AS3812

16-Channel LED Driver for Local Dimming

The AS3812 is the next generation of fully integrated 16-channel LED backlight driver. LED current set resistors are integrated in order to save external components as well as reducing the pin-count of the IC while maintaining a very high absolute LED current accuracy of ±1%.

The speed of the current regulation has been increased to support minimum PWM on times down to 1µs.12-bit fully flexible PWM generators per channel and 10-bit LED current resolution can be used to adjust the brightness of the LED strings.

Dialog's patented digital enhanced DC/DC feedback function is regulating any external SMPS to the best suitable output voltage needs of the LED strings to minimize power dissipation.

Dialog's patented dimming method allows synchronizing the PWM generators with V/HSYNC of the video SOC/GPU.

The device can be programmed via SPI and daisy chain connection to cascade many devices easily.

Features

- 16 fully flexible, 12-bit PWM generators provide optimium power savings through local dimming
  - Period, high time, delay, reverse functions
- Global 10-bit IDAC gives ±1% LED current accuracy for highest brightness uniformity
- Integrated current sink FETs and current set resistors – Lower BOM cost
- VSYNC and HSYNC inputs and integrated digital PLL allow synchronization with TV frame
- Universally compatible DC/DC feedback architecture with digital enhancement – configurable via SPI
- Fully protected with integrated features
  - Short/Open LED detection
  - Over-temperature shutdown
  - Register lock/unlock
- Minimum PWM on-time of 1µs – enables high contrast ratios

Applications

- Ultra-HD/4K TVs
- LCD Monitors
- Notebooks/medium-small size displays

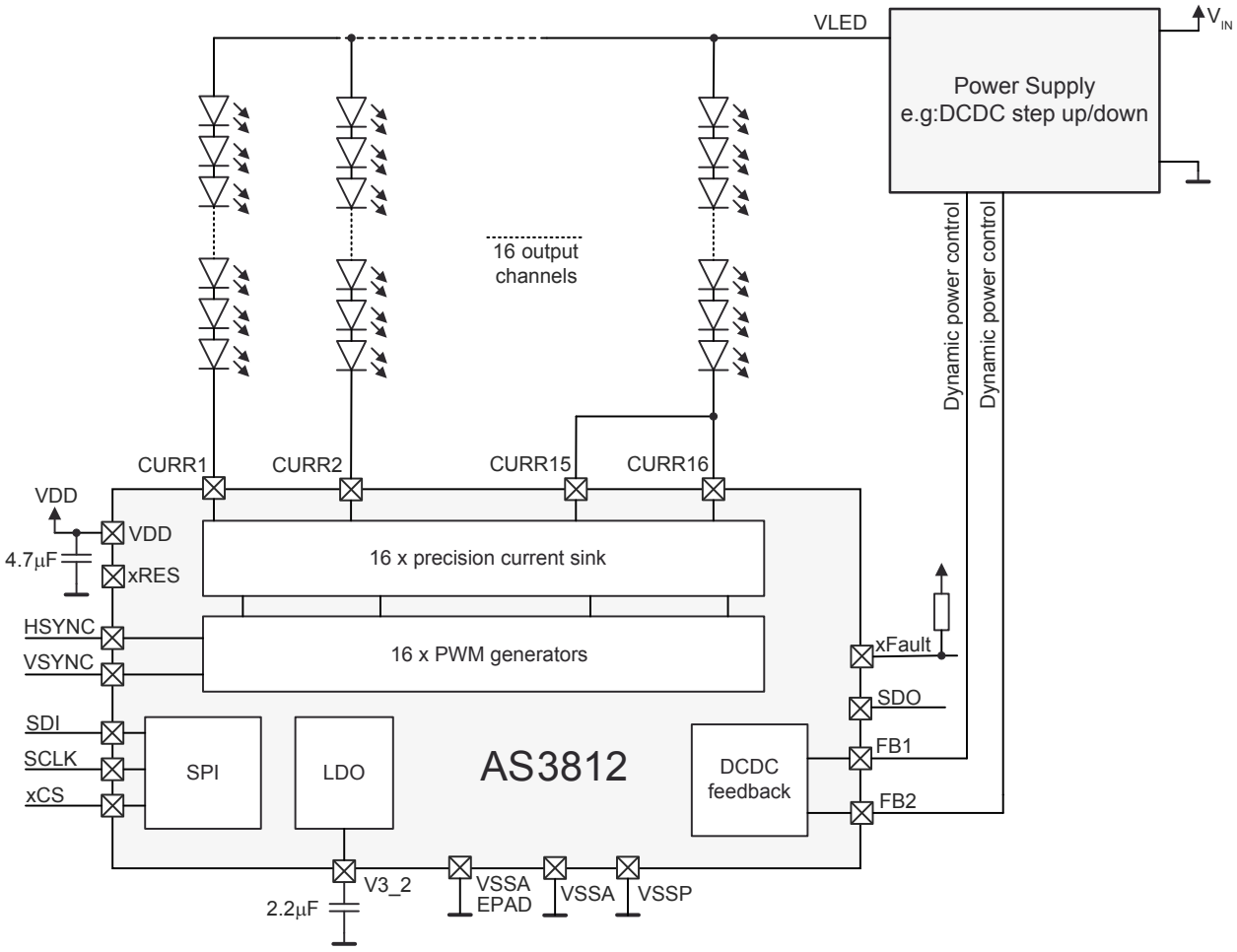

Figure 1. AS3812 Typical Application (With CURR15 and CURR16 connected together to show increased LED string current capability by paralleling outputs)