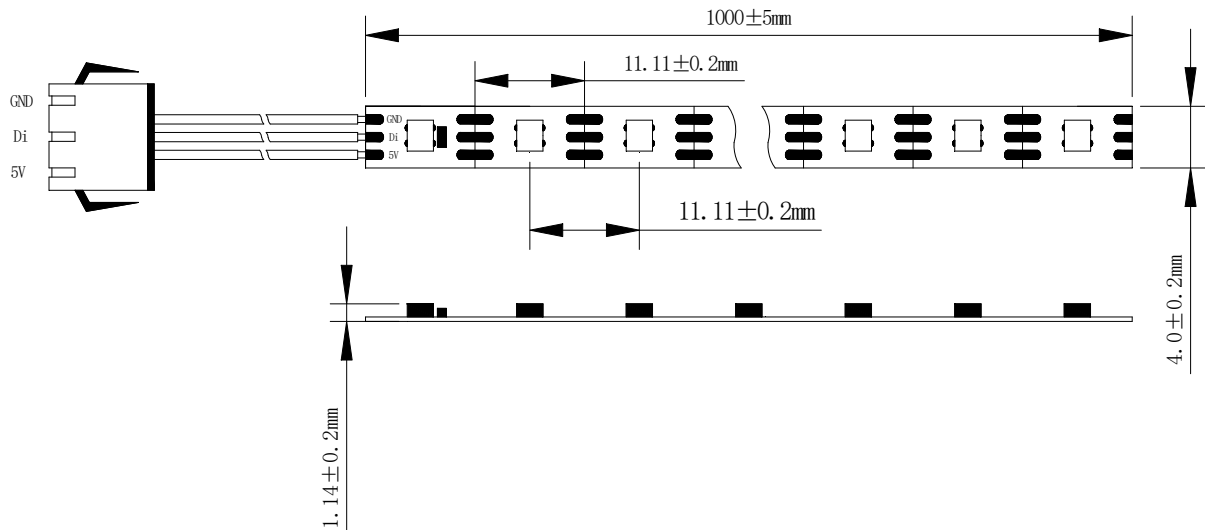
2020 Intelligent Control RGB LED Light Strip
90 x SMD2020 /Meter
OSW0WS202009-5V

PRODUCT SPECIFICATION

Descriptions

- This LED flexible strip is a full-color that external control for each lamp beads.
- It with high brightness, can achieve effects of full color running water, chasing and scanning.
- It's widely applied to hotel, KTV entertainment place for interior decorative lighting, etc.
- This LED strip could be linked up to 5 meters, more than 5 meters is strictly prohibited.
- The diameter of the power cord should be based on the actual maximum current, the product power, cabling length (recommended no more than 5 meters), and the voltage of transmission line.
- Long life, easy installation.

Product Dimension(mm)



Unit: mm
Tolerance: $\pm 1\text{mm}$

2020 Intelligent Control RGB LED Light Strip
90 x SMD2020 /Meter
OSW0WS202009-5V

Product Parameter

Working voltage: DC5V

Watts: 2.25W/meter

Matched controller: OS-SP103E

Cable length: 200mm AWG22#

Working temperature: -40°C ~ 60°C

Package: 5meter/roll

LED number: 90pcs/meter

Viewing angle: 120deg

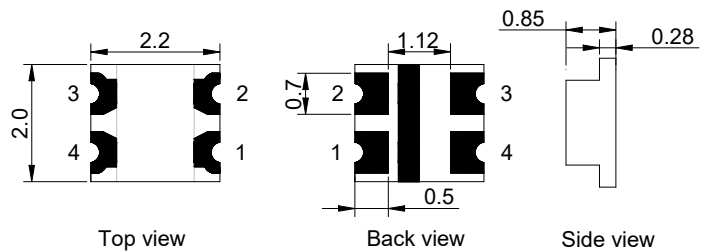
LED Characteristic Parameter

Emitting Color	Wavelength(nm)	Luminous Intensity (mcd) / Per LED
Red	620-630	50-100
Pure Green	520-530	200-300
Blue	465-475	50-100

■Features

- Intelligent reverse connect protection, the power supply reverse connection does not damage the IC.
- The control circuit and the LED share the only power source.
- Control circuit and RGB chip are integrated in a package of 2020 components, form a complete control of pixel point.
- Built-in signal reshaping circuit, after wave reshaping to the next driver, ensure wave-form distortion not accumulate.
- Built-in electric reset circuit and power lost reset circuit.
- Each pixel of the three primary color can achieve 256 brightness display, completed 16777216 color full color display, and scan frequency not less than 400Hz/s.
- Cascading port transmission signal by single line.
- Any two point the distance more than 5m transmission signal without any increase circuit.
- When the refresh rate is 30fps, cascade number are not less than 1024 points.
- Send data at speeds of 800Kbps.
- The color of the light were highly consistent, cost-effective..

■Outline Dimension



NO.	Symbol	Function description
1	DOUT	Control data signal output
2	VSS	G round
3	DIN	Control data signal input
4	VDD	Power supply LED

Unit: mm
Tolerance: ± 0.20mm unless otherwise noted

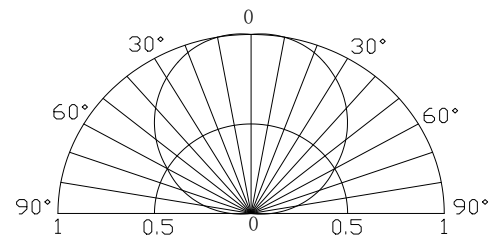
■Applications

- LED decorative lighting, Indoor/outdoor LED video irregular screen
- Full-color module, Full color soft lights a lamp strip.

■Absolute Maximum Rating (Ta=25°C)

Item	Symbol	Value	Unit
Power supply voltage	V _{DD}	+3.5~+5.3	V
Input voltage	V _I	-0.3~V _{DD} +0.7	V
Input current (LED)	I _f	Red	mA
		Green	
		Blue	
Operation junction temperature	T _{opt}	-25~+80	°C
Storage temperature	T _{stg}	-40 ~ +105	°C
Lead soldering temperature	T _{sol}	260°C/10sec	-

■Directivity



■Electrical Characteristics (Ta=20~+70°C, VDD=4.5~5.5V, Vss=0V unless otherwise specified)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Input current	I _I	V _I =V _{DD} /V _{SS}	-	-	±1	μA
Input voltage level	V _{IH}	D _{IN} ,	0.7V _{DD}	-	-	V
	V _{IL}	D _{IN} ,	-	-	0.3 V _{DD}	
Hysteresis voltage	V _H	D _{IN} ,	-	0.35	-	

■ **Switching characteristics** (TA=-20~+70°C, VDD=5.0,VSS=0V,,unless otherwise specified)

Parameter	Symbol	Min	Tpy	Max	Unit	Condition
Transmission delay time	t _{PLZ}	—	—	300	ns	CL=15pF, DIN→DO, RL=10KΩ
Fall time	t _{THZ}	—	—	120	μs	CL=300pF, OUTF/OUTG/OUTB
Input capacity	C _i	—	—	15	pF	—

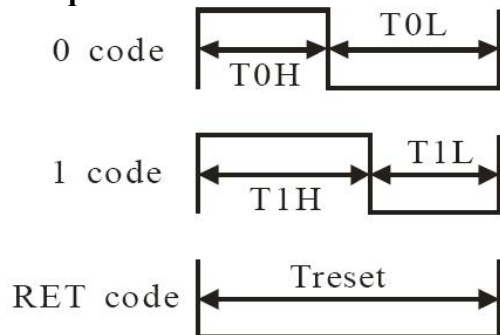
■ **LED characteristic parameter**

Emitting color	Wavelength (nm) I _F =5mA	Luminous intensity (mcd) I _F =5mA	Voltage(V) I _F =5mA
Red	620-625	50-100	2.0-2.2
Green	520-525	200-300	3.0-3.4
Blue	465-470	50-100	3.0-3.4

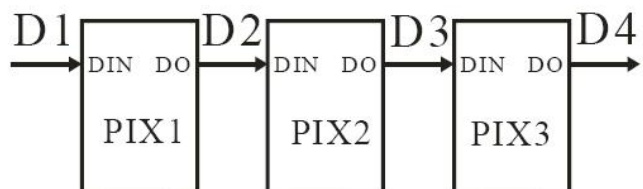
■ **Data transfer time**

T0H	0 code, high voltage time	220ns~380ns
T1H	1 code, high voltage time	580ns~1μs
T0L	0 code, low voltage time	580ns~1μs
T1L	1 code, low voltage time	580ns~1μs
RES	Frame unit, low voltage time	>280μs

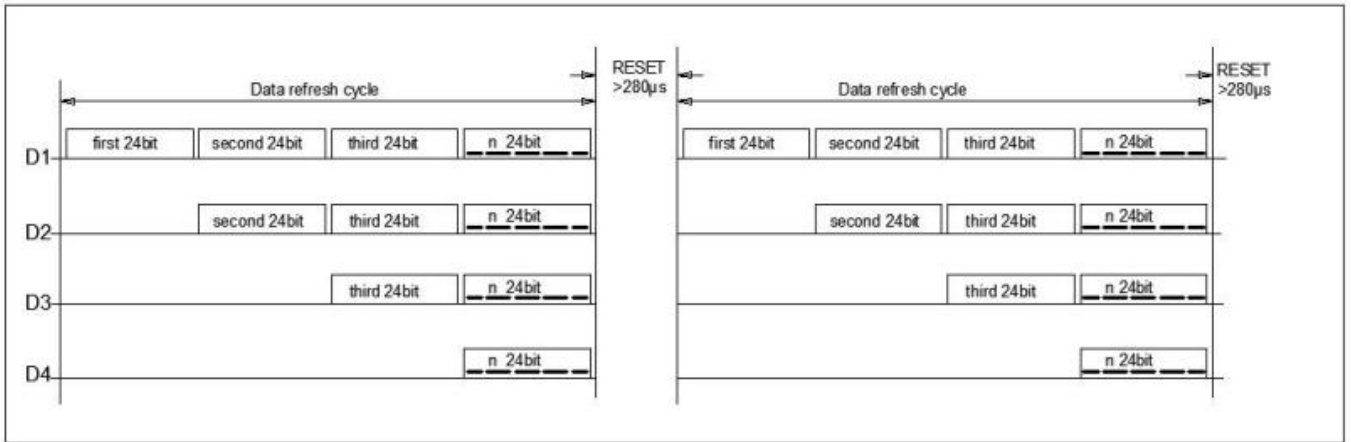
■ **Sequence chart:**



■ **Cascade method:**



■Data transmission method:



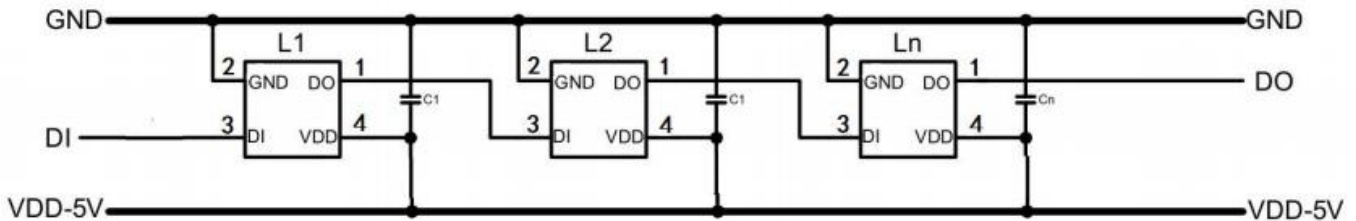
Note: The data of D1 is send by MCU,and D2, D3, D4 through pixel internal reshaping amplification to transmit.

■Composition of 24bit data:

G7	G6	G5	G4	G3	G2	G1	G0	R7	R6	R5	R4	R3	R2	R1	R0	B7	B6	B5	B4	B3	B2	B1	B0
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Note: Follow the order of GRB to sent data and the high bit sent at first.

■Typical application circuit:



Remarks: C1 is the filter capacitor for VDD, its value of 100nF.