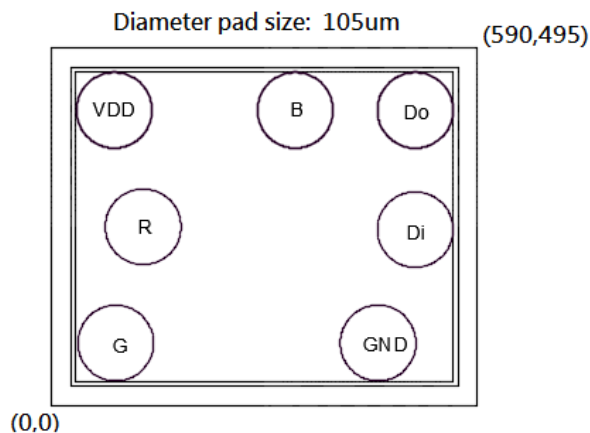


Signal Line 256 Gray Level 3 Channels Constant Current LED Drive IC

1.FEATURES

- Gray level 256 can be adjusted and scan frequency approaches 2KHz
- Built in signal reshaping circuit, after wave reshaping to the next driver, ensure wave-form distortion.
- Built-in electric reset circuit and power lost reset circuit.
- Cascading port transmission signal by single line.
- Any two point the distance more than 10m transmission signal without any increase circuit.
- When the refresh rate is 30fps, cascade numbers are not less than 1024 points.
- Send data at speeds of up to 800 Kbps.
- Support back-up mode function to avoid single failed pixel blocks following pixels.

2.PAD CONFIGURATION



APPLICATIONS

- LED decorative lighting
- Indoor/outdoor LED video or irregular screen.
- Full color LED light strip

3.DESCRPTION

The WH3803D is 3 output channels special for RGB LED driver circuit. It also include internal intelligent digital port data latch and signal reshaping amplification drive circuit. WH3803D use single NZR communication mode. After the chip power on reset, the DIN port receives data from controller, the first IC collect initial 24bit data then sent to the internal data latch, the other data which reshaping by the internal signal reshaping amplification circuit sent to the next cascade IC through the DO port. After transmission for each chip, the signal to reduce 24bit. IC adopts auto reshaping transmit technology, making the chip cascade number is not limited the signal transmission, only depend on the speed of signal transmission. The data latch of IC depends on the received 24 bit data produce different duty ratio signal at IO_R, IO_G, IO_B port. All chip synchronously send the received data to each segment when the DIN port input a reset signal. It will receive new data again after the reset signal finished. Before a new reset signal received, the control signal of IO_R, IO_G, IO_B port unchanged. IC sends PWM data that received justly to IO_R, IO_G, IO_B port, after receiving a low voltage reset signal the time retains 24us at least.

4.ORDERING INFORMATION

Part Number	Order code
WH3805D	A

5.PAD DESCRIPTION

Number	Name	Pin Description
1	VDD	Power supply voltage
2	DO	Data signal cascade output
3	IO_R	Output current of red LED PWM control
4	IO_G	Output current of green LED PWM control
5	IO_B	Output current of blue LED PWM control
6	GND	Ground
7	DI	Data signal cascade input

6.ABSOLUTE MAXIMUM RATINGS

Input Supply Voltage, VDD	+7 V
Output voltage	+12 V
Input voltage VI	-0.5 ~ VDD+0.5V
Operating Temperature	-25°C to 85°C
Storage Temperature	-40°C to 125°C
ESD, Human body mode	TBD
ESD, Machine mode	TBD

7.RECOMMENDED OPERATION CONDITIONS

Input supply voltage VDD	5V
Junction temperature range	-40°C to 125°C

8.ELECTRICAL SPECIFICATIONS

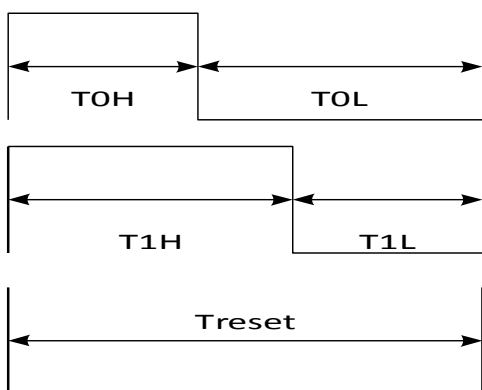
(V_{DD}=5V, T_A=25°C, V_{SS}=0V, unless otherwise pecified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
LED output current	IO_R/G/B			3.3		mA
Input voltage level	V _{IH}		0.7V _{DD}			V
	V _{IL}				0.3V _{DD}	V
Hysteresis voltage	V _H					V
Transmission delay time	t _{TD}	CL=15pF, DIN→ DOUT RL=10KΩ			300	ns
Fall time	t _{fall}	CL=300pF IO_*			TBD	us
Data transmission rate	F _{MAX}	Duty ratio 50%		800		Kbps
Input capacitance	C _I			15		pF

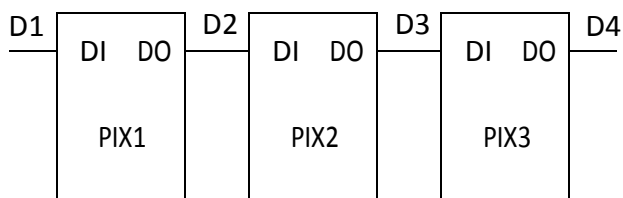
9.DATA TRANSFER TIMING

Timing Parameter	Group A	Group B
T _{0H}	0.4us +/- 150ns	0.3us +/- 150ns
T _{0L}	0.85us +/- 150ns	0.9us +/- 150ns
T _{1H}	0.85us +/-150ns	0.6us +/- 150ns
T _{1L}	0.4us +/-150ns	0.6us +/- 150ns
Reset Code	T _{reset} > 24us	

Sequence chart:



Cascade method:



Data Transmission Format :

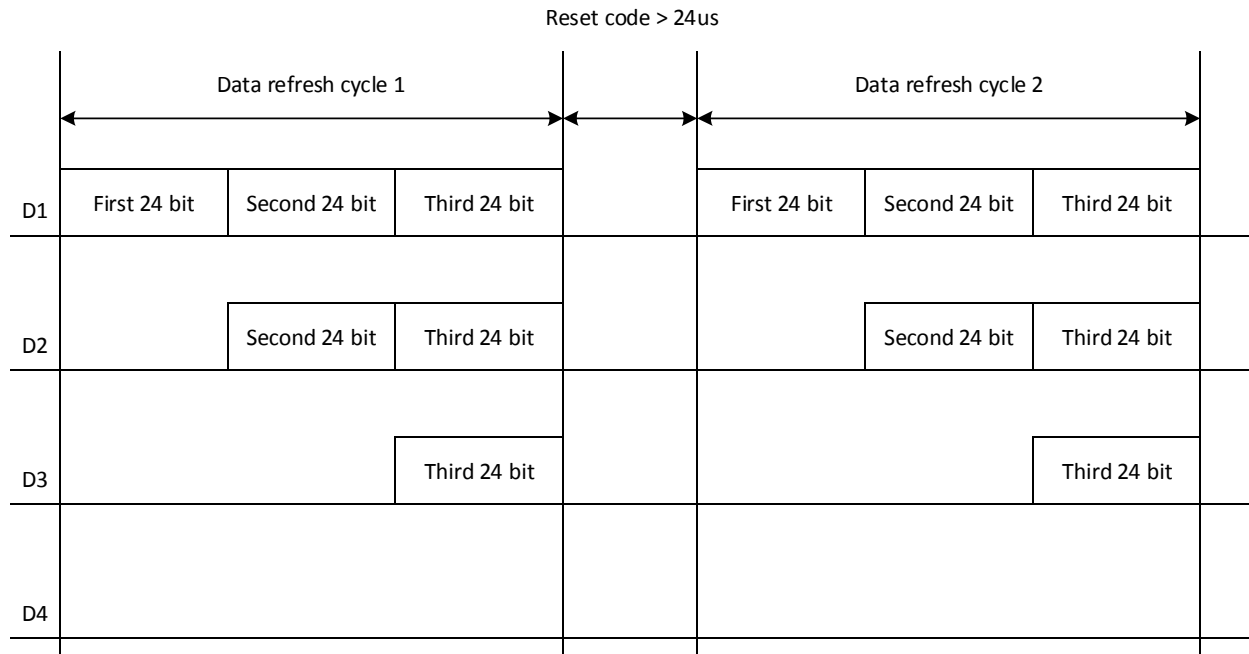


Figure 1. Data Transmission Format

Composition of 24-Bit Data :

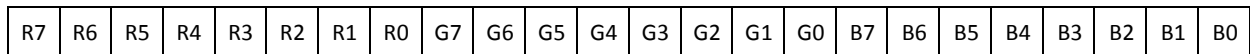


Figure 2. 24-Bit Data Format

10.BARE DICE INFORMATION :

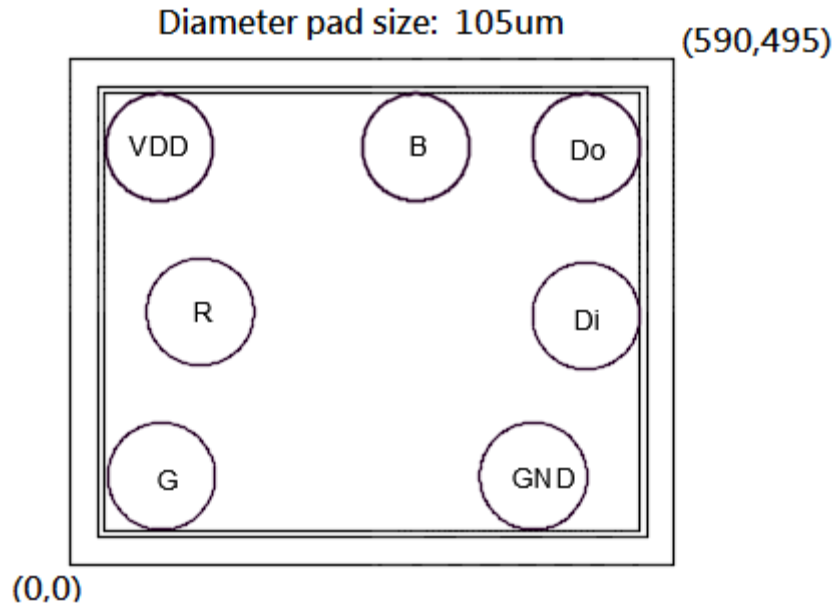


Figure 3. Pad location