AS1112

16-Channel LED Driver with Dot Correction and Greyscale PWM

1 General Description

The AS1112 is a 16-channel, constant current-sink LED driver. Each of the 16 channels can be individually adjusted by 4096-step greyscale PWM brightness control and 64-step constant-current sink (dot correction).

The dot correction circuitry adjusts the brightness variations between the AS1112 channels and other LED drivers. Greyscale control and dot correction circuitry are accessible via the SPI-compatible serial interface. A single external resistor sets the maximum current value of all 16 channels.

The device features two error detection functions. The open & short LED detection function indicates a broken, shorted or disconnected LED at one or more of the outputs. The overtemperature flag indicates that the device is in an overtemperature condition.

An additional power-down pin puts the AS1112 into a 40nA standby-mode.

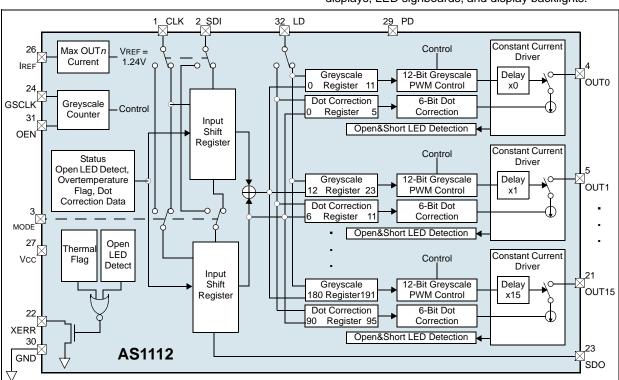The AS1112 is available in a 32-pin TQFN 5x5 mm package.

2 Key Features

- 16 Channels
- Greyscale PWM Control: 12-Bit (4096 Steps)
- Dot Correction: 6-Bit (64 Steps)
- Drive Capability (Constant-Current Sink): 0 to 80mA
- LED Power Supply Voltage: Up to 15V
- Supply Voltage Range: 3.0 to 5.5 V
- SPI-Compatible Serial Interface
- Controlled In-Rush Current
- Data Transfer & PWM Clock Rate: up to 30 MHz
- CMOS Level I/O
- Diagnostic Features
  - LED Open/Short Detection
  - Overtemperature Flag
- 32-pin TQFN 5x5 mm Package

3 Applications

The device is ideal for mono-, multi-, and full-color LED displays, LED signboards, and display backlights.

Figure 1. Block Diagram

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