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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



AS3694

12 channel high precision LED driver for LCD backlight and 3 DCDC Step Up controller



1 General Description

The AS3694 is a 12 channels high precision LED driver with built in PWM generators for building backlight panels in LCD-TV-sets. 3 DCDC Step Up controllers can be used to build the power supplies for red, green and blue LED strings.

External clock and synchronizing inputs allow the synchronization of the LCD backlight with the TV picture. Local dimming and scan dimming is supported by 12 independent PWM generators with programmable delay, period and duty cycle. Three free configurable dynamic power feedback circuits make the device usable for white LED as well as RGB backlights. Built in safety features include thermal shutdown as well as open and short LED detection. All circuit parameters are programmable via I2C or SPI interface.

2 Key Features

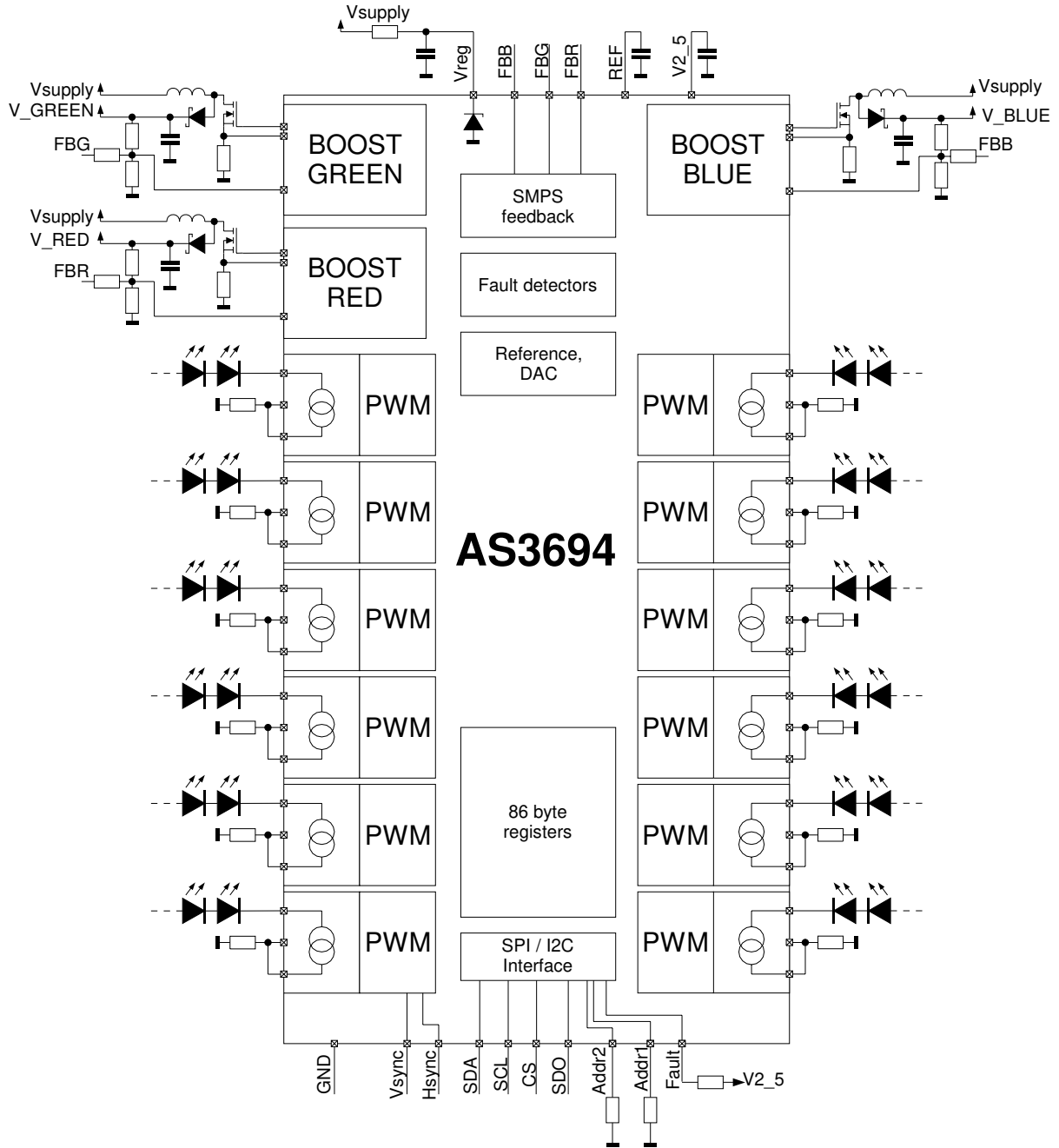
- 12 independent LED channels
- Output current 70mA
- Output voltage up to 50V
- Absolute current accuracy $\pm 0.5\%$

- Output slew rate limited to reduce EMI
- Current programmable with external resistor
- 12 independent PWM generators with 12 bit resolution
- H-Sync, F-Sync inputs to synchronize with TV-set
- Three independent power feedback for R-, G-, B-supply regulation
- Built in 5V shunt regulator
- I2C or SPI interface with 6 bit address
- Fault interrupt output
- Open LED detection
- Short LED detection
- Temperature shutdown
- 3 DCDC Step Up controller
 - Current mode
 - Efficiency > 90%
 - Input voltage range 15V to 50V
 - Output voltage up to 50V / 200mA
- Package epTQFP64

3 Application

LED Backlighting for LCD – TV Sets and Monitors

Block Diagram



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Contact Information

Headquarters

austriamicrosystems AG
A-8141 Schloss Premstätten, Austria
T. +43 (0) 3136 500 0
F. +43 (0) 3136 5692

For Sales Offices, Distributors and Representatives, please visit:
<http://www.austriamicrosystems.com/contact>