EV5610-QG-00A

2.7V-5.5V Input Dual-Ch LCD Bias Power Supply Evaluation Board

The Future of Analog IC Technology

DESCRIPTION

The EV5610-QG-00A is an evaluation board for the MP5610. The MP5610 is a dual-output converter for small size LCD panel bias supply.

With the 2.7V-5V input voltage, the EV5610-QG-00A can provide +/-5.4V output voltage with 40mA current capability for LCD. The voltage tracking between positive and negative output is good under variable load condition.

The variety protections are including in EV5610-QG-00A. Output OVP, Output UVP, Input DC Current Limit, Cycle-by-Cycle Current Limit and OTP.

ELECTRICAL SPECIFICATION

Parameter	Symbol	Value	Units
Input Voltage	VIN	2.7-5	V
Positive Output Voltage	V+	5.4	V
Negative Output Voltage	V-	-5.4	V
Output Current	Io	0-40	mA

FEATURES

- 2.7V-to-5.5V Input Voltage
- Max. 50mA Output Current for Each Output
- Up to Programmable 5.8V Output Voltage
- 0.5% Line Regulation for Step-up Converter
- 0.5% Load Regulation for Step-up Converter
- 1% Voltage Tracking Between Dual-ch
- 600mV Feedback Voltage with ±1% Accuracy
- 270us Soft Start Time
- Input DC Current Limit Protection
- Output Over Voltage Protection
- Output Under Voltage Protection
- Input UVLO Protection
- Over Temperature Protection
- Available in a QFN-10 (1.4mm×1.8mm) Package

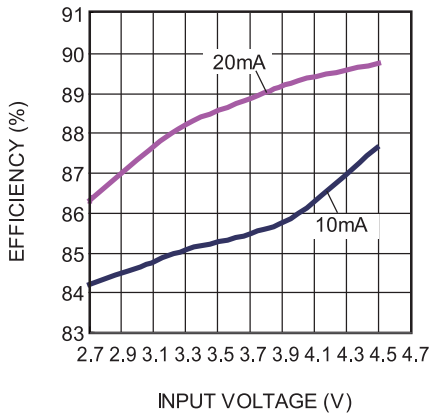
APPLICATIONS

- Feature Phones and Smart Phones
- Small Size LCD Displays

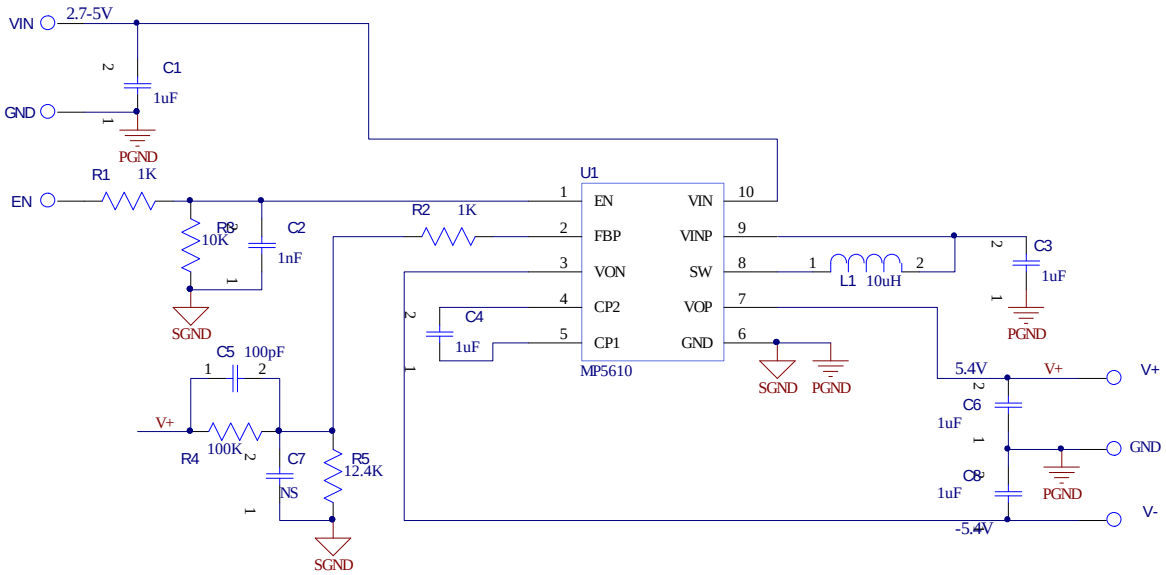
EV5610-QG-00A EVALUATION BOARD

(L × W × H) 5cm x 4.6cm x 3mm	
Board Number	**MPS IC Number**
EV5610-QG-00A	MP5610GQG

Efficiency vs. V_{IN}



EVALUATION BOARD SCHEMATIC



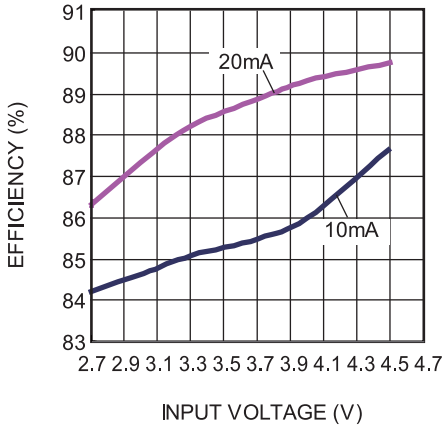
BILL OF MATERIALS

Qty	Designator	Value	Description	Package	Manufacture	Manufacture_PN
2	C1, C3	1uF/6.3V	Ceramic Capacitor;6.3V;X7R;0603;	0603	Murata	GRM188R70J105KA01D
1	C2	1nF	Ceramic Capacitor;50V;X7R;0603;	0603	TDK	C1608X7R1H102K
3	C4, C6, C8	1uF/10V	Ceramic Capacitor;10V;X7R;0603	0603	Murata	GRM188R71A105KA61D
1	C5	100pF	Ceramic Capacitor;50V;COG;0603;	0603	TDK	C1608COG1H101J
1	C7	NS				
1	L1	10uH	Inductor;10uH;420m;300mA	3225	TOKO	DFE322512C 1277AS-H-100M
2	R1, R2	1K	Film Resistor;1%	0603	Yageo	RC0603FR-071KL
1	R3	10K	Film Resistor;1%;	0603	Yageo	RC0603FR-0710KL
1	R4	100K	Film Resistor;1%;	0603	Yageo	RC0603FR-07100KL
1	R5	12.4K	Film Resistor;1%;	0603	Yageo	RC0603FR-0712K4L
1	U1	MP5610	Dual-ch LCD Bias	QFN-10	MPS	MP5610GQG

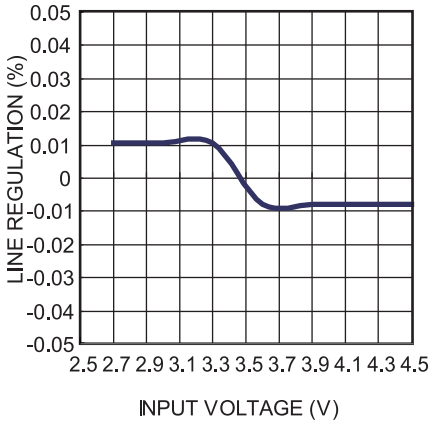
EVB TEST RESULTS

V_{IN} = 3.7V, V+= 5.4V, V-=-5.4V, T_A = 25ºC, unless otherwise noted.

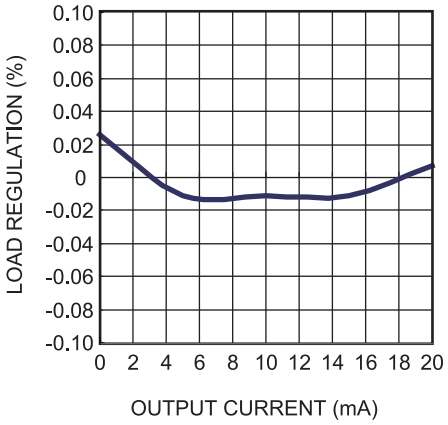
Efficiency vs. V_{IN}



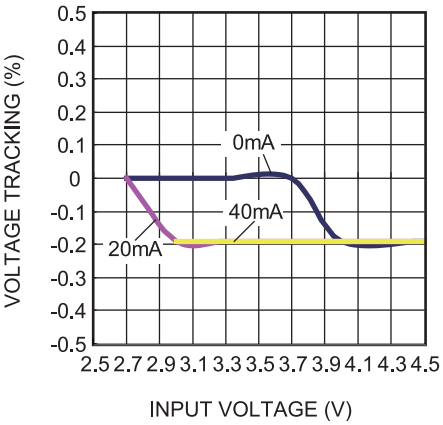
Line Regulation



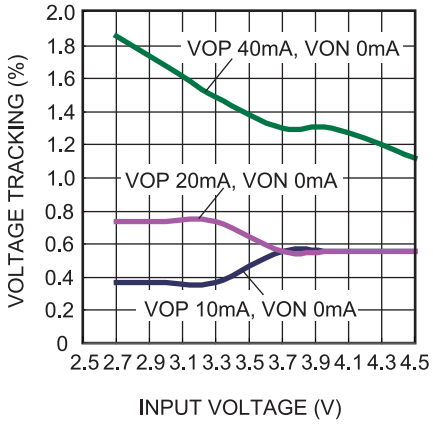
Load Regulation



Voltage Tracking @ Symmetric Load



Voltage Tracking @ Asymmetric Load



Notes:

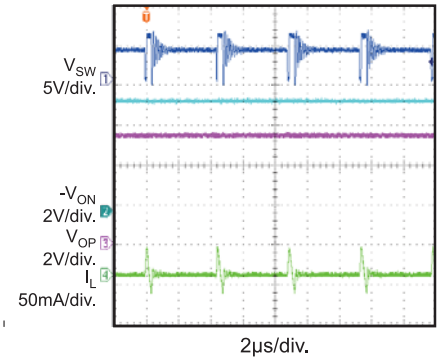
(a) Line/Load Regulation: $(V_{OP}-V_{OP\_AVG})/V_{OP\_AVG}*100\%$.

(b) Voltage Tracking: (|VON|-VOP)/VOP*100%.

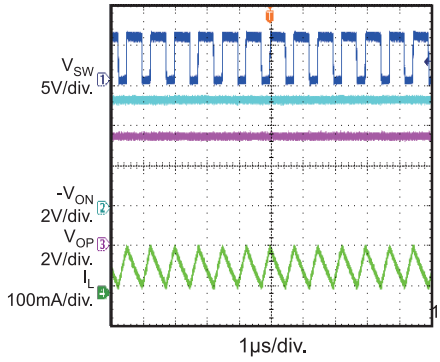
EVB TEST RESULTS *(continued)*

V_{IN} = 3.7V, V+= 5.4V, V-=-5.4V, T_A = 25ºC, unless otherwise noted.

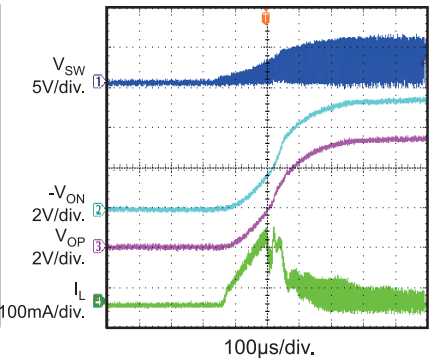
Steady State @ No Load



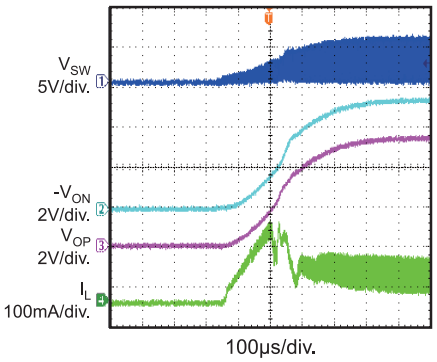
Steady State @ 20mA Symmetric Load



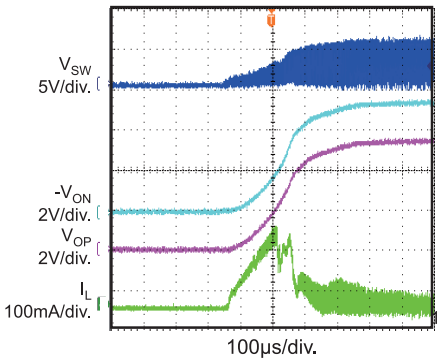
V_{IN} Startup @ No Load



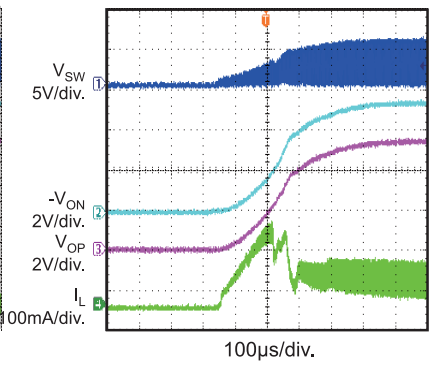
V_{IN} Startup @ 20mA Symmetric Load



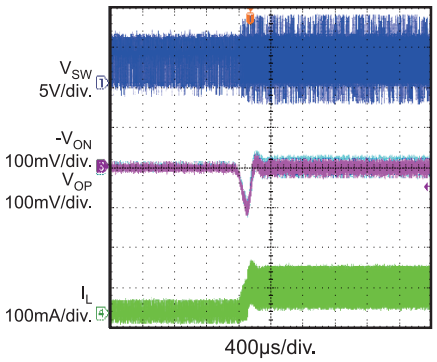
EN Startup @ No Load



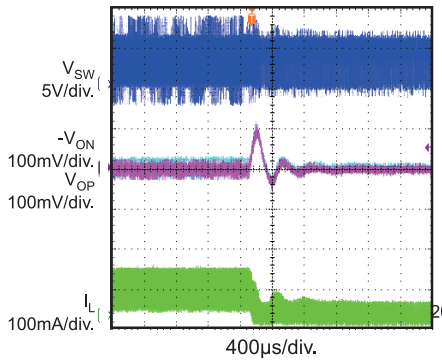
EN Startup @ 20mA Symmetric Load



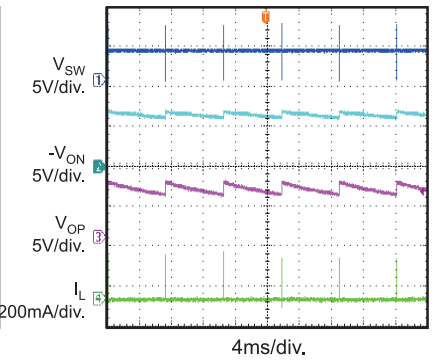
Load Transient
0->20mA



Load Transient
20mA->0mA



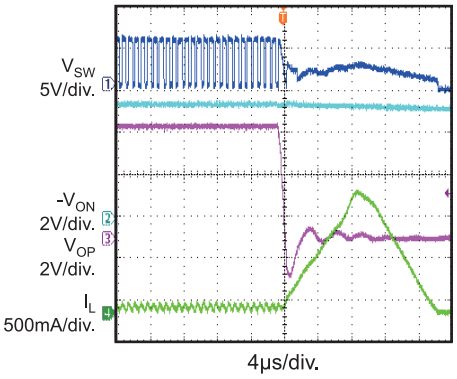
Over Voltage Protection



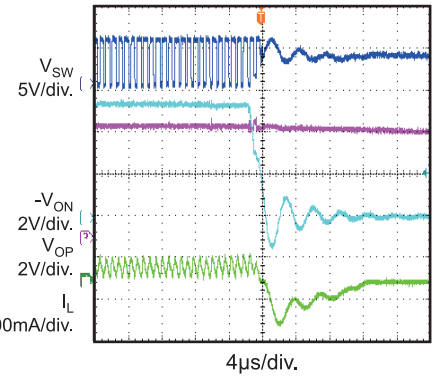
EVB TEST RESULTS *(continued)*

V_{IN} = 3.7V, V+= 5.4V, V-=-5.4V, T_A = 25ºC, unless otherwise noted.

VOP
Under Voltage Protection



VON
Under Voltage Protection



PRINTED CIRCUIT BOARD LAYOUT

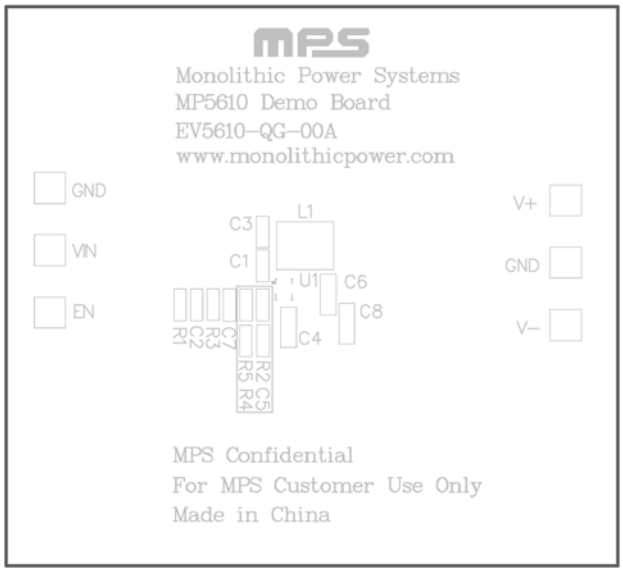


Figure 1—Top Silk Layer

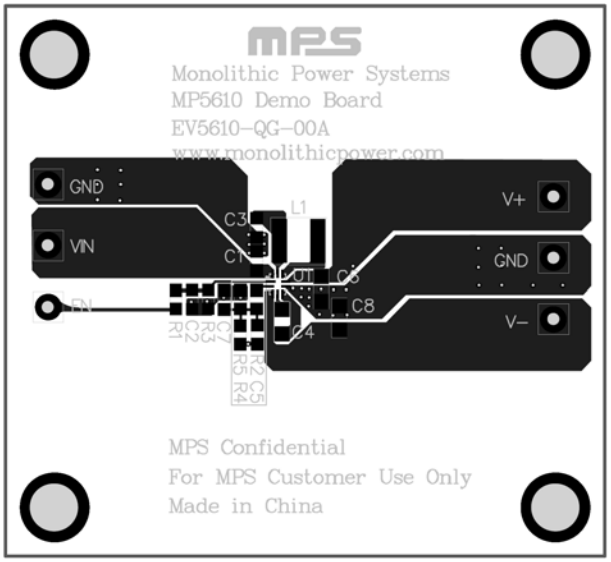


Figure 2—Top Layer

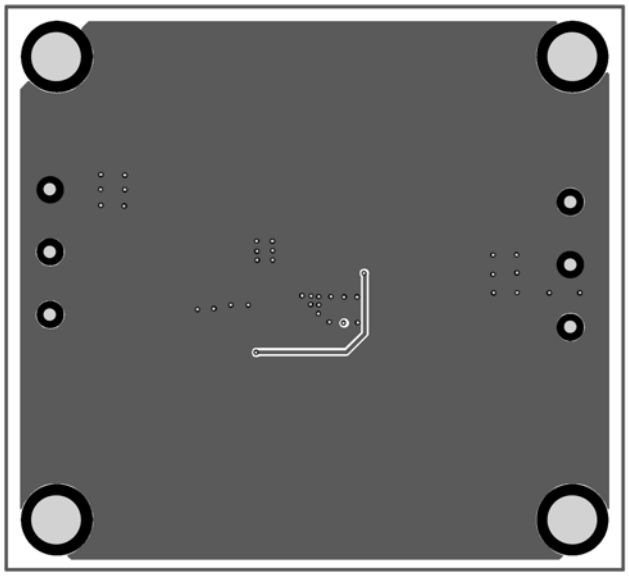


Figure 3—Bottom Layer