

DESCRIPTION

The EV2149-J-00A is used for demonstrating the performance of MPS's MP2149, an internally compensated 1MHz fixed-frequency dual PWM synchronous step-down regulator.

MP2149 is ideal for powering portable equipment that runs from a single cell Lithium-Ion (Li+) Battery due to 45µA low quiescent current. The output voltage can be regulated as low as 0.608V.

With peak current mode control and internal compensation, the MP2149 requires a minimum number of readily available standard external components and is available in an 8-pin TSOT23 package.

ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage ⁽¹⁾	V _{IN}	2.7-6	V
Output Voltage	V _{OUT1}	1.8	V
	V _{OUT2}	1.2	V
Output Current	I _{OUT1}	1	A
	I _{OUT2}	1	A

Notes:

1) V_{IN} < 3V application may need more input capacitors.

FEATURES

- Dual 1A Output Current
- >93% Peak Efficiency
- >80% Light Load Efficiency
- Wide 2.7V to 6V Operating Input Range
- 100mΩ and 40mΩ Internal Power MOSFET
- 1MHz Fixed Switching Frequency
- Adjustable Output from 0.608V to V_{IN}
- 180° Phase-Shifted Operation
- 100% Duty Cycle Operation
- 45µA Quiescent Current
- Cycle-by-cycle Over Current Protection
- Short Circuit Protection with Hiccup Mode
- Thermal Shutdown
- Available in an 8-pin TSOT23 Package

APPLICATIONS

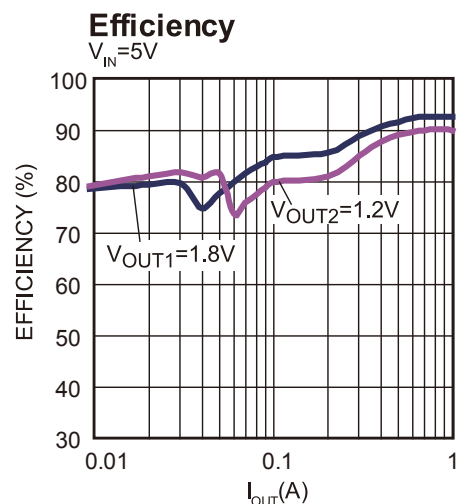
- Small/Handhold Devices
- DVD Drivers
- Portable Instruments
- Smartphone and Feature Phones
- Battery-Powered Devices

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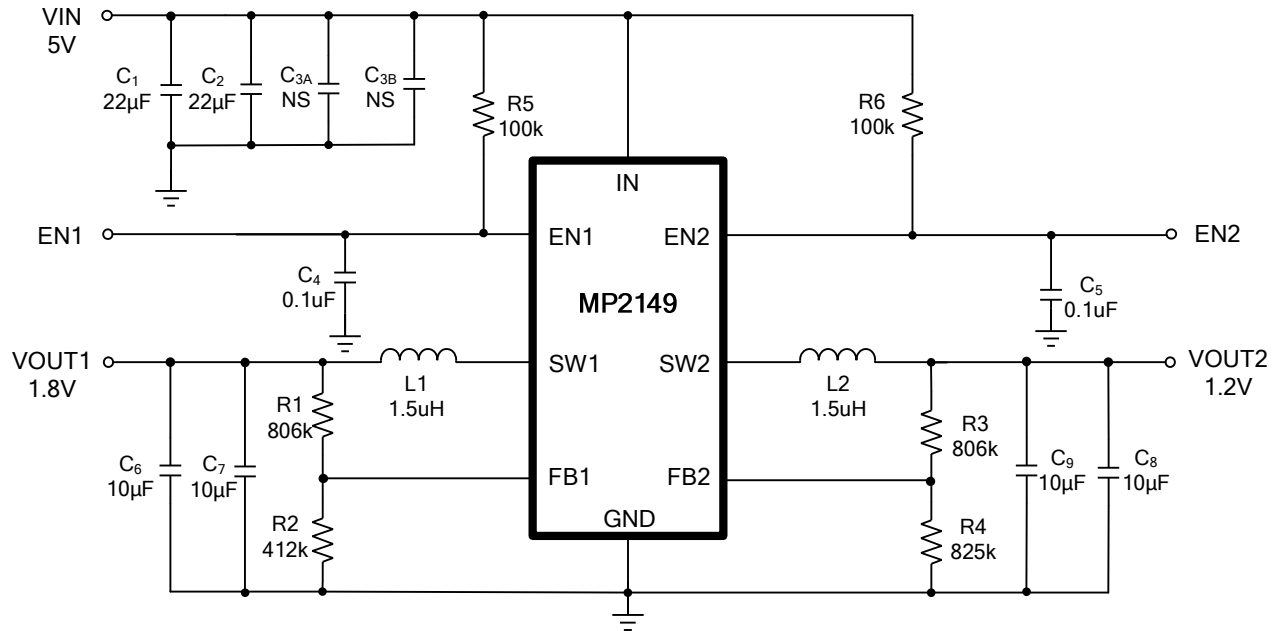
TYPICAL APPLICATION



Board Number	MPS IC Number
EV2149-J-00A	MP2149GJ



EVALUATION BOARD SCHEMATIC



EV2149-J-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	22µF	Ceramic Cap., 16V, 20%, X5R	0805	muRata	GRM21BR60J226ME39L
1	C2	22µF	Ceramic Cap., 16V, 20%, X5R	0805	muRata	GRM21BR60J226ME39L
0	C3A	NS				
0	C3B	NS				
2	C4, C5	0.1µF	Ceramic Cap, 16V,X7R	0603	muRata	GRM188R71C104KA01D
4	C6, C7, C8, C9	10µF	Ceramic Cap, 16V, 20%, X5R	0805	muRata	GRM21BR61A106KE19L
2	R1, R3	806k	Thick Film, 1/10W, 1%	0603	royal	RL0603FR-07806KL
1	R2	412k	Thick Film, 1/10W, 1%	0603	royal	RL0603FR-07412KL
1	R4	825k	Thick Film, 1/10W, 1%	0603	royal	RL0603FR-07825KL
2	R5, R6	100k	Thick Film, 1/10W, 1%	0603	royal	RL0603FR-07100KL
2	L1, L2	1.5µH	Inductor, 9.57mohm, 11.5A		Würth	744312150
1	U1		DC-DC module	TSOT23-8	MPS	MP2149GJ

PRINTED CIRCUIT BOARD LAYOUT

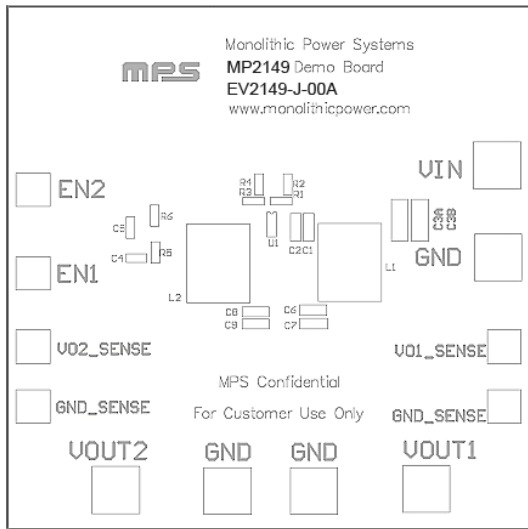


Figure 1—Top Silk Layer

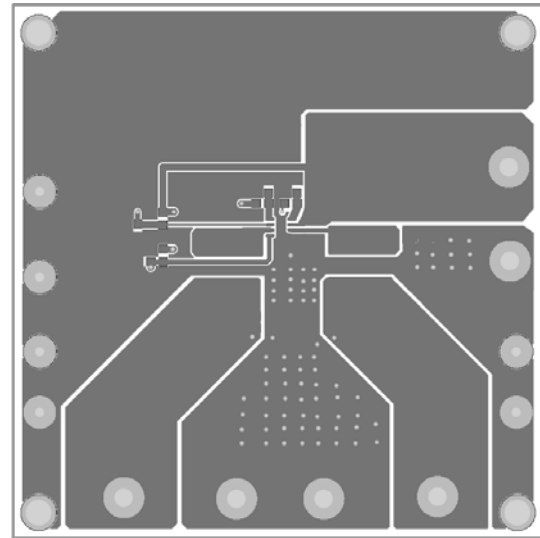


Figure 2—Top Layer

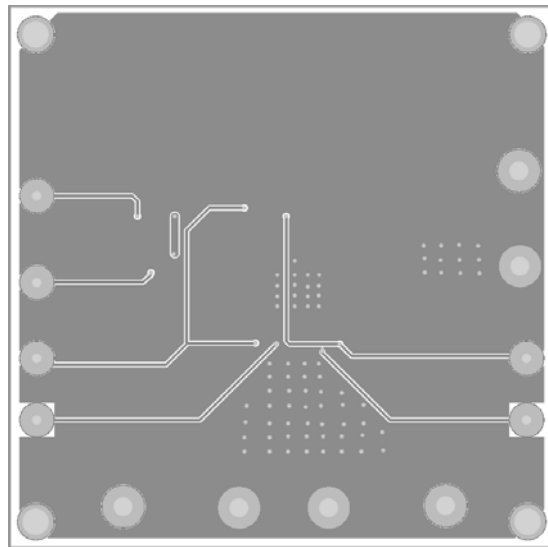


Figure 3—Bottom Layer