EV2562DS-00A

1A, 50V, 4MHz
Step-Down Converter Evaluation Board

The Future of Analog IC Technology

DESCRIPTION

The EV2562DS-00A is an evaluation board for the MP2562, a high frequency step-down regulator with an integrated power MOSFET.

The MP2562 integrates a 460mΩ MOSFET that provides 1A load current over a wide operating input voltage of 4.5V to 50V.

Current mode control provides fast transient response and reliable over current protection. An internal soft-start prevents inrush current at turn-on.

The EV2562DS-00A is a fully assembled and tested PCB. It generates a +3.3V output voltage at load current up to 1A from an 8V to 50V input range. Switching frequency is set at 500KHz.

FEATURES

- 1A Output Current
- Programmable Switching Frequency up to 4MHz
- Wide 8V to 50V Operating Input Range
- Adjustable Output from 0.8V

APPLICATIONS

- High Voltage Power Conversion
- Game Machines
- Automotive Systems
- Industrial Power Systems
- Distributed Power Systems
- Printer Systems
- Battery Powered Systems

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	8 – 50	V
Output Voltage	V_{OUT}	3.3	V
Output Current	I_{OUT}	1	A

EV2562DS-00A EVALUATION BOARD

(L x W x H) ✕" x ✕" x ✕"
(✕**cm x** ✕**cm x** ✕**cm)**

Board Number	MPS IC Number
EV2562DS-00A	MP2562DS

Efficiency @V_{OUT}=3.3V
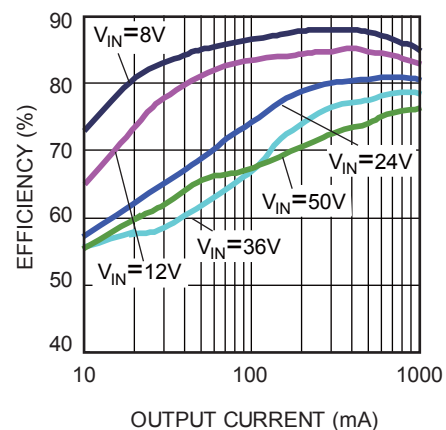
EVALUATION BOARD SCHEMATIC
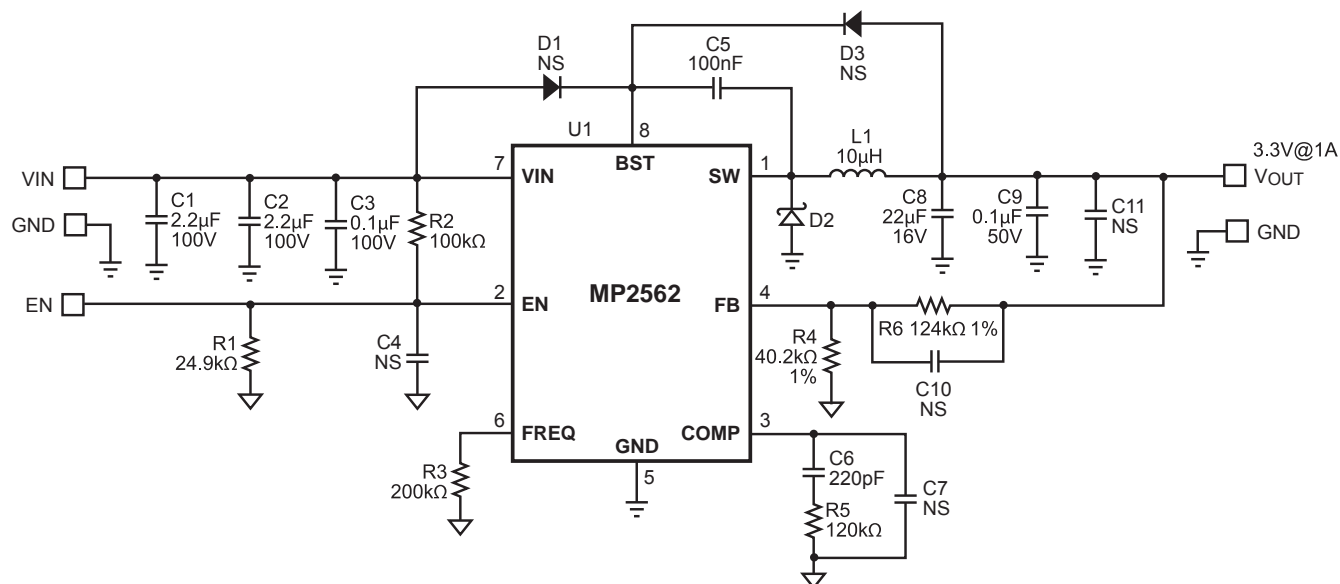
EV2562DS-00A BILL OF MATERIALS

| Qty	Ref	Value	Description	Package	Manufacturer	Part Number
2	C1, C2	2.2µF	Ceramic Cap., 100V, X7R	1210	Murata	GRM32ER72A225KA35L
1	C3	0.1µF	Ceramic Cap., 100V, X7R	0805	TDK	C2012X7R2A104K
4	C4, C7, C10,C11		Not Stuffed			
1	C5	100nF	Ceramic Cap., 50V, X7R	0603	TDK	C1608X7R1H104K
1	C6	220pF	Ceramic Cap., 50V, X7R	0603	TDK	C1608X7R1H221K
1	C8	22µF	Ceramic Cap., 16V, X7R	1210	Murata	GRM32ER71C226ME18L
1	C9	0.1µF	Ceramic Cap., 50V, X7R	0805	TDK	C2012X7R1H104K
1	R1	24.9kΩ	Film Res., 1%	0603	Yageo	RC0603FR-0724K9L
1	R2	100kΩ	Film Res., 1%	0603	Yageo	RC0603FR-07100KL
1	R3	200kΩ	Film Res., 1%	0603	Yageo	RC0603FR-07200KL
1	R4	40.2kΩ	Film Res., 1%	0603	Yageo	RC0603FR-0740K2L
1	R5	120kΩ	Film Res., 1%	0603	Yageo	RC0603FR-07120KL
1	R6	124kΩ	Film Res., 1%	0603	Yageo	RC0603FR-07124KL
2	D1, D3		Not Stuffed			
1	D2		Diode Schottky, 90V, 2A	SMB	Diodes Inc	B290-F
1	L1	10uH	Inductor, 3.8A	SMD	TDK	VLF10040-100M3R8
			Inductor, 4A	SMD	Wurth	744066100
			Inductor, 4.3A	SMD	Toko	D104-#919AS-100M
1	U1		Step-Down Regulator	SO8	MPS	MP2562DS

PRINTED CIRCUIT BOARD LAYOUT
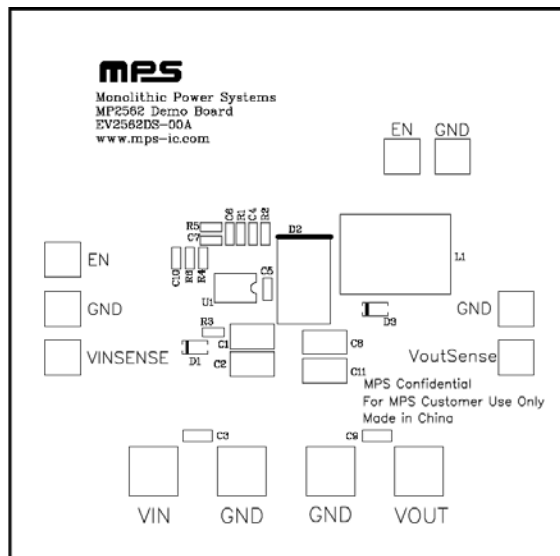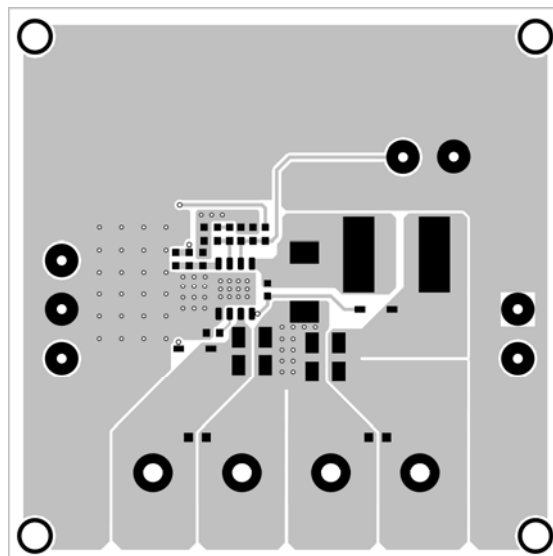

Figure 1—Top Silk Layer
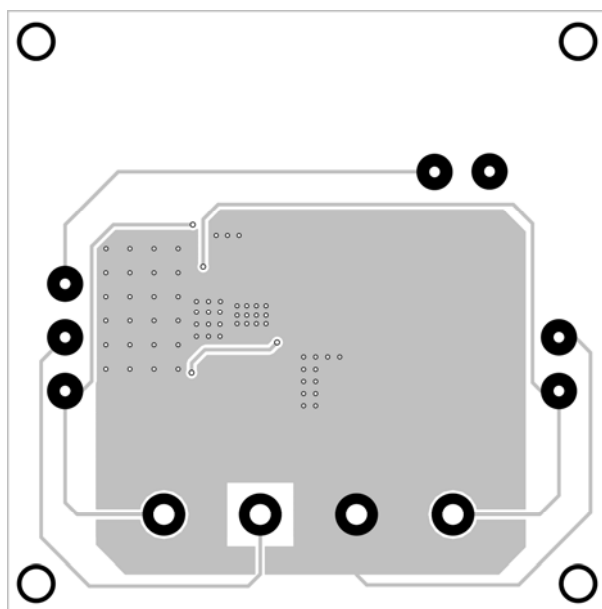

Figure 2—Top Layer

Figure 3—Bottom Layer

QUICK START GUIDE

1. Connect the positive and negative terminals of the load to the VOUT and GND pins, respectively.

2. Preset the power supply output to between 8 and 50V, and then turn it off.

3. Connect the positive and negative terminals of the power supply output to the VIN and GND pins, respectively.

4. Turn the power supply on. The EV2562DS will automatically startup.

5. To use the Enable function, apply a digital input to the EN pin. Drive EN higher than 1.6V to turn on the regulator, drive EN less than 1.2V to turn it off.

6. An input under voltage lockout (UVLO) function is implemented by the addition of a resistor divider R1 and R2. The EN threshold is 1.2V (falling edge), so V_{IN} UVLO threshold is $1.2V \times \left(1 + \dfrac{R2}{R1}\right)$. It is preset to 6V on this board.

7. Use R4 and R6 to set the output voltage with V_{FB} = 0.8V. For R4 = 40.2kΩ, R6 can be determined by: $R6 = 50.25 \times \left(V_{OUT} - 0.8\right)(k\Omega)$. Follow the Application Information section in the device datasheet to recalculate the compensation, inductor and output capacitor values when output voltage is changed.