

DESCRIPTION

The EV2494DN-00A is an evaluation board for the MP2494. The MP2494 is a monolithic step-down switch mode converter. It achieves 2A continuous output current over a wide input supply range with excellent load and line regulation.

Fault condition protection includes cycle-by-cycle current limiting and thermal shutdown.

The MP2494 requires a minimum number of readily available standard external components.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	8 - 55	V
Output Voltage	V_{OUT}	5	V
Output Current	I_{LOAD}	2	A

FEATURES

- Programmable up to 2A Output Current
- Output Adjustable from 0.8V to 15V
- 0.25Ω Internal Power MOSFET Switch
- Stable with Low ESR Output Ceramic Capacitors
- 95% Efficiency @ 500mA ($V_o=5V$)
- Fixed 100kHz Frequency
- Thermal Shutdown
- Cycle-by-Cycle Over Current Protection
- Good EMI Performance
- Wide 8V to 55V Operating Input Range

APPLICATIONS

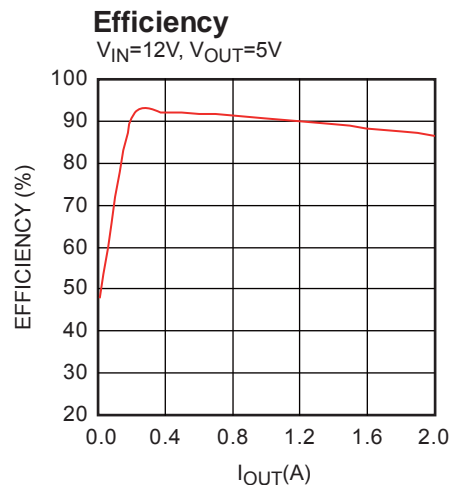
- USB Power Supplies
- Automotive Cigarette Lighter Adapters
- Linear Chargers

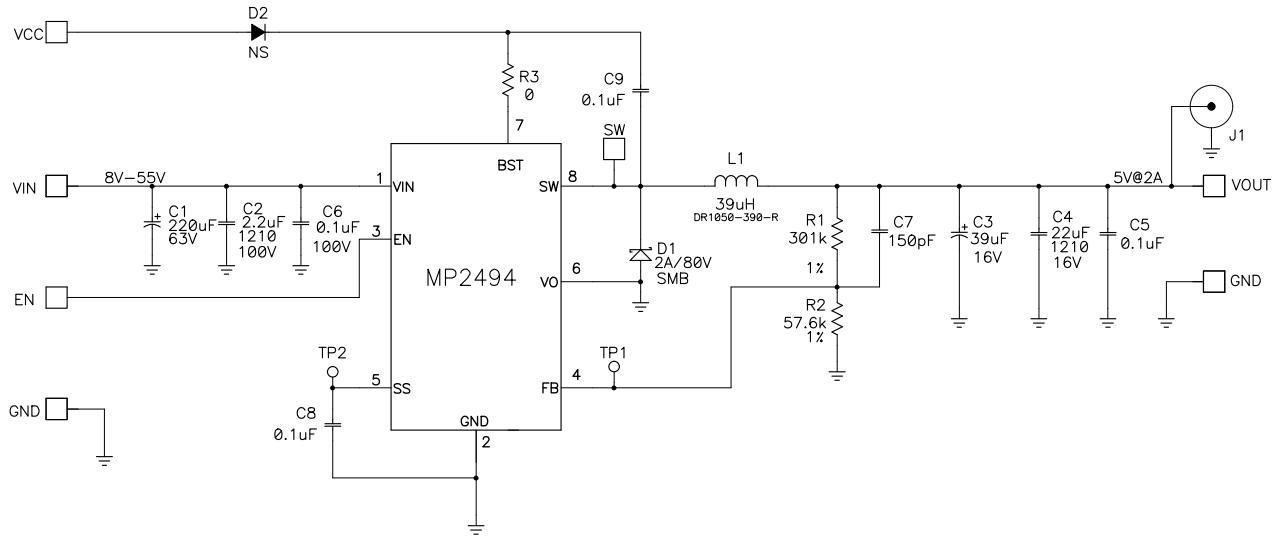
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EV2494DN-00A EVALUATION BOARD

TBD

Board Number	MPS IC Number
EV2494DN-00A	MP2494



EVALUATION BOARD SCHEMATIC

EV2494DN-00A BILL OF MATERIALS

Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	220uF	CAP., ELECT, 63V	10x20mm	Panasonic	EEUFC1J221X
1	C2	2.2uF	Ceramic Cap., 100V, 10%, X7R	1210	muRata	GRM32ER72A225K
1	C3	39uF	CAP., Alum., 16V	B6	Sanyo	16SVPC39MV
1	C4	22uF	Ceramic Cap., 16V, 10%, X7R	1210	muRata	GRM32ER71C226K
3	C5,C8,C9	0.1uF	Ceramic Cap., 50V, 10%, X7R	0603	muRata	GRM188R71H104K
1	C6	0.1uF	Ceramic Cap., 100V, 10%, X7R	0603	muRata	GRM188R72A104K
1	C7	150pF	Ceramic Cap., 50V, 5%, C0G	0603	muRata	GRM1885C1H151J
1	D1	2A/80V	Schottky Diode, SMD, 80V, 2A	SMB	Diode	B280-13-F
0	D2	NS		SOD-323		
1	L1	39uH	Inductor, DR1050, 60.7mΩ	SMD	COOPER	DR1050-390-R
0	J1	NS				
1	R1	301k	Film Res., 1%	0603	Yageo	RC0603FR-07301KL
1	R2	57.6k	Film Res., 1%	0603	Yageo	RC0603FR-0757K6L
1	R3	0Ω	Film Res., 1%	0603	Yageo	RC0603FR-070RL
1	U1		DC-DC Converter	SO8E	MPS	MP2494DN-R1

PRINTED CIRCUIT BOARD LAYOUT

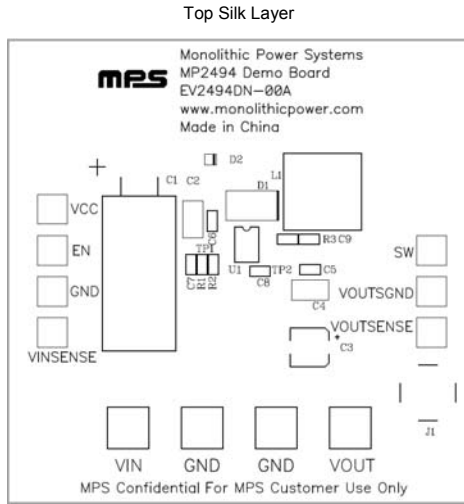


Figure 1—Top Silk Layer

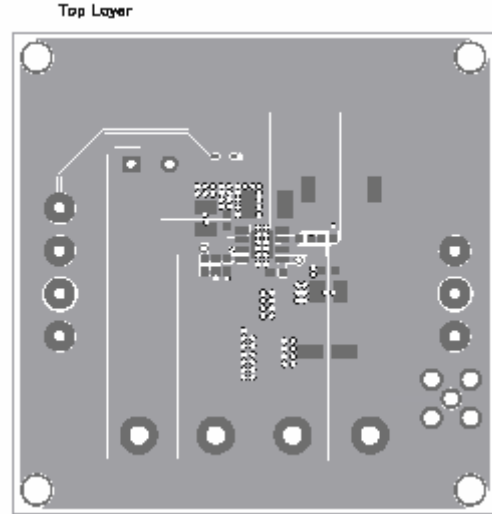


Figure 2—Top Layer

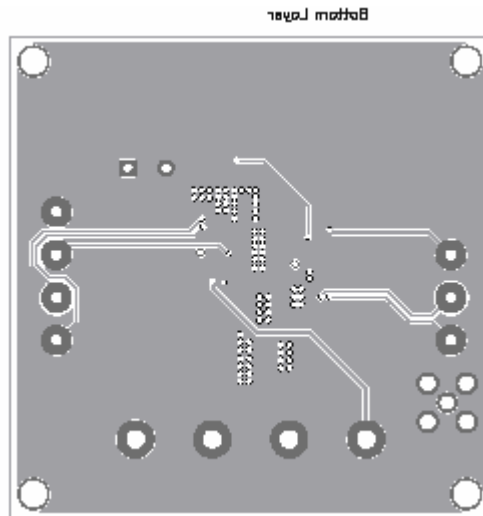


Figure 3—Bottom Layer

QUICK START GUIDE

1. The output voltage of this board is set to 5V. The board layout accommodates most commonly used inductors and output capacitors.
2. Attach the positive and negative ends of the load to the VOUT and GND pins, respectively.
3. Attach the input voltage ($8V \leq V_{IN} \leq 55V$) and input ground to the IN and GND pins, respectively.
4. The MP2494 will startup automatically without applying an external voltage to the EN pin. The output voltage V_{OUT} can be changed by varying R2. Calculate the new value using the formula:

$$R2=R1 \times V_{FB}/ (V_{OUT}-V_{FB})$$

Where $V_{FB} = 0.8V$ and $R1 = 300k\Omega$.

For example, for $V_{OUT} = 5V$:

$$R2=R1 \times V_{FB}/ (V_{OUT} -V_{FB}) = 300k\Omega \times (0.8/5-0.8)= 57.6k\Omega$$

For the closest standard 1% value.

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