MY-Semi

Preliminary

MY9943

4 Channels Constant Current LED Driver With Single-line Addressing DMX512 Protocol and Differential Interface

General Description

The MY9943, 4 channels constant current LED driver with 14bits grayscale APDM (Adaptive Pulse Density Modulation) control, supports standard DMX512 protocol and fully differential interface suited for long distance parallel 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 and a single-line addressing path. 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 MY9943 provides the gamma correction, gamma value is 2.2, to transform 8bits DMX data to 14bits APDM data in order to enhance brightness contract. 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, MY9943 could drive High Power LED directly by shorting the output channels and changing the slot data number. The POL function makes MY9943 as a PWM generator to support driving high power LEDs. MY9943 is available in SSOP24/TSSOP20 packages and specified over the -40°C to +85°C ambient temperature range.

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**
- **±1.5% (typ.) LED Current accuracy between channels**
- **±3% (typ.) LED Current accuracy between chips**
- **Standard DMX512 protocol decoder (USITT DMX512-A)**
- **Distinctive single-line addressing approach [Patent]**
- **Wide common-mode range for differential input signals**
- **Gamma, 2.2, to transform 8bits DMX to 14bits APDM data**
- **14bits grayscale resolution with Adaptive Pulse Density Modulation**
- **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**

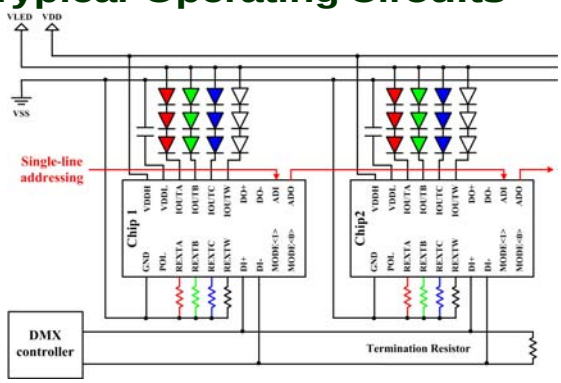
Applications

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

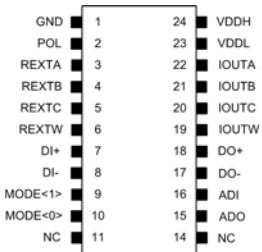
Order information

PART	PIN PACKAGE	
MY9943SS	SSOP24-150mil-0.635mm	2500 pcs/Reel
MY9943TE	TSSOP20-173mil-0.65mm	2500 pcs/Reel

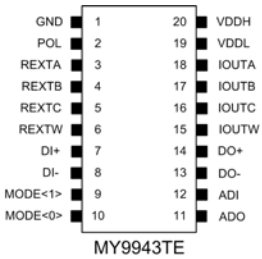
Typical Operating Circuits



Pin Configuration



MY9943SS
SSOP24-150mil-0.635mm



MY9943TE
TSSOP20-173mil-0.65mm

For pricing, delivery, and ordering information, pleases 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