



The Future of Analog IC Technology®

EV8715DN-00A

100% Duty Cycle Synchronous 4A, 21V, 500kHz Step-Down Converter EV Board

DESCRIPTION

The MP8715 is a 500kHz fixed-frequency PWM synchronous step-down regulator. MP8715 operates from a 4.5V to 21V input and generates an output voltage from 0.8V to V_{IN} with 100% duty cycle operation.

The MP8715 integrates a 120mΩ high-side switch and a 50mΩ synchronous rectifier for high efficiency without an external Schottky diode. It offers a very compact solution to achieve 4A continuous output current over a wide input supply range with excellent load and line regulation.

External soft start and power good indication meet flexible design requirement. The MP8715 is available in a space saving 8-pin SOIC package with an exposed pad.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	4.5 – 21	V
Output Voltage	V_{OUT}	1.2	V
Output Current	I_{OUT}	4	A

FEATURES

- 4A Output Current
- Wide 4.5V to 21V Input Operation Range
- 100% Duty Cycle Support
- 120mΩ/50mΩ Internal Power MOSFET
- All Ceramic Capacitor Design
- Up to 95% Efficiency
- 500kHz Fixed Switching Frequency
- Adjustable Output from 0.8V to V_{in}
- External Soft-Start
- Frequency Synchronization Input
- Power OK Indicator
- Internal Compensation
- Over Current Hiccup and Thermal Protection
- 8-pin SOIC Package with an Exposed Pad

APPLICATIONS

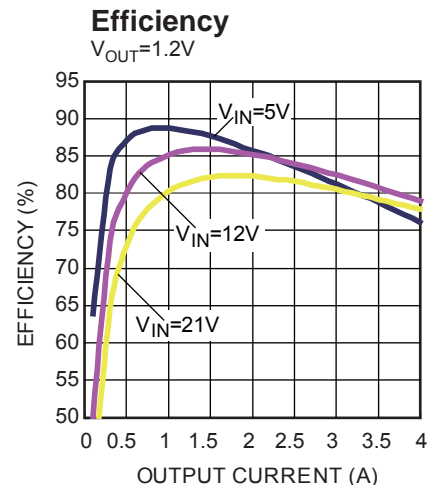
- Cable eMTAs
- μP/ASIC/DSP/FPGA Core and I/O Supplies
- Printers and LCD TVs
- Digital Set Top Boxes
- Network and Telecom Equipment

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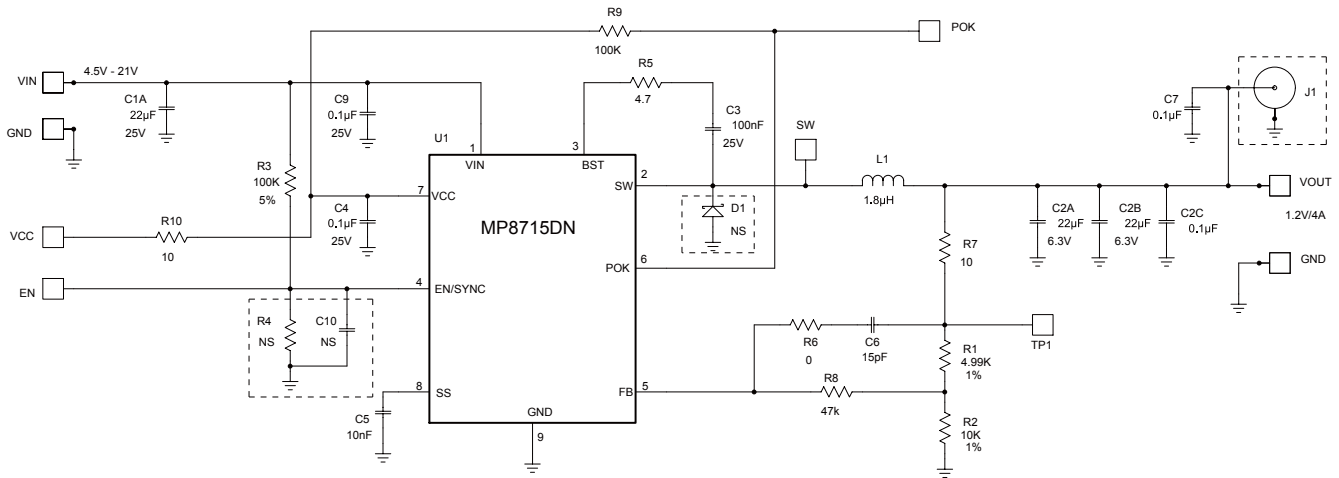
EV8715DN-00A EVALUATION BOARD



Board Number	MPS IC Number
EV8715DN-00A	MP8715DN



EVALUATION BOARD SCHEMATIC



EV8715DN-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
1	C1A	22µF	Ceramic Cap., 25V, X5R	1210	muRata	GRM32ER61E226KE15L
2	C2A,C2B	22µF	Ceramic Cap., 6.3V, X5R	1210	muRata	GRM32DR60J226KA01L
2	C2C,C9	0.1µF	Ceramic Cap., 25V, X7R	0805	muRata	GRM21BR71E104KA01L
3	C3,C4,C7	0.1µF	Ceramic Cap., 25V, X7R	0603	muRata	GRM188R71E104KA01
1	C5	10nF	Ceramic Cap., 25V, X7R	0603	muRata	GRM188R71E103KA01D
1	C6	15pF	Ceramic Cap., 50V, C0G	0603	muRata	GRM1885C1H150JA01D
0	C10	NS		0603		
0	D1	NS	Diode	SMA		
1	L1	1.8µH	3.5mΩ, DCR, 16A		Würth	744325180
		1.8µH	7.6mΩ, DCR, 10.4A		TOKO	D104C-#919AS-1R8N
0	J1	NS				
1	R1	4.99K	Film Res., 1%	0603	Yageo	RC00603FR-074K99L
1	R2	10K	Film Res., 1%	0603	Yageo	RC00603FR-0710KL
2	R3,R9	100K	Film Res., 5%	0603	Yageo	RC0603JR-07100KL
0	R4	NS		0603		
1	R5	4.7Ω	Film Res., 5%	0603	Yageo	RC0603JR-074R7L
1	R6	0Ω	Film Res., 5%	0603	Yageo	RC0603JR-070RL
1	R8	47K	Film Res., 1%	0603	Yageo	RC00603FR-0747KL
2	R7, R10	10Ω	Film Res., 1%	0603	Yageo	RC0603JR-0710RL
1	U1		Step-Down Converter	SOIC8E	MPS	MP8715DN

PRINTED CIRCUIT BOARD LAYOUT

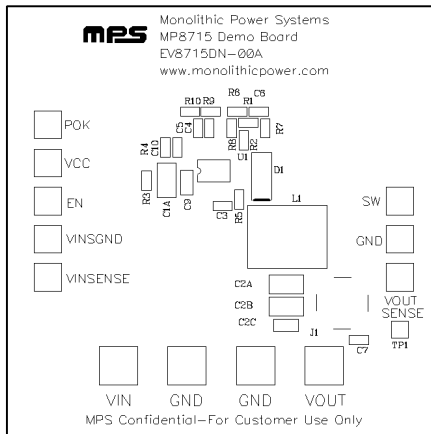


Figure 1—Top Silk Layer

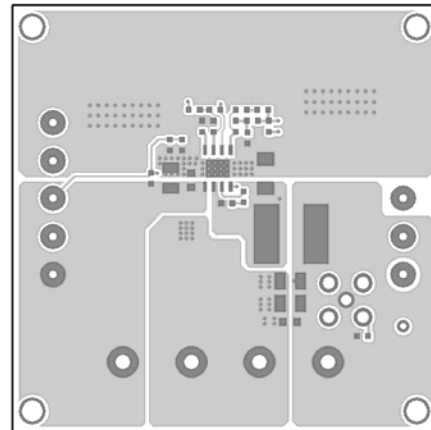


Figure 2—Top Layer

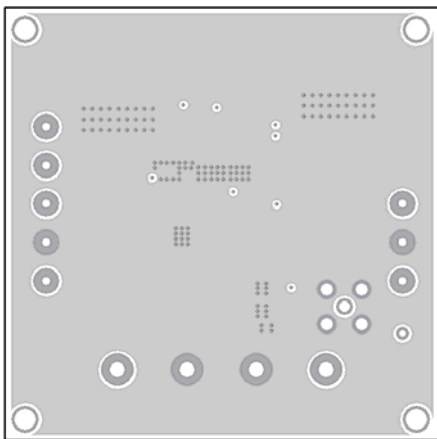


Figure 3—Inner1 Layer

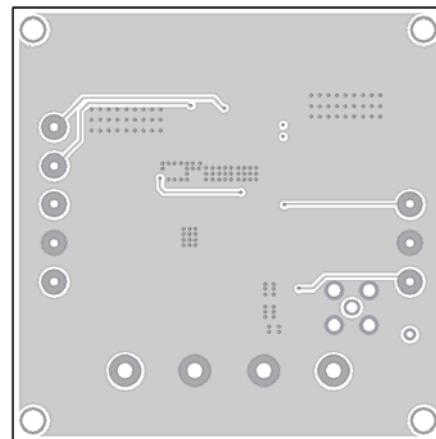


Figure 4—Inner2 Layer

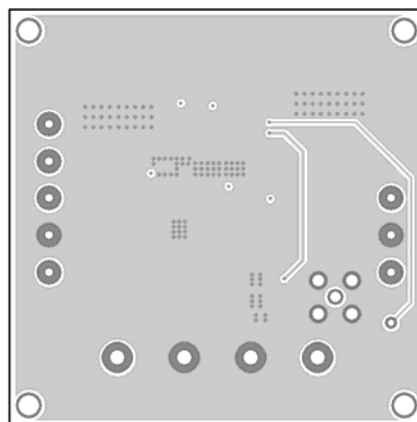


Figure 5—Bottom Layer