



The Future of Analog IC Technology™

# EV1517DR-00B

3.3V, 1A Sepic  
Evaluation Board

## GENERAL DESCRIPTION

The EV1517DR-00B is a MP1517 evaluation board that is configured to provide a regulated 3.3V output at up to 1A from a 3V to 4.2V input. The output voltage is adjustable by changing resistors on the evaluation board. The high 1.1MHz switching frequency allows for smaller external components producing a compact solution for a wide range of load currents. Soft-start, cycle-by-cycle current limiting, and input under voltage lockout prevent overstressing or damage to sensitive external circuitry at startup and output short-circuit conditions. Current-mode regulation and external compensation components allow the MP1517 control loop to be optimized over a wide variety of input voltage, output voltage, and load current conditions.

## ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	3-4.2	V
Output Voltage	$V_{OUT}$	3.3	V
Output Current	$I_{OUT}$	1	A

## FEATURES

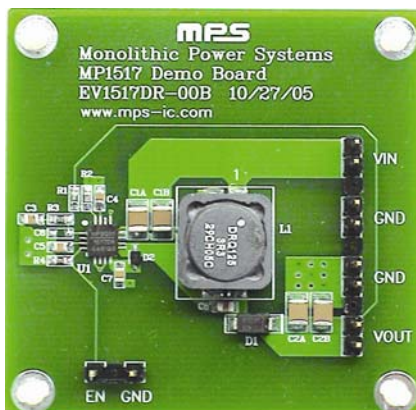
- Provides 3.3V, 1A Output from as Low as 3V Input
- Over 80% Efficiency
- Inherent Output Disconnect at Shutdown Mode
- 1.1MHz Switching Frequency
- 0.5µA Shutdown Current
- Fully Assembled and Tested

## APPLICATIONS

- Boost and SEPIC Regulators
- Handheld Computers
- Cell Phone Camera Flash, PDAs
- Digital Still and Video Cameras

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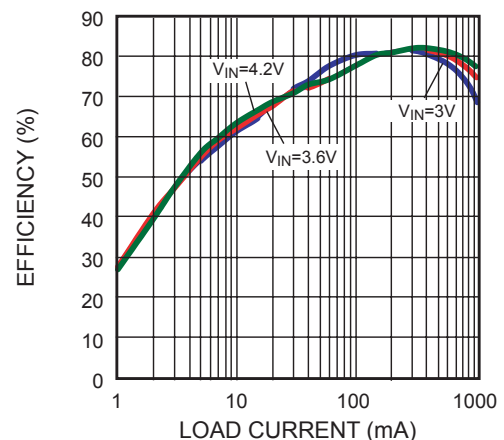
## EV1517DR-00B EVALUATION BOARD



(L x W x H) 2.0" x 2.0" x 0.4"  
(5cm x 5cm x 1cm)

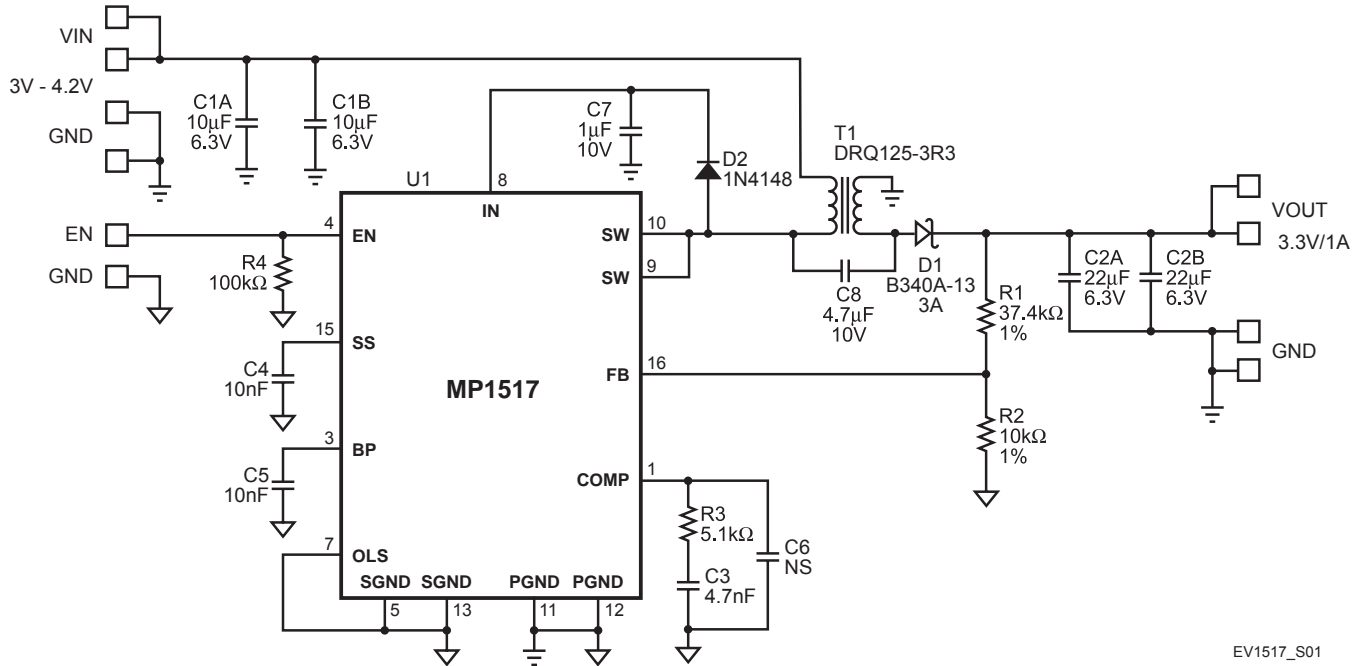
Board Number	MPS IC Number
EV1517DR-00B	MP1517DR

## Efficiency vs Load Current



MP1517-EC01

## EVALUATION BOARD SCHEMATIC

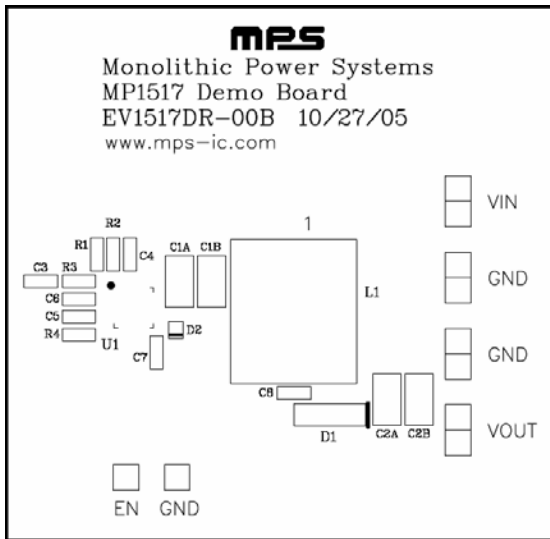


EV1517\_S01

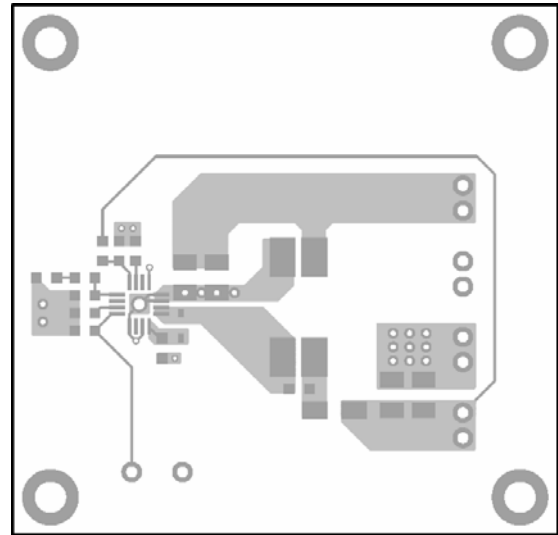
## EV1517DR-00B BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1A, C1B	10µF	Ceramic Cap, 6.3V, X5R	1210	TDK	C3225X5R1A106K
2	C2A, C2B	22µF	Ceramic Cap, 6.3V, X7R	1210	TDK	C3225X5R0J226M
1	C3	4.7nF	Ceramic Cap, 50V, X7R	0805	Panasonic	ECJ-2VB1H472K
2	C4, C5	10nF	Ceramic Cap, 50V, X7R	0805	TDK	C2012X7R1H103K
1	C6		Do Not Stuff			
1	C7	1uF	Ceramic Cap, 10V, X5R	0805	TDK	C2012X5R1A105K
1	C8	4.7uF	Ceramic Cap, 10V, X5R	0805	Panasonic	ECJ-2FB1A475K
1	D1		Schottky Diode, 40V, 3A, SMA		Diodes Inc	B340LA-13-F
1	D2		Rectifier Diode, 75V, 200mW, SOD-323		Diodes Inc	1N4148WS-7
1	R1	37.4KΩ	Film Resistor, 1%	0805	Panasonic	ERJ-6ENF3742V
1	R2	10KΩ	Film Resistor, 1%	0805	Panasonic	ERJ-6ENF1002V
1	R3	5.1KΩ	Film Resistor, 5%	0805	Panasonic	ERJ-6GEYJ512V
1	R4	100KΩ	Film Resistor, 5%	0805	Panasonic	ERJ-6GEYJ104V
1	T1	3.3uH	Coupled Inductors, 4.63A, SMD		Cooper	DRQ125-3R3
1	U1		DC-DC Converter		MPS	MP1517DR

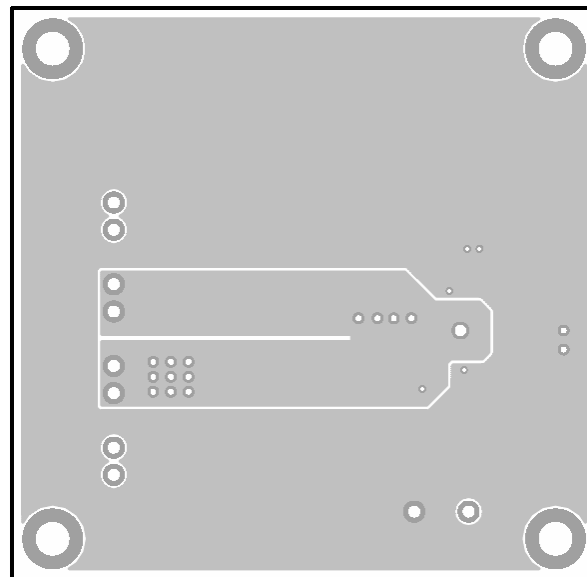
**PRINTED CIRCUIT BOARD LAYOUT**



**Figure 1—Top Silk Layer**



**Figure 2—Top Layer**



**Figure 3—Bottom Layer**

## QUICK START GUIDE

The output voltage of this board is set to 12V. The board layout accommodates most commonly used inductors and output capacitors.

1. Preset Power Supply to  $3V \leq V_{IN} \leq 4.2V$ .
2. Turn Power Supply off.
3. Connect Power Supply terminals to:
  - Positive (+): VIN, EN
  - Negative (-): GND
4. Connect Load to:
  - Positive (+): VOUT
  - Negative (-): GND
5. Turn Power Supply on after making connections.
6. The MP1517 is enabled on the evaluation board once  $V_{IN}$  is applied. To disable the MP1517, disconnect EN from VIN.
7. The output voltage  $V_{OUT}$  can be changed by varying R1. Calculate the new value using the formula:

$$R1 = \left( \frac{V_{OUT}}{V_{FB}} - 1 \right) R2$$

Where  $V_{FB} = 0.7V$  and  $R2 = 10k\Omega$

For example, for  $V_{OUT} = 3.6V$

$$R1 = \left( \frac{3.6V}{0.7V} - 1 \right) \times 10k\Omega = 41.4k\Omega$$

Therefore use a 41.2k $\Omega$  standard 1% value resistor.

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