MAX20446EVKIT

Evaluation Kit for the MAX20446

NDA Required. Request Full Data Sheet

Description

The MAX20446 evaluation kit (EV kit) demonstrates the MAX20446 integrated 6-channel high-brightness (HB) LED backlight driver with boost/SEPIC controller and I²C interface for automotive displays.

The EV kit operates from a DC supply voltage between 4.5V and 36V and the switching frequency can be set either at 2.2MHz or at 400kHz. The EV kit operates in I²C mode only. Spread-spectrum mode (SSM) is enabled by default for EMI improvement, but can be disabled by acting on a register bit. The EV kit demonstrates phase-shifted pulse-width modulation (PWM) dimming. Dimming can be performed externally using a PWM signal applied to the DIM PCB pad, or internally by programming the desired dimming frequency and individual duty cycle through I²C. The hybrid dimming feature can be enabled through a register bit to reduce EMI. The EV kit also demonstrates short-LED, open-LED, boost output undervoltage, as well as overvoltage- and overtemperature-fault protection.

For operation at switching frequencies other than 2.2MHz or 400kHz, the external components should be chosen according to the calculations in the MAX20446 IC data sheet.

The EV kit provides an I²C interface that can operate in conjunction with the Maxim command module (MINIQUSB+) or a third-party I²C master. The EV kit also includes, Windows®-compatible software that provides a simple graphical user interface (GUI) for exercising the features of the IC.

Applications/Uses

- Central Information Displays
- Infotainment Displays
- Instrument Clusters

Key Features

- Demonstrates Robustness of the MAX20446
- Wide 4.5V to 36V Input Operating Range (Up to 52V Load Dump)
- Powers HB LEDs (Up to Six Strings) for Medium-to- Large-Sized LCD Displays in Automotive and Display Backlight Applications
- 400kHz to 2.2MHz Resistor-Programmable Switching Frequency with Spread-Spectrum Option
- Phase-Shift Dimming Option
- Demonstrates Cycle-by-Cycle Current Limit and Thermal-Shutdown Features
- Demonstrates Wide Dimming Ratio
- Demonstrates Fail-Safe Operation
- I^2C Programmability
- Dedicated GUI
- Proven PCB Layout and Thermal Design
- Fully Assembled and Tested