MY-Semi

16-Channel LED Driver With 16-bit Adaptive Pulse Density Modulation & Error Diagnostics & Power Saving & Global Current Control

General Description

The MY9263, 16-channel constant current LED driver with 16-bit grayscale Adaptive Pulse Density Modulation (APDM), supports error diagnostics, power saving function and current gain control. This distinctive APDM technology abates the non-ideal IOUT distortion due to non-symmetric transient responses and enhances the refresh rate by separating efficiently the frame waveform.
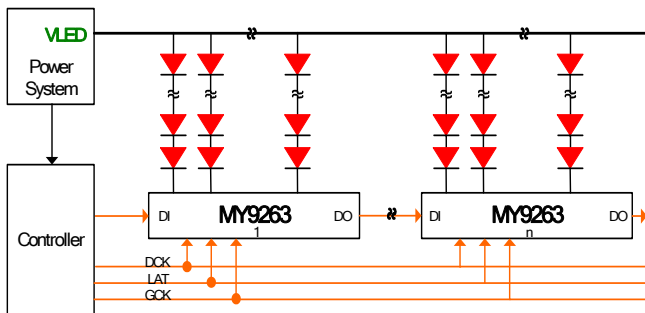
The device operates over a 3V to 5.5V input voltage range, a fast 30MHz DCK input and provides 16 open-drain constant current sinking outputs that are rated to 17V and delivers up to 55mA of high accuracy current to each string of LED. The current at each output is programmable by means of an external current-sensing resistor and could be adjusted by 6-bit global current control. Furthermore, the MY9263 also supports compulsory error detection. Under compulsory error detection, the display image will not be affected since the interval and current are small. Differing from error mode selections; the specified diagnostic can be performed. The error will be stored back to the shift register and could be read out from the DO pin. Moreover, the threshold voltage for LED short detection can be selected to comply with different LED string configuration. And the sleep mode could efficiently lower down the supply current in power saving applications.

The MY9263 is available in 24-pin SOP/SSOP/TSSOP/QFN packages and specified over the -40°C to +85°C ambient temperature range.

Applications

❑ Indoor and Outdoor LED Video Displays
❑ Variable Message Sign (VMS)
❑ Dot Matrix Module
❑ LCD Display Backlighting

Features

✦ **3V ~ 5.5V Operating supply voltage**
✦ **2~55mA/5V, 2~35mA/3.3V output current range**
✦ **17V Rated output channels for long LED strings**
✦ **±1.5% (typ.) LED Current accuracy between channels**
✦ **±3% (typ.) LED Current accuracy between chips**
✦ **±0.1% Output current regulation capability**
✦ **16-bit grayscale resolution with Adaptive Pulse Density Modulation control [patent pending]**
✦ **Non-scramble waveform for high power LED application**
✦ **Grayscale counter reset selection**
✦ **Grayscale data synchronization selection**
✦ **6-bit global current control: from 12.5% to 200%**
✦ **Compulsory error detection includes LED Open, LED Short, Output port leakage, Output short-to-GND, Output short-to-Power and REXT short-to-GND**
✦ **Compulsory error detection with 0.1mA**
✦ **Short detection threshold voltage selection (2/3/4/4.5V)**
✦ **Sleep mode to lower down the supply current to 10uA**
✦ **Over-temperature warning**
✦ **30MHz Clock frequency for data transfer**
✦ **EMI reduction grayscale clock**
✦ **GCK watchdog**
✦ **8KV ESD protection on IOUT pins**

Order information

Part	Package Information	
MY9263SA	SOP24-236mil-1.0mm	2000 pcs/Reel
MY9263SS	SSOP24-150mil-0.635mm	2500 pcs/Reel
MY9263TE	TSSOP24-173mil-0.65mm (Exposed Pad)	2500 pcs/Reel
MY9263QF	QFN24-4mmx4mm-0.5mm	3000 pcs/Reel

Typical Operating Circuits

Pin Configuration

MY9263SA/SS/TE

MY9263QF