

### DESCRIPTION

The EVM3610-QV-00A is an evaluation board for MPM3610, a synchronous rectified, step-down Mini-Module regulator with built-in power MOSFETs, inductor and two capacitors.

The evaluation board can deliver a 1.2A continuous output current with excellent load and line regulation over a wide input supply range. External AAM pin provides selectable power save mode or force PWM mode.

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

The MPM3610 is available in a space-saving QFN20 (3mm x5mmx1.6mm) package.

### ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	4.5 – 21	V
Output Voltage	$V_{OUT}$	3.3	V
Output Current	$I_{OUT}$	1.2	A

### FEATURES

- Complete Switch Mode Power Supply
- 4.5V-to-21V Operating Input Range
- 1.2A Continuous Load Current
- Low  $R_{DS(ON)}$  Internal Power MOSFETs
- Fixed 2MHz Switching Frequency
- External AAM pin for Power-Save Mode Programming
- OCP Protection and Hiccup
- Thermal Shutdown
- Output Adjustable from 0.8V
- Available in QFN20 (3x5x1.6mm) Package

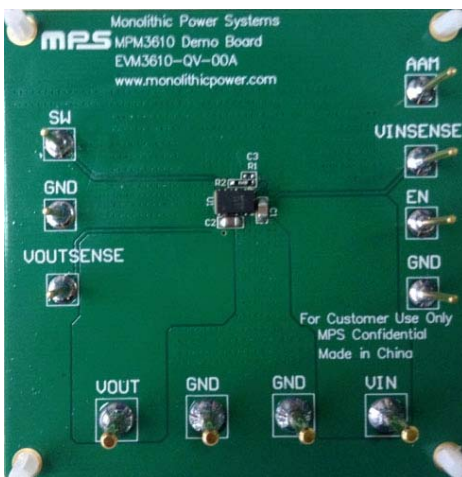
### APPLICATIONS

- Industrial Controls
- Medical and Imaging Equipment
- Telecom Applications
- Distributed Power Systems

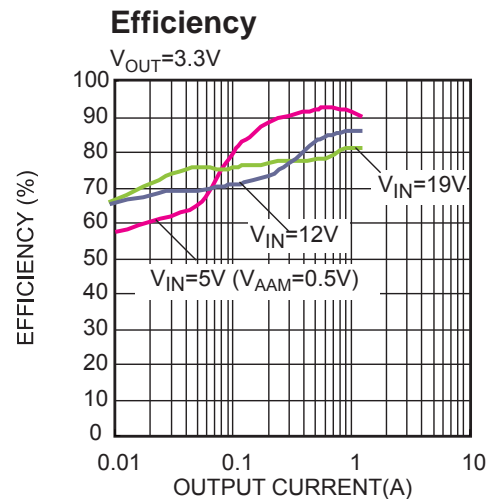
All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Products, Quality Assurance page.

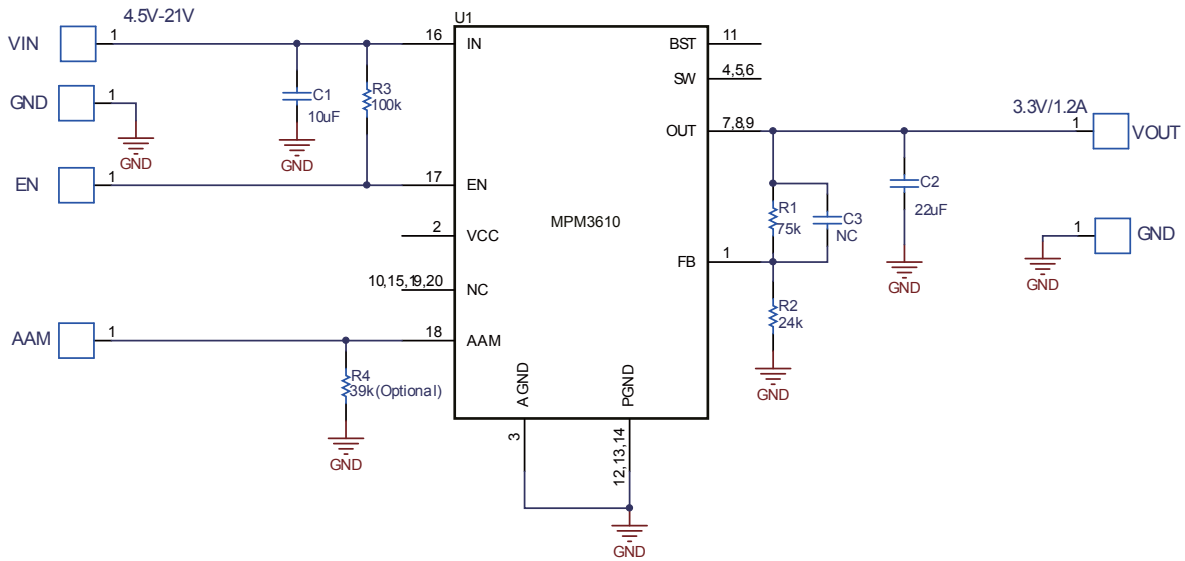
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### EVM3610-QV-00A EVALUATION BOARD



Board Number	MPS IC Number
EVM3610-QV-00A	MPM3610GQV



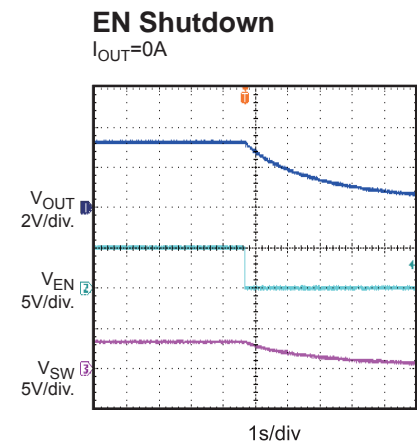
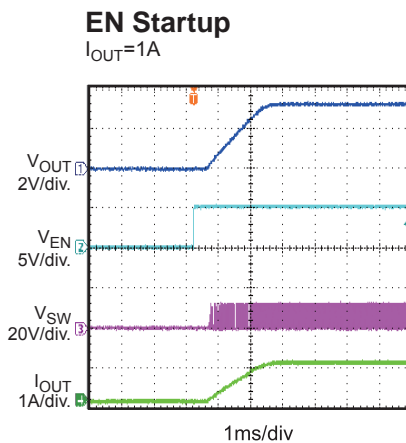
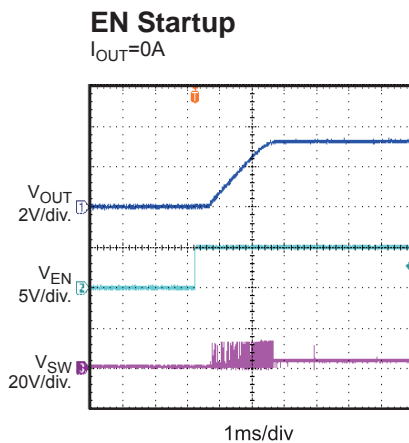
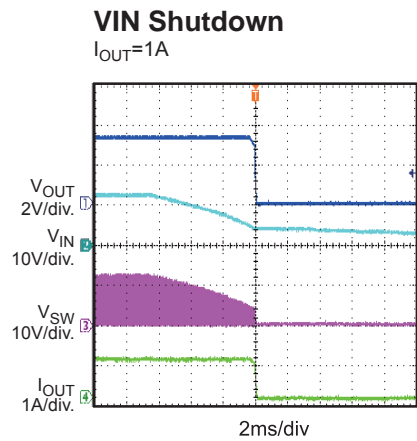
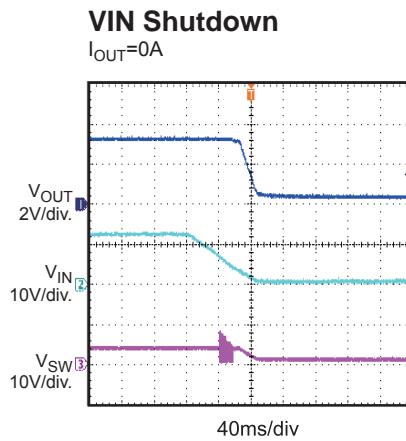
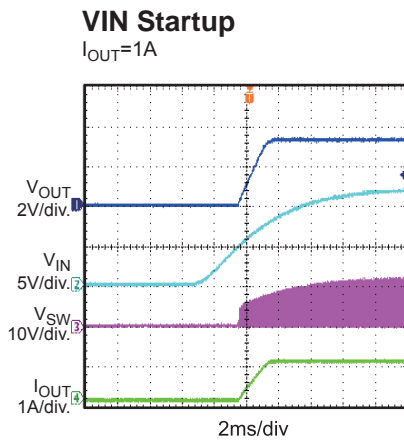
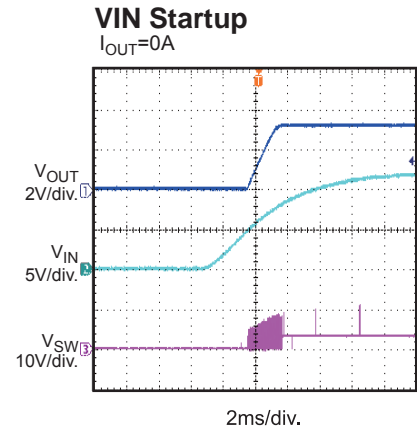
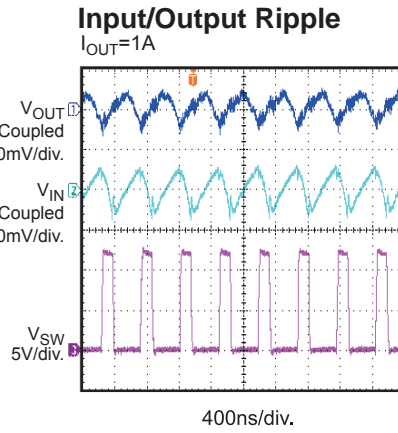
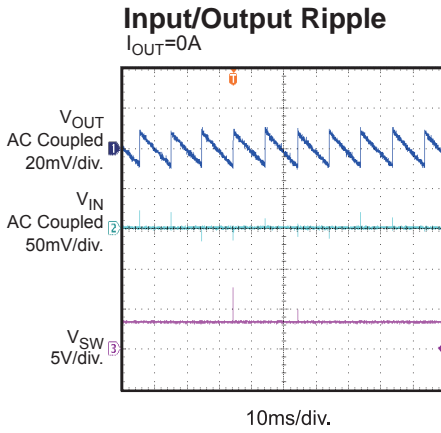
**EVALUATION BOARD SCHEMATIC**

**EVM3610-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
1	C3	NS		0402		
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	39k	Thick Film Res., 1%	0402	Any	
1	U1	MPM3610	Synchronous Step-Down Mini-Module	QFN-20	MPS	MPM3610GQV

## 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.

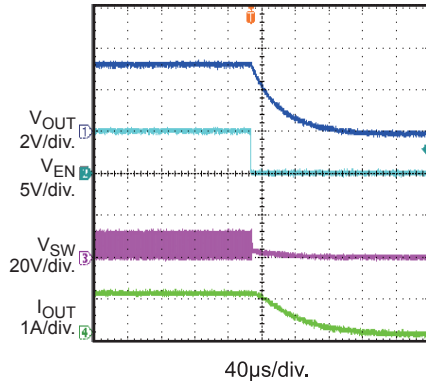


### EVB TEST RESULTS *(continued)*

Performance waveforms are tested on the evaluation board.  
 $V_{IN} = 12V$ ,  $V_{OUT} = 3.3V$ ,  $T_A = 25^\circ C$ , unless otherwise noted.

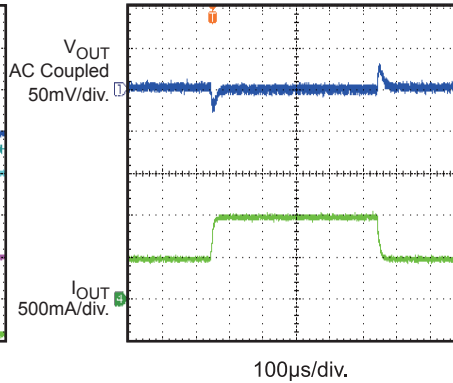
**EN Shutdown**

$I_{OUT} = 1A$

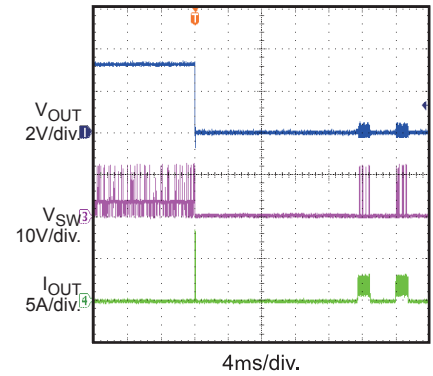


**Transient Response**

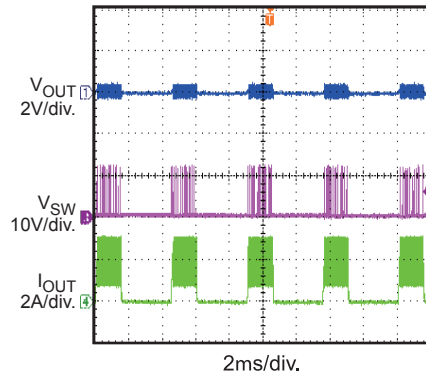
$I_{OUT} = 0.5A$  to  $1A$



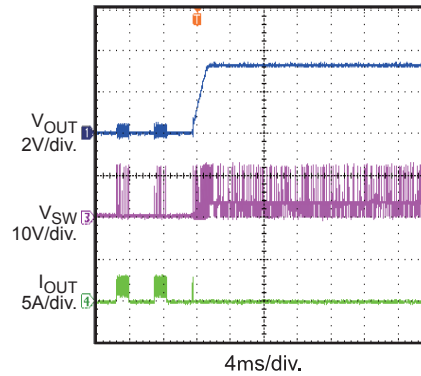
**Short Circuit Entry**



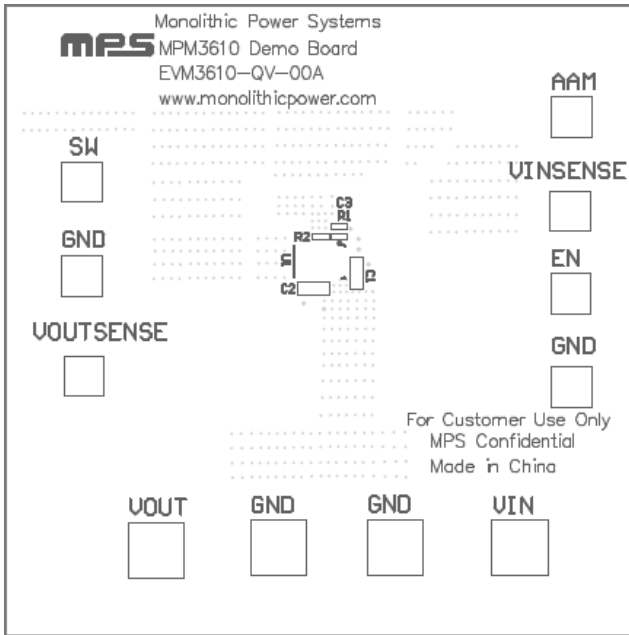
**Short Circuit Steady State**



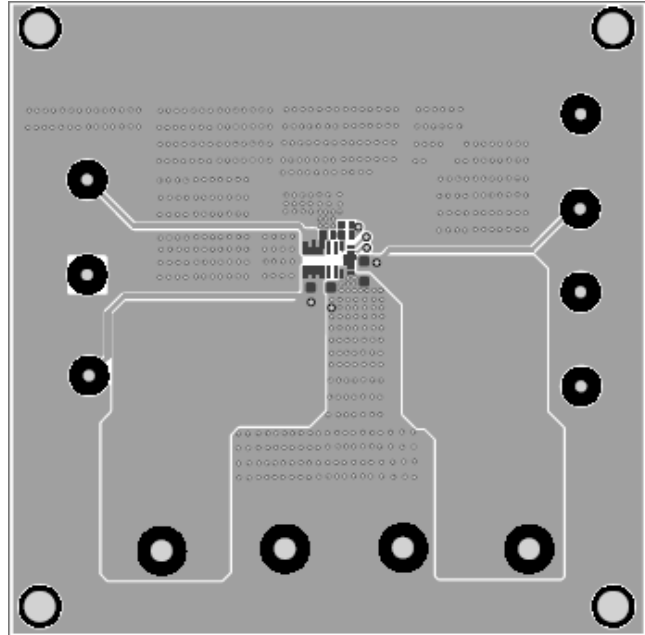
**Short Circuit Recovery**



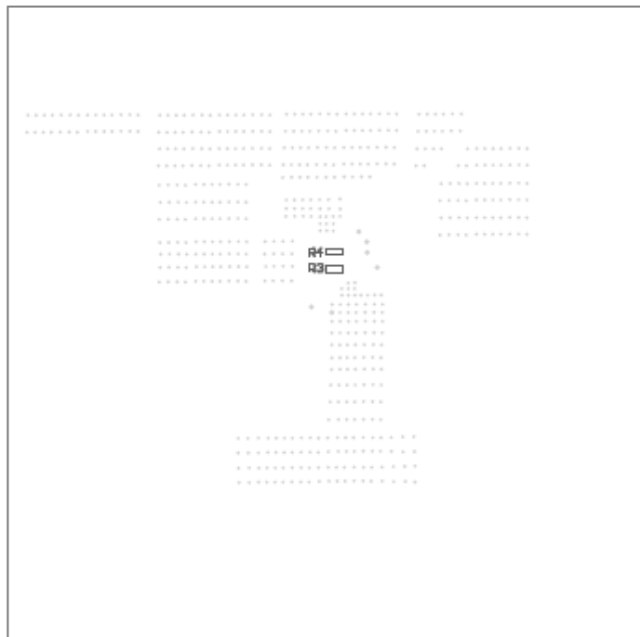
**PRINTED CIRCUIT BOARD LAYOUT**



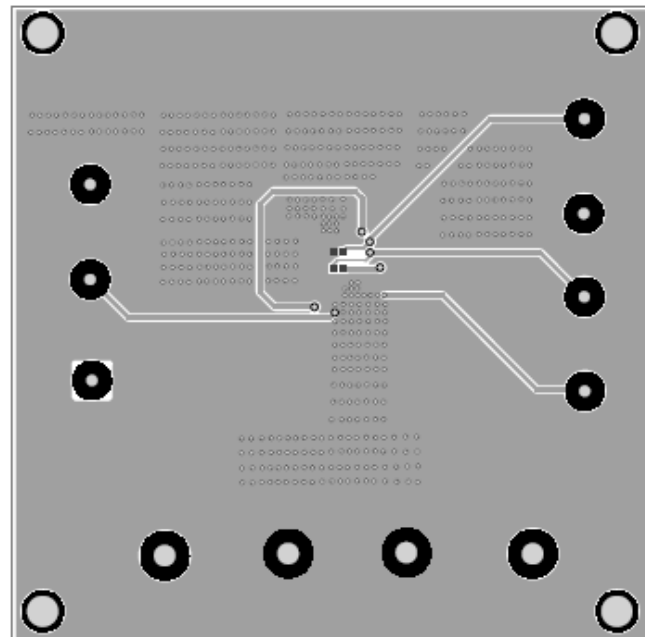
**Figure 1—Top Silk Layer**



**Figure 2—Top Layer**



**Figure 3—Bottom Silk Layer**



**Figure 4—Bottom Layer**