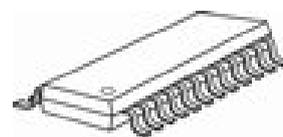
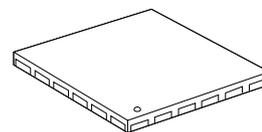


**PWM-Embedded 3x4-Channel Constant-Current Sink Driver for LED Strips****Features**

- 3x4-channel constant-current sink driver for LED strips
- Constant current range: 3~45mA
- 3 groups of output current, each group is set by an external resistor
- Sustaining voltage at output channels: 17V (max.)
- Supply voltage 3V~5.5V
- Embedded 16-bit PWM generator
 - Gray scale clock generated by the embedded oscillator or the external clock
 - S-PWM patented technology
- Two selectable modes to trade off between image quality and transmission bandwidth
 - 16-bit gray scale mode (with optional 8-bit dot correction)
 - 10-bit gray scale mode (with optional 6-bit dot correction)
- Reliable data transmission
 - Daisy-chain topology
 - Two-wire transmission interface
 - Phase-inverse clock
 - Built-in buffer for long distance transmission
- Flexible PWM reset modes
 - Auto-synchronization mode
 - Manual-synchronization mode
- RoHS-compliant packages

Shrink SOP

GP: SSOP24L-150-0.64

Quad Flat No-Lead

GFN: QFN24-4*4-0.5

Application

- LED strips
- Mesh display
- Architectural lighting

Product Description

MBI6024 is a 3x4-channel, constant-current, PWM-embedded sink driver for LED strips. MBI6024 provides constant current ranging from 3mA to 45mA for each output channel and are adjustable with three corresponding external resistors. Besides, MBI6024 can support both 3.3V and 5V power systems and sustain 17V at output channels.

With Scrambled-PWM (S-PWM) technology, MBI6024 enhances pulse width modulation by scrambling the $\%on+$ time into several $\%on+$ periods to increase visual refresh rate at the same gray scale performance. Besides, the gray scale clock (GCLK) can be generated by either the embedded oscillator or the external clock source. Moreover, MBI6024 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. The 16-bit gray scale mode provides 65,536 gray scales for each LED to enrich the color. Subject to the 16-bit gray scale mode, the 8-bit dot correction may adjust each LED by 256-step gain to compensate the LED brightness. Furthermore, the 10-bit gray scale mode provides 1,024 gray scales. Subject to the 10-bit gray scale mode, 6-bit dot correction may adjust each LED by 64-step gain.

In addition, MBI6024 features a two-wire transmission interface to make cluster-to-cluster connection easier. To improve the transmission quality, MBI6024 provides phase-inverse clock to eliminate the accumulation of signal pulse width distortion. MBI6024 is also flexible for either manual-synchronization or auto-synchronization. The manual-synchronization is to maintain the synchronization of image frames between ICs. The auto-synchronization is to achieve accurate gray scale, especially when using the built-in oscillator.