



ZHEJIANG UNIÜ-NE Technology CO., LTD

浙江宇力微新能源科技有限公司



U3503E Data Sheet

V 3.2

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120V Input, 1.5A, Switching Current Limit Step-Down Converter

General Description

The U3503E 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 120V 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 U3503E to be used in battery-powered applications.

The U3503E is available in a ESOP-8 package with an exposed pad.

The U3503E can cooperate with MCU to test VIN voltage(TE PIN), control internal logic shutdown and realize zero power consumption.

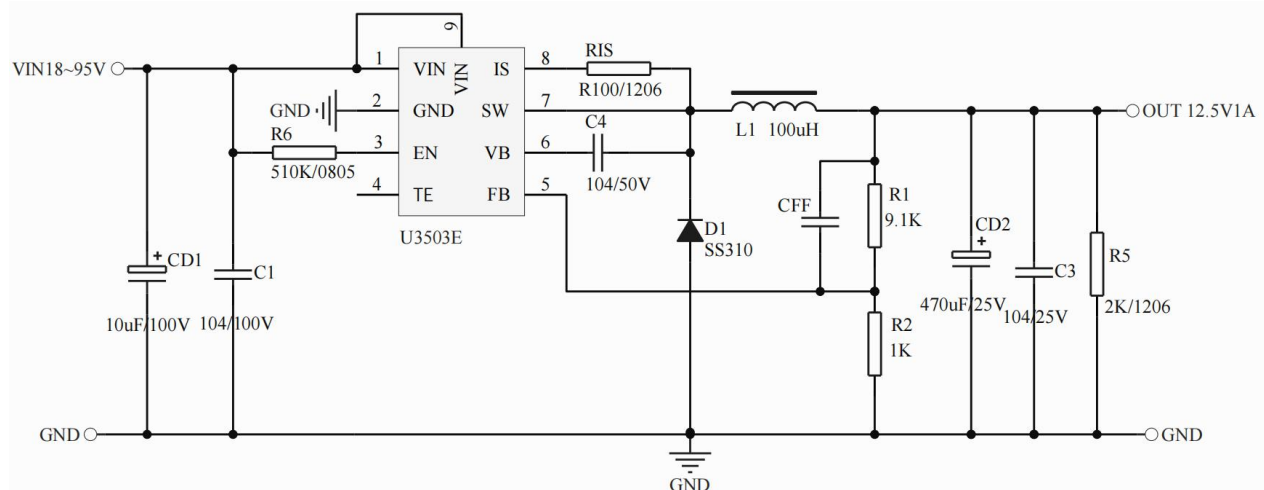
Key Features

- Wide 10V to 120V Input Range
- Built-In 120V/96mΩ MOSFET
- 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

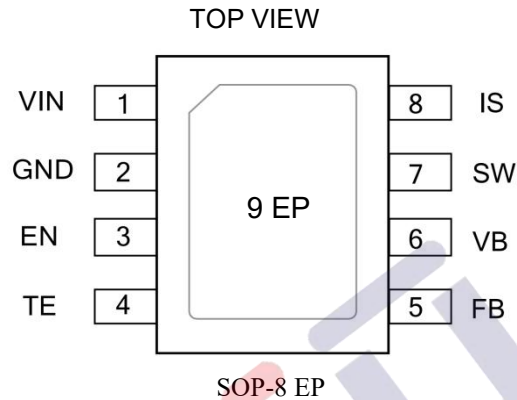
Typical Application



Ordering Information

Part Number	Package	Rdson	Vo	VINMAX	Load Current	Description
U3503E	ESOP-8	96mΩ	>2V	120V	Io<=1500mA	4000Pcs/Reel

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 U3503E. Pull EN above the specified threshold or leave EN floating to enable the U3503E.
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
2020/10/15	3.1	Pin definition changed
2021/12/20	3.2	Rename CSM3502E to U3503E

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