



ZHEJIANG UNI-NE Technology CO., LTD

浙江宇力微新能源科技有限公司



U3512 Data Sheet

V1.1

版权归浙江宇力微新能源科技有限公司

Switching Current Limit Step-Down Converter

General Description

The U3512 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. UNI'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 U3512 to be used in battery-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

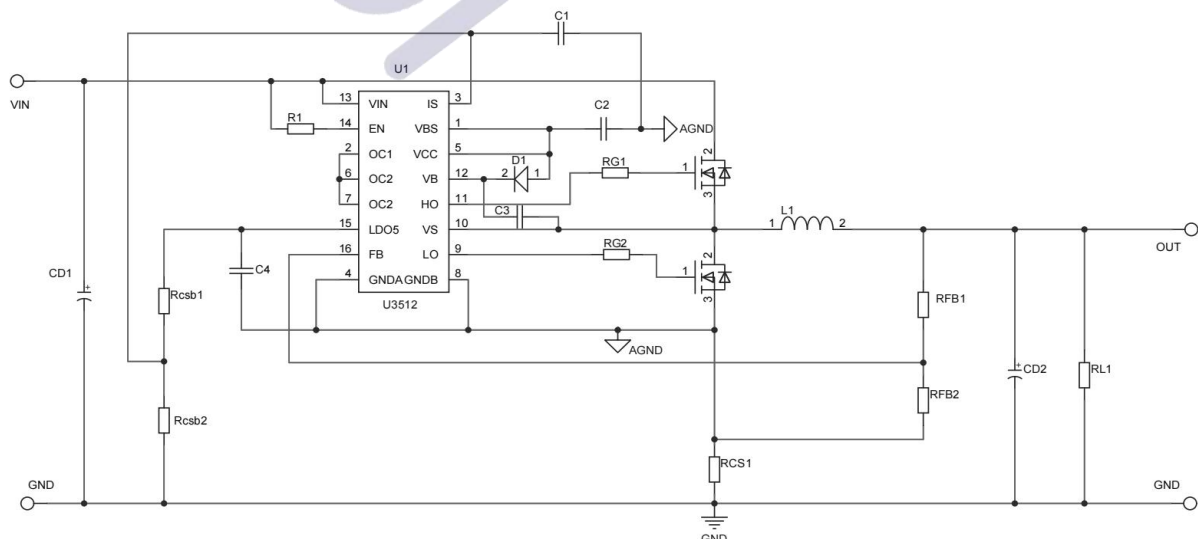
Output Power Table

Part Number	Package	VIN MAX	IO+/IO-	OUT
U3512	SOP-16	200V	2.0A/2.5A	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 U3512 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 2.0A source and 2.5A 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 U3512 can be powered from the output of the switching regulator or another available source, further improving efficiency.

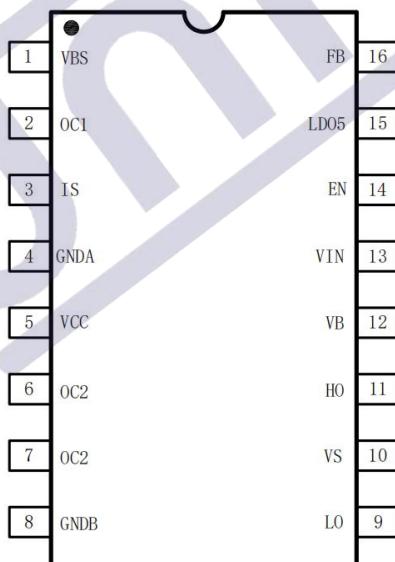
Additional features of the U3512 include a configurable soft start, an open-drain power-good monitor for fault reporting and output- monitoring, monotonic start-up into prebiased loads, integrated VCC bias supply regulator and bootstrap diode, external power supply tracking, precision enable input with hysteresis for adjustable line under-voltage lockout (UVLO), hiccup-mode overload protection, and thermal shutdown protection with automatic recovery.

The U3512 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

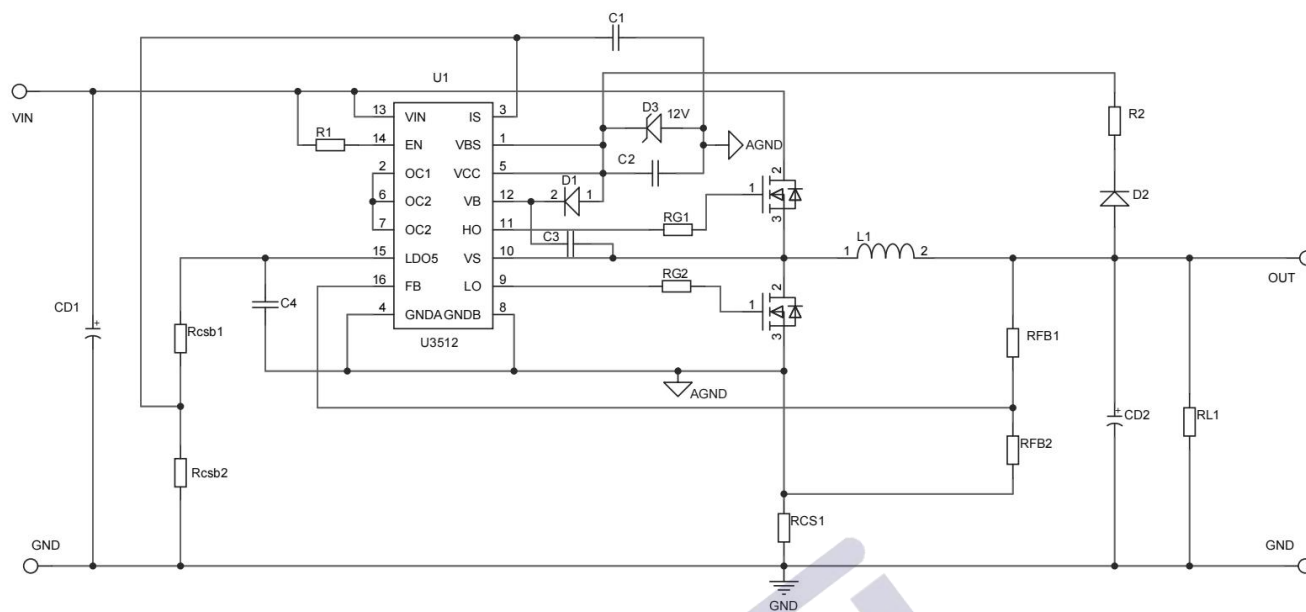
RGY Package 16-Pin SOP With Wettable Flanks

Top View

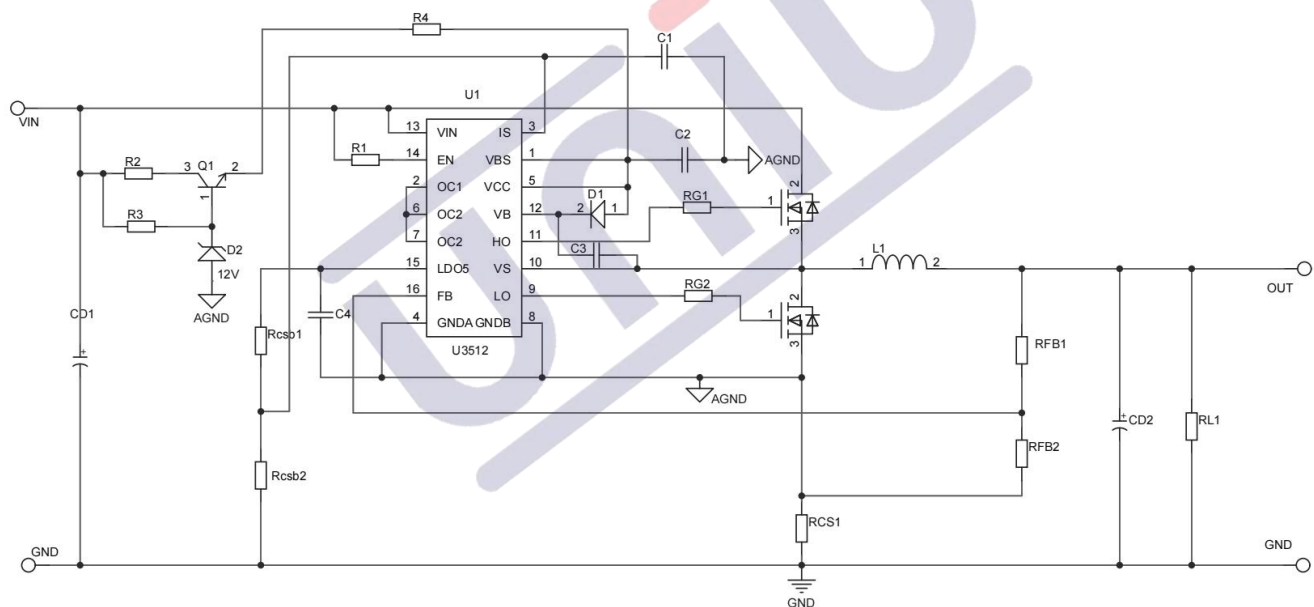


■ Typical Application

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

浙江宇力微新能源科技有限公司

总部地址:绍兴市越城区斗门街道袍渎路25号中节能科创园45幢4/5楼

电话:0575-85087896 (研发部)

传真:0575-88125157

E-mail:htw@uni-semic.com

无锡地址:江苏省无锡市锡山区先锋中路6号中国电子（无锡）数字芯城1#综合楼503室

电话:0510-85297939

E-mail:zh@uni-semic.com

深圳地址:深圳市宝安区西乡街道南昌社区宝源路泳辉国际商务大厦410

电话:0755-84510976

E-mail:htw@uni-semic.com

重要注意事项:

1、绍兴宇力半导体有限公司和浙江宇力微新能源科技有限公司，简称“宇力”，宇力保留说明书、应用指导书等的更改权，不另行通知。客户在采购时应获取我司最新版本资料，并验证相关信息是否最新和完整。产品使用前请仔细阅读本说明书、应用指导书等相关资料和其中的注意事项。

2、本产品属于消费类电子产品，宇力对宇力产品的任何特定用途的适用性不做任何保证。产品也不得应用在被任何适用法律或法规禁止制造、使用或销售的任何设备或系统中。如果宇力的产品被用禁止产品或系统中，此类应用产品的全部风险由客户自行承担，宇力对此不承担任何责任。

3、本文件和产品的应用指导书等相关资料所描述的产品的应用仅用于说明参考，本文件提供的参数在不同应用中可能而且确实会有所不同，实际性能可能会随之变化。使用时需要进一步评估、测试和验证。宇力对产品应用或客户产品设计等方面的任何协助不承担责任。

4、客户须在产品的有效存储期内使用完毕，客户如对宇力产品的有效存储期有任何疑问的，请即时联系宇力对接销售人员或宇力客户服务支持，对于超过存储期使用的，宇力不承担任何责任。

5、未经宇力事先书面同意，不得对文件和产品进行拆解、更改、修改或者复制。

6、购买产品时请认清宇力商标和物料名称，如有疑问请联系宇力。第三方购买请注意是否为宇力授权的资质，同时在采购之前联系我司，以确认产品为宇力原厂正品。

7、客户在应用和使用产品时请务必遵守相关法规，包括但不限于贸易管制法规等。本产品为民用电子产品，请勿应用于非民用领域。

8、产品提升永无止境，我公司将竭诚为客户提供更优秀的产品!