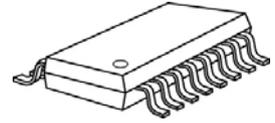


PWM Embedded 3-Channel Constant Current LED Sink Driver for RGB LED Clusters

Features

- 3-channel constant current LED sink driver for RGB LED clusters
- Constant output current range per channel: 5~150mA
- Excellent output current accuracy,
 - Between channels: $<\pm 3\%$ (max.);
 - Between ICs: $<\pm 6\%$ (max.)
- Sustaining voltage at output channels: 40V (max.)
- Embedded 16-bit PWM generator
 - Gray scale clock generated by the embedded oscillator
 - S-PWM technology
- Two selectable modes to trade off between image quality and transmission bandwidth
 - 16-bit gray scale mode
 - 10-bit gray scale mode (with optional 6-bit dot correction)
- Reliable data transmission
 - Daisy-chain topology
 - Two-wire only transmission interface
 - Clock regeneration
 - Built-in buffer for long distance transmission
- Supply voltage range (V_{DDH}): 7~30V
- Embedded voltage regulator
- Selectable polarity reversion to drive high-power drivers or MOS
- RoHS-compliant packages

Shrink SOP



GP: SSOP16L-150-0.64

QFN



GFN: QFN24L-4*4-0.5

Application

- Architectural lighting
- Mesh display or LED strip
- Neon light replacement
- Channel letter
- Remote PWM generator

Product Description

MBI6030 is a 3-channel, constant current, PWM-embedded LED sink driver for RGB LED cluster. MBI6030 provides constant current ranging from 5mA to 150mA for each output channel and sustains 40V at output channels. The constant output current of each output channel is adjustable with three corresponding external resistors.

With Scrambled-PWM (S-PWM) technology, MBI6030 enhances pulse width modulation by scrambling the “on” time into several “on” periods, so that MBI6030 reduces the data transmission bandwidth at the same gray scale performance. MBI6030 provides two selectable gray scale modes to trade off between image quality and transmission: 16-bit gray scale mode and 10-bit gray scale mode. 16-bit gray scale mode provides 65,536 gray scales for each LED to enrich the color. Furthermore, 10-bit gray scale mode provides 1,024 gray scales. Subject to 10-bit gray scale mode, 6-bit dot correction may adjust each LED by 64-step gain to compensate the LED brightness.

Furthermore, MBI6030 features a two-wire transmission interface to make cluster-to-cluster connection easier. To improve the transmission quality, MBI6030 provides clock regeneration to recover the clock duty cycle to avoid signal distortion after long-distance transmission.

MBI6030 allows wide supply voltage range (V_{DDH}) from 7V to 30V, which is suitable for 12V or 24V systems. Additionally, MBI6030 preserves selectable polarity reversion to driver external high-power drivers as a PWM controller.