

CN4512

125KHz 2.5A/40V CC/CV Step-Down DC/DC Converter

Description

CN4512 is a wide input voltage, high efficiency step-down DC/DC converter which operates in either CV (Constant Voltage) mode or CC (Constant Current) mode. This device includes a reference voltage source, oscillation circuit, error amplifier, integrated high-side power mos, a pwm controller and a constant current controller. CN4512 provides up to 2.5A output current at 125kHz switching frequency. CC eliminates the expensive, high accuracy current sense resistor, making it ideal for battery charging applications and adaptors with accurate current limit. CN4512 achieves higher efficiency than traditional constant current switching regulators by eliminating its associated power loss. Standard protection features include cycle by cycle current limit, thermal shutdown, and frequency fold-back at short circuit. The devices are available in a SOP-8EP package and require few external devices for operation.

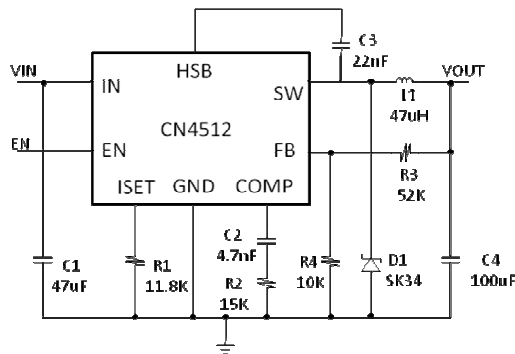
Applications

- Car Charger/ Adaptor
- Rechargeable Portable Devices

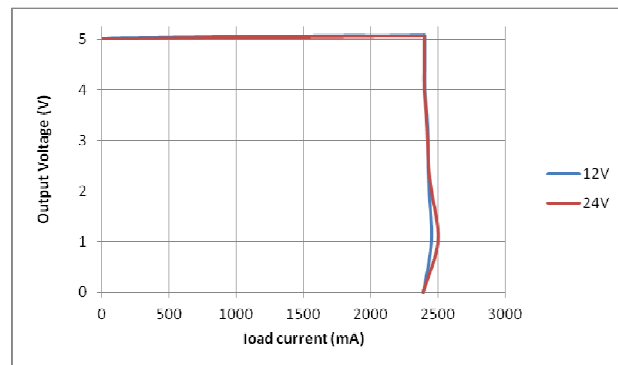
- General-Purpose CC/CV Supply

Features

- 40V Input Voltage Surge
- 32V Steady State Operation
- 2.5A output current
- Output Voltage up to 12V
- 125kHz Switching Frequency Eases EMI Design
- Sensor-less Constant Current Control
- Resistor Programmable
 - Current Limit from 1.0A to 3A
 - Cable Compensation from 0Ω to 0.3Ω
- ±5.0% CC Accuracy
- ±2.5% Feedback Voltage Accuracy
- Up to 95% Efficiency
- Extra Features
 - Integrated Soft Start
 - Thermal Shutdown
 - Cycle-by-Cycle Current Limit
 - ISET Short Protection
- SOP-8EP Package

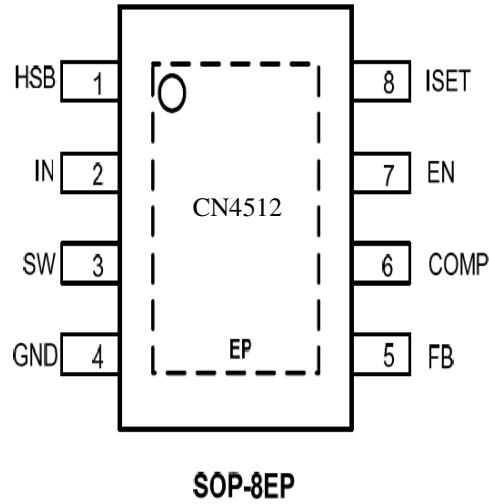


CN4512 CC/CV Curve (VIN=12/24V)



CN4512

Pin Assignment



Pin Description

Pin Name	Pin Number	Description
HSB	1	High Side Bias Pin. This provides power to the internal high-side MOSFET gate driver. Connect a 22nF capacitor from HSB pin to SW pin.
IN	2	Power Supply Input. Bypass this pin with a 10 μ F ceramic capacitor to GND, placed as close to the IC as possible.
SW	3	Power Switching Output to External Inductor.
GND	4	Ground. Connect this pin to a large PCB copper area for best heat dissipation. Return FB, COMP, and ISET to this GND, and connect this GND to power GND at a single point for best noise immunity.
FB	5	Feedback Input. The voltage at this pin is regulated to 0.808V. Connect to the resistor divider between output and GND to set the output voltage
COMP	6	Error Amplifier Output. This pin is used to compensate the converter.
EN	7	Enable Input. EN is pulled up to 5V with a 4 μ A current, and contains a precise 1.6V logic threshold. Drive this pin to a logic-high or leave unconnected to enable the IC. Drive to a logic-low to disable the IC and enter shutdown mode.
ISET	8	Output Current Setting Pin. Connect a resistor from ISET to GND to program the output current.
	Exposed Pad	Heat Dissipation Pad. Connect this exposed pad to large ground copper area with copper and vias.