

16-Channel Automotive Local-Dimming Backlight Driver with SPI Interface

General Description

The MAX21610 is a 16-channel modular backlight driver for use with automotive displays. The integrated current outputs can sink up to 100mA LED current, each depending on the ambient temperature. Device power comes from an external 3.3V or 5V supply, while the LED current-sink outputs can operate at up to 17V.

A feedback output pin (FB) is provided to control an external DC-DC converter so that voltage headroom can be optimized and the overall system power dissipation reduced.

The global LED current for all strings is set through a serial peripheral interface (SPI), with individual PWM settings for each of the channels. The PWM frequency can be determined using the internal oscillator or by synchronizing to the external CLKIO input.

The device features a high-speed SPI interface for control. Up to 10 devices can be daisy-chained to reduce connection complexity.

The MAX21610 is available in a TQFN package and operates in the -40 to 125°C temperature range.

Applications

- Infotainment Displays
- Central Information Displays
- Instrument Clusters

Benefits and Features

- High Integration
 - Complete 16-Channel Solution with Independent Dimming and Daisy-Chain Option
 - SPI Control for Minimum Parts Count
- Robust and Low EMI
 - Programmable Spread Spectrum On Outputs
 - Slew-Rate Controlled Switching On LED Outputs
 - Programmable Phase Shift Between Outputs
- Relative Dimming Ratio Between Strings Up to 32768:1
- Latch Input (RST_LAT) for Synchronization to Video Frame
- FB Output to Control External Power Supply for Minimum System Power Dissipation
- 1% Accurate Output Current
- Complete Diagnostics
 - LED Open/Short Detection and Protection
 - Power Supply Overvoltage Protection
 - Thermal Warning
 - Thermal Shutdown
- Compact 32-Pin TQFN 5mm x 5mm Package

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Rev. 7

DOCUMENT FEEDBACK

TECHNICAL SUPPORT

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