

DESCRIPTION

The EVM3620A-QV-00A is an evaluation board for MPM3620A, a synchronous rectified, step-down module converter with built-in power MOSFETs, inductor and two capacitors.

The evaluation board can deliver a 2A continuous output current with excellent load and line regulation over a wide input supply range.

Current-mode operation provides fast transient response and eases loop stabilization.

Full protection features include over-current protection and thermal shut down.

The MPM3620A is available in a space-saving QFN20 (3mm x5mmx1.6mm) package.

ELECTRICAL SPECIFICATION⁽¹⁾

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	12	V
Output Voltage	V_{OUT}	3.3	V
Output Current	I_{OUT}	2	A

Notes:

1) For different input, output spec, please refer to APPLICATION and TYPICAL APPLICATION CIRCUITS section on datasheet to choose proper values.

FEATURES

- 2A Continuous Load Current
- 90mΩ/40mΩ Low $R_{DS(ON)}$ Internal Power MOSFETs
- Integrated Inductor
- Integrated VCC and Bootstrap Capacitors
- Power Save Mode at Light Load
- Power Good Indicator
- OCP Protection and Hiccup
- Thermal Shutdown
- Output Adjustable from 0.8V
- Available in QFN20 (3x5x1.6mm) Package
- Total solution size 6.7mm x7.3mm

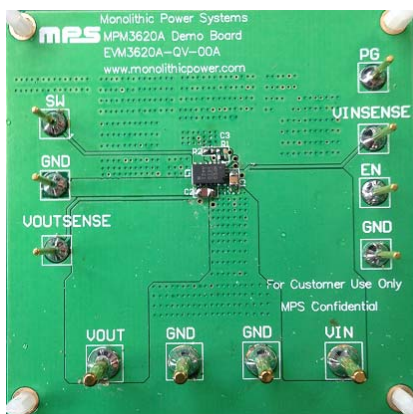
APPLICATIONS

- Industrial Controls
- Medical and Imaging Equipment
- Telecom and Networking Applications
- LDO Replacement
- Space and Resource-limited Applications

All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Products, Quality Assurance page.

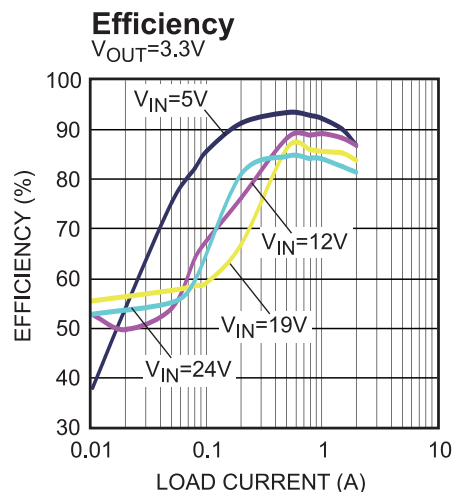
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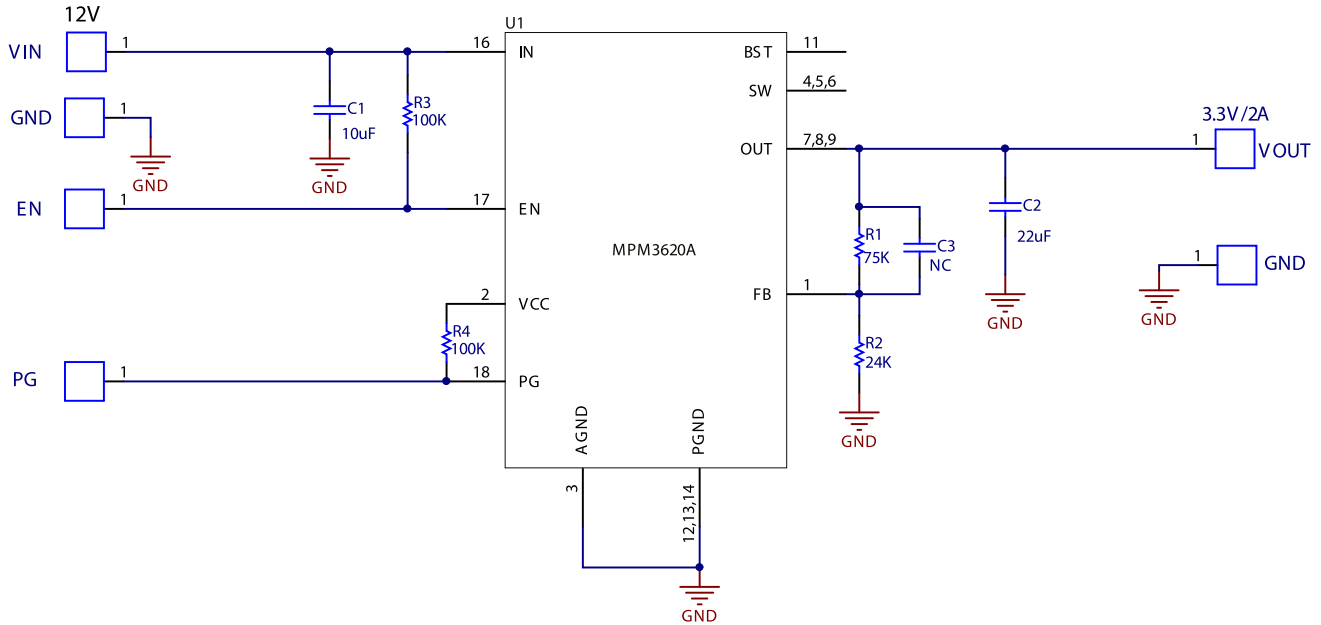
EVM3620A-QV-00A EVALUATION BOARD



(L x W x H) 6.35cm x 6.35cm x 0.32cm

Board Number	MPS IC Number
EVM3620A-QV-00A	MPM3620AGQV



EVALUATION BOARD SCHEMATIC

EVM3620A-QV-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	10µF	Ceramic Cap,25V,X5R	0805	muRata	GRM21BR61E106KA73L
1	C2	22µF	Ceramic Cap,16V,X5R	0805	muRata	GRM219R61C226ME15L
0	C3	NS				
1	R1	75k	Thick Film Res., 1%	0402	Any	
1	R2	24k	Thick Film Res., 1%	0402	Any	
1	R3	100k	Thick Film Res., 1%	0402	Any	
1	R4	100k	Thick Film Res., 1%	0402	Any	
1	U1	MPM3620A	Synchronous Step-Down Module Converter	QFN-20	MPS	MPM3620AGQV

EVB TEST RESULTS

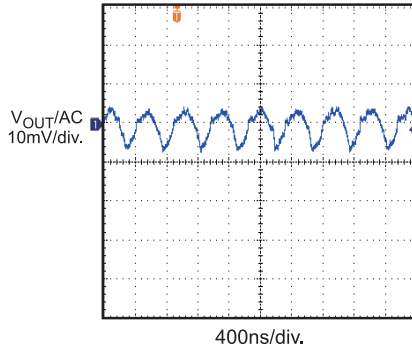
Performance waveforms are tested on the evaluation board.

$V_{IN} = 12V$, $V_{OUT} = 3.3V$, $T_A = 25^\circ C$, unless otherwise noted.

Output Ripple

Bandwidth=20MHz

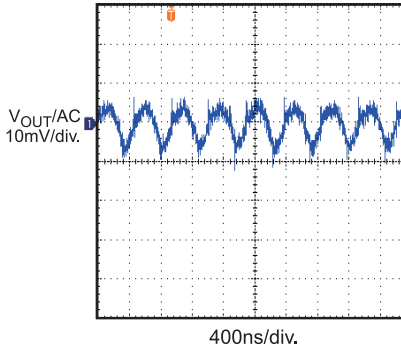
$I_{OUT} = 2A$



Output Ripple

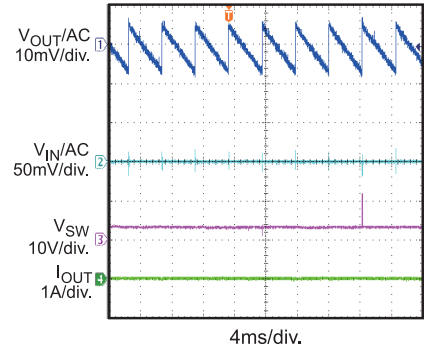
Bandwidth=150MHz

$I_{OUT} = 2A$



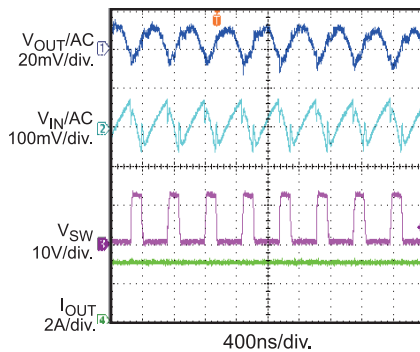
Input/Output Ripple

$I_{OUT} = 0A$



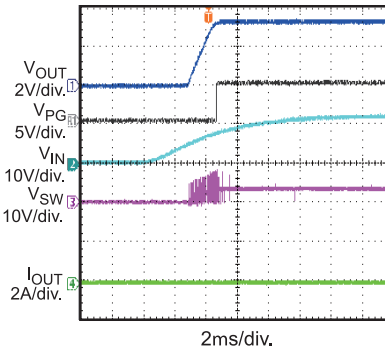
Input/Output Ripple

$I_{OUT} = 2A$



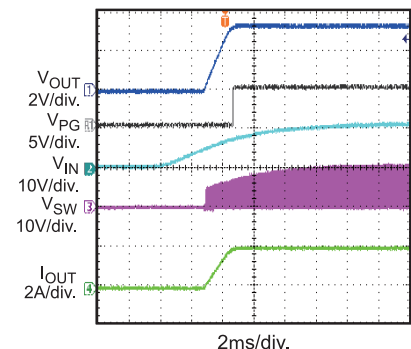
Startup through Input Voltage

$I_{OUT} = 0A$



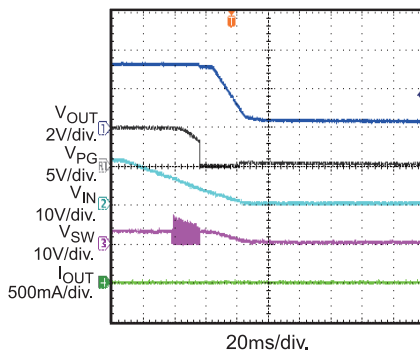
Startup through Input Voltage

$I_{OUT} = 2A$



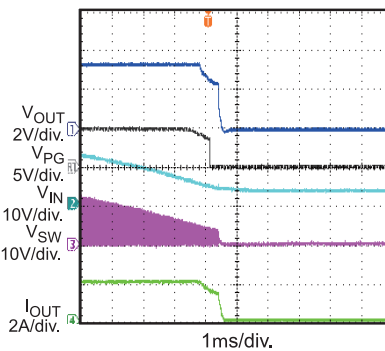
Shutdown through Input Voltage

$I_{OUT} = 0A$



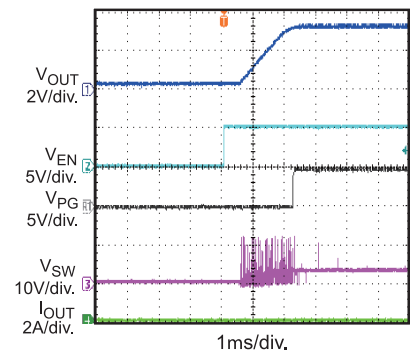
Shutdown through Input Voltage

$I_{OUT} = 2A$



Startup through Enable

$I_{OUT} = 0A$

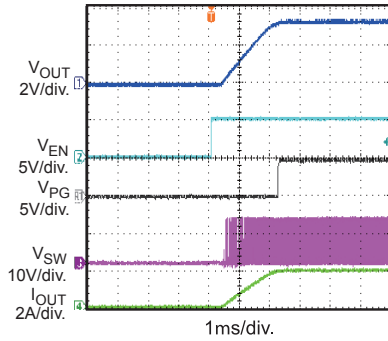


EVB TEST RESULTS *(continued)*

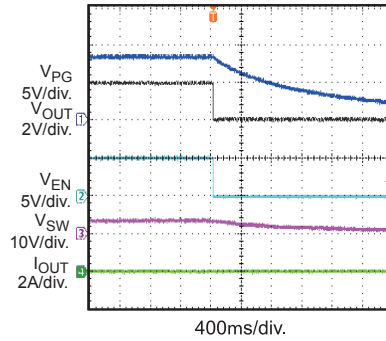
Performance waveforms are tested on the evaluation board.

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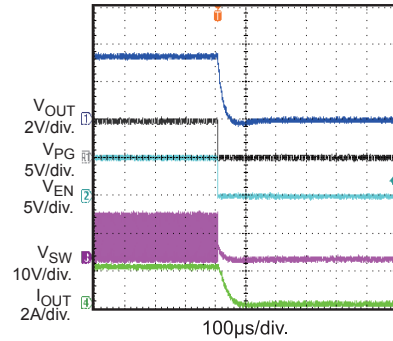
Startup through Enable
 $I_{OUT} = 2A$



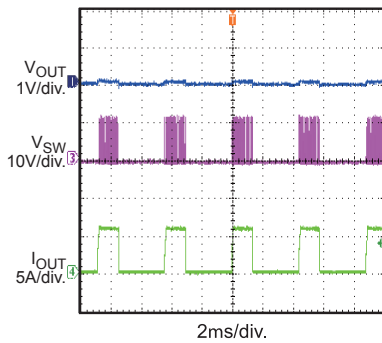
Shutdown through Enable
 $I_{OUT} = 0A$



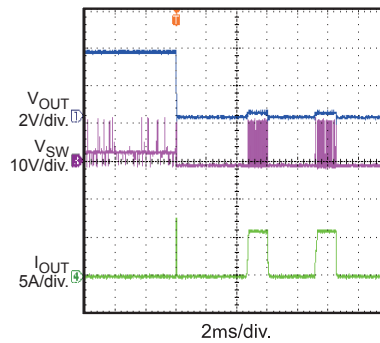
Shutdown through Enable
 $I_{OUT} = 2A$



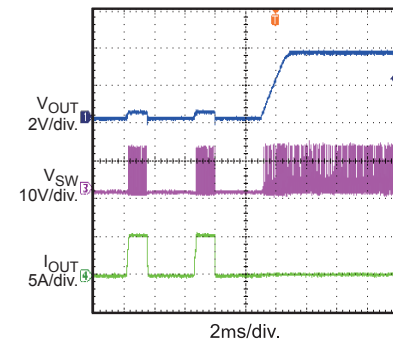
Short Circuit Steady State



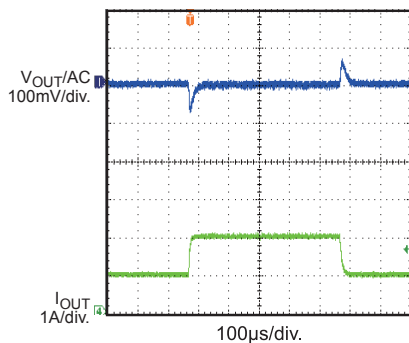
Short Circuit Entry
 $I_{OUT} = 0A$



Short Circuit Recovery
 $I_{OUT} = 0A$



Load Transient Response
1A to 2A



PRINTED CIRCUIT BOARD LAYOUT

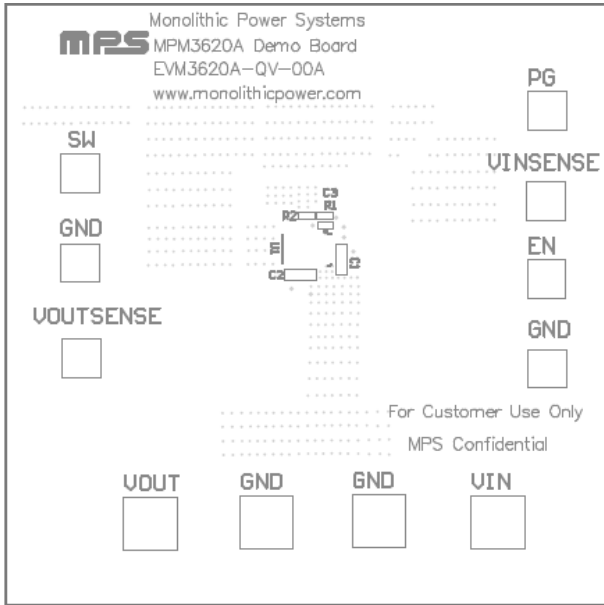


Figure 1—Top Silk Layer

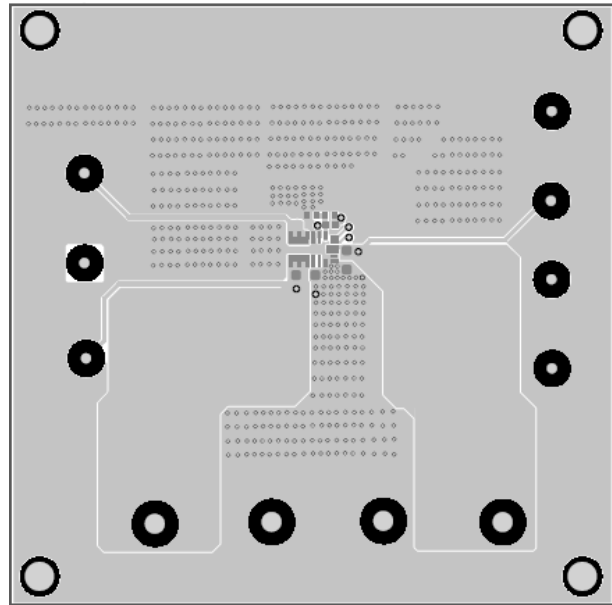


Figure 2—Top Layer

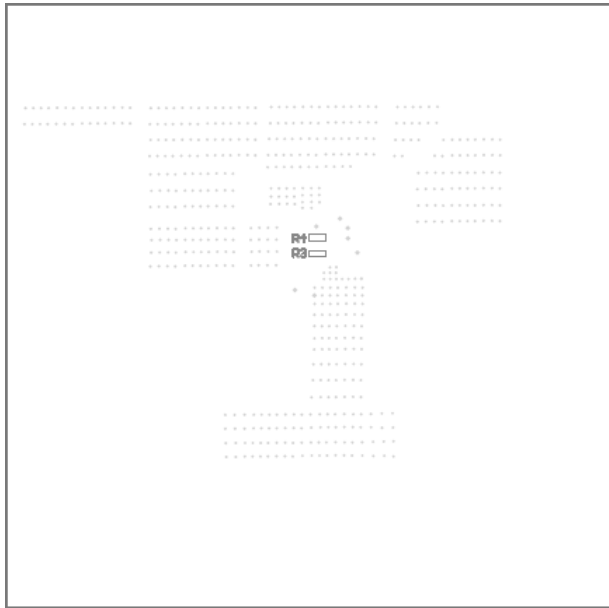


Figure 3—Bottom Silk Layer

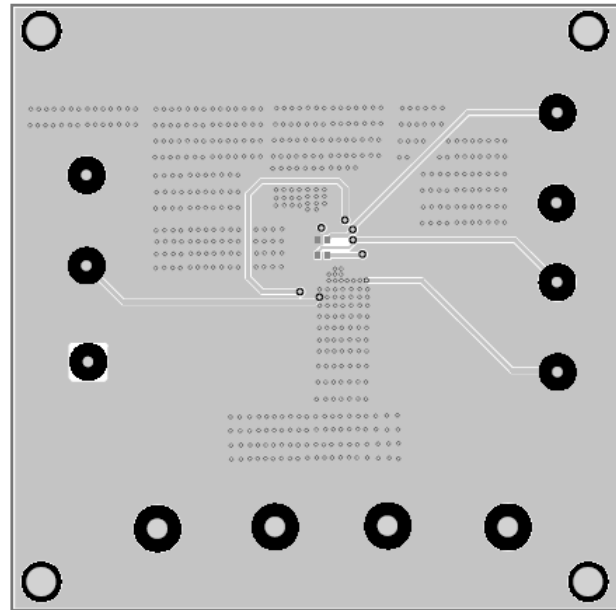


Figure 4—Bottom Layer