

DESCRIPTION

The EVQ2013-J_Q_G-00A is an evaluation board for the MPQ2013, a low linear regulator that supplies power to systems with high voltage batteries.

MPQ2013 includes a wide 2.5V to 40V input range, low dropout voltage and low quiescent supply current. The low quiescent current and low dropout voltage allow operations at extremely low power levels. Therefore, the MPQ2013 are ideal for the low power microcontrollers and the battery-powered equipments.

The EVQ2013-J_Q_G-00A is a fully assembled and tested evaluation board. It generates a +5V output voltage at load current up to 150mA from a 6V to 40V input range.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	6 – 40	V
Output Voltage	V_{OUT}	5	V
Output Current	I_{OUT}	150	mA

FEATURES

- 6V to 40V Input Range
- 3.2µA Quiescent Supply Current
- 150mA specified current
- 620mV Dropout at 150mA Load
- Output ±2% Accuracy
- Specified current limit
- Thermal Shutdown
- -40°C to +125°C Specified Junction Temperature Range
- Includes all three packages TSOT23-5, QFN6 (2x2mm), or QFN8 (3x3mm) Packages

APPLICATIONS

- Industrial/Automotive Applications
- Portable/Battery-Powered Equipment
- Ultra low power Microcontrollers
- Cellular Handsets
- Medical Imaging

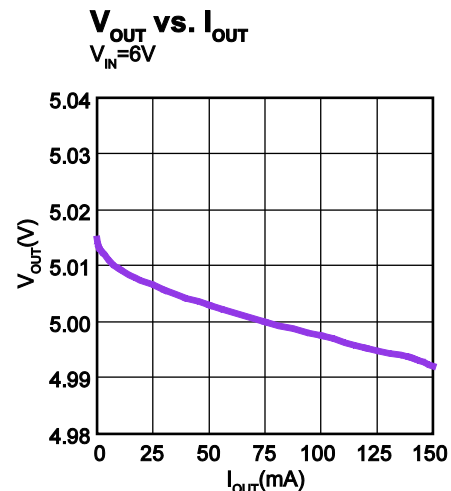
All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Quality Assurance. "MPS" and "The Future of Analog IC Technology" are Registered Trademarks of Monolithic Power Systems, Inc.

EVQ2013-J_Q_G-00A EVALUATION BOARD

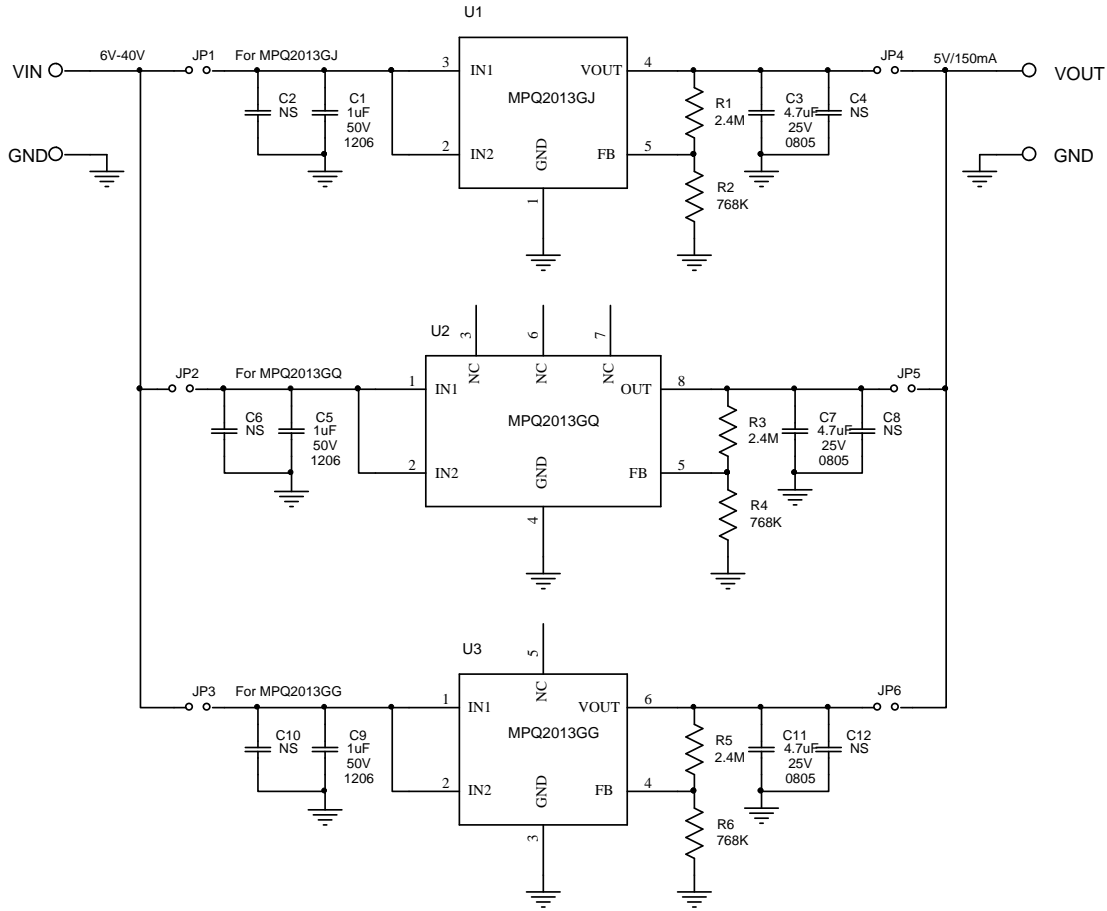


(L x W x H) 2.5" x 2.5" x 0.4"
(6.4cm x 6.4cm x 1.0cm)

Board Number	MPS IC Number
EVQ2013-J_Q_G-00A	MPQ2013-GJ/GQ/GG



EVALUATION BOARD SCHEMATIC



EVQ2013-J_Q_G-00A BILL OF MATERIALS

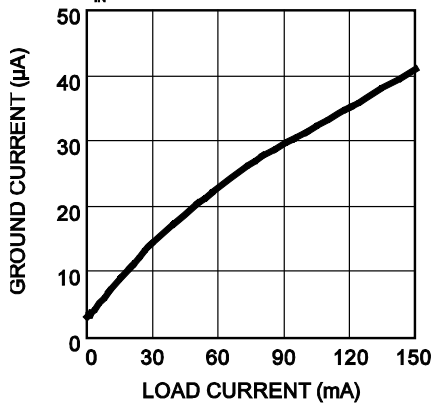
Qty	RefDes	Value	Description	Package	Manufacturer	Manufacturer_P/N
3	C1, C5, C9	1 μ F	Ceramic Cap., 50V, X7R	1206	muRata	GRM31MR71H105KA88L
3	C3, C7, C11	4.7 μ F	Ceramic Cap., 25V, X5R	0805	muRata	GRM21BR61E475KA12L
6	C2, C4, C6, C8, C10, C12	NS				
3	R1, R3, R5	2.4M	Film Res., 1%	0603	Yageo	RC0603FR-072M4L
3	R2, R4, R6	768k	Film Res., 1%	0603	Yageo	RC0603FR-07768KL
6	JP1, JP2, JP, JP4, JP5, JP6		Jumper			
1	U1	MPQ2013GJ		TSOT23-5	MPS	MPQ2013GJ
1	U2	MPQ2013GQ		QFN8-3x3	MPS	MPQ2013GQ
1	U3	MPQ2013GG		QFN6-2x2	MPS	MPQ2013GG

EVB TEST RESULTS

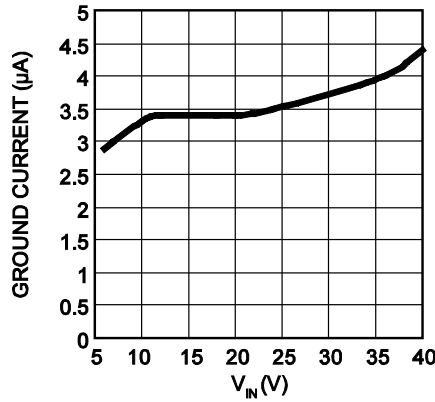
Performance waveforms are tested on the evaluation board.

$V_{OUT} = 5V$, $T_A = 25^\circ C$, unless otherwise noted.

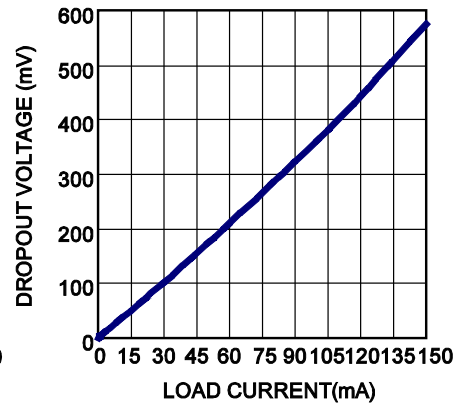
Ground Current vs. Load Current
 $V_{IN} = 6V$



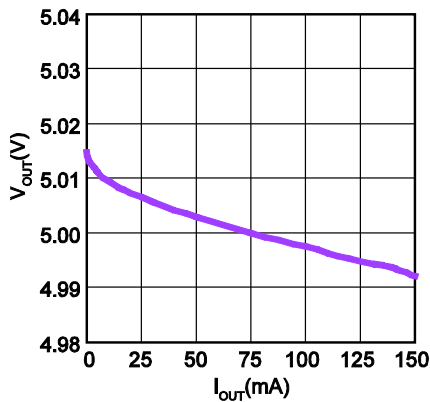
Ground Current vs. V_{IN}
 $I_o = 0mA$



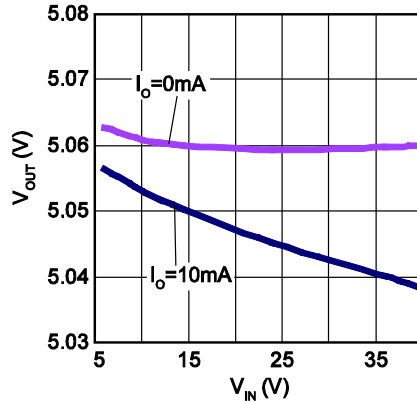
Dropout Voltage vs. Load Current



V_{OUT} vs. I_{OUT}
 $V_{IN} = 6V$

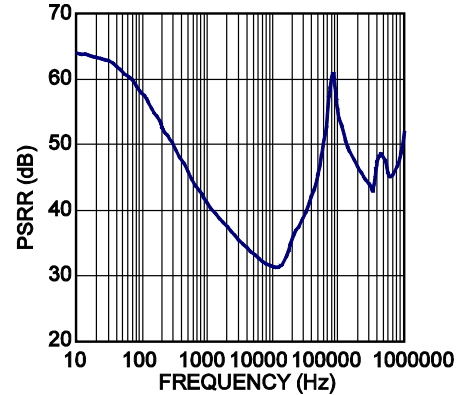


V_{OUT} vs. V_{IN}
 $V_o = 5V$



PSRR vs. Frequency

$V_{IN1} = V_{IN2} = 6V$, $I_o = 10mA$, $C_{IN} = 100pF$



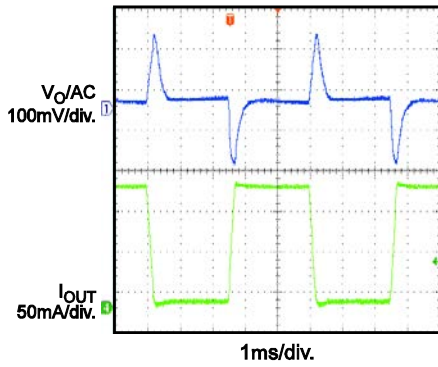
EVB TEST RESULTS *(continued)*

Performance waveforms are tested on the evaluation board.

$V_{OUT} = 5V$, $T_A = 25^\circ C$, unless otherwise noted.

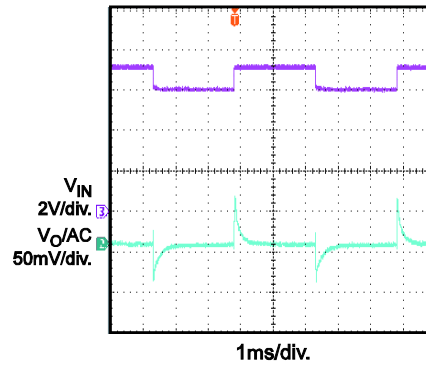
Load Transient

$V_{IN} = 12V$, $I_{OUT} = 8mA-150mA$



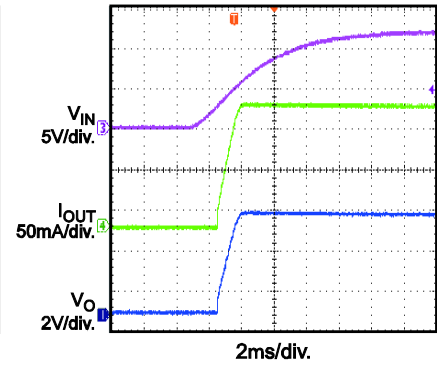
Line Transient

$V_{IN} = 6V-7V$, $I_{OUT} = 150mA$



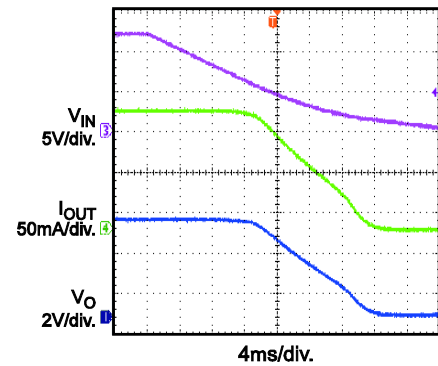
Startup Through V_{IN}

$V_{IN} = 12V$, $I_{OUT} = 150mA$



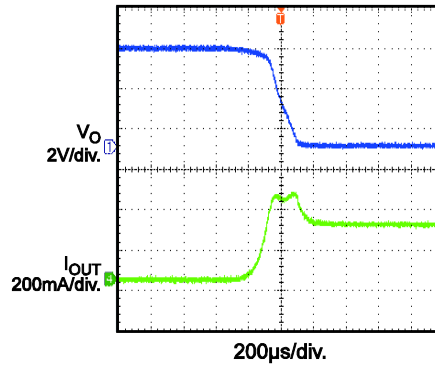
Shutdown Through V_{IN}

$V_{IN} = 12V$, $I_{OUT} = 150mA$



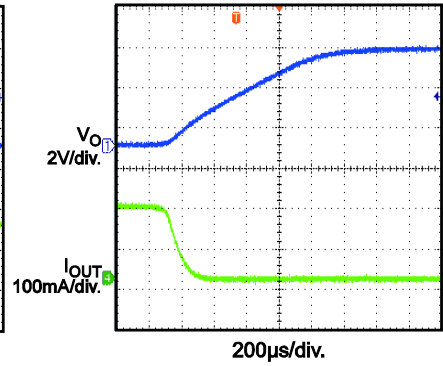
Short Circuit Entry

$V_{IN} = 12V$, $I_{OUT} = 0mA$ to short circuit



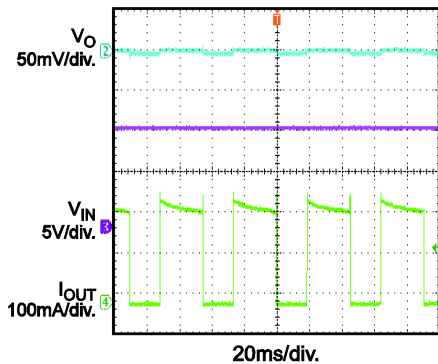
Short Circuit Recovery

$V_{IN} = 12V$, short circuit to $I_{OUT} = 0mA$



Short Circuit Steady State

$V_{IN} = 12V$



PRINTED CIRCUIT BOARD LAYOUT

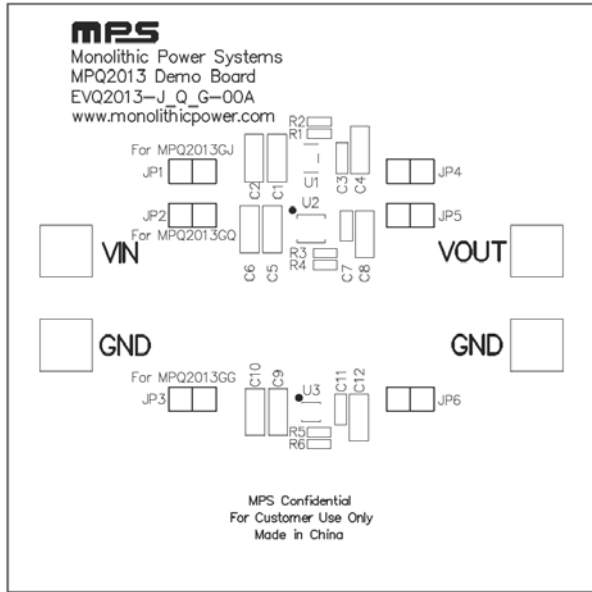


Figure 1—Top Silk Layer

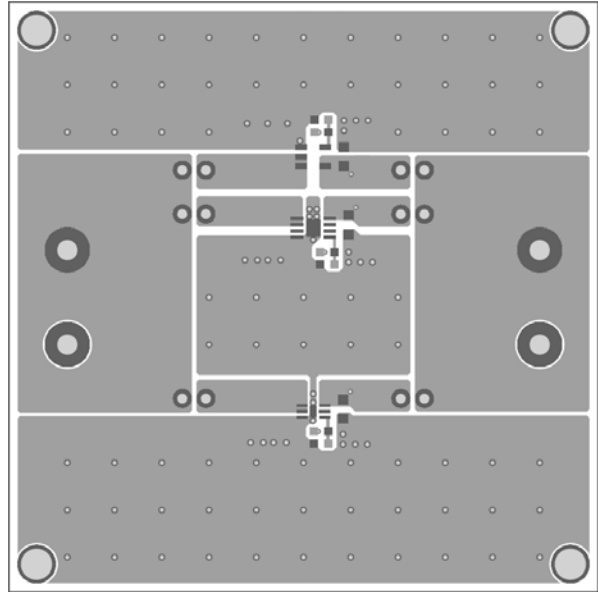


Figure 2—Top Layer

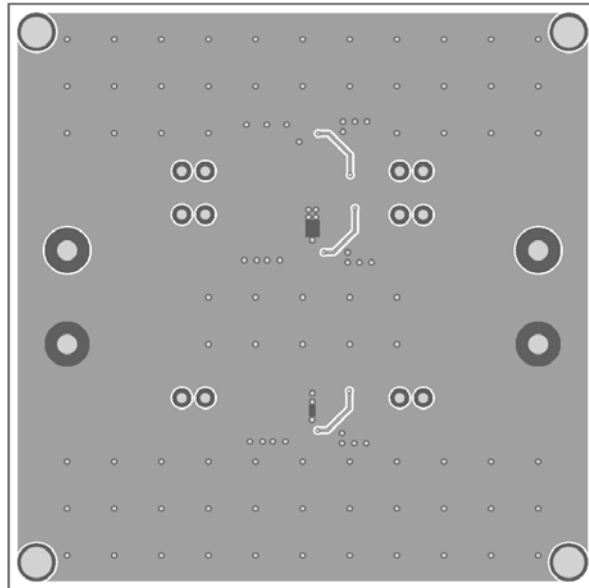


Figure 3—Bottom Layer