OptoSupply
Light It Up

## ■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 8mm 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 than1024 points.
- Send data at speeds of 800Kbps.
- The color of the light were highly consistent, cost-effective..

■Outline Dimension

1.DOUT
2.ANODE(R/G/B LED)
3.CATHODE
4.DIN

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℃)

Item	Symbol	Value	Unit
Power supply voltage	V_{DD}	+3.5~+5.3	V
Input voltage	V_I	-0.5~VDD+0.5	V
Operation junction temperature	Topt	-25~+80	℃
Storage Temperature	Tstg	-40 ~ +105	℃
Lead Soldering Temperature	Tsol	260℃/5sec	-

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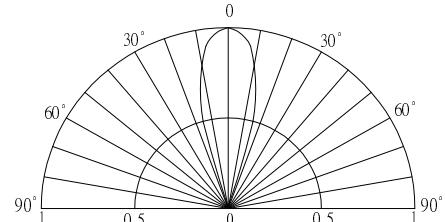
■Electrical Characteristics (Ta-20~+70℃, VDD=4.5~5.5V, Vss=0V unless otherwise specified）

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Input current	I_I	V_I=VDD/V	-	-	±1	μA
Input voltage level	V_{IH}	D_{IN}，SET	0.7VDD	-	-	
	V_{IL}	D_{IN}，SET	-	-	0.3 VDD	V
Hysteresis voltage	V_H	D_{IN}，SET	-	0.35	-	

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■ Switching characteristics（TA=-20～+70℃，VDD=4.5～5.5V,VSS=0V,IF=15mA , unless otherwise specified）

Prameter	Symbol	Condition	Min	Tpy	Max	Unit
Operation frequency	$Fosc2$	——	——	800	——	KHz
Transmission delay time	t_{PLZ}	CL=15pF,DIN→DOUT,RL=10KΩ	——	——	300	ns
Fall time	t_{THZ}	CL=300pF,OUTR/OUTG/OUTB	——	——	120	µs
Data transmission rate	F_{MAX}	Duty ratio50%	400	——	——	Kbps
Input capcity	C_I	——	——	——	15	pF

■ LED characteristic parameter

Emitting color	Wavelength (nm)	Luminous intensity (mcd)	Voltage(V)
Red	620-625	390-420	2.0-2.2
Green	520-525	660-720	3.0-3.4
Blue	465-470	180-200	3.0-3.4

■Data transfer time(TH+TL=1.25µs±600ns)

T0H	0 code ,high voltage time	0.35µs	±150ns
T1H	1 code ,high voltage time	0.9 µs	±150ns
T0L	0 code ,low voltage time	0.9µs	±150ns
T1L	1 code ,low voltage time	0.35 µs	±150ns
RES	Low voltage time	Above 50µs	

■ Sequence chart:

■ Cascade method:

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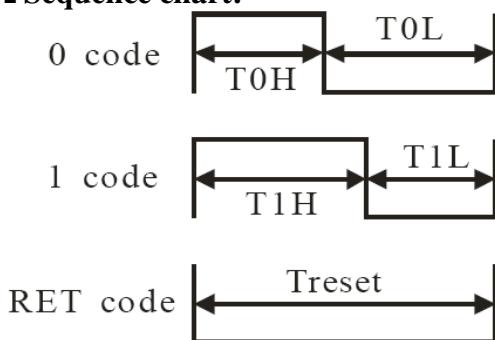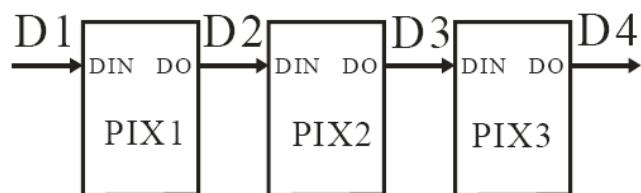
■Data transmission method：
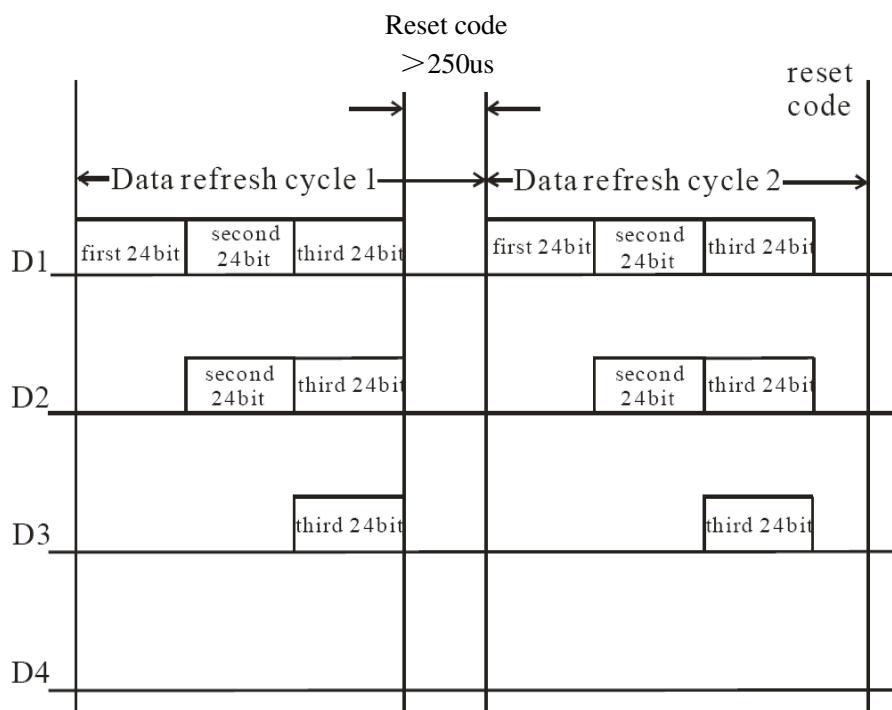
Note: The data of D1 is send by MCU,and D2, D3, D4 through pixel internal reshaping amplification to transmit.

■Composition of 24bit data:

R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0

Note: Follow the order of GRB to sent data and the high bit sent at first.

■Typical application circuit:

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