



**Confidential**

**MY9235**

# 3-Channel LED Driver With Grayscale Adaptive Pulse Density Modulation Control

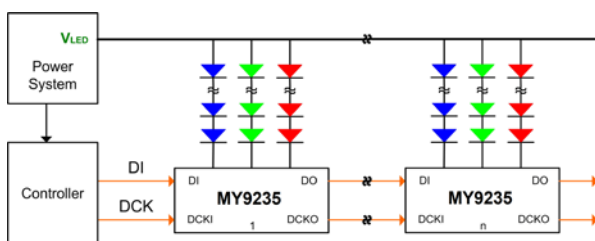
## General Description

The MY9235, 3-channel constant current 16-bit grayscale APDM (Adaptive Pulse Density Modulation) control LED driver, operates over 3V to 5V input voltage range. The device provides 3 open-drain constant current sinking outputs that are rated to 17V and delivers up to 20mA of high accuracy current to each string of LED. The MY9235 offers a built-in 20mA for each current output and each output can be adjusted by 7-bit dot correction. The MY9235 features a 10MHz EMI reduction data clock input. And the MY9235 also offers a 2-wire serial interface to send the grayscale data, dot correction data, grayscale clock frequency division selection, and to realize the auto-latch function. The MY9235 provides adaptive pulse density modulation method to increase the visual refresh rate up to 2000 Hz and reduce flickers. Moreover MY9235 utilizes clock duty recovery technique to help long distance and multiple cascading applications. The MY9235 also features current output delay between channels to reduce EMI and noise induced by large current surges. The MY9235 provides maximum  $\pm 3\%$  channel-to-channel LED current accuracy. Additional features include a  $\pm 0.2\%$  regulated output current capability and fast output transient response. MY9235 is available in die, and specified over the  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  ambient temperature range.

## Applications

- Indoor and Outdoor LED Video Displays
- Full Color Mesh Display
- R/G/B Channel Letter
- Architectural and Decorative Lighting

## Typical Operating Circuits



## Features

- ◆ 3V~5V Operating supply voltage ( $\pm 10\%$ )
- ◆ Built-in 20mA constant current output
- ◆ 17V Rated output channels for long LED strings
- ◆  $\pm 3\%$  (max.) LED Current accuracy between channels
- ◆  $\pm 3\%$  (max.) LED Current accuracy between chips
- ◆  $\pm 0.2\%$  Output current regulation capability
- ◆ 20KHz (min.)~10MHz(max.) clock frequency for EMI reduction data transfer at supply voltage = 4V~5.5V (compatible with traditional max. 20MHz clock frequency)
- ◆ 20KHz (min.)~6MHz(max.) clock frequency for EMI reduction data transfer at supply voltage = 2.7V~4V (compatible with traditional max. 12MHz clock frequency)
- ◆ 16-bit grayscale APDM control
- ◆ Built-in internal grayscale clock supports refresh rate  $> 2000\text{Hz}$
- ◆ Grayscale clock frequency selection
- ◆ Built-in grayscale clock: 9MHz (typ.)
- ◆ Clock duty recovery for cascading application
- ◆ 2-wire serial interface
- ◆ 7-bit dot correction
- ◆ Current output delay between channels
- ◆ Schmitt trigger input
- ◆ Power on reset
- ◆  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  Ambient temperature range
- ◆ Die thickness:  $8\text{mil} \pm 0.5\text{mil}$

## Order information

Part	Package Information
MY9235_D	Bare die