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EV2303DN-00A

3A, 28V, 340KHz Synchronous Rectified Step-Down Converter

DESCRIPTION

The EV2303DN-00A is an evaluation board for the MP2303, a monolithic synchronous buck regulator.

The MP2303 integrates 120mΩ MOSFETS that provide 3A continuous load current over a wide operating input voltage of 4.75V to 28V.

Current mode control provides fast transient response and cycle-by-cycle current limiting. An adjustable soft-start prevents inrush current at turn-on. In shutdown mode, the supply current drops to 0.3μA.

This device, available in an 8-pin SOIC package, provides a very compact system solution with minimal reliance on external components.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V _{IN}	4.75 – 28	V
Output Voltage	V _{OUT}	3.3	V
Output Current	I _{OUT}	3	A

FEATURES

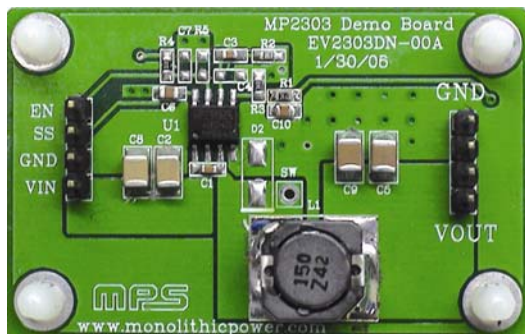
- 3A Output Current
- Wide 4.75V to 28V Operating Input Range
- 3.3V Output, Adjustable from 0.80V to 25V

APPLICATIONS

- Distributed Power Systems
- Pre-Regulator for Linear Regulators
- Notebook Computers

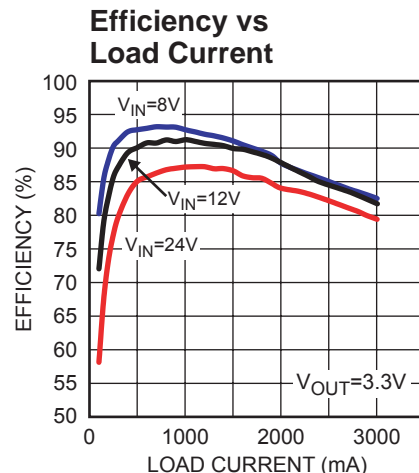
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EV2303DN-00A EVALUATION BOARD

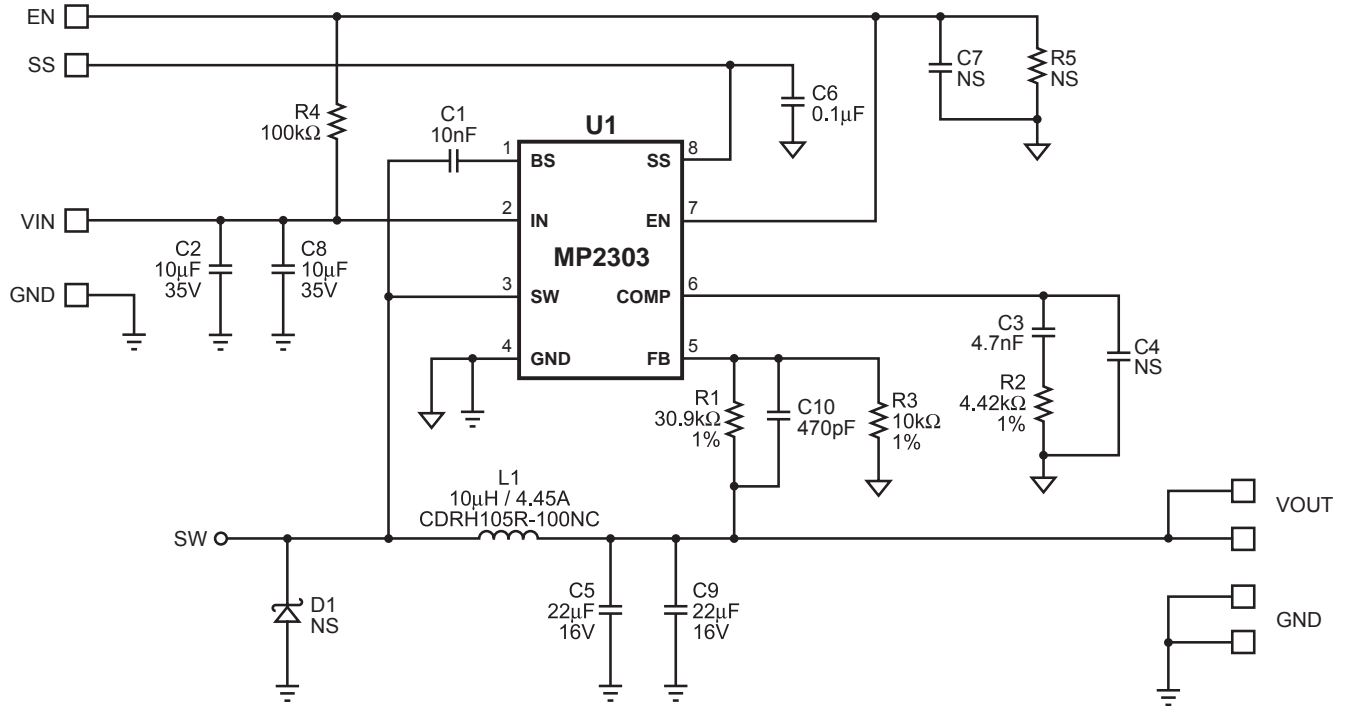


(L x W x H) 2.0" x 1.5" x 0.5"
(5.0cm x 3.8 x 1.2cm)

Board Number	MPS IC Number
EV2303DN-00A	MP2303DN



EVALUATION BOARD SCHEMATIC



EV2303_S01

EV2303DN-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
1	C1	10nF	Ceramic Capacitor, 50V, X7R	0603	Any	
2	C2 C8	10μF	Ceramic Capacitor, 35V, X7R	1210	Holystone	C1210X106M035T
1	C3	4.7nF	Ceramic Capacitor, 50V, X7R	0603	Any	
2	C4 C7		Open			
2	C5 C9	22μF	Ceramic Capacitor, 16V, X5R	1210	Taiyo Yuden	EMK325BJ226MM
1	C6	0.1μF	Ceramic Capacitor, 50V, X7R	0805	Any	
1	C10	470pF	Ceramic Capacitor, 50V, X7R	0805	Any	
1	D1		Open			
1	L1	10μH	Inductor, 4.45A	SMD	Sumida	CDRH105R-100NC
1	R1	30.9kΩ	Resistor, 1%	0603	Any	
1	R2	4.42kΩ	Resistor, 1%	0603	Any	
1	R3	10kΩ	Resistor, 1%	0603	Any	
1	R4	100kΩ	Resistor, 5%	0603	Any	
1	R5		Open			
1	U1		Synchronous Step-Down Converter	SO8	MPS	MP2303DN

PRINTED CIRCUIT BOARD LAYOUT

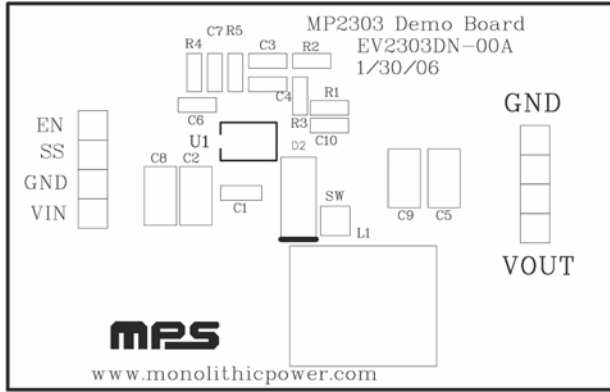


Figure 1—Top Silk Layer

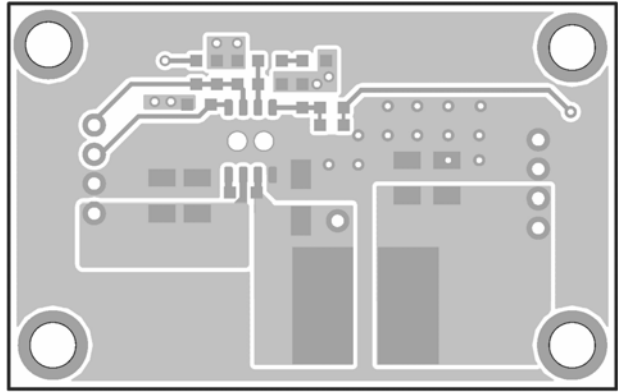


Figure 2—Top Layer

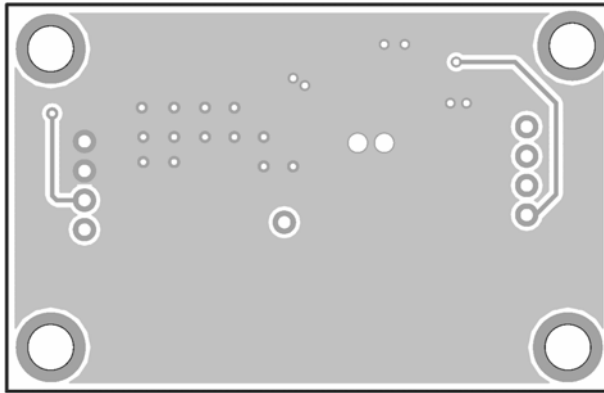


Figure 3—Bottom Layer

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 4.75V and 28V, 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 MP2303 will automatically startup).
5. To use the Enable function, apply a digital input to the EN pin. Drive EN higher than 2.5V to turn on the regulator or less than 0.7V to turn it off.
6. An under voltage lockout (UVLO) function can be implemented by the addition of a resistor divider (R4 and R5). The Enable threshold is 2.5V, so the VIN UVLO threshold is:

$$\left(1 + \frac{R4}{R5}\right) \times 2.5V .$$

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