

# MP9486A

## 100V Input, 3.5A, Switching Current Limit Step-Down Converter

### DESCRIPTION

The MP9486A is a high-voltage, step-down, switching regulator that delivers up to 1A of continuous current to the load. It integrates a high-side, high-voltage, power MOSFET with a current limit of 3.5A, typically. The wide 4.5V 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. MPS's proprietary feedback control scheme minimizes the number of required external components.

The switching frequency can be up to 1MHz, allowing for small component size. Thermal shutdown and short-circuit protection (SCP) provide reliable and fault-tolerant operations. A 170 $\mu$ A quiescent current allows the MP9486A to be used in battery-powered applications.

The MP9486A is available in a SOIC-8 package with an exposed pad.

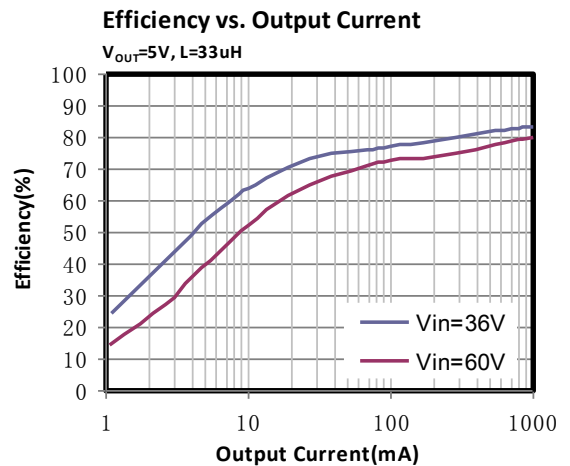
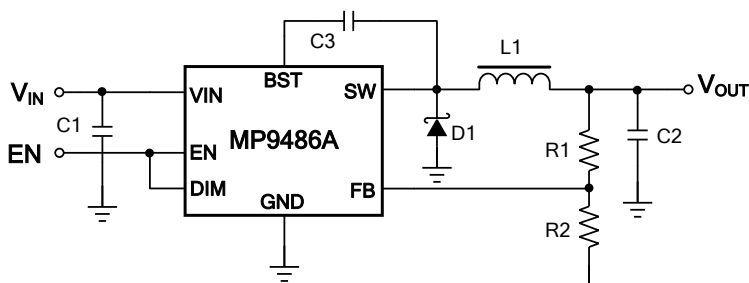
### FEATURES

- Wide 4.5V to 100V Input Range
- 3.5A Typical Peak Switching Current Limit
- Hysteretic Control: No Compensation
- Up to 1MHz Switching Frequency
- PWM Dimming Control Input for LED Application
- Short-Circuit Protection (SCP) with Integrated High-Side MOSFET
- 170 $\mu$ A Quiescent Current
- Thermal Shutdown
- Available in a SOIC-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

### TYPICAL APPLICATION



## ORDERING INFORMATION

Part Number*	Package	Top Marking
MP9486AGN	SOIC-8 EP	See Below

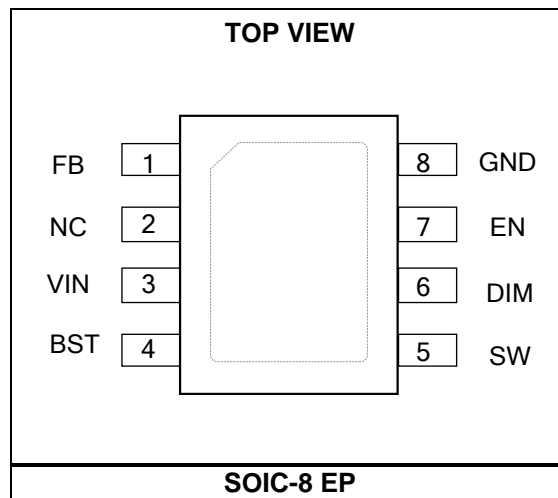
\* For Tape & Reel, add suffix -Z (e.g. MP9486AGN-Z)

## TOP MARKING

**MP9486A**  
**LLLLLLLL**  
**MPSYWW**

MP9486A: Part number  
LLLLLLLL: Lot number  
MPS: MPS prefix  
Y: Year code  
WW: Week code

## PACKAGE REFERENCE



## **PIN FUNCTIONS**

<b>SOIC-8 EP Pin #</b>	<b>Name</b>	<b>Description</b>
1	FB	<b>Feedback.</b> FB is the input to the voltage hysteretic comparators. The average FB voltage is maintained at 200mV by loop regulation.
2	NC	<b>No connection.</b>
3	VIN	<b>Input supply.</b> 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.
4	BST	<b>Bootstrap.</b> BST is the positive power supply for the internal, floating, high-side MOSFET driver. Connect a bypass capacitor between BST and SW.
5	SW	<b>Switch node.</b> 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.
6	DIM	<b>PWM dimming input.</b> DIM is useful in LED driver applications. Pull DIM below the specified threshold for dimming off. Pull DIM above the specified threshold for dimming on. If the dimming function is not needed, such as in common buck applications, then connect DIM and EN together.
7	EN	<b>Enable input.</b> Pull EN below the specified threshold to shut down the MP9486A. Pull EN above the specified threshold or leave EN floating to enable the MP9486A.
8	GND	<b>Ground.</b> 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.

