



16-Channel Constant Current LED Driver With 16-bit PWM Control

Features

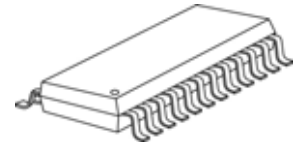
- Backward compatible with MBI5026 and MBI5030 in package
- 16 constant-current output channels
- 16-bit color depth PWM control
- Scrambled-PWM technology to improve refresh rate
- 6-bit programmable output current gain
- Constant output current range: 2~45mA
2~45mA at 5.0V supply voltage
2~30mA at 3.3V supply voltage
- Output current accuracy:
Between channels: $<\pm 1.5\%$ (typ.), and
Between ICs: $<\pm 3.0\%$ (typ.)
- Staggered delay of output, preventing from current surge
- Maximum data clock frequency: 30MHz
- Schmitt trigger input
- 3.0V-5.5V supply voltage

Product Description

MBI5042 is designed for LED video applications using internal Pulse Width Modulation (PWM) control with selectable 16-bit color depth. MBI5042 features a 16-bit shift register which converts serial input data into each pixel gray scale of output port. At MBI5042 output port, sixteen regulated current ports are designed to provide uniform and constant current sinks for driving LEDs with a wide range of V_F variations. The output current can be preset through an external resistor. Moreover, the preset current of MBI5042 can be further programmed to 64 gain steps for LED global brightness adjustment.

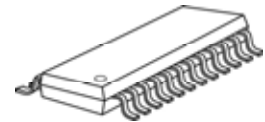
With Scrambled-PWM (S-PWM) technology, MBI5042 enhances Pulse Width Modulation by scrambling the "on" time into several "on" periods. The enhancement equivalently increases the visual refresh rate. When building a 16-bit color depth video, S-PWM reduces the flickers and improves the fidelity. MBI5042 offloads the signal timing generation of the host controller which just needs to feed data into drivers. MBI5042 drives the corresponding LEDs to the brightness specified by image data. With MBI5042, all output channels can be built with 16-bit color depth (65,536 gray scales). Each LED's brightness can be calibrated enough from minimum to maximum brightness with compensated gamma correction or LED deviation information inside the 16-bit image data.

Small Outline Package



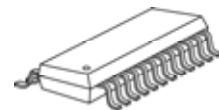
GF: SOP24L-300-1.00

Shrink SOP



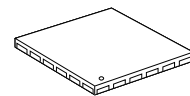
GP: SSOP24L-150-0.64

Thin Shrink SOP



GTS: TSSOP24L-173-0.65

QFN



GFN: QFN24L-4*4-0.5