



ZHEJIANG UNIÜ-NE Technology CO., LTD

浙江宇力微新能源科技有限公司



## U3502 Data Sheet

V 1.0

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# 100V Input, 2A, Switching Current Limit Step-Down Converter

## General Description

The U3502 is a high-voltage, step-down, switching regulator that delivers up to 2A of max current to the load. It integrates a high-side, high-voltage, power MOSFET with a current limit of 5A, typically. The wide 10V to 100V 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 120KHz, allowing for small component size. Thermal shutdown and short-circuit protection (SCP) provide reliable and fault-tolerant operations. Low quiescent current allows the U3502 to be used in battery-powered applications.

The U3502 is available in a ESOP-8 package with an exposed pad.

The U3502 can cooperate with MCU to test VIN voltage (TE PIN), control internal logic shutdown and realize zero power consumption.

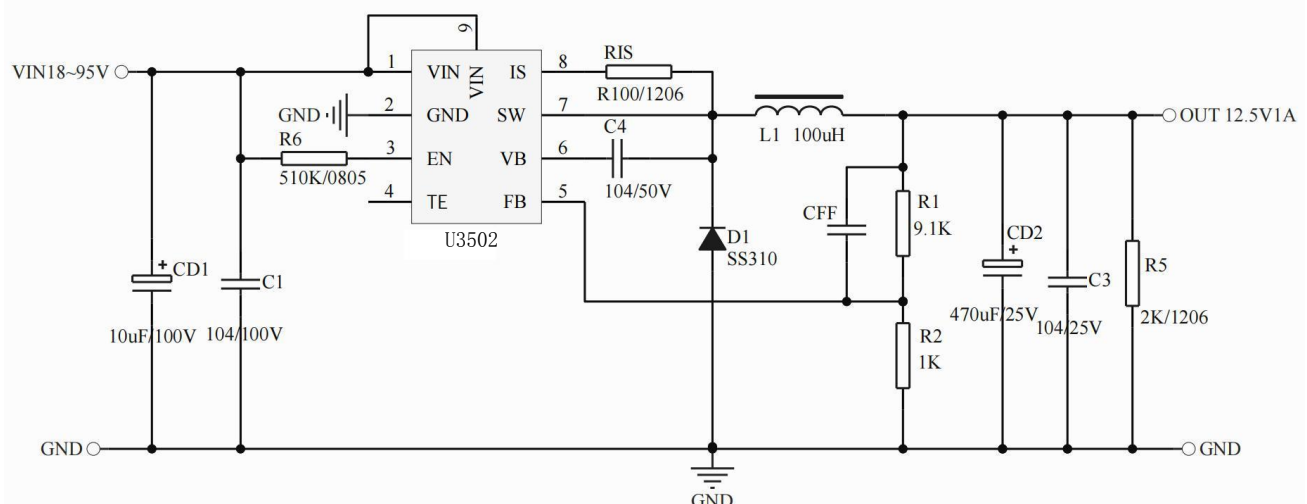
## Key Features

- Wide 10V to 100V Input Range
- Built-In 100V/5A Typical Peak Switching Current Limit
- Built-in Bootstrap Diode
- Hysteretic Control: No Compensation
- 120KHz Switching Frequency
- PWM Dimming Control Input for step-down Application
- Short-Circuit Protection (SCP) with Integrated High-Side MOSFET
- Low Quiescent Current
- Thermal Shutdown
- Available in a ESOP-8 Package with an Exposed Pad

## APPLICATIONS

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

## Typical Application

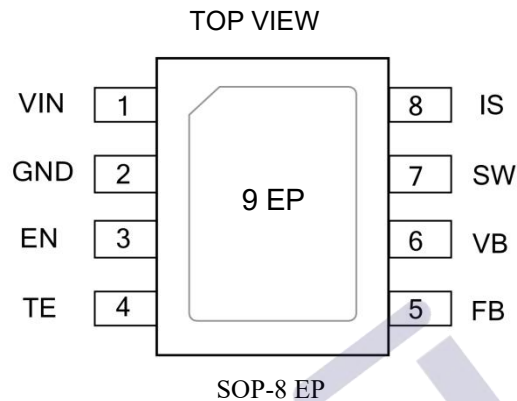


## Ordering Information

Part Number	Package	Rdson	Vo	VINMAX	Load Current	Description
U3502	ESOP-8	96mΩ	>2V	100V	Io<=2500mA	4000Pcs/Reel

\*For Tape & Reel, add suffix -Z (e.g. U3502-Z)

## Pin Description



## Pin Functions

SOP-8 EP Pin #	Name	Description
1	VIN	Input supply. VIN supplies power to all of the internal control circuitries, both BST regulators, and the high-side switch. A decoupling capacitor to ground must be placed close to VIN to minimize switching spikes.
2	GND	Ground. GND should be placed as close to the output capacitor as possible to avoid the high-current switch paths. Connect the exposed pad to GND plane for optimal thermal performance.
3	EN	Enable input. Pull EN below the specified threshold to shut down the U3502. Pull EN above the specified threshold or leave EN floating to enable the U3502.
4	TE	Test VIN voltage (TE PIN). control internal logic shutdown and realize zero power consumption. The ratio of pull-up resistance to pull-down resistance is about 30/1.
5	FB	Feedback. FB is the input to the voltage hysteretic comparators. The average FB voltage is maintained at 200mV by loop regulation.
6	VB	Boot. BST is the positive power supply for the internal, floating, high-side MOSFET driver. Connect a bypass capacitor between BST and SW.
7	SW	Switch node. SW is the output from the high-side switch. A low forward voltage Schottky rectifier to ground is required. The rectifier must be placed close to SW to reduce switching spikes.
8	IS	Current detection. Current Sensing Input.
9	EP	Input supply. VIN supplies power to all of the internal control circuitries, both BST regulators, and the high-side switch. A decoupling capacitor to ground must be placed close to VIN to minimize switching spikes.

## 1.版本记录

DATE	REV.	DESCRIPTION
2018/02/16	1.0	First Release
2018/03/18	2.0	Package is changed to SOP-8
2019/05/20	3.0	Package is changed to ESOP-8
2019/10/15	3.1	Pin definition changed
2019/11/09	3.2	Add typical application circuits
2021/12/20	3.3	Delete CSM3502E
2022/04/08	1.0	Rename CSM3502 to U3502

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## 3.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：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