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EV2380DN-00A

5A, 21V, 600KHz Step-Down Converter Evaluation Board

DESCRIPTION

The EV2380DN-00A is an evaluation board for the MP2380, a 600KHz step-down regulator.

The MP2380 features an integrated 45mΩ power MOSFET to provide 5A continuous load current over a wide operating input voltage of 5V to 21V.

Current mode control provides fast transient response and eases loop stabilization.

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

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V _{IN}	5 - 21	V
Output Voltage	V _{OUT}	3.3	V
Output Current	I _{OUT}	5	A

FEATURES

- 5A Output Current
- Wide 5V to 21V Input Range
- Synchronizable to > 1MHz External Clock
- Fully Assembled and Tested

APPLICATIONS

- Distributed Power Systems
- Battery Charger
- Pre-Regulator for Linear Regulators

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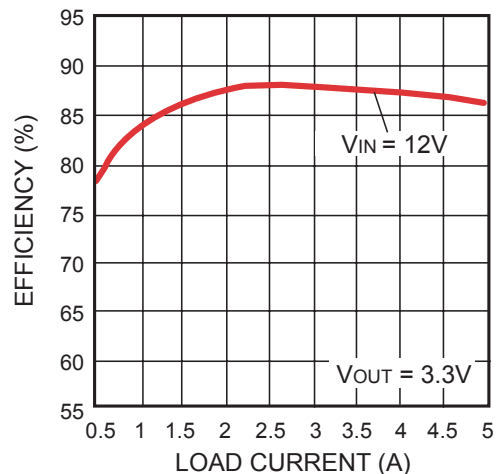
EV2380DN-00A EVALUATION BOARD



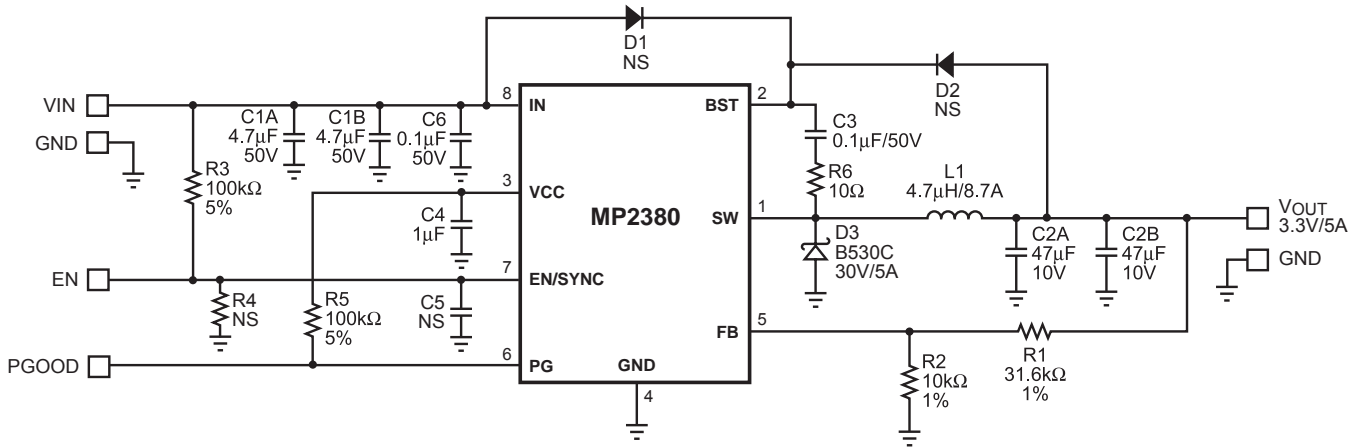
(L x W x H) 2.0" x 2.0" x 0.5"
(5.0cm x 5.0cm x 1.2cm)

Board Number	MPS IC Number
EV2380DN-00A	MP2380DN

Efficiency vs Load Current



EVALUATION BOARD SCHEMATIC



EV2380DN-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part #
1	R1	31.6kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-0731K6L
1	R2	10kΩ	Film Resistor, 1%	0603	Yageo	RC0603FR-0710KL
2	R3, R5	100kΩ	Film Resistor, 5%	0603	Any	
1	R4	NS	Not Stuffed			
1	R6	10Ω	Film Resistor, 5%	0603	Any	
2	C1A, C1B	4.7μF	Ceramic Capacitor, 50V, X7R	1210	Murata	GRM32ER71H475KA88L
2	C2A, C2B	47μF	Ceramic Capacitor, 10V, X5R	1210	Murata	GRM32ER61A476KE20L
2	C3, C6	0.1μF	Ceramic Capacitor, 50V, X7R	0603	Murata	GRM188R71H104KA93D
1	C4	1μF	Ceramic Capacitor, 10V, X5R	0603	Murata	GRM185R61A105KE36
1	C5	NS	Not Stuffed			
1	L1	4.7μH	Inductor, 8.7A	SMD		931AS-4R7M
1	D1, D2		Not Stuffed			
1	D3		Diode 30V, 5A	SMC	Diode Inc	B530C
1	U1		Step-Down Converter	SO8	MPS	MP2380DN

PRINTED CIRCUIT BOARD LAYOUT

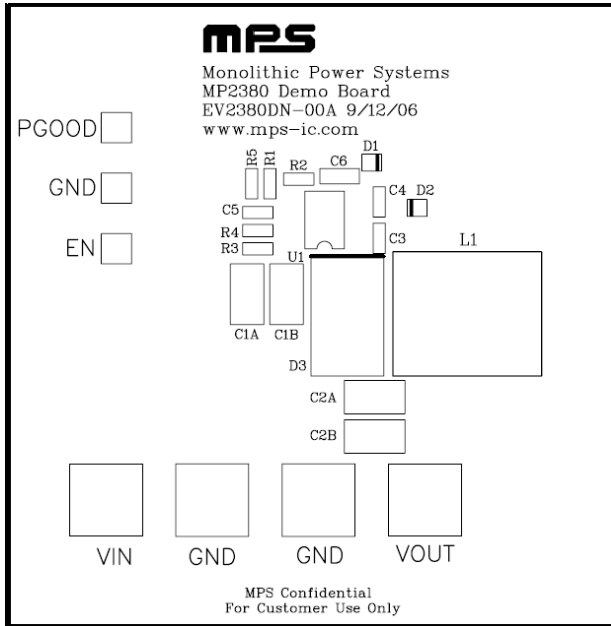


Figure 1—Top Silk Layer

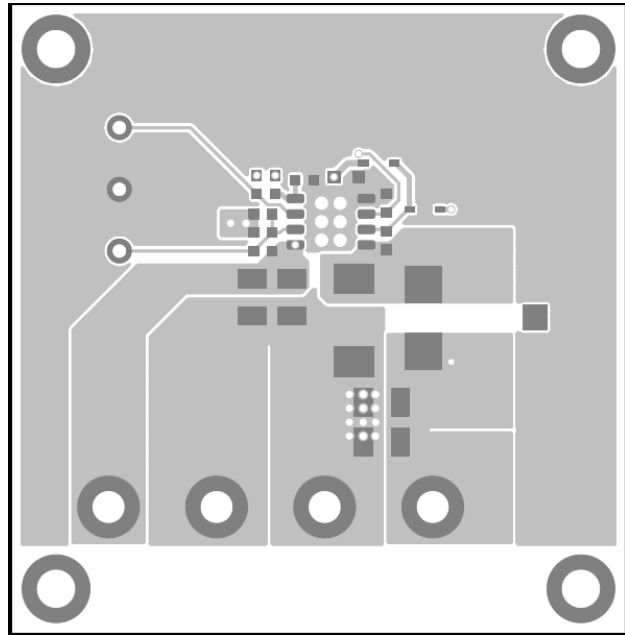


Figure 2—Top Layer

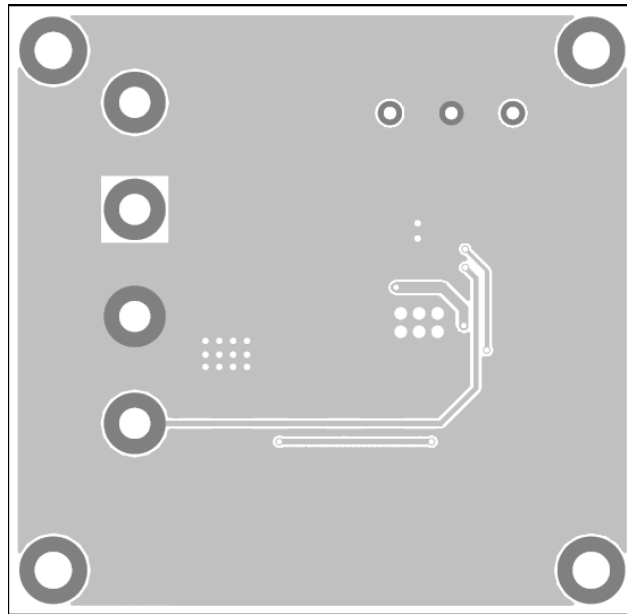


Figure 3—Bottom Layer

QUICK START GUIDE

1. Connect the positive and negative terminals of the load to VOUT and GND pins, respectively.
2. Preset the power supply output to 5V – 21V and turn off the power supply.
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 board will automatically startup.
5. To use the Enable function, apply a digital input to EN pin. Drive EN higher than 1.2V to turn on the regulator, drive EN less than 0.4V to turn it off.

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