



EV1482DS-01A

2A, 18V, 340KHz

Synchronous Buck Converter

The Future of Analog IC Technology®

DESCRIPTION

The EV1482DS-01A is the evaluation board of MPS' MP1482 synchronous buck converter. It has a wide supply range from 4.75V to 18V and a continuous output current up to 2A. It features synchronous rectification for high efficiency with integrated high-side and low-side power MOSFETs. The output voltage is preset to 3.3V, but can be easily adjusted to other levels from 0.923V. Current mode control and integrated power MOSFETs minimize component counts, board area, and solution cost. Fault condition protections include cycle-by-cycle current limiting, thermal shutdown and under-voltage lockout. Programmable soft-start reduces turn-on stress. Small SO-8 package minimizes board area.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Supply Voltage	V_{IN}	4.75 to 18	V
Output Voltage	V_{OUT}	3.3	V
Output Current	I_{OUT}	0 to 2	A

FEATURES

- Up to 2A Output Current
- Wide 4.75V to 18V Operating Input Range
- Monolithic Synchronous Buck with 130mΩ High-Side and Low-Side FETs
- Fixed 340KHz Frequency
- A0II Ceramic Input and Output Capacitors
- Programmable Soft-Start
- Programmable Input Under Voltage Lockout

APPLICATIONS

- Distributed Power Systems
- Networking Systems
- FPGA, DSP, ASIC Power Supplies
- Green Electronics/ Appliances
- Notebook Computers

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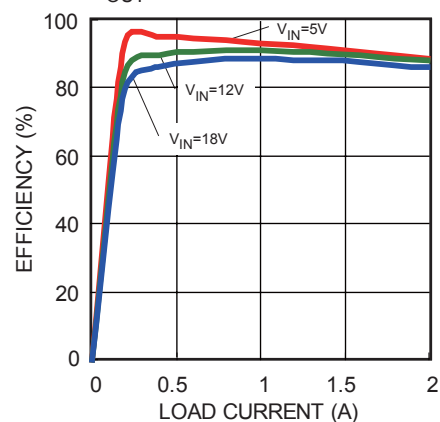
EV1482DS-01A EVALUATION BOARD

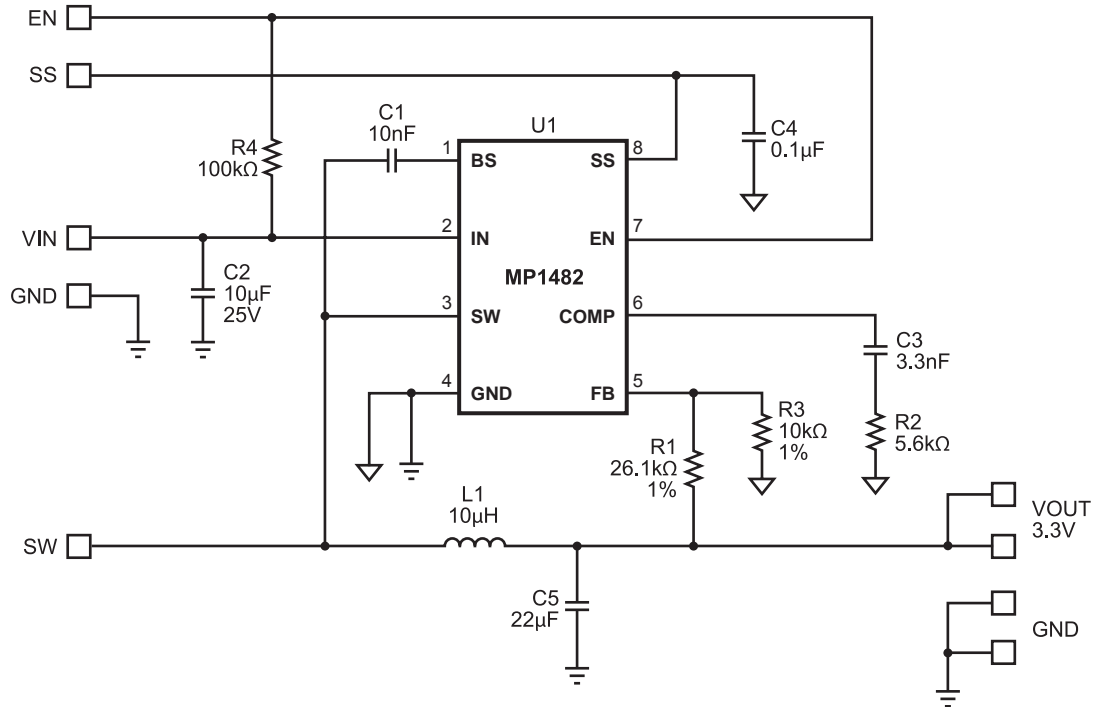


(L x W x H) 2.0" x 1.5" x 0.5"
(5.0cm x 3.8cm x 1.2cm)

Board Number	MPS IC Number
EV1482DS-01A	MP1482DS

Efficiency vs Load Current
 $V_{OUT}=3.3V$



EVALUATION BOARD SCHEMATIC

EV1482DS-01A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part No.
1	C1	10nF	Ceramic Cap., 50V, X7R	0603	TDK	C1608X7R1H103K
1	C2	10μF	Ceramic Cap., 25V, X7R	1210	TDK	C3225X7R1E106K
1	C3	3.3nF	Ceramic Cap., 50V, X7R	0603	TDK	C1608X7R1H332K
1	C4	0.1μF	Ceramic Cap., 50V, X7R	0603	TDK	C1608X7R1H104K
1	C5	22μF	Ceramic Cap., 16V, X5R	1210	TDK	C3225X5R1C226M
1	L1	10μH	Inductor, 3.7A	SMD	TOKO	DH124C-1010ASW-100M
			Inductor, 4A		Wurth	744066100
			Inductor, 3.8A		TDK	VLF10040T-100M3R8
			Inductor, 4.58A		COOPER	DR1050-100-R
1	R1	26.1kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-0726K1L
1	R2	5.6kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-075K6L
1	R3	10kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-0710KL
1	R4	100kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-07100KL
1	U1		DC-DC Converter	SO8	MPS	MP1482DS

PRINTED CIRCUIT BOARD LAYOUT

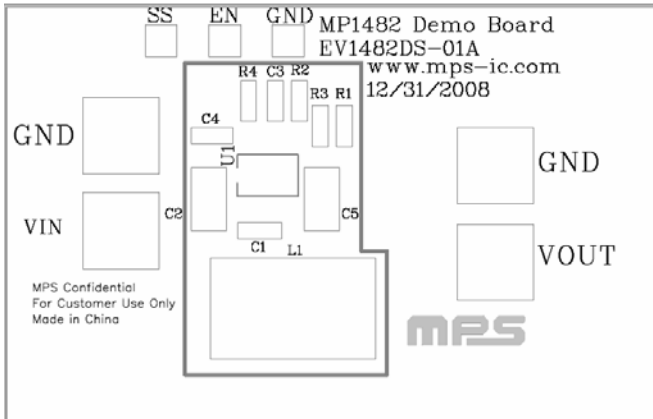


Figure 1—Top Silk Layer

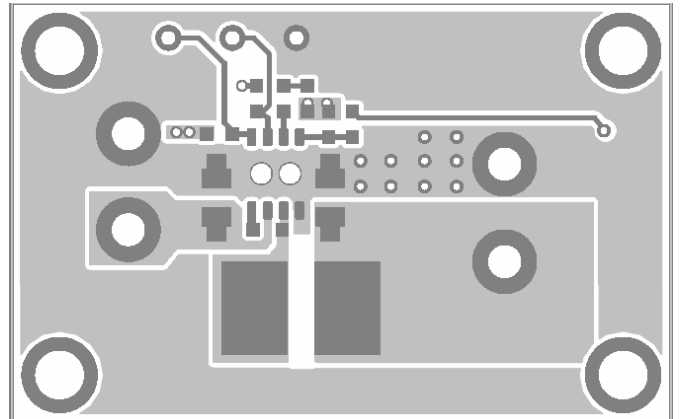


Figure 2—Top Layer

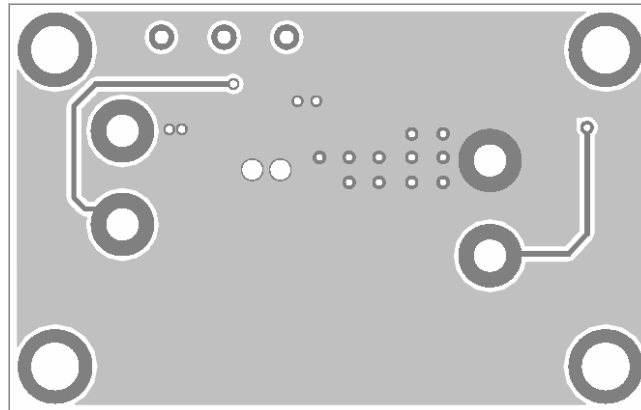


Figure 3—Bottom Layer

QUICK START GUIDE

1. Connect the positive terminal of the load to VOUT pins, and the negative terminal of the load to GND pins.
2. Preset power supply output to 4.75V to 18V and turn off the power supply.
3. Connect the positive terminal of the power supply output to VIN pin, and the negative terminal of the power supply output to GND pin.
4. Turn power supply on and the MP1482 will automatically startup.
5. To use Enable function, apply a digital input to EN pin. Drive EN higher than 2.5V to turn on the regulator, drive EN less than 0.7V to turn it off.

RECOMMENDED COMPONENTS FOR STANDARD OUTPUT VOLTAGES

The output voltage of these boards is set to 3.3V. The boards are laid out to accommodate most commonly used inductors and output capacitors and to be programmed for most standard output voltages. The following table lists recommended components for some standard output voltages. Listed compensation components (R2, C3) values are based on the output capacitors installed on these boards.

V _{out}	R1	R2	C3	L1
1.8V	9.53kΩ	4.99kΩ	4.7nF	4.7μH
2.5V	16.9kΩ	5.6kΩ	4.7nF	4.7μH to 6.8μH
3.3V	26.1kΩ	7.5kΩ	3.3nF	6.8μH to 10μH
5V	44.2Ω	10kΩ	3.3nF	10μH to 15μH
12V	121kΩ	25.5kΩ	2.2nF	33μH to 47μH

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