SC5012AQ

High Efficiency 4-Ch, 150mA/Ch LED Drive with I²C Interface and PWM Dimming

POWER MANAGEMENT

Features

- Input Voltage — 4.5V to 45V
- Output Voltage — Up to 65V
- Step-up (Boost) Controller
  - Ultra-Fast Transient Response
  - Programmable Switching Frequency
  - External Sync Frequency for Boost Controller
- Linear Current Sinks
  - 4 Strings, up to 150mA/String
  - Current Matching ±1%
  - Current Accuracy ±2%
- PWM Dimming
  - 5000:1 Dimming Ratio
  - Dimming Frequency 100Hz-30kHz
  - User Selectable 9 or 10 Bits Dimming Resolution
- External Frequency Synchronization, FSYNC
- 8-bit Analog Dimming
- I²C Interface
  - Fault Status — Open/Short LED, OTP
- Protection Features
  - Open/Shorted LED(s) and Adjustable OVP
  - Over-Temperature
- 4mm X 4mm 24 Ld QFN Package
- AEC-Q100 (Grade2) Qualified Version Available

Description

The SC5012AQ is a 4-channel high-precision, high-efficiency step-up (Boost) HB LED driver designed for backlight applications. It features wide input voltage range (4.5V to 45V) , flexible output configuration, wide analog and PWM dimming range, external boost controller frequency synchronization (FSYNC), I²C interface, and numerous protection features.

The boost controller, with programmable switching frequency from 200kHz to 2.2MHz, can maximize efficiency by dynamically minimizing the output voltage while maintaining LED string current accuracy. It provides excellent line and load response with no external compensation components. Each linear current sink is matched within ±1% for superb lighting uniformity, and the accuracy of each string current is ±2%. An external resistor adjusts the current from 40-150mA per string.

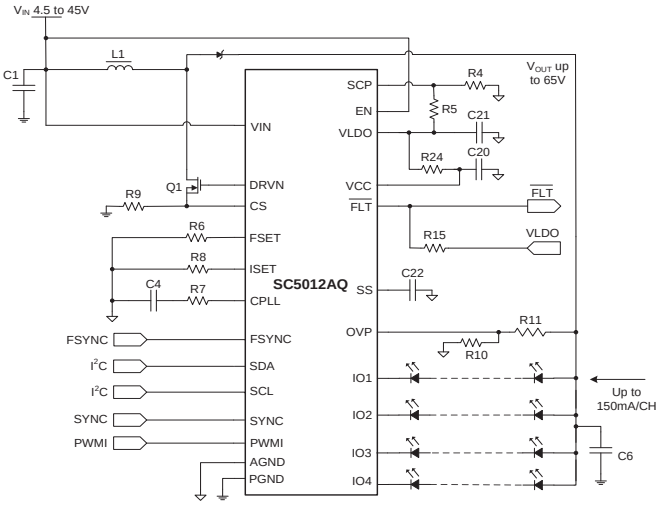
SC5012AQ is available in 4mm X 4mm 24 Ld QFN package.

The SC5012AQ is an AEC-Q100 (Grade2) qualified version.

Applications

- Medium-sized LCD Panel
- Automotive Car Navigation/Information Display
- LCD Monitors

Typical Application Circuit



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