EV20056-G-00A

Fast Transient Response, Ultra-Small 250mA Linear Regulator EV Board

The Future of Analog IC Technology

DESCRIPTION

The EV20056-G-00A evaluation board demonstrates the performance of MP20056-18, a low noise, low dropout and high PSRR linear regulator. It operates from a 2.5V to 5.5V input voltage and the output voltage is preset internally at 1.8V.

The EV20056-G-00A can supply up to 250mA of load current, and features current limiting, over temperature protection.

An internal PMOS pass element is used to allow a low 150μA ground current, making the MP20056-G suitable for battery-power devices.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	2.5 – 5.5	V
Output Voltage	V_{OUT}	1.8	V
Load Current	I_{OUT}	250	mA

FEATURES

- Up to 250mA Output Current
- Low 100mV Dropout at 250mA
- Fast Transient Response
- 70dB PSRR at 1kHz
- 13μV_{RMS} Low Noise Output
- Fixed output voltage 1.8V
- Current Limit and Thermal Protection

APPLICATIONS

- Telecom
- Cellular Phones
- DSP, FPGA Supplies
- Hand –Held Instruments
- Notebook Computers

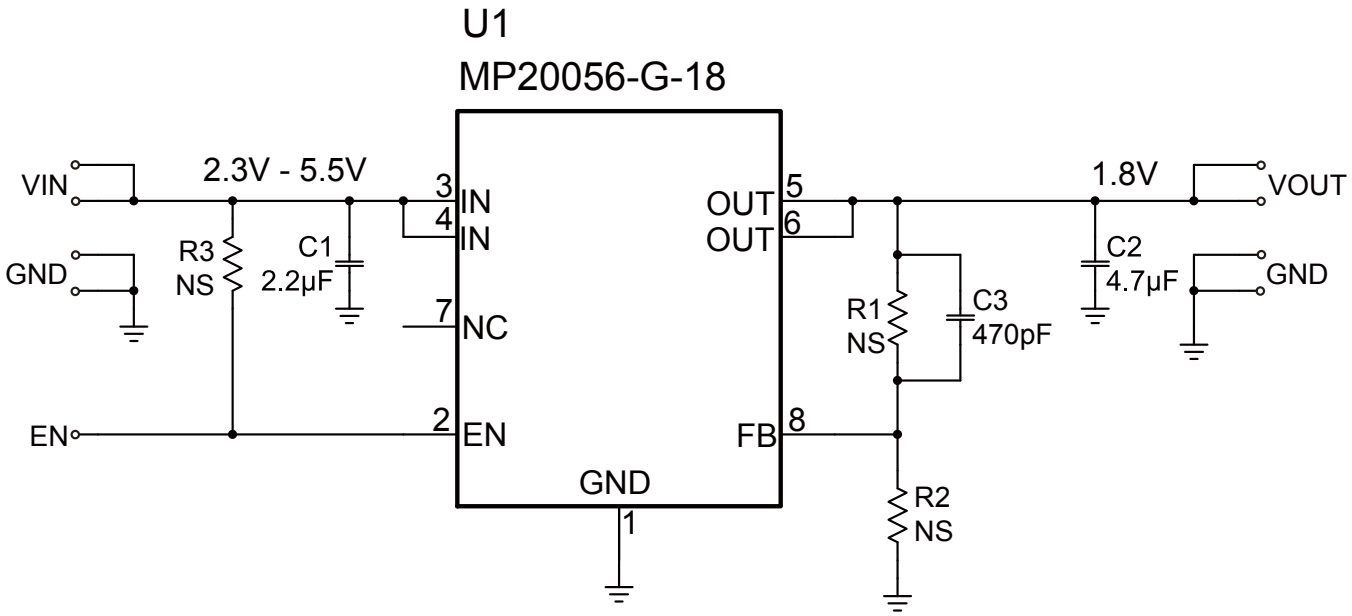
EV20056-G-00A EVALUATION BOARD

(L x W x H) 2.5" x 2.5" x 0.4"
(6.35cm x 6.35cm x 1.1cm)

Board Number	MPS IC Number
EV20056-G-00A	MP20056-G-1.8

Note: MPQ20056 and MP20056 share the same EVB.

EVALUATION BOARD SCHEMATIC



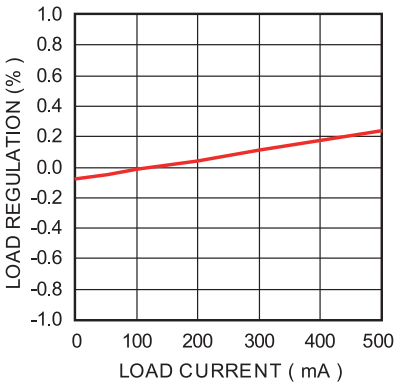
EV20056-G-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	2.2µF	Ceramic Cap., 6.3V, 10%, X5R	0603	muRata	GRM188R60J225KE19D
1	C2	4.7µF	Ceramic Cap., 6.3V, 10%, X5R	0603	muRata	GRM188R60J475KE19D
1	C3	470pF	CAP, 0603, 50V, X7R, 10%	0603	muRata	GRM188R71H471KA01D
	R1,R2,R3	NS		0603		
1	U1		Linear Regulator	QFN8(2X2mm)	MPS	MP20056GG-18-R5
4	VIN, VOUT, GND	Test Point	Test Point	2x2.54mm	HZ	China market
1	EN	Test Point	Test Point	Test Point	HZ	China market

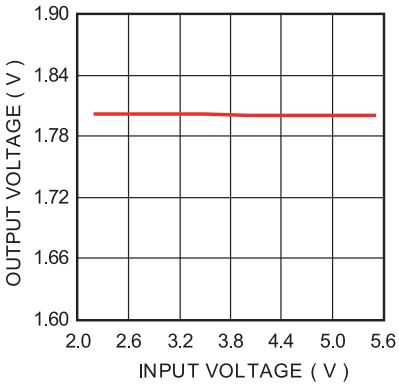
EVB TEST RESULTS

Performance waveforms are tested on the evaluation board.
V_{IN} = 2.5V, V_{OUT} = 1.8V, T_A = 25°C, unless otherwise noted.

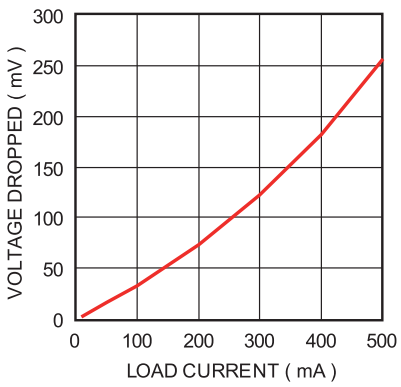
Load Regulation
V_{IN}=2.5V, V_{OUT}=1.8V



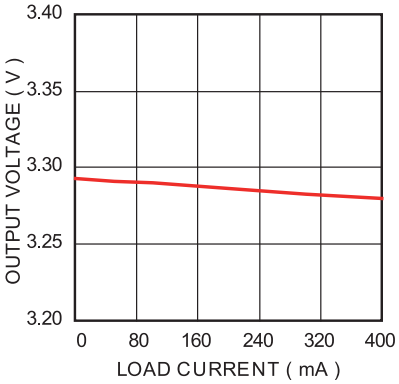
Line Regulation
I_{OUT}=50mA



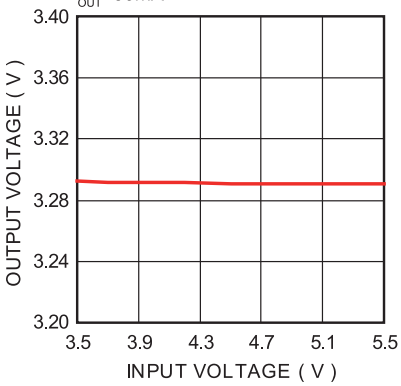
Voltage Dropped
V_{OUT}=3.3V



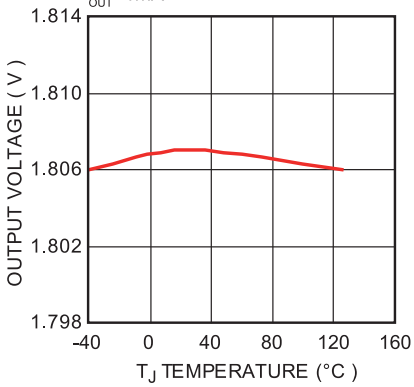
Load Regulation
V_{IN}=3.5V, V_{OUT}=3.3V



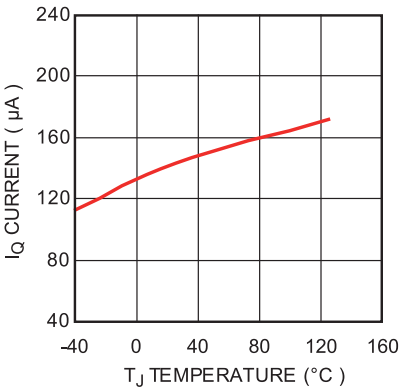
Line Regulation
I_{OUT}=50mA



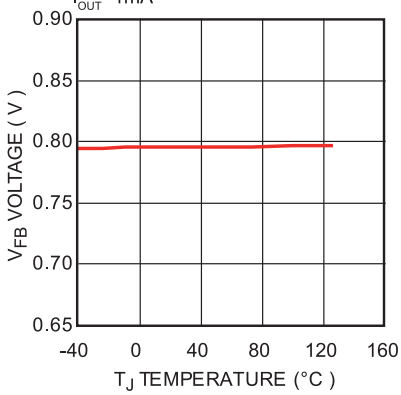
V_{OUT} vs. T_J
I_{OUT}=1mA



I_Q vs. T_J
I_{OUT}=0mA, V_{OUT}=3.3V



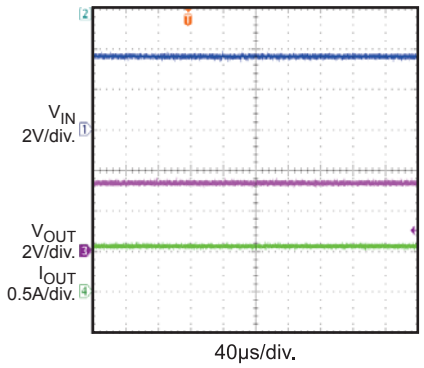
V_{FB} vs. T_J
I_{OUT}=1mA



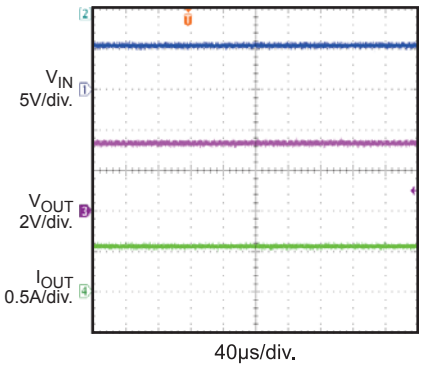
EVB TEST RESULTS *(continued)*

Performance waveforms are tested on the evaluation board.
V_{IN} = 2.5V, V_{OUT} = 1.8V, T_A = 25°C, unless otherwise noted.

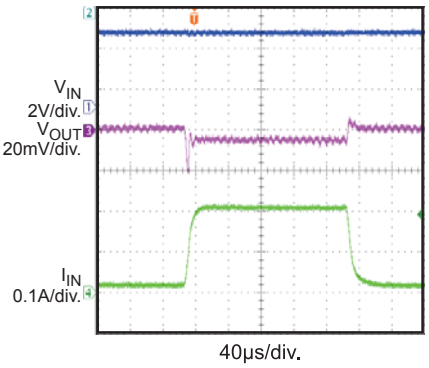
Steady State
I_{OUT} = 0.5A



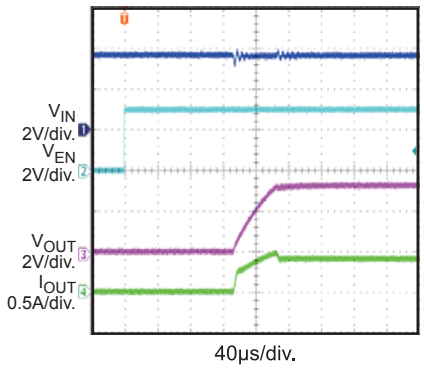
Steady State
I_{OUT} = 0.5A



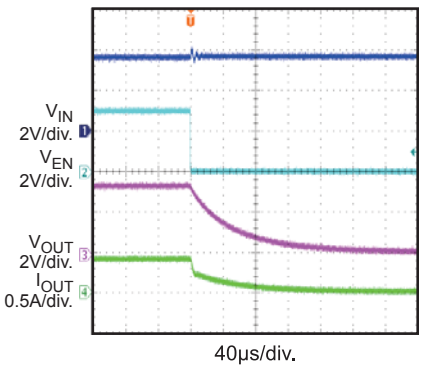
Load Transient
I_{OUT} = 50mA-0.2A



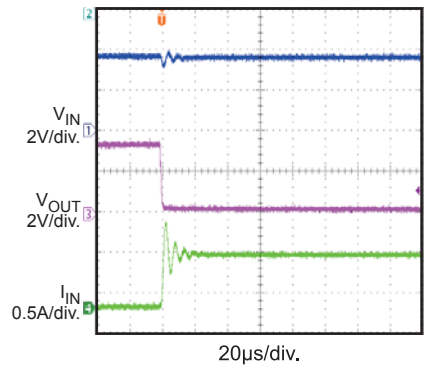
Enable On
I_{OUT} = 0.4A



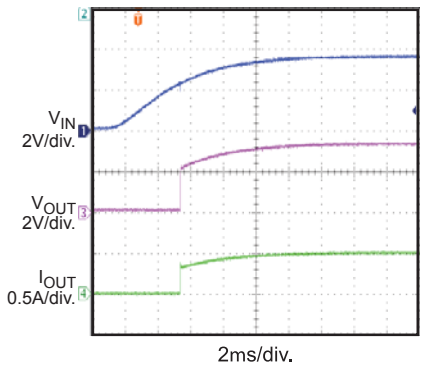
Enable Off
I_{OUT} = 0.4A



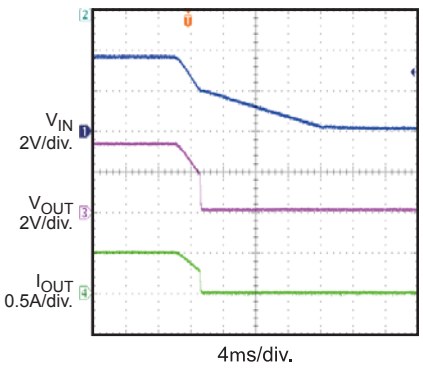
Short Output



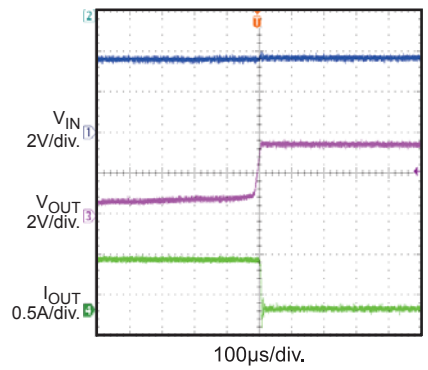
Power Ramp Up
I_{OUT} = 0.5A



Power Ramp Down
I_{OUT} = 0.5A



Short Output Recovery



PRINTED CIRCUIT BOARD LAYOUT

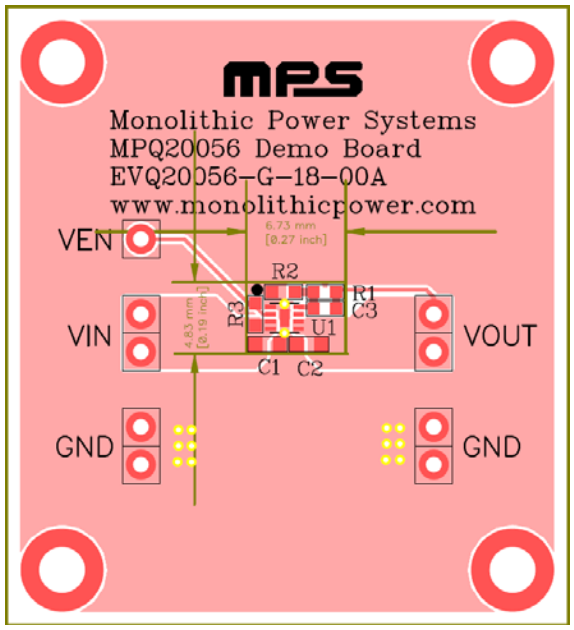


Figure 1—Top and Top Silk Layer

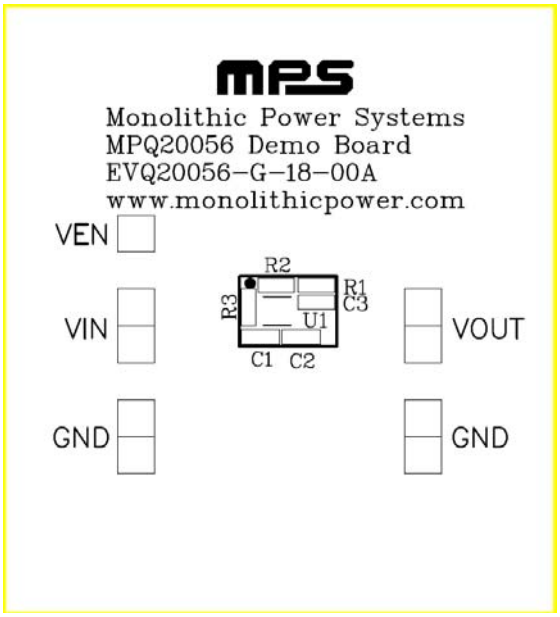


Figure 2—Top Silk Layer

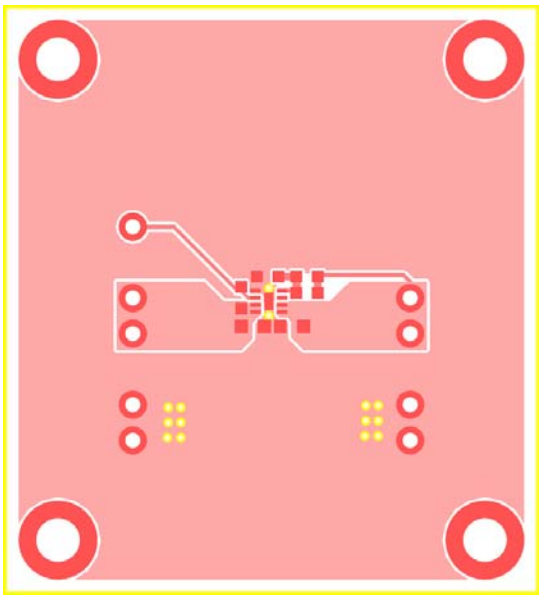


Figure 3—Top Layer