



Preliminary

MY9941

4 Channels Constant Current LED Driver With Cascade DMX512 Protocol and Differential Interface

General Description

The MY9941, 4 channels constant current LED driver with 14bits grayscale APDM (Adaptive Pulse Density Modulation) control, supports standard/4x DMX512 protocol and fully differential interface suited for long distance cascade applications. The distinctive DMX512 decoding approach could decode precisely a standard DMX512 signal. And each device loads one/two/three/four grayscale data according to two slot selection pins. The differential interface provides wide common-mode range to support long distance transmission without common-ground power systems.

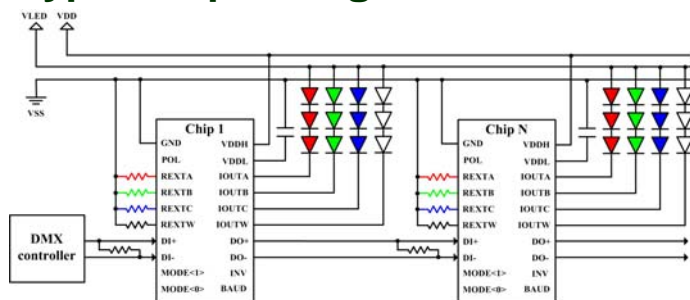
The device operates over 5V to 40V input voltage range and provides 4 open-drain constant current sinking outputs that are rated to 50V and delivers up to 350mA of high accuracy current to each string of LED. The current at each output is programmable by means of four external current setting resistors. The MY9941 provides the gamma correction, gamma value is 2.2, to transform 8bits DMX data to 14bits APDM data in order to enhance brightness contrast. The 14bits adaptive pulse density modulation makes sure that the frame refresh rate is higher than 2KHz. And an accurate oscillator is built in for free running APDM grayscale control and DMX512 decoder.

Furthermore, MY9941 also supports 4X DMX512 interface to enhance data refresh rate by four times. MY9941 could drive High Power LED directly by shorting the output channels and changing the slot data number. The POL function makes MY9941 as a PWM generator to support driving high power LEDs. MY9941 is available in SSOP24/TSSOP20 packages and specified over the -40°C to +85°C ambient temperature range.

Applications

- ☐ Standard DMX512 protocol system
- ☐ Full Color Mesh Display
- ☐ Architectural and Decorative Lighting

Typical Operating Circuits



Features

- ◆ White / CW.WW / R.G.B / R.G.B.W applications
- ◆ One / Two / Three / Four slots data selection for different LED configuration applications
- ◆ 5V to 40V Operating supply voltage
- ◆ 350mA Maximum constant current output (Per channel)
- ◆ Current setting by 4 external resistors
- ◆ 50V Rated output channels for long LED strings
- ◆ $\pm 1.5\%$ (typ.) LED Current accuracy between channels
- ◆ $\pm 3\%$ (typ.) LED Current accuracy between chips
- ◆ Auto-addressing cascade architecture
- ◆ Standard DMX512 protocol decoder (USITT DMX512-A)
- ◆ 4X DMX512 protocol selection (Baud rate=1MHz)
- ◆ Distinctive differential output corresponding with DMX512 format for long distance cascade
- ◆ Wide common-mode range for differential input signals
- ◆ Non-polarity connection for differential data input
- ◆ 14bits grayscale resolution with Adaptive Pulse Density Modulation
- ◆ Gamma, 2.2, to transform 8bits DMX to 14bits APDM data
- ◆ Frame refresh rate > 2000Hz as a LED driver
- ◆ Frame refresh rate > 120Hz as a PWM generator
- ◆ Traditional non-scramble constant current waveform for high power LED applications (PWM generator only)
- ◆ Built-in oscillator for grayscale control and DMX512 decoder
- ◆ -40°C to +85°C Ambient temperature range

Order information

PART	PIN PACKAGE	
MY9941SS	SSOP24-150mil-0.635mm	2500 pcs/Reel
MY9941TE	TSSOP20-173mil-0.65mm	2500 pcs/Reel

Pin Configuration

