IS31LT3515 Preliminary

High Voltage LED Lighting Driver for Buck, Boost or Buck-boost Topology

September 2012

General Description

The IS31LT3515 is a current mode PWM controller designed to drive an external MOSFET for high current LED applications. With a current sense amplifier threshold of 250mV, the LED current is programmable with one external current sense resistor. The IS31LT3515 is ideal for buck, boost or buck-boost operation. With 250kHz operating frequency (typical, and this frequency can be set up by external resistor), the external inductor and capacitors can be small while maintaining high efficiency.

Dimming can be either analog or PWM digital. Input DC voltage from LD pin for analog dimming. Input PWM signal from PWM pin can get either analog dimming or PWM dimming.

The SN3515 is available in SOP-16 package and QFN-16 3*3 package.

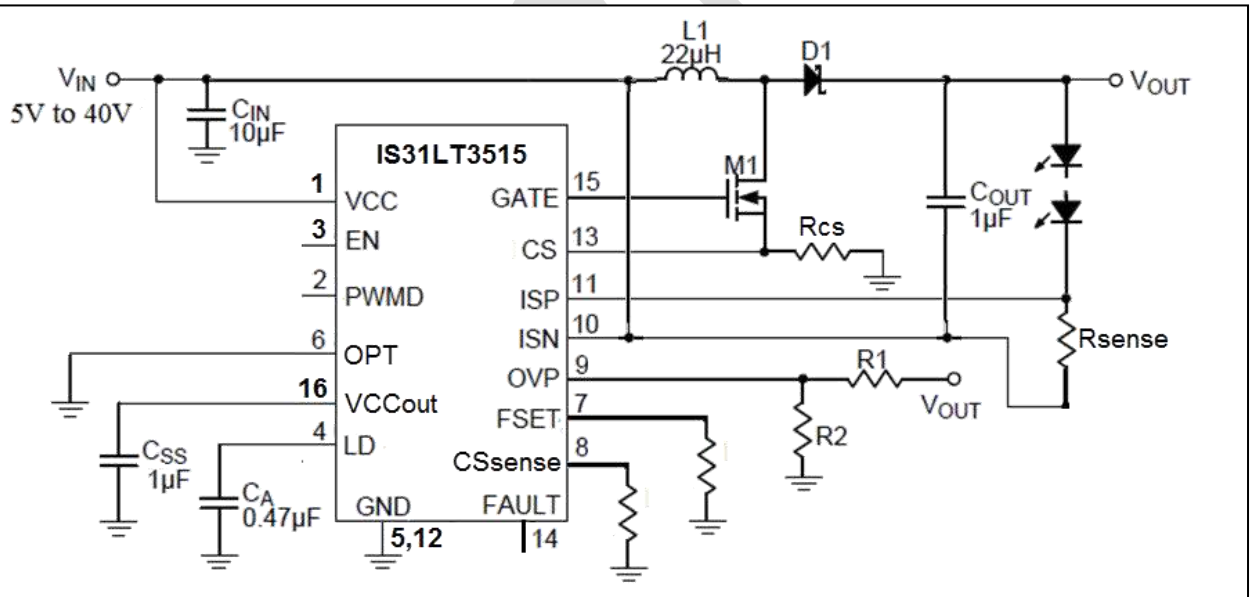
Features

- Wide voltage: Vin up to 40V, Vout up to higer
- Buck, Boost or Buck-Boost operation
- Easy dimming: Analog, PWM or PWM converting to analog with an external capacitor
- Output over voltage protection(OVP)
- Internal soft start to avoid inrush current
- Current mode PWM with an 250kHz operating frequency(typical, RSET=150Kohms)
- Output short circuit protection
- VIN under voltage lock out and Over temperature protection(OTP)

Applications

- General industrial high power LED lighting
- Desk lights and room lighting, street lighting
- Display backlight

Typical Application Circuit



Buck Boost configuration

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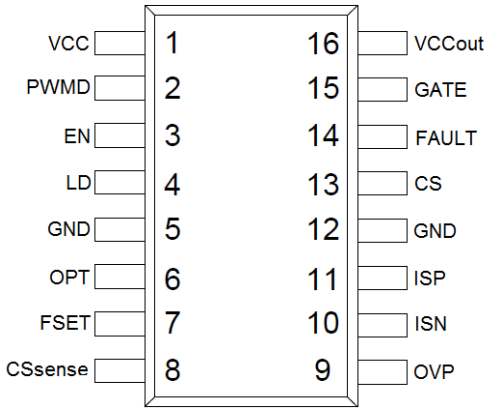
a.) the risk of injury or damage has been minimized;
b.) the user assume all such risks; and
c.) potential liability of Integrated Silicon Solution, Inc is adequately protected under the circumstances

Pin Configuration

Package	Pin Configurations(Top view)
SOP-16	

Pin Description

Pin No.	Pin Name	Function
1	VCC	The power supply pin
2	PWMD	PWM dimming input. The PWM signal will convert to analog signal with an external capacitor. (Low is enable, internal have pull down resistor)
3	EN	Enable Pin. Floating(pull down internal), enable; pull to high, shutdown mode
4	LD	Analog dimming input.
5,12	GND	Ground
6	OPT	Structure selection. Floating: boost. connect to ground: buck-boost
7	FSET	With an external resistor to set operation frequency. (250KHz, R_{FSET}=150kohms)
8	CSsense	current sense mirror pin, connect a res to CS pin(1:5000)
9	OVP	Over voltage protect, this pin voltage exceed 1.23V, GATE will pull low.
10	ISN	The LED current sense amplifier negative input
11	ISP	The LED current sense amplifier positive input
12	GND	Ground
13	CS	MOSFET current sense
14	FAULT	This pin is the same as PWM signal and when ISP-ISN>0.5v, pulled to ground (short circuit is detected)
15	GATE	Gate drive to the external MOSFET(12V)
16	VCCout	LDO 12V output , need an external cap(1uF)

ORDERING INFORMATION

INDUSTRIAL RANGE: -40℃ TO +85℃

Order Part No.	Package	QTY/Reel
IS31LT3515-GRLS2-TR	SOP-16, Lead-free	2500

Preliminary