EV8759-D-00A

26V, 8A High Current, Low I_Q Synchronous Buck Converter

The Future of Analog IC Technology

DESCRIPTION

The EV8759-D-00A is used for demonstrating the performance of MP8759, a fully-integrated, high efficiency, synchronous step-down switch mode converter. MP8759 provides up to 8A continuous output current and 10A peak output current over a wide input supply range with constant-on-time control for fast loop response.

This part requires minimum number of external components and is available in QFN12 (2mmx3mm) package

ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	12	V
Output Voltage	V_{OUT}	1	V
Output Current	I_{OUT}	8	A
Switching Frequency	f_{SW}	700	kHz

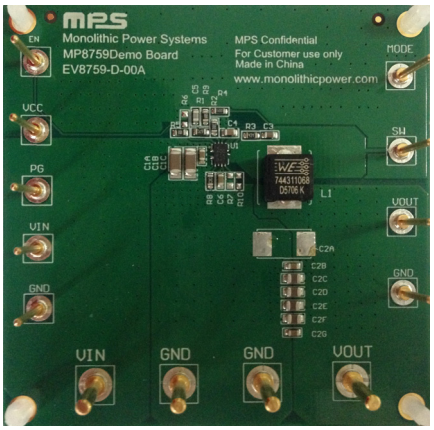
FEATURES

- Wide 4.5V to 26V Operating Input Range
- Ultrasonic Mode
- 117μA low quiescent Current
- 8A Continous Output Current
- 10A Peak Output Current
- Adaptive COT for Fast transient
- DC Auto Tune Loop
- Internal Soft Start
- Output Discharge
- 700kHZ Switching Frequency
- OCP, OVP, UVP (Hiccup) Protection and
- Thermal Shutdown.
- Output Adjustable from 0.6V
- QFN-12 (2mm x 3mm) Package

APPLICATIONS

- Laptop Computer
- Tablet PC
- Networking Systems
- Personal Video Recorders
- Flat Panel Television and Monitors
- Distributed Power Systems

EV8759-D-00A EVALUATION BOARD

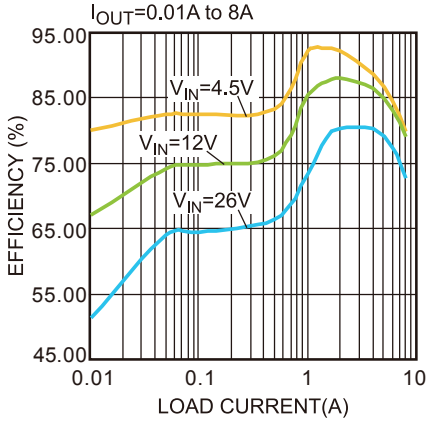


(L × W × H) 8.55cm × 8.55cm × 1.6cm

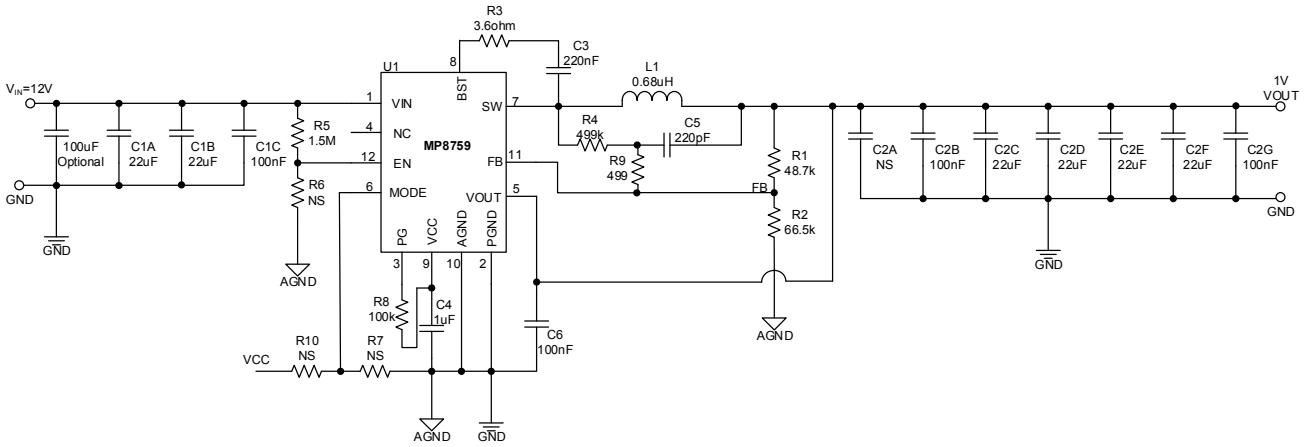
Board Number	MPS IC Number
EV8759-D-00A	MP8759GD

Efficiency

L=0.68μH, V_{OUT}=1V,
I_{OUT}=0.01A to 8A



EVALUATION BOARD SCHEMATIC



Note:

EN resistor divider value should be modified accordingly with different input voltage. Please refer to UVLO protection section on MP8759 datasheet for details.

EV8759-D-00A BILL OF MATERIALS

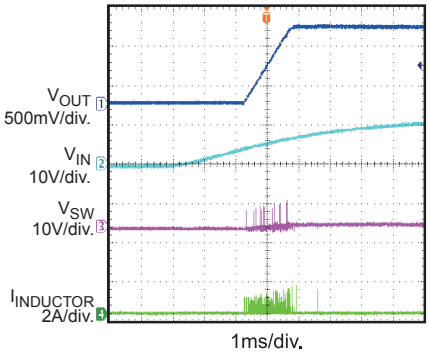
Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
2	C1A,C1B	22µF	Ceramic Cap., 35V, X5R	1206	TDK	C3216X5R1V226M
4	C1C,C2B, C2G,C6	0.1µF	Ceramic Cap., 50V, X7R	0603	TDK	C1608X7R1H104K
0	C2A	NS				
4	C2C,C2D, C2E,C2F	22µF	Ceramic Cap., 6.3V, X5R	0805	TDK	C2012X5R0J226M
1	C3	0.22µF	Ceramic Cap., 25V, X7R	0603	TDK	C1068X7R1E224K
1	C4	1µF	Ceramic Cap., 16V, X5R	0603	TDK	C1608X5R1C105K
1	C5	220pF	Ceramic Cap., 50V, C0G	0603	TDK	C1608C0G1H221J
1	R1	48.7k	Film Res., 1%	0603	ROYAL	RC0603FR-0748K7L
1	R2	66.5k	Film Res., 1%	0603	ROYAL	RC0603FR-0766K5L
1	R3	3.6Ω	Film Res., 1%	0603	ROYAL	RL0603FR-073R6L
1	R4	499k	Film Res., 1%	0603	ROYAL	RL0603FR-07499KL
1	R5	1.5M	Film Res., 1%	0603	ROYAL	RL0603FR-071M5L
1	R8	100k	Film Res., 1%	0603	ROYAL	RL0603FR-07100KL
1	R9	499Ω	Film Res., 1%	0603	ROYAL	RL0603FR-07499RL
0	R6,R7,R10	NS				
1	L1	0.68µH	Inductor, DRC=3.1mΩ,Is=20A	SMD	Wurth	744311068
1	U1	MP8759	Step-Down Converter	QFN-12 2mm×3mm	MPS	MP8759GD

EVB TEST RESULTS

Performance waveforms are tested on the EV8759-D-00A.
V_{IN} =12V, V_{OUT} =1V, L=0.68µH, T_J=+25°C, unless otherwise noted.

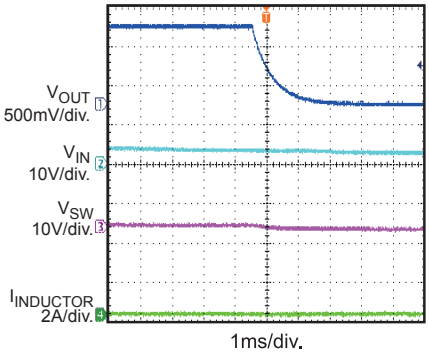
Start-Up through Input Voltage

I_{OUT}=0A



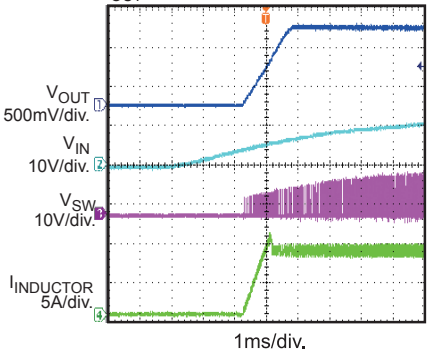
Shutdown through Input Voltage

I_{OUT}=0A



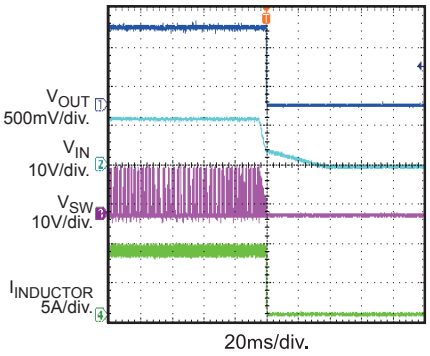
Start-Up through Input Voltage

I_{OUT}=8A



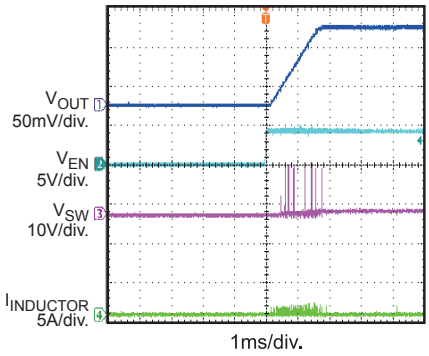
Shutdown through Input Voltage

I_{OUT}=8A



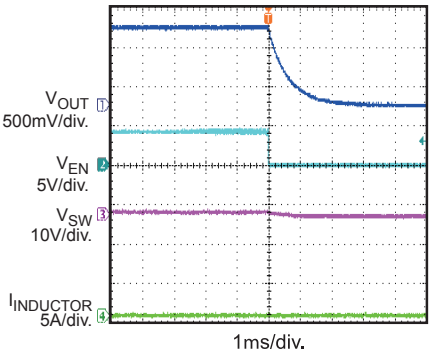
Start-Up through Enable

I_{OUT}=0A



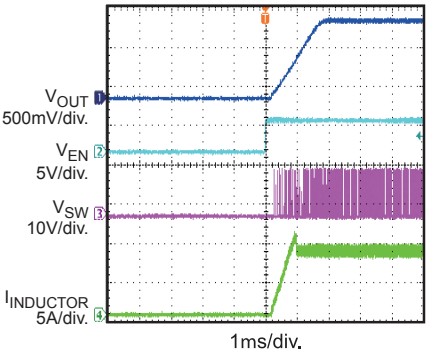
Shutdown through Enable

I_{OUT}=0A



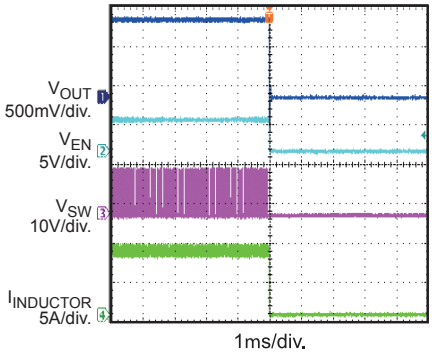
Start-Up through Enable

I_{OUT}=8A



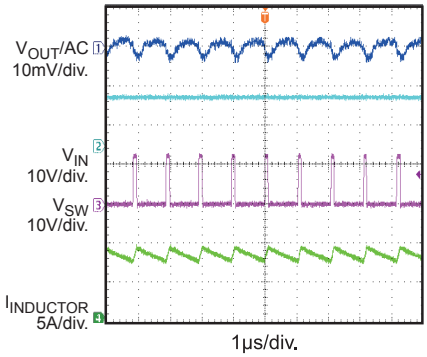
Shutdown through Enable

I_{OUT}=8A



Output Ripple

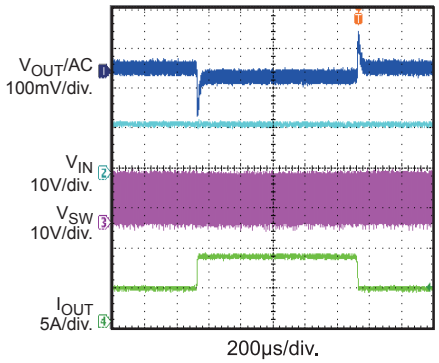
I_{OUT}=8A



EVB TEST RESULTS *(continued)*

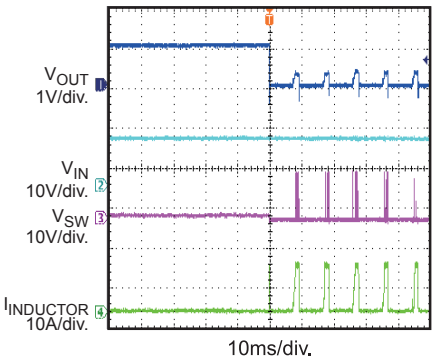
Performance waveforms are tested on the EV8759-D-00A.
V_{IN} =12V, V_{OUT} =1V, L=0.68µH, T_J=+25°C, unless otherwise noted.

4A to 8A Load Transient



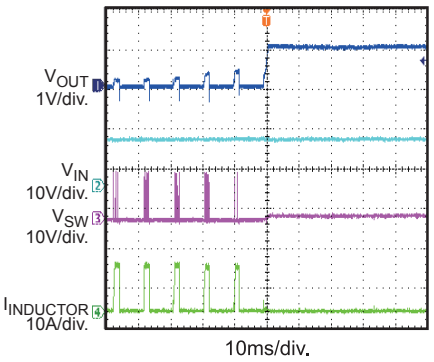
Short-Circuit Entry

I_{OUT}=0A



Short-Circuit Recovery

I_{OUT}=0A



PRINTED CIRCUIT BOARD LAYOUT

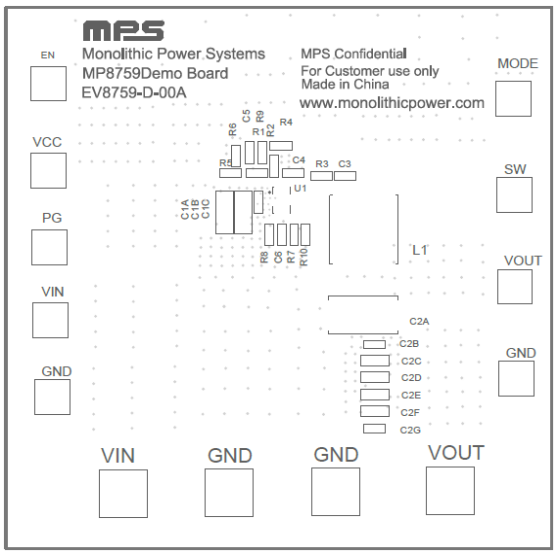


Figure 1: Top Silk Layer

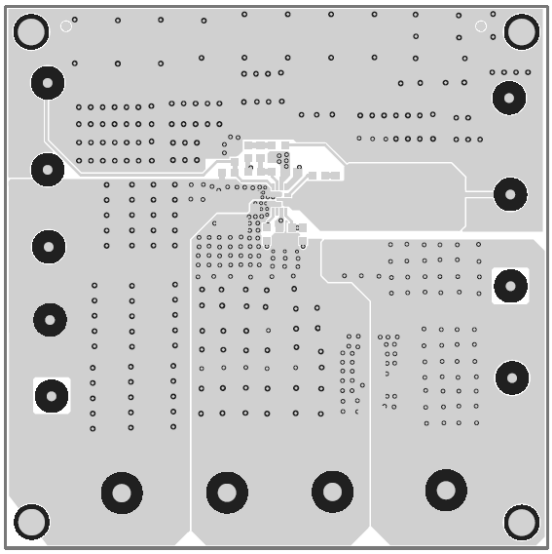


Figure 2: Top Layer

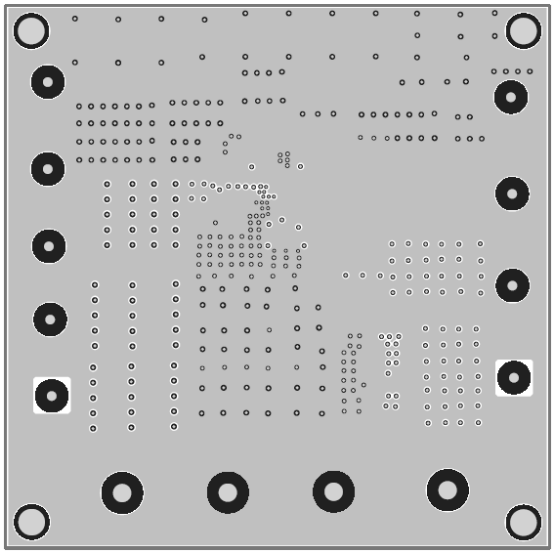


Figure 3: Inner Layer1

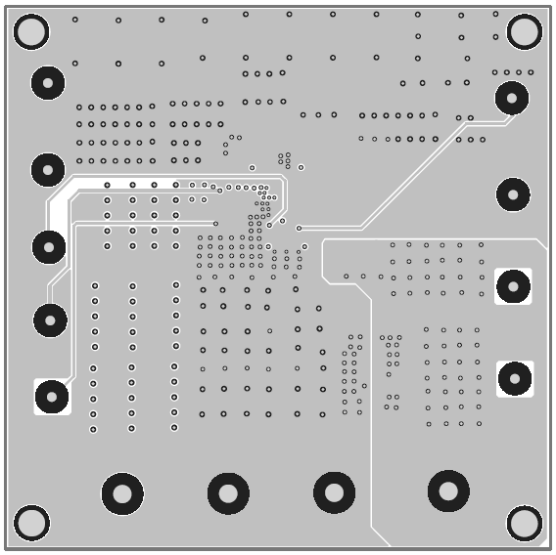


Figure 4: Inner Layer2

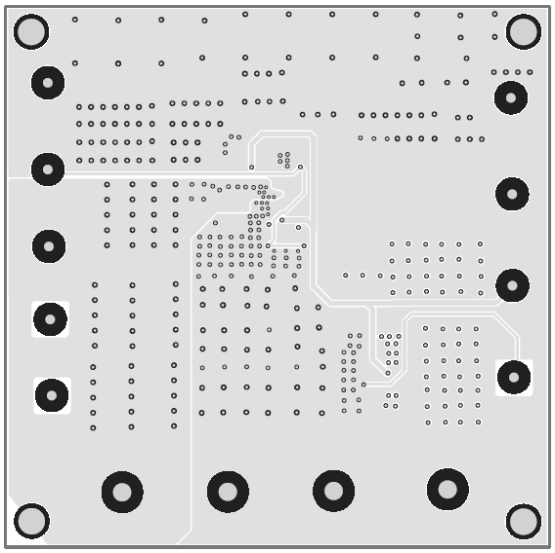


Figure 5: Bottom Layer