MY-Semi

MY9291
4 or 3-Channel LED Driver With Grayscale Adaptive Pulse Density Modulation Control

General Description

The MY9291, 4 or 3-channel (R/G/B/W or R/G/B/Amber or R/G/B x 1) constant current APDM (Adaptive Pulse Density Modulation) LED driver, operates over a 3V ~ 5.5V input voltage range. The device provides 4 or 3(selectable) open-drain constant current sinking outputs that are rated to 17V and delivers up to 350mA of high accuracy current to each string of LED. The current at each output is programmable by means of four external current setting resistors. MY9291 features a 10MHz EMI reduction data clock input. MY9291 also offers a 2-wire serial interface to send the grayscale data, control command including 16/14/12/8-bit grayscale selection, output polarity selection for high power LED driving grayscale clock frequency division selection, output Tr/Tf timing selection, current output waveform selection, and to realize the internal-latch function. MY9291 provides adaptive pulse density modulation method to increase the visual refresh rate up to 2000 Hz @ 16-bit grayscale and reduce the flickers, and it also provides output polarity selection for high power LED driving. Moreover MY9291 utilizes clock duty recovery technique and pulse re-timing to help long distance and multiple cascading applications. MY9291 provides typical ±1.5% channel-to-channel LED current accuracy. Additional features include a±0.1% regulated output current capability and fast output transient response. MY9291 is available in a QFN20, SSOP20 and TSSOP20(Exposed Pad) package and specified over the -40°C to +85°C ambient temperature range.

Features

- 3 ~ 5.5V Operating supply voltage
- R/G/B/W x1 or R/G/B/Amber x1 or R/G/B x1 Output Channels
- 5~350mA Constant current output range
- Current setting by 4 external resistors
- 17V Rated output channels for long LED strings
- ±1.5% (typ.) LED Current accuracy between channels
- ±2% (typ.) LED Current accuracy between chips
- 20Mbps(max.) ~ 220Kbps(min.) data rate for EMI reduction data transfer [patent pending]
- 16 / 14 / 12 / 8 bit grayscale selection
- Built-in internal grayscale clock supports refresh rate >2000Hz@16-bit grayscale, >512kHz@8-bit grayscale
- Grayscale clock frequency selection for High Power LED driving application (min. 134.4KHz)
- Grayscale clock source selection: internal or external
- PWM or APDM control selection [patent pending]
- Clock duty recovery for cascading application
- Schmitt trigger input
- Output Current Tr / Tf programmable
- -40°C to +85°C Ambient temperature range

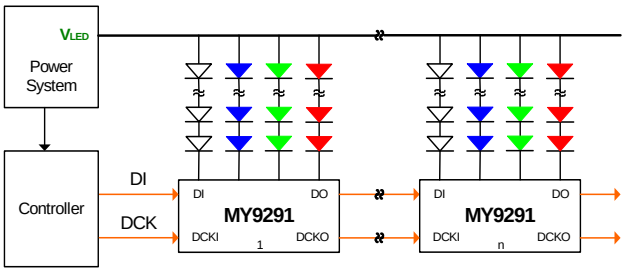
Applications

- Indoor and Outdoor LED Video Displays
- Full Color Mesh Display
- Full Color Dot Matrix Module
- Architectural and Decorative Lighting
- LCD Display Backlighting

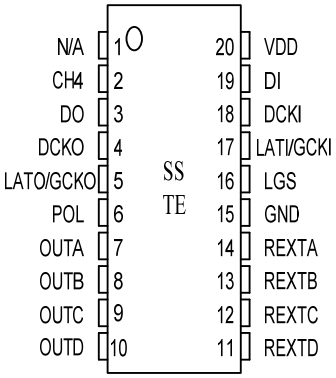
Order information

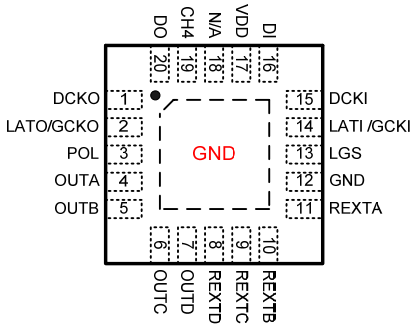
Part	Package Information	
MY9291SS	SSOP20-150mil-0.635mm	2500 pcs/Reel
MY9291TE	TSSOP20-173mil-0.65mm (Exposed Pad)	2500 pcs/Reel
MY9291QD	QFN20-4mmx4mm	3000 pcs/Reel

Typical Operating Circuits



Pin Configuration





For pricing, delivery, and ordering information, please contact MY-Semi Inc. at +886-3-658-5656, or email to INFO@MY-Semi.com.tw or visit MY-Semi's website at www.MY-Semi.com.tw