ZHEJIANG UNIU-NE Technology CO.,LTD

浙 江 宇 力 微 新 能 源 科 技 有 限 公 司

U3510C Data Sheet

V1.1

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Switching Current Limit Step-Down Converter

■ General Description

The U3510C is a high-voltage, step-down, switching regulator that drives External power MOSFET. The input range accommodates a variety of step-down applications, making it ideal for automotive, industry, and lighting applications. Hysteretic voltage-mode control is employed for very fast response. UNIU's proprietary feedback control scheme minimizes the number of required external components.

The switching frequency is 80KHz, allowing for small component size. Thermal shutdown and short -circuit shutdown (SCS) provide reliable and fault tolerant operations. Low quiescent current allows the U3510C to be used in batter-powered applications.

■ Key Features

- Internal integrated bootstrap power supply circuit
- DC-DC 12V Typical Switching Current Application
- Hysteretic Control: No Compensation
- 80KHz Switching Frequency
- PWM Control Input for step-down Application
- Short-Circuit Shutdown (SCS) with Integrated IC
- Low Quiescent Current
- Thermal Shutdown

■ Applications

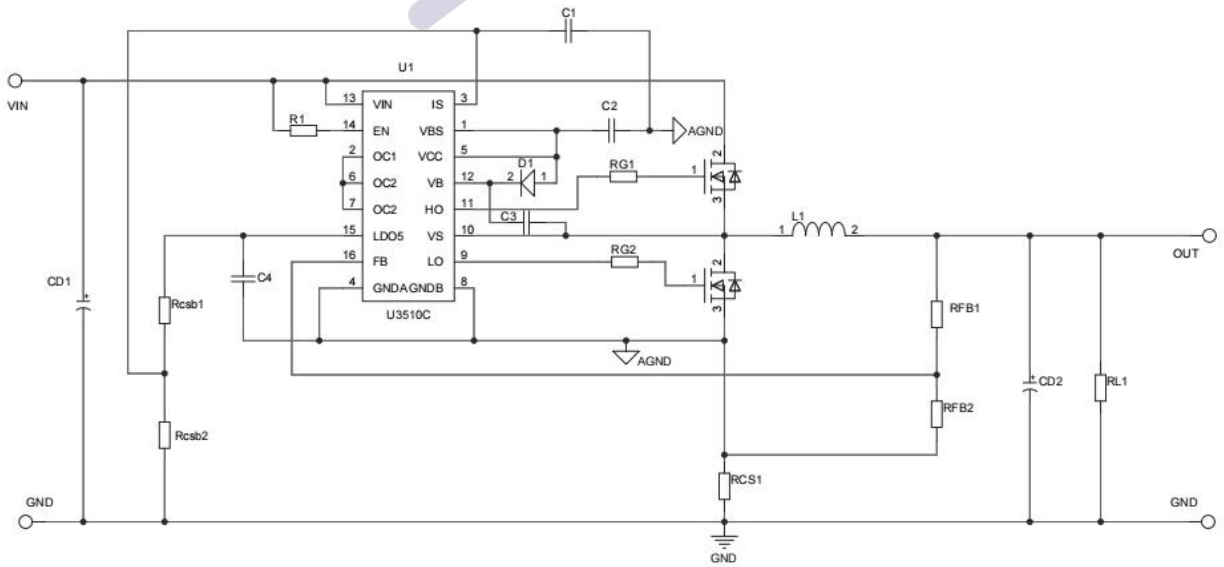
- Scooters, E-Bike Control Power Supplies
- Solar Energy Systems
- Automotive System Power
- Industrial Power Supplies
- High-Power LED Drivers

■ Output Power Table

Part Number	Package	VIN MAX	IO+/IO-	OUT
U3510C	SOP-16	200V	1.2A/1.5A	ADJ

Note:1.Default for Buck Converter Application.
2.The practical output power is determined by the output voltage and thermal condition.

■ Typical Application



■ Description (Cont.)

The U3510C voltage-mode controller with line feed-forward drives external high-side and low-side N-channel power switches with robust 12V gate drivers suitable for standard-threshold MOSFET. Adaptively-timed gate drivers with 1.2A source and 1.5A sink capability minimize body diode conduction during switching transitions, reducing switching losses and improving thermal performance when driving MOSFET at high input voltage and high frequency. The U3510C can be powered from the output of the switching regulator or another available source, further improving efficiency.

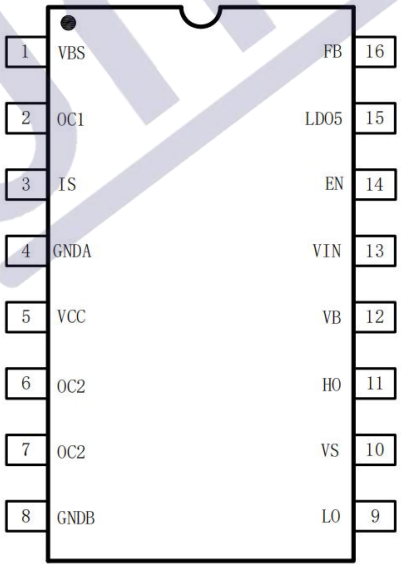
Additional features of the U3510C include a configurable soft start, an open-drain power-good monitor for fault reporting and output- monitoring, monotonic start-up into prebiased loads, integrated VCC bias supply regulator and bootstrap diode, external power supply tracking, precision enable input with hysteresis for adjustable line under-voltage lockout (UVLO), hiccup-mode overload protection, and thermal shutdown protection with automatic recovery.

The U3510C controller is offered in a 10mm × 6.3mm thermally enhanced, 16-pin SOP package with additional spacing for high-voltage pins and wettable flanks for optical inspection of solder joint fillets.

■ Pin Configuration and Functions

RGY Package 16-Pin SOP With Wettable Flanks

Top View

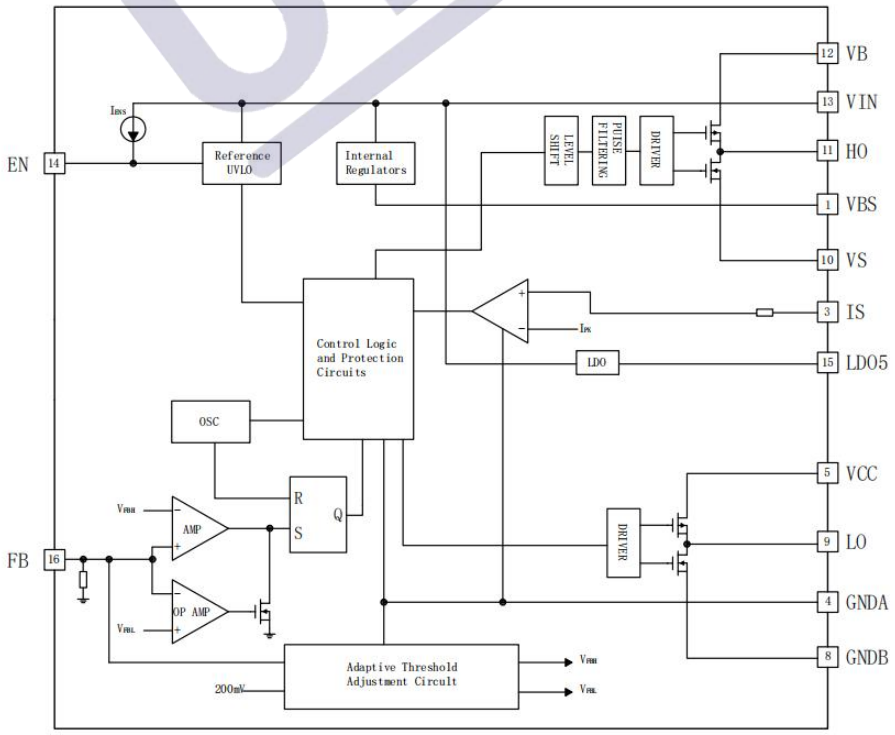


■ Pin Functions

Pin		I/O(1)	Description
NO.	Name		
1	VBS	P	VB is the positive power supply for the internal, floating, high-side MOSFET driver. Connect a bypass capacitor between VB and VS.
2	OC1	I	Connect to Pin6,7.
3	IS	I	Current detection. Current Sensing Input.
4	GNDA	G	The interior is connected to the GND(can be suspended).Connect to Pin8.
5	VCC	P	Power input.
6、7	OC2	I	Connect to Pin2.
8	GNDB	G	Low side return.Connect to Pin4.
9	LO	O	Low side gate drive output.
10	VS	G	High side floating supply return.
11	HO	O	High side gate drive output.
12	VB	P	High side floating supply.
13	VIN	P	Input supply.VIN supplies power to all of the internal control circuitries.
14	EN	I	En input. Pull EN below the specified threshold or leave EN floating to shut down the U3510C. Pull EN above the specified threshold to enable the U3510C.
15	LDO5	P	The Pin is VCC 5V.
16	FB	I	Feedback. FB is the input to the voltage hysteretic comparators.

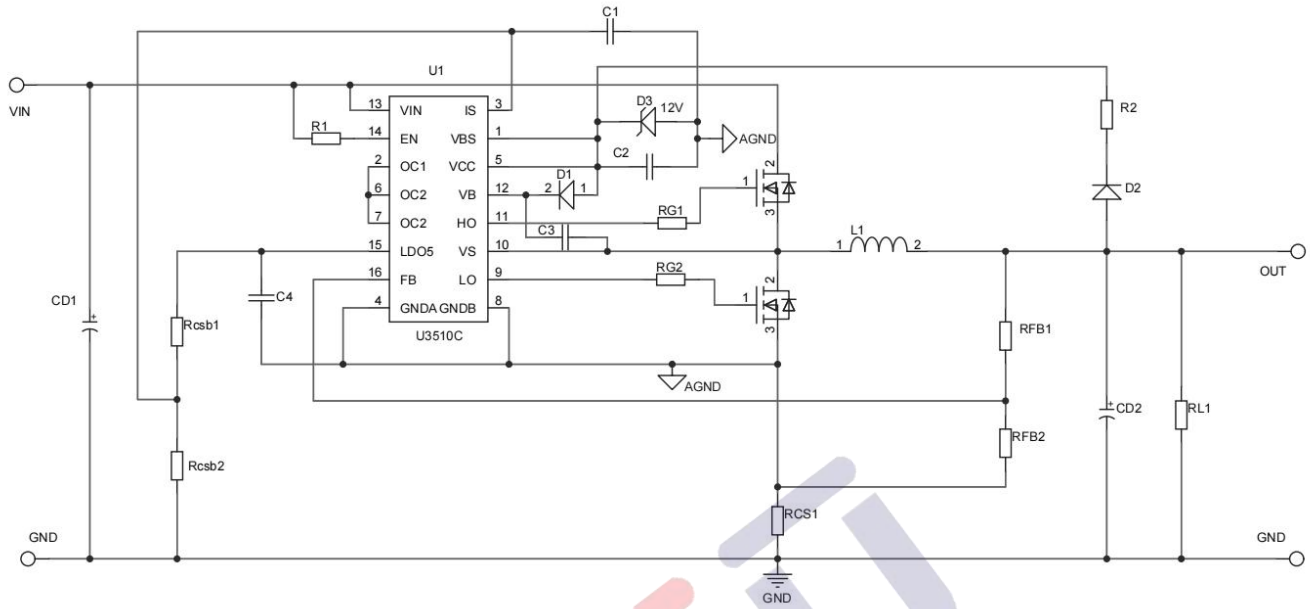
Note:1.P = Power, G = Ground, I = Input, O = Output.

■ Functional Block Diagram

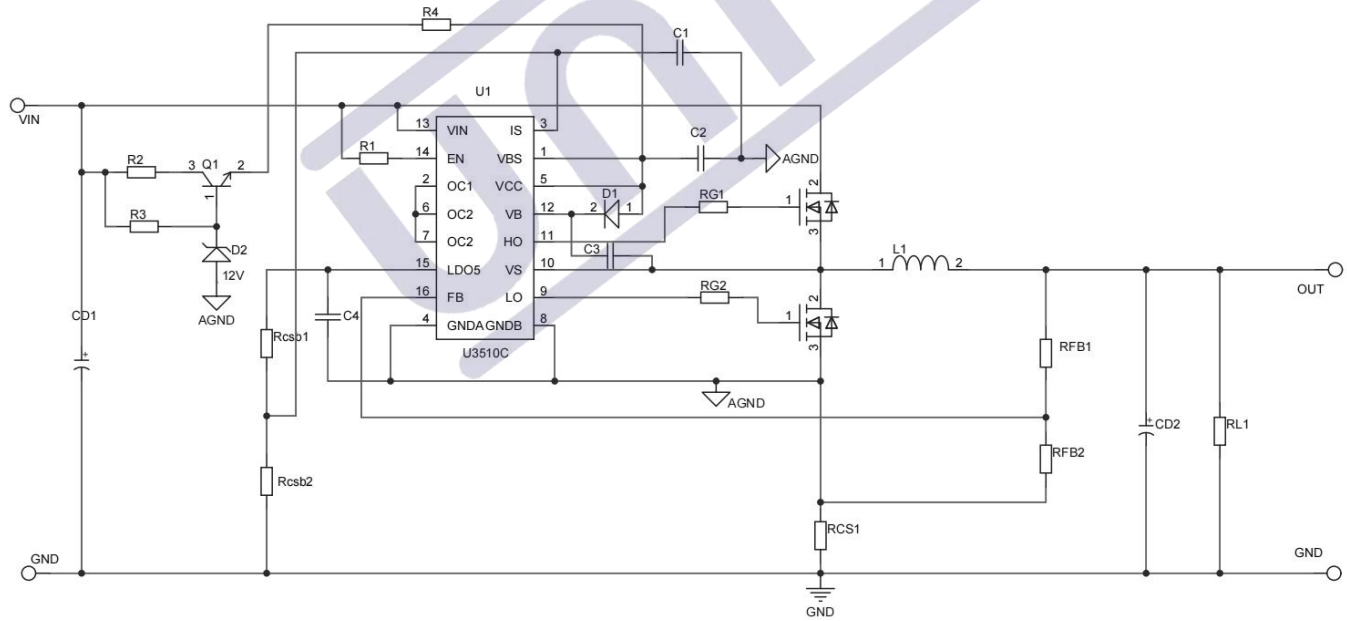


■ Typical Application

APP1:V_{OUT} > 10V



APP2:V_{OUT} < 10V



1、版本记录

DATE	REV.	DESCRIPTION
2022/09/28	V1.0	First Release
2024/05/15	V1.1	Layout Adjustment

2、联系我们

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