EV06W0503A-3-Y-00A

0.6W, Semi-Regulated, 3kV$_{DC}$, Isolated DC/DC Converter Evaluation Board

DESCRIPTION

The EV06W0503A-3-Y-00A is an evaluation board designed to demonstrate the capabilities of the MID06W0503AGY-3S, a semi-regulated, isolated DC/DC converter module.

The MID06W0503AGY-3S integrates a power MOSFET, transformer, and feedback circuit all in one chip, supporting an isolation voltage up to 3kV$_{DC}$. The converter is a small solution that provides highly reliable operation when compared to traditional isolated power modules.

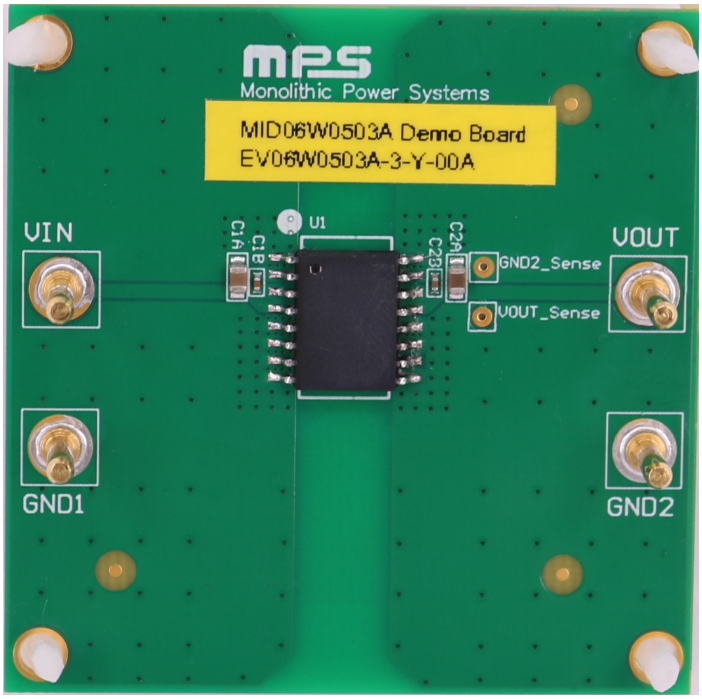
It is recommended to read the datasheet for the MID06W0503A prior to making any changes to the EV06W0503A-3-Y-00A.

PERFORMANCE SUMMARY

Specifications are at T_A = 25°C, unless otherwise noted.

Parameters	Conditions	Value
Input voltage (V_{IN}) range		4.5V to 5.5V
Output voltage (V_{OUT})	V_{IN} = 4.5V to 5.5V, I_{OUT} = 0A to 0.18A	3.3V
Maximum output current (I_{OUT})	V_{IN} = 4.5V to 5.5V	0.18A

EVALUATION BOARD



LxWxH (5.1cmx5.1cmx0.3cm)

2 Layers, 1oz/1oz

Board Number	MPS IC Number
EV06W0503A-3-Y-00A	MID06W0503AGY-3S-Z

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QUICK START GUIDE

1. Preset the power supply (V_{IN}) to be between 4.5V and 5.5V, then turn off the power supply.
2. Connect the power supply terminals to:
   a. Positive (+): VIN
   b. Negative (-): GND1
3. Connect the load terminals to:
   a. Positive (+): VOUT
   b. Negative (-): GND2
4. After making the connections, turn on the power supply. The board should automatically start up. Figure 1 shows the measurement equipment set-up.

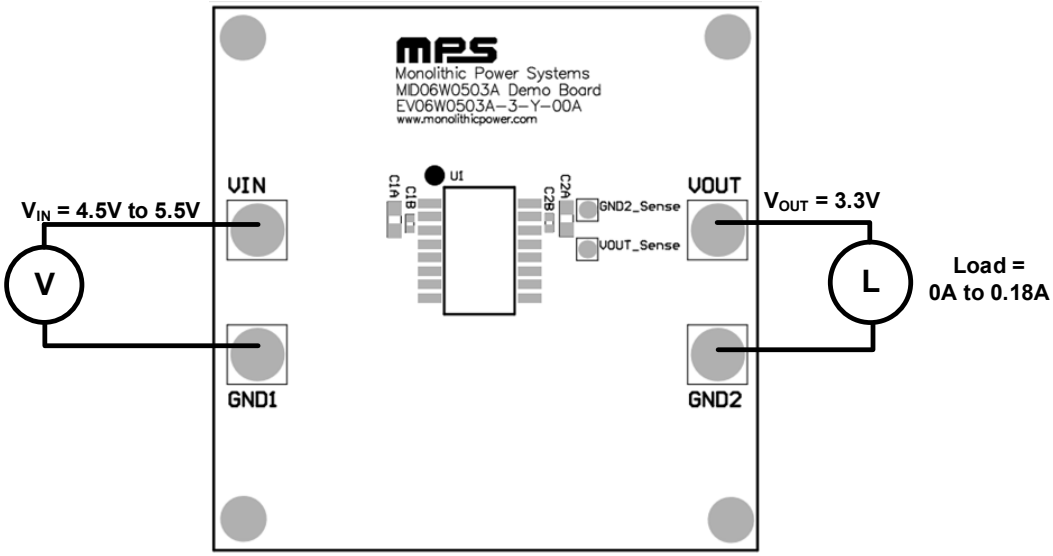

Figure 1: Measurement Equipment Set-Up

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EVALUATION BOARD SCHEMATIC

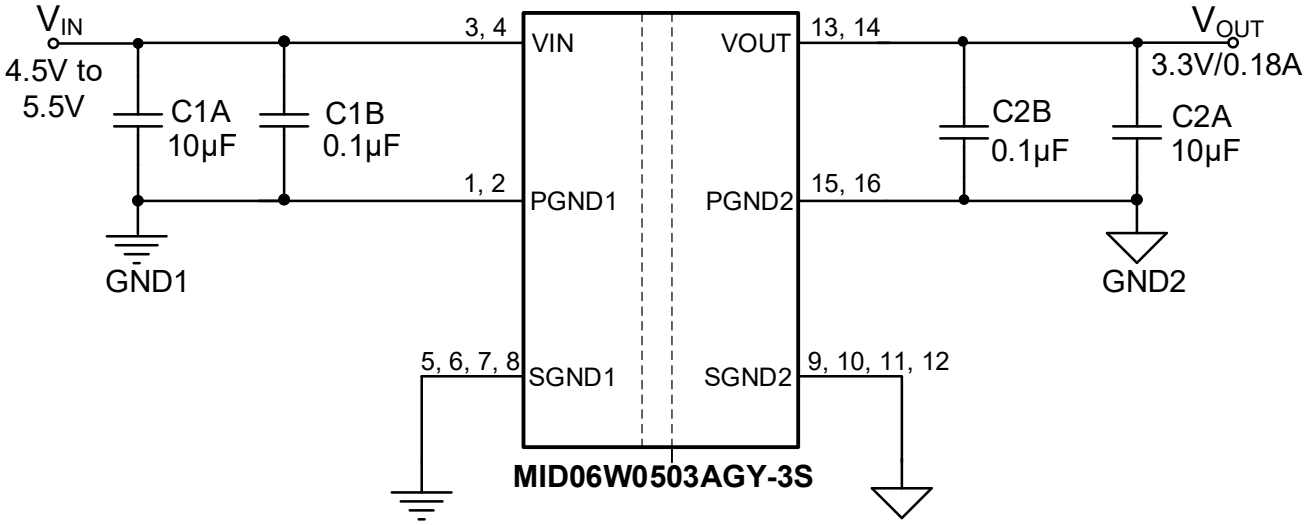

Figure 2: Evaluation Board Schematic

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EV06W0503A-3-Y-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer PN
2	C1A, C2A	10µF	Ceramic capacitor, 10V, X5R	0805	TDK	C2012X5R1A106KT000E
2	C2A, C2B	100nF	Ceramic capacitor, 16V, X7R	0402	Samsung	CL05B104KO5NNNC
1	U1	MID06W0503A	0.6W, 3kVDC isolated DC/DC converter module	SOIC-16 WB	MPS	MID06W0503AGY-3S-Z

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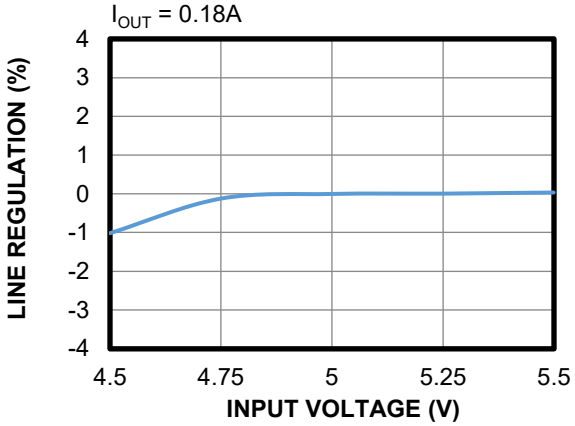
EVB TEST RESULTS

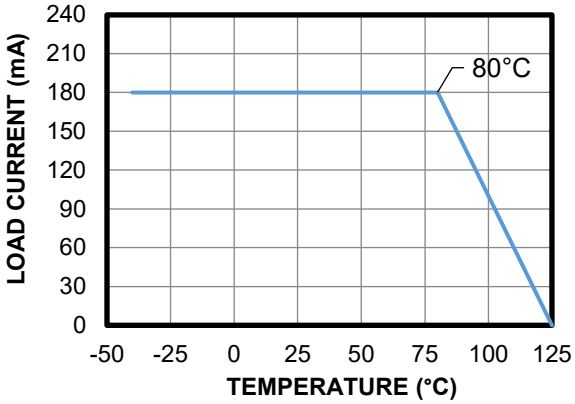
Performance curves and waveforms are tested on the evaluation board. V_{IN} = 5V, V_{OUT} = 3.3V, T_A = 25°C, I_{OUT} = 0A to 0.18A, C_{IN} = C_{OUT} = 10µF, unless otherwise noted.

Line Regulation

I_{OUT} = 0.18A

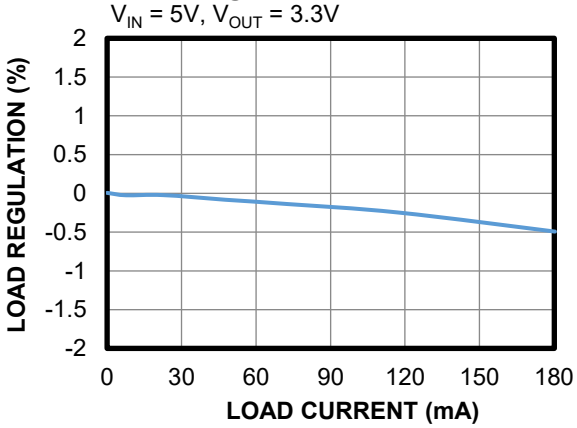


Load Derating vs. Temperature



Load Regulation

V_{IN} = 5V, V_{OUT} = 3.3V



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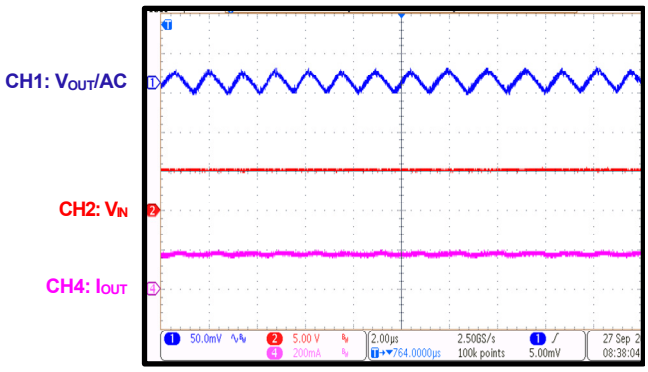
EVB TEST RESULTS *(continued)*

Performance curves and waveforms are tested on the evaluation board. V_{IN} = 5V, V_{OUT} = 3.3V, T_A = 25°C, I_{OUT} = 0A to 0.18A, C_{IN} = C_{OUT} = 10µF, unless otherwise noted.

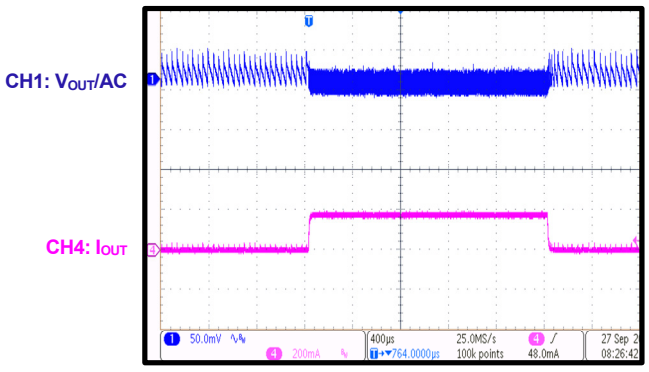
Output Voltage Ripple

I_{OUT} = 0.18A

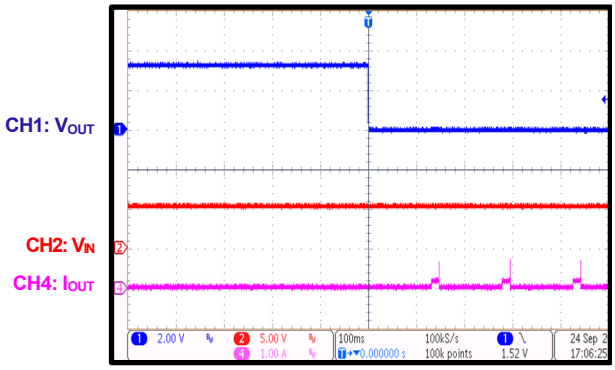


Load Transient Response

I_{OUT} = 0A to 0.18A



SCP Entry



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PCB LAYOUT

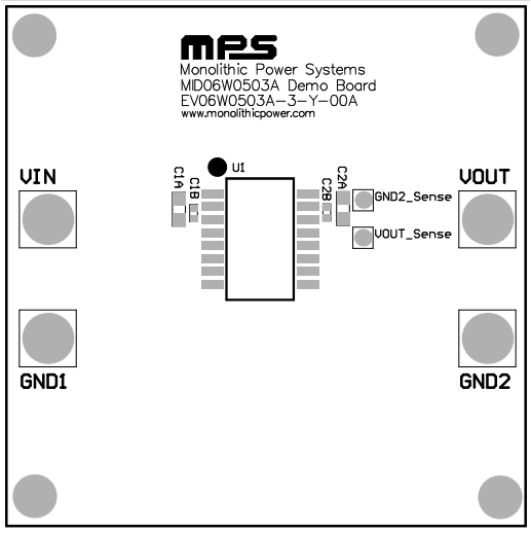

Figure 3: Top Silk

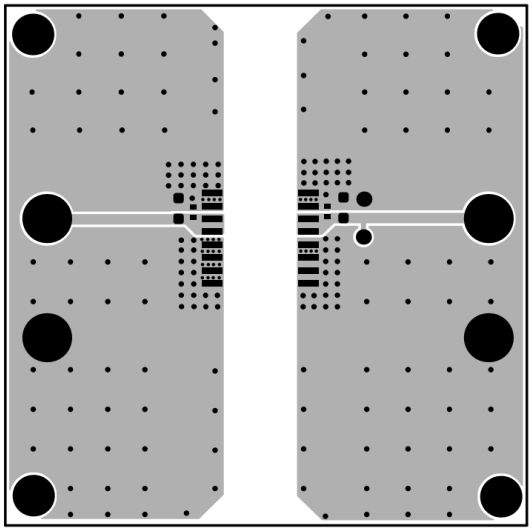

Figure 4: Top Layer

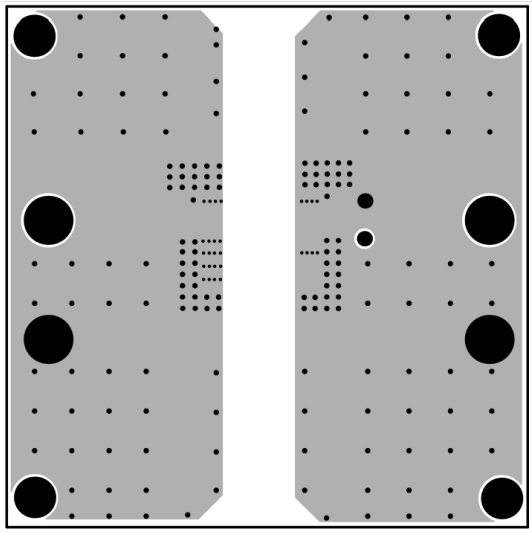

Figure 5: Bottom Layer

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REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	5/17/2024	Initial Release	-

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