User's Guide
SLVUAG4–June 2015

TPS610981 Evaluation Module

This document describes the characteristics, operation and use of the TPS61098/TPS610981/TPS610982 evaluation module (EVM). TPS61098x provides an ultra-low quiescent power supply solution for products powered by either a single-cell or two-cell alkaline, one-cell coin cell battery. The TPS61098/TPS610981 integrates a load switch or LDO so that it can provide two separate output power rails, Vmain and Vsub. In Low-Power mode, the LDO or load switch is disabled and the device only consumes 300-nA quiescent current

This EVM is compatible for the TPS61098, TPS610981, and TPS610982.

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1 Introduction

1.1 Performance Specification

The TPS610981 EVM helps designers evaluate the operation and performance of the TPS61098x boost converter. TPS61098x is a fixed output version with a different part number. See Table 1 for detailed information of each version. Mode pin selection determines whether the device operates in Active mode or Low Power mode. In Active mode, both outputs are enabled with enhanced performance. In Low-Power mode, the LDO or load switch is disabled with only 300-nA quiescent current consumed by the device.

1.2 Applications

- Smart remote control
- BLE tag
- Wearable application
- Low-power wireless application
- Portable consumer or medical products
- Single coin cell, single or two-cell alkaline powered applications

2 Input/Output Connector Descriptions

This section describes how to properly use the TPS610981.

2.1 Connection and Jumper for U1

J1/J3 - VIN/GND	Positive input connection from the input supply for the EVM
J2 – S+/S–	Input voltage sense connections. Measure the input voltage at this point.
J4/J8 – Vmain/GND	Output connection of boost converter for the EVM
J5 – S+/S–	Vmain output voltage sense connection, measure the output voltage
J6/J9 – Vsub/GND	Output connection of Load Switch/LDO for the EVM
J7 – S+/S–	Vsub output voltage sense connection, measure the output voltage
JP1 – Mode	Active/Low Power mode selection pin, can be either connected to Vmain or GND as shown in Table 1.

Table 1. Mode Pin Selection and Output Version

Part Number	Vmain (Active)	Vmain (Low Power)	Vsub (Active)	Vsub (Low Power)
TPS61098	4.3 V	2.2 V	3.1 V	OFF
TPS610981	3.3 V	3.3 V	3.0 V	OFF
TPS610982	3.3 V	3.3 V	2.8 V	2.8 V

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3 Schematic and Bill of Materials

This section provides the TPS610981 schematics and the bill of materials

3.1 Schematic

Figure 1 illustrates the TPS610981 schematic.

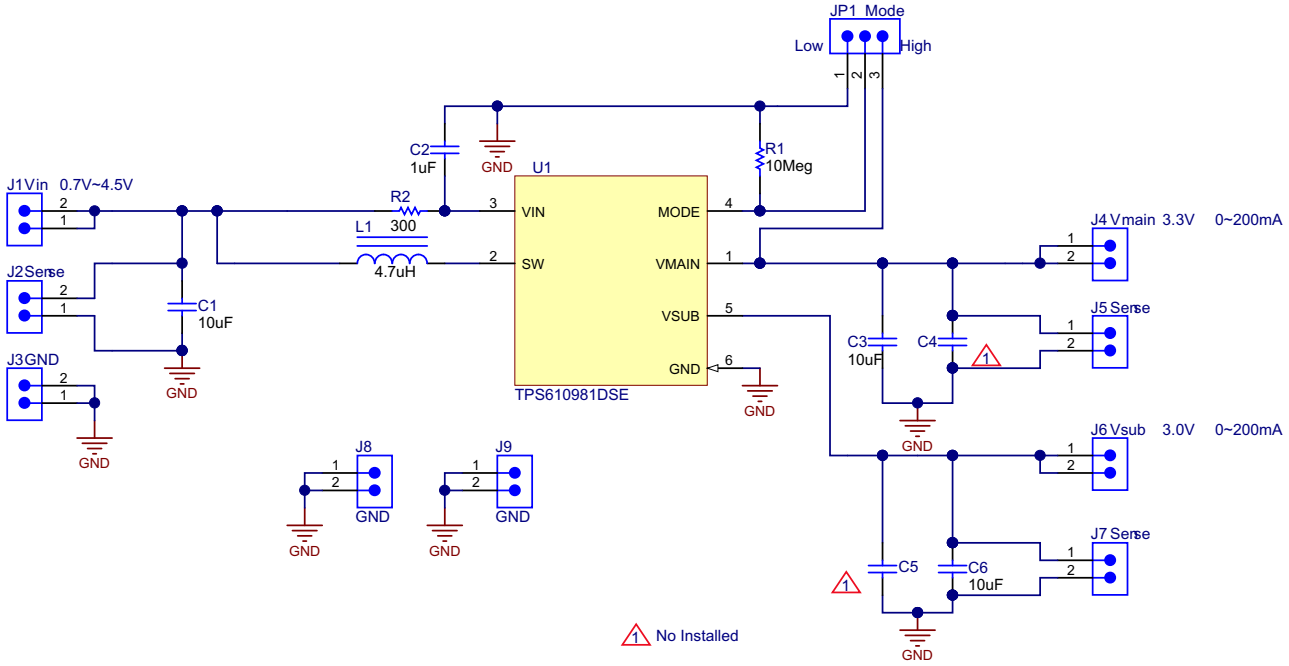


Figure 1. TPS610981 Schematic

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3.2 Bill of Materials

Table 2 provides the bill of the materials of the EVM board.

Table 2. TPS610981 Bill of Materials

Designator	Footprint	Part Number	Value	Description
C1	0603	GRM188R60J106ME47D	10 µF	CAP, CERM, 10 µF, 6.3 V, ±20%, X5R, 0603
C2	0402	GRM155R61A105KE15D	1 µF	CAP, CERM, 1 µF, 10 V, ±10%, X5R, 0402
C3	0402	GRM155R60G106ME44D	10 µF	CAP, CERM, 10 µF, 4 V, ±20%, X5R, 0402
C4	0603	GRM188R60G226MEA0L	22 µF	CAP, CERM, 22 µF, 4 V, ±20%, X5R, 0603
C5	0402	GRM155R60G106ME44D	10 µF	CAP, CERM, 10 µF, 4 V, ±20%, X5R, 0402
C6	0402	GRM155R60G106ME44D	10 µF	CAP, CERM, 10 µF, 4 V, ±20%, X5R, 0402
L1	VLF302510MT	VLF302510MT-4R7M	4.7 µH	Inductor, Shielded, Ferrite, 4.7 µH, 0.86 A, 0.168 ohm, SMD
R1	0603	CRCW060310M0JNEA	10 MΩ	RES, 10 MΩ, 5%, 0.1 W, 0603
R2	0402	CRCW0402300RJNED	300 Ω	RES, 300 Ω, 5%, 0.063 W, 0402
U1	DSE0006A	TPS61098DSE		Low Input Voltage Synchronous Boost with Ultra-Low Quiescent Current and Integrated LDO/Load Switch, DSE006A

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4 Board Layout

Figure 2 through Figure 4 show the design of the TPS610981 EVM PCB layout. The board is designed using a 2-layer PCB. Poor layout could lead to stability problems as well as EMI problems. Place the input and output capacitor, as well as the inductor, as close as possible to the IC.

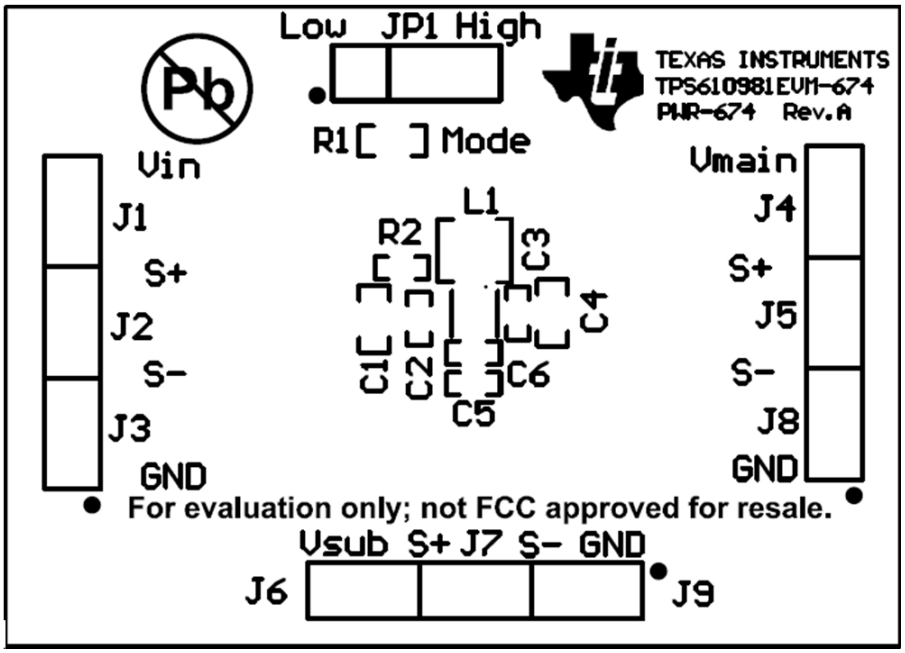


Figure 2. Silk Screen (Viewed from Top)

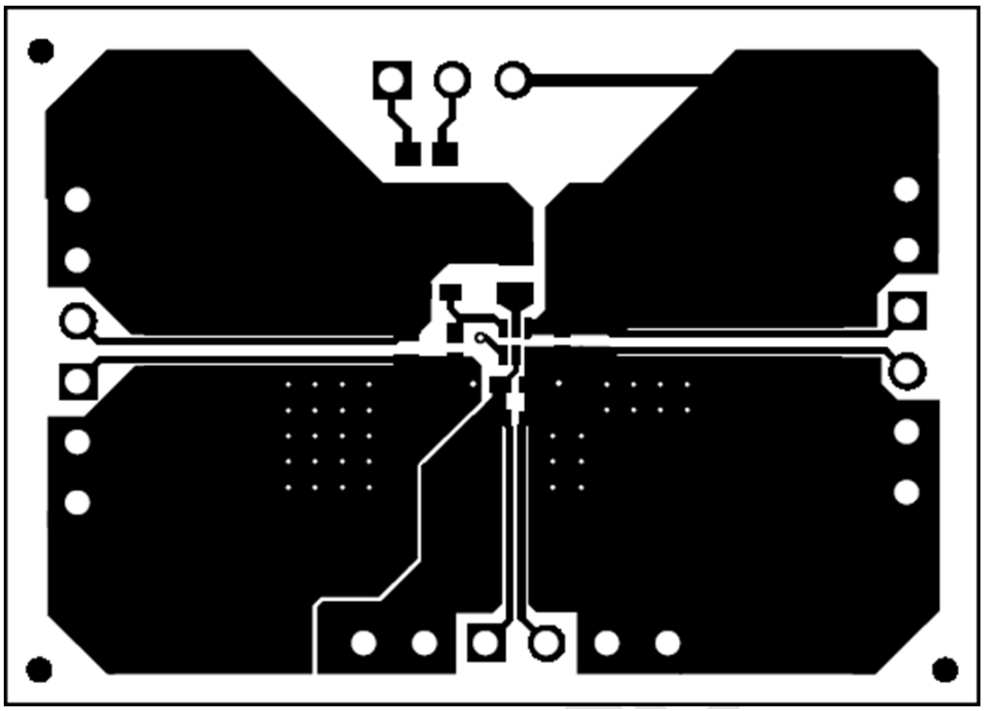


Figure 3. Top Layer (Viewed from Top)

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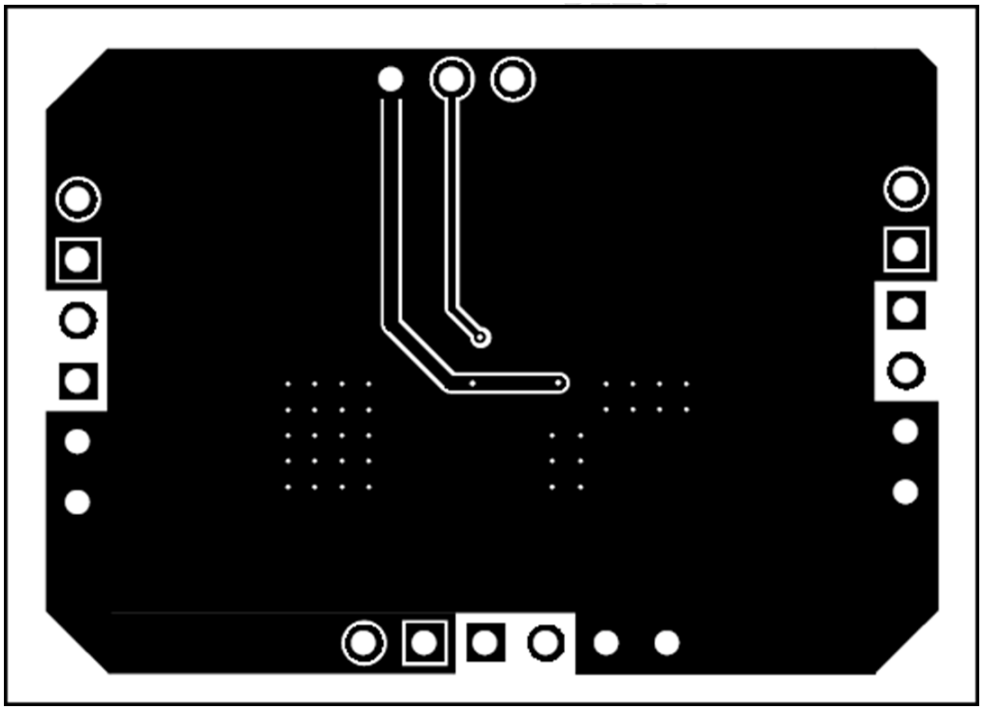


Figure 4. Bottom Layer (Viewed from Top)

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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.*

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Concernant les EVMs avec antennes détachables

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