

TPS82681xxEVM-589 Evaluation Module

The TPS82681xxEVM-589 facilitates the evaluation of the TPS8268xxx MicroSiP™ module family. There are two EVMs in this family: TPS8268105EVM-589 (PWR589-001) and TPS8268180EVM-589 (PWR589-002). PWR589-001 outputs a 1.05-V output voltage at up to 1.6 A of output current, while PWR589-002 outputs a 1.80-V output voltage at up to 1.6 A of output current. Both EVMs operate from input voltages between 2.5 V and 5.5 V

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1 Introduction

The TPS8268xxx are synchronous, step-down modules in a 2.3- x 2.9- x 1-mm package. All required passives are included.

1.1 Performance Specification

[Table 1](#) provides a summary of the TPS82681xxEVM-589 performance specifications.

Table 1. Performance Specification Summary

Specification	Test Conditions	Min	Typ	Max	Unit
Input Voltage		2.5	3.6	5.5	V
Output Voltage Setpoint	TPS8268105EVM-589		1.05		V
	TPS8268180EVM-589		1.8		
Output Current		0		1600	mA

1.2 Modifications

The printed-circuit board (PCB) for this EVM is designed to accommodate some modifications by the user. Additional input and output capacitors can be added.

1.2.1 Input and Output Capacitors

C2 is provided for an additional input capacitor. This capacitor is not required for proper operation but can be used to reduce the input voltage ripple.

C3, C4, and C5 are provided for additional output capacitors. These capacitors are not required for proper operation but can be used to reduce the output voltage ripple and to improve the load transient response. The total output capacitance must remain within the recommended range in the data sheet for proper operation.

2 Setup

This section describes how to properly use the TPS82681xxEVM-589.

2.1 Input/Output Connector Descriptions

J1 – VIN	Positive input connection from the input supply for the EVM
J2 – S+/S–	Input voltage sense connections. Measure the input voltage at this point.
J3 – GND	Return connection from the input supply for the EVM
J4 – VOUT	Output voltage connection
J5 – S+/S–	Output voltage sense connections. Measure the output voltage at this point.
J6 – GND	Output return connection
JP1 – EN	EN pin input jumper. Place the supplied jumper across ON and EN to turn on the IC. Place the jumper across OFF and EN to turn off the IC.

2.2 Setup

To operate the EVM, set jumper JP1 to the desired position per [Section 2.1](#). Connect the input supply to J1 and J3 and connect the load to J4 and J6.

3 TPS82681xxEVM-589 Test Results

The TPS82681xxEVM-589 was used to take all the data in the TPS82681xx data sheet ([SLVSBRO](#)). See the device data sheet for the performance of this EVM.

4 Board Layout

This section provides the TPS82681xxEVM-589 board layout and illustrations in [Figure 2](#) through [Figure 4](#). The Gerbers are available on the EVM product page: [TPS8268105EVM-589](#).

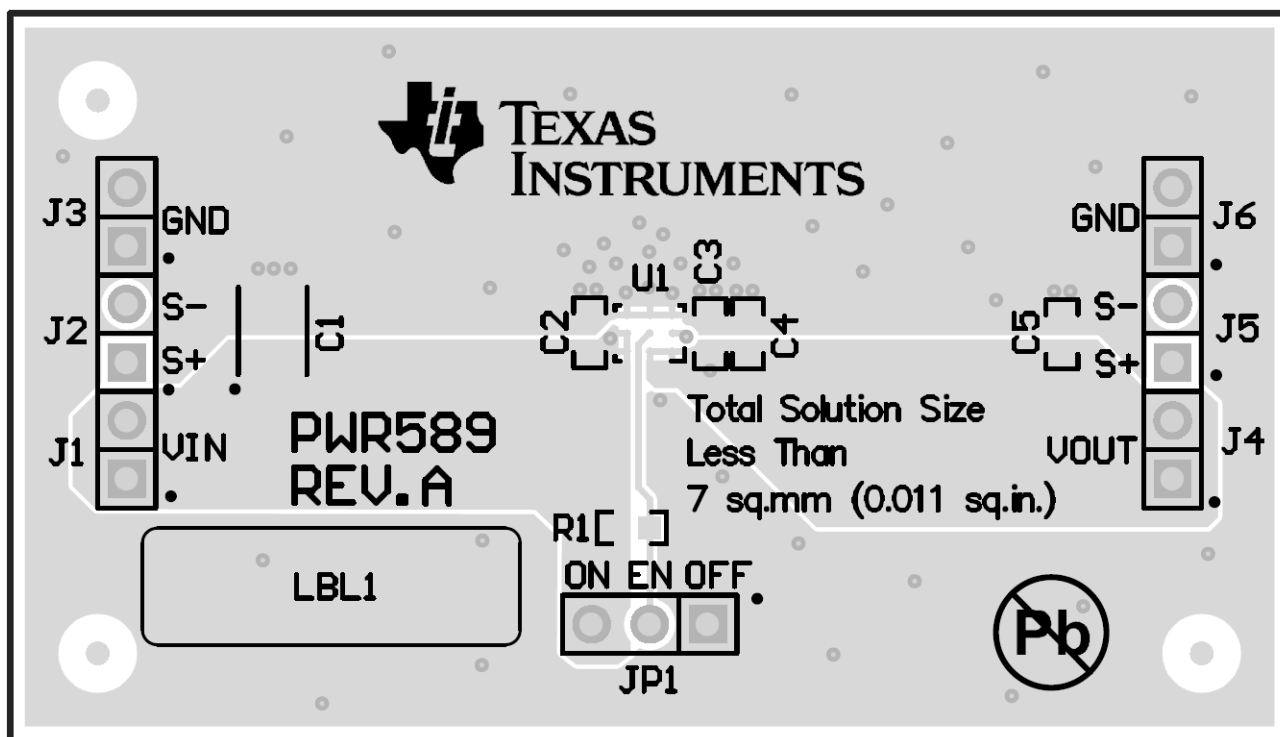


Figure 1. Top Assembly

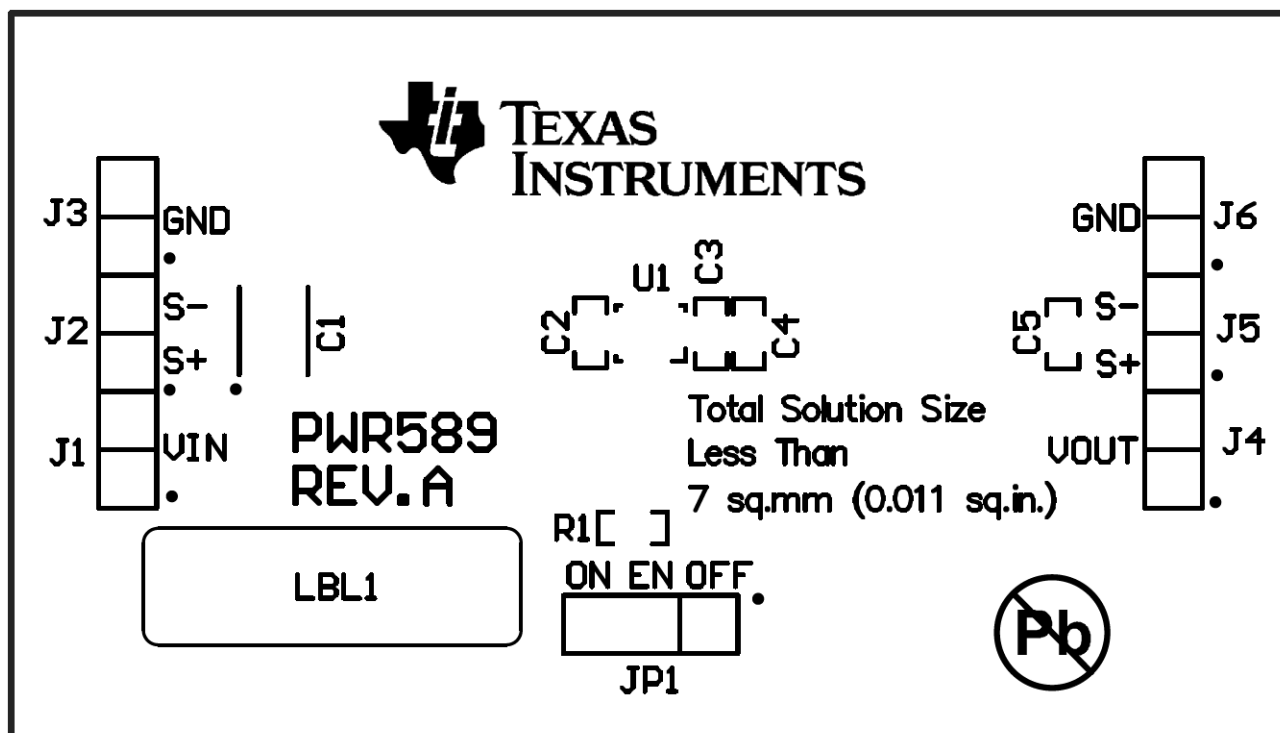


Figure 2. Top Silkscreen Layer

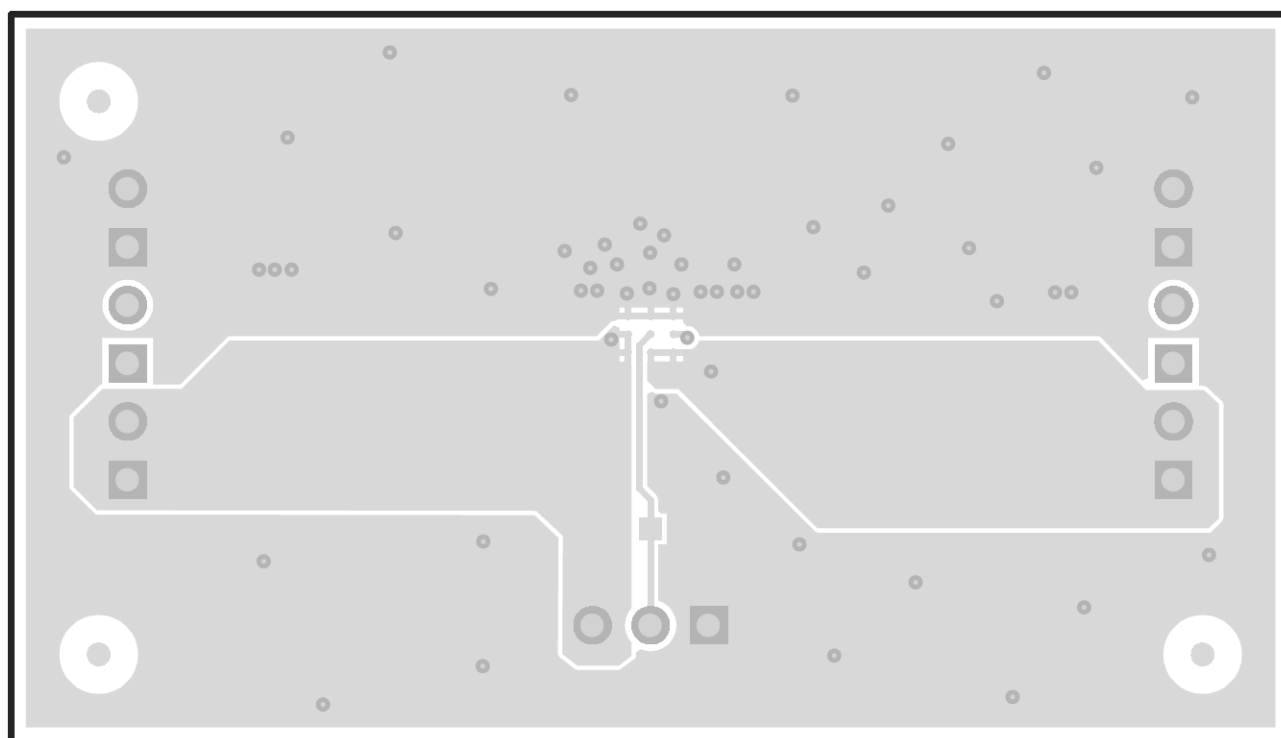


Figure 3. Top Copper Layer

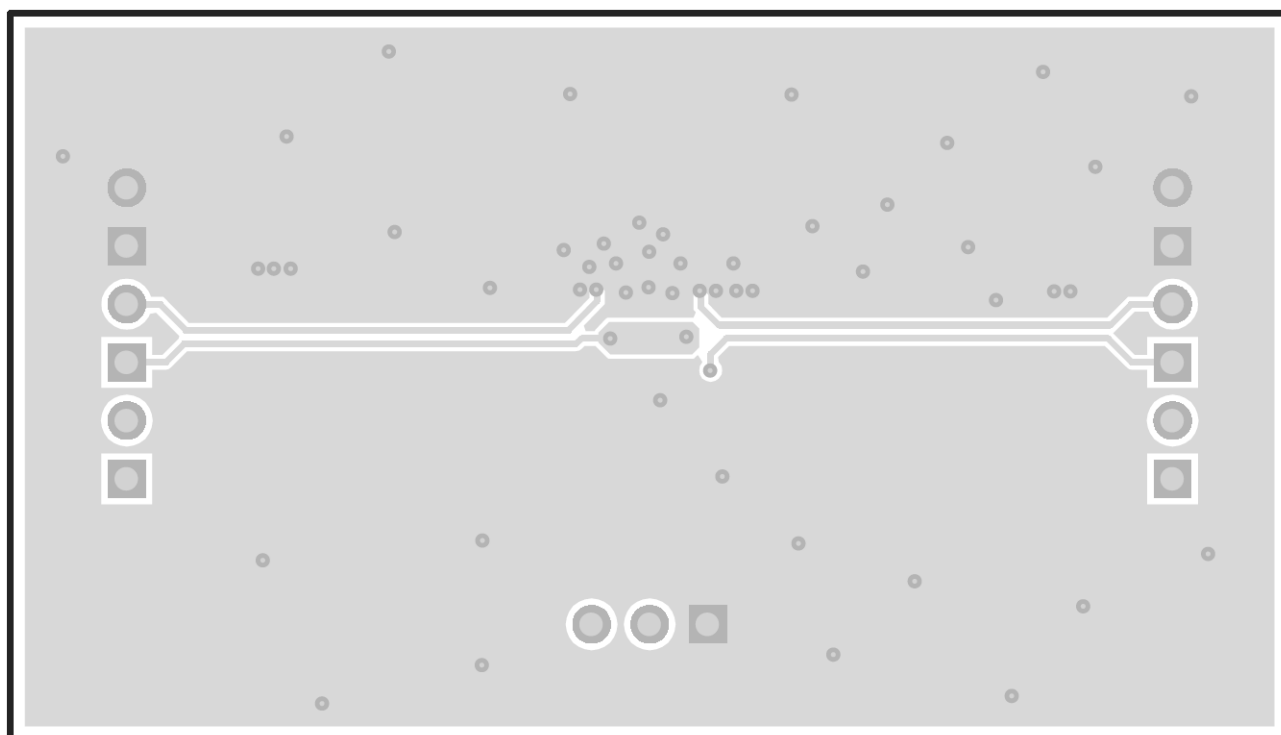


Figure 4. Bottom Copper Layer

This section provides the TPS82681xxEVM-589 schematic and bill of materials (BOM).

Figure 5 illustrates the EVM schematic.



Table 2 lists the BOM for this EVM.

Count		RefDes	Value	Description	Size	Part Number	MFR
PWR589-001	PWR589-002						
1	1	C1	150μF	Capacitor, Tantalum, 6.3V, 25 mΩ, 20%	3528	T520B157M006ATE025	Kemet
1	1	R1	1MΩ	Resistor, 1%, 0.1W	0603	Std	Std
1	0	U1	TPS8268105	IC, 1600-mA High-Efficiency MicroSiP™ Step-Down Converter Module	2.3 mm x 2.9 mm	TPS8268105SIP	TI
0	1	U1	TPS8268180	IC, 1600-mA High-Efficiency MicroSiP™ Step-Down Converter Module	2.3 mm x 2.9 mm	TPS8268180SIP	TI

Changes from Original (October 2014) to A Revision

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

3.2 Canada

3.2.1 For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210

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Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Concernant les EVMs avec antennes détachables

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

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http://www.tij.co.jp/llds/ti_ja/general/eStore/notice_01.page

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2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

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