



Raffar
Technology Corp.

Raffar Technology Corp.

RT7908A

3-channel RGB LED driver, built-in PWM control

2021/01

Version: 0.4 (Preliminary)

Description

RT7908A is a 3-channel LED driver with 8 bits PWM linear control. The RT7908A uses a single communication wire to identify LED PWM signal and in total 24bits RGB display. This is a very simple and cost effective for any LED system design.

The PWM output is controlled by duty ratio which depends on the 24bits data each for each output. All chips will latch new data when DIN port received the latch signal (> 50us low-level signal)

Features

- Operating supply voltage: 4.2 V ~ 5.5 V
- Constant current output: 5mA (max.)
- Max. output voltage: 8.0 V
- 8 bits PWM control with 256 grayscales for each output
- Low standby current
- Power saving function
- Clock frequency: 800kbps
- Single wire signal control
- IC multi-cascading capability
- Operating temperature: -20°C ~ +85°C

Application

Indoor/ Outdoor LED video display
Full color LED light strip
LED decorative lighting

Purchase Information

Part No.	Package
RT7908ABD	Bare Die

Pin Description

Pin No.	Pin Name	Description
1	OUT0	Current output
2	OUT1	Current output
3	OUT2	Current output
4	GND	Ground terminal
5	DOUT	Serial data output
6	DIN	Serial data input
7	NC	Reserved
8	VDD	Supply voltage

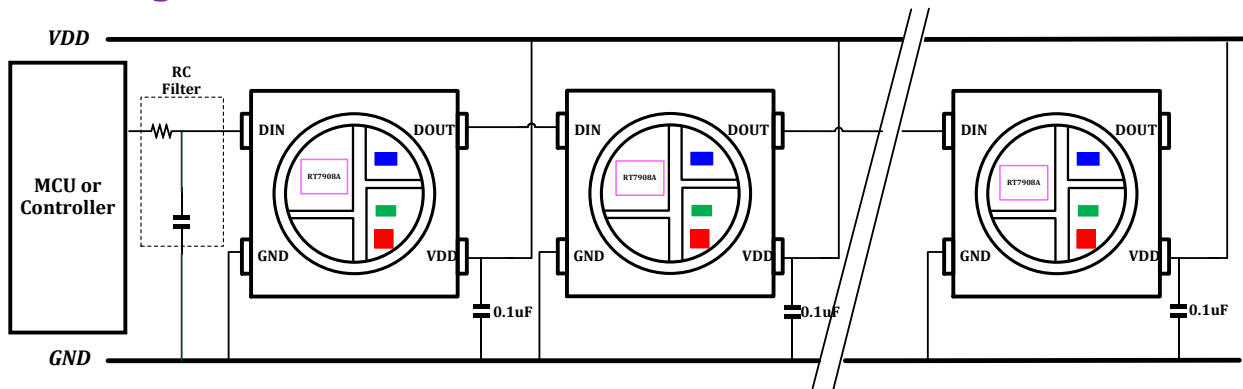
Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply Voltage	V_{DD}	+4.2 ~ +5.5	V
Output 0/1/2 Voltage	V_{OUT}	8	V
LED Output Current	I_{OUT}	5.0	mA
Operating Temperature	T_{opr}	-20 ~ +85	°C
Storage Temperature	T_{stg}	-55 ~ +150	°C

Communication Protocol

The RT7908A uses a single communication wire for LED PWM control. After power on reset, the first RT7908A takes the first 24 bits data, and latch into itself shift register. Then the second 24 bits data will be passed to next chip. The LED PWM outputs are controlled by duty ratio which depends on the 24bits data. All chips will latch new data when DIN port received the latch signal (> 50us low-level signal).

Cascading connection



Note1: RC Filter must be added or reserved on the board for better waveform of signals in different applications.

The value is subject to the practical system environment.

Note2: The by-pass capacitor of VDD pin is necessary to be added on the board for the stability of chip operation.

The suggested value of capacitor is 0.1uF.

Note3: More note of layout and control, please ask for document.

Note

The contents of this document are provided in connection with Raffar Technology Corporation products. Raffar reserve the right to make corrections, modifications, improvements, and other changes to the specifications and product descriptions at any time without notice.

Raffar products are not authorized, designed of intended for use in military/ aerospace/ automotive/ atomic energy control instruments applications or environment, or for other applications intended to support or sustains life. Raffar customer using and selling these products for use in such applications do so at their own risk. Raffar will not be responsible for any failure to meet such requirements.