

TPS6283810EVM-078 Evaluation Module

The TPS6283810EVM-078 facilitates the evaluation of the TPS6283810 3-A, step-down converter with DCS-Control™ in a tiny 1.2-mm by 0.8-mm WCSP package with 0.4-mm pitch. The EVM outputs a 1.0-V output voltage with 1% accuracy from input voltages between 2.4V and 5.5V with a maximum solution height of 1 mm. The TPS6283810 is a highly efficient and tiny solution for point-of-load (POL) converters for space-constrained applications, such as solid state drives (SSDs), wearables, and smart phones.

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1 Introduction

The TPS6283810 is a synchronous, step-down converter in a 1.2- x 0.8- x 0.5-mm wafer chip-scale package (WCSP).

1.1 Performance Specification

[Table 1](#) provides a summary of the TPS6283810EVM-078 performance specifications.

Table 1. Performance Specification Summary

SPECIFICATION	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input voltage		2.4	5	5.5	V
Output voltage setpoint			1.0		V
Output current		0		3000	mA

1.2 Modifications

Additional input and output capacitors can be added.

2 Setup

This section describes how to properly use the TPS6283810EVM-078.

2.1 Input/Output Connector Descriptions

J1, Pin 1 and 2 – VIN	Positive input connection from the input supply for the EVM.
J1, Pin 3 and 4 – S+/S-	Input voltage sense connections. Measure the input voltage at this point.
J1, Pin 5 and 6 – GND	Input return connection from the input supply for the EVM.
J2, Pin 1 and 2 – VOUT	Output voltage connection.
J2, Pin 3 and 4 – S+/S-	Output voltage sense connections. Measure the output voltage at this point.
J2, Pin 5 and 6 – GND	Output return connection.
J3 – PG/GND	The PG output appears on pin 1 of this header with ground on pin 2.
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.
JP2 – PG Pullup Voltage	PG pin pullup voltage jumper. Place the supplied jumper on JP2 to connect the PG pin pullup resistor to V_{IN} . Alternatively, the jumper can be removed and a different voltage can be supplied on pin 1 to pull up the PG pin to a different level. This externally applied voltage must remain below 5.5 V.

2.2 Setup

To operate the EVM, set jumpers JP1 and JP2 to the desired position per [Section 2.1](#). Connect the input supply to J1 and connect the load to J2.

3 TPS6283810EVM-078 Test Results

The TPS6283810EVM-078 was used to take all the data in the TPS6283810 data sheet ([SLVSEX7](#)). See the device data sheet for the performance of this EVM.

4 Board Layout

This section provides the TPS6283810EVM-078 board layout and illustrations in [Figure 1](#) through [Figure 5](#). The Gerbers are available on the EVM product page: [TPS6283810EVM-078](#)

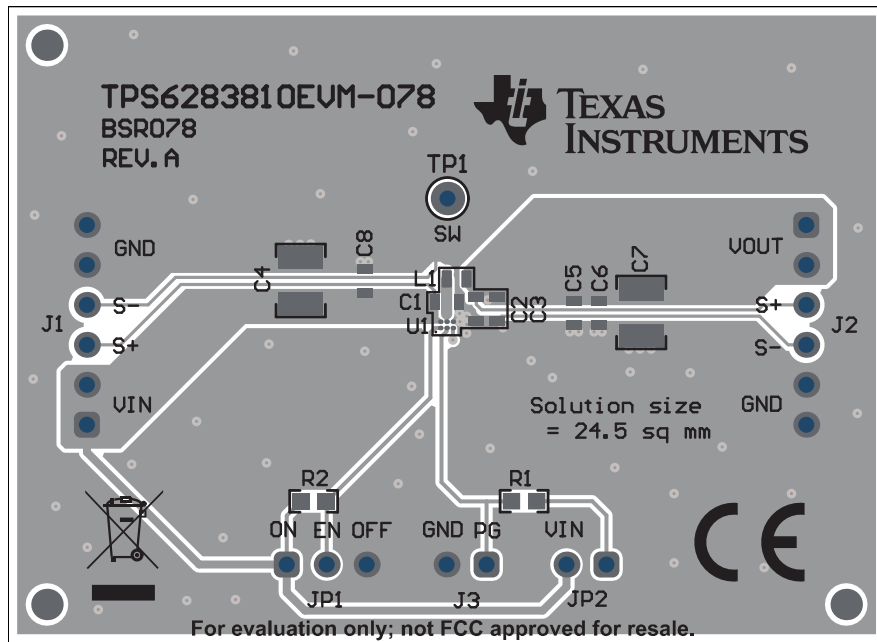


Figure 1. Top Assembly

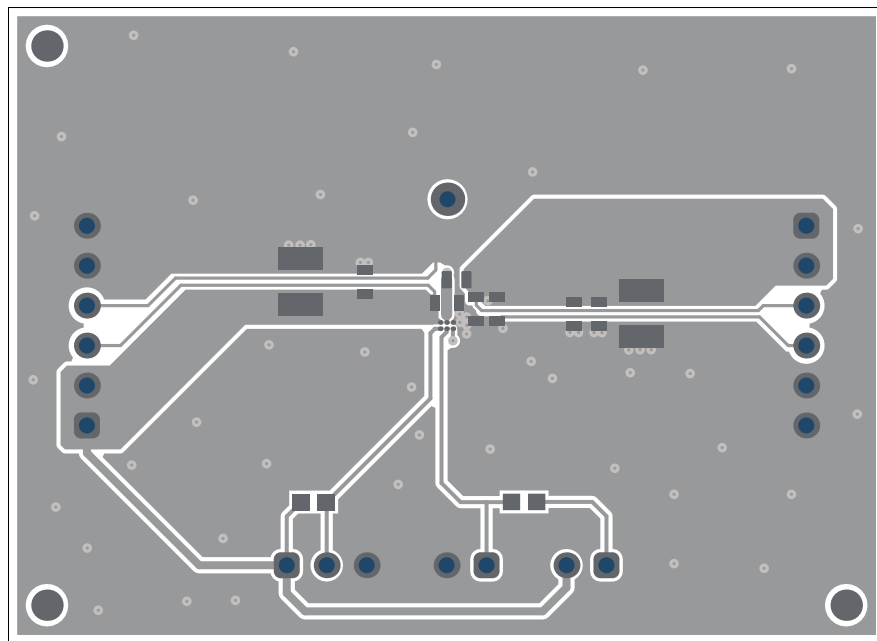


Figure 2. Top Layer

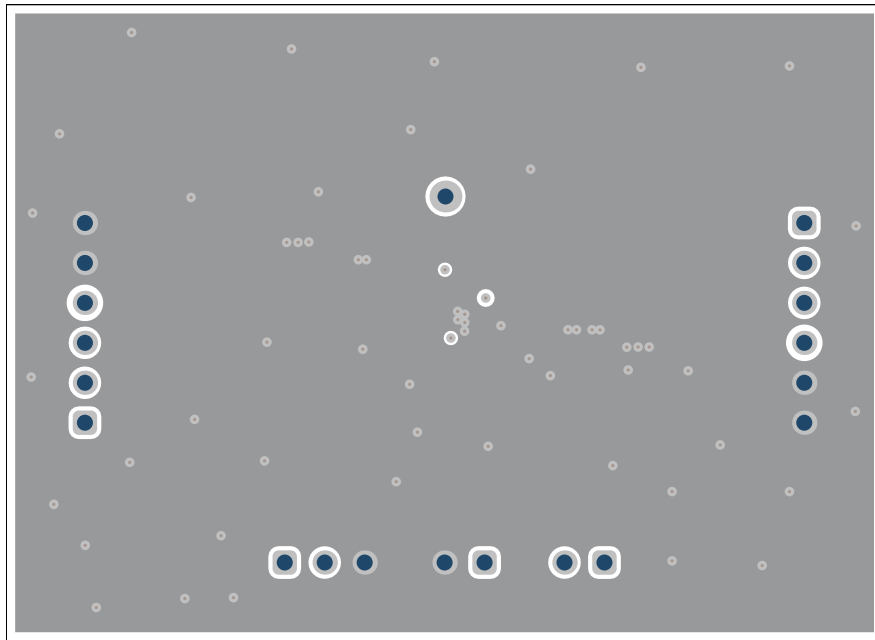


Figure 3. Signal Layer 1

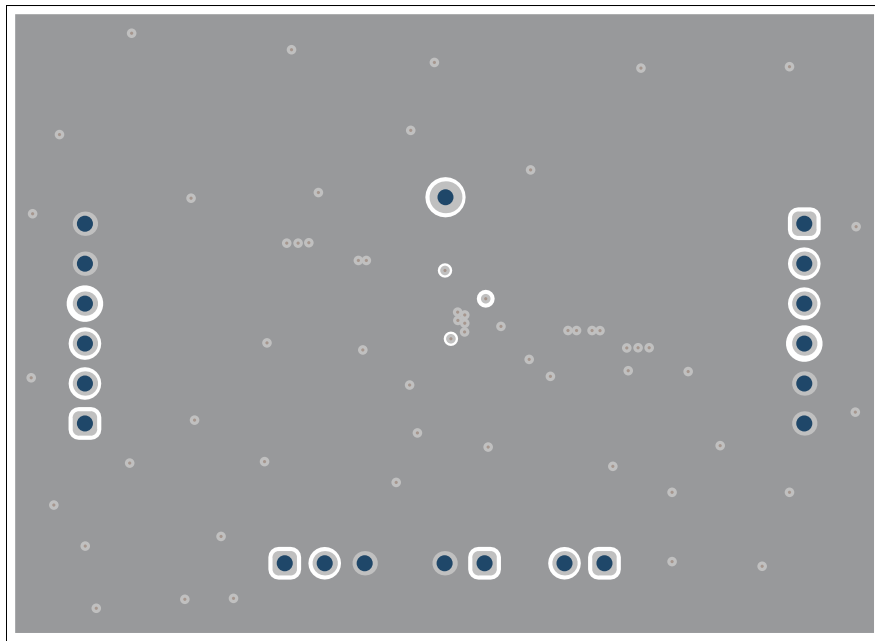


Figure 4. Signal Layer 2

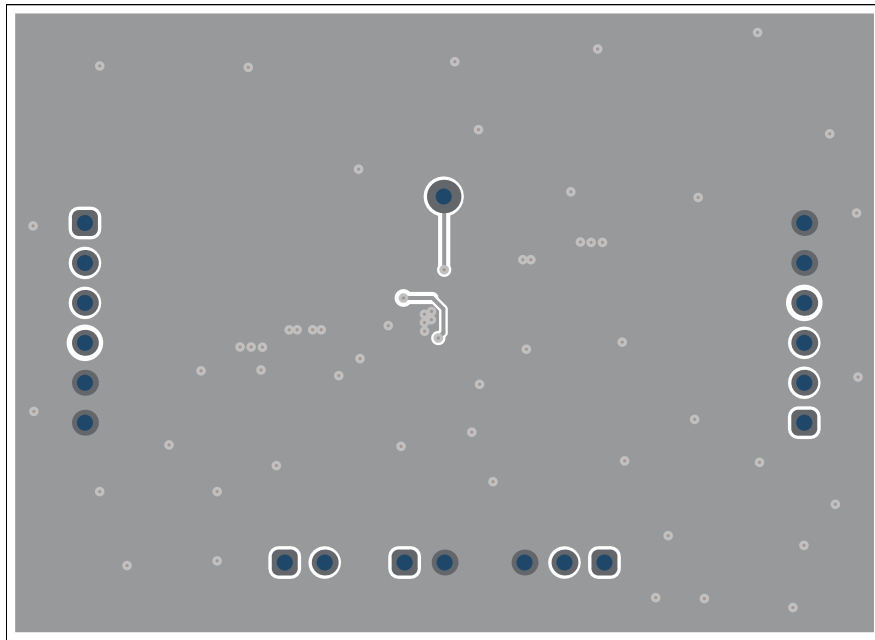


Figure 5. Bottom Layer

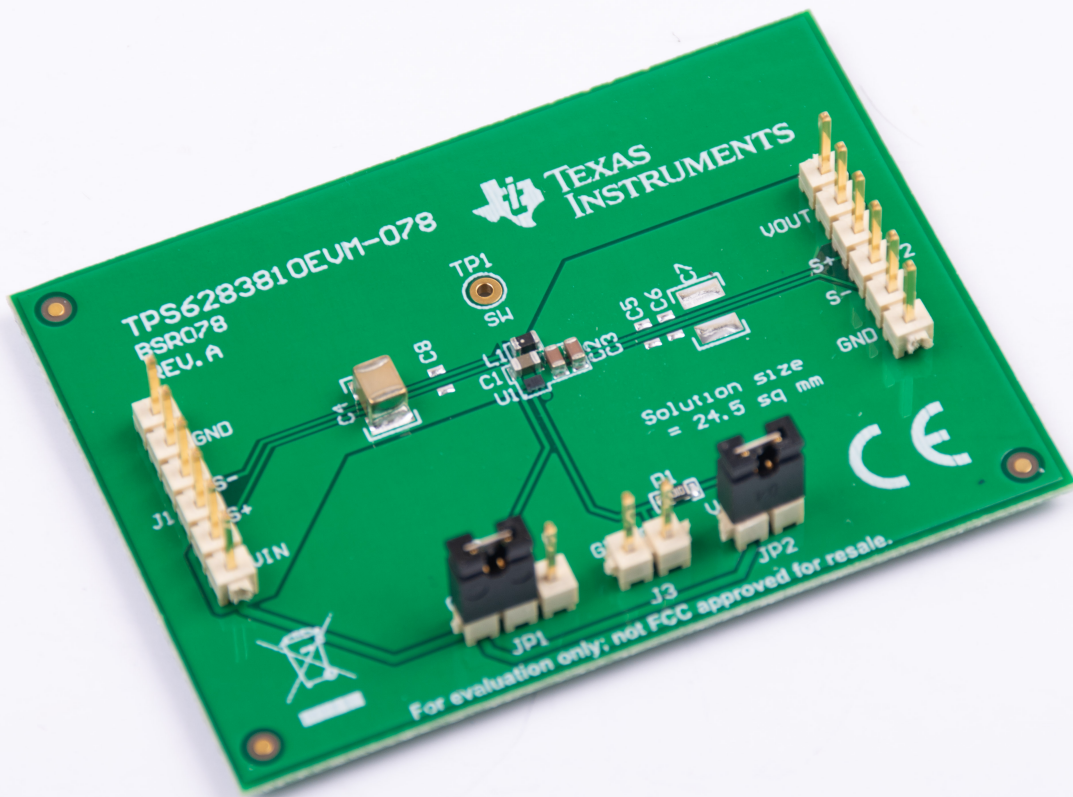


Figure 6. TPS6283810EVM-078 Angled View

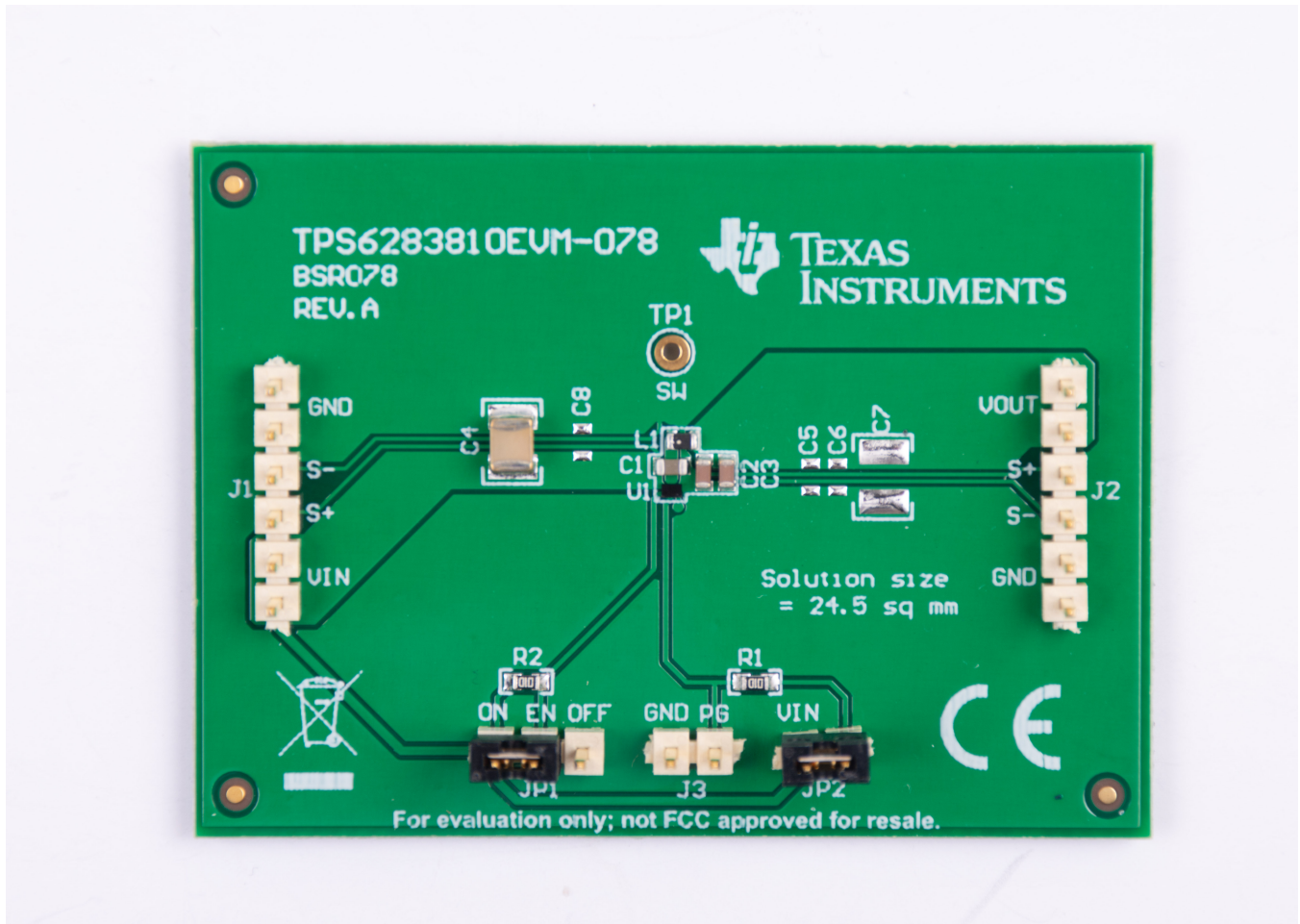


Figure 7. TPS6283810EVM-078 Overhead View

5 Schematic and List of Materials

This section provides the TPS6283810EVM-078 schematic and List of materials.

5.1 Schematic

Figure 8 illustrates the EVM schematic.

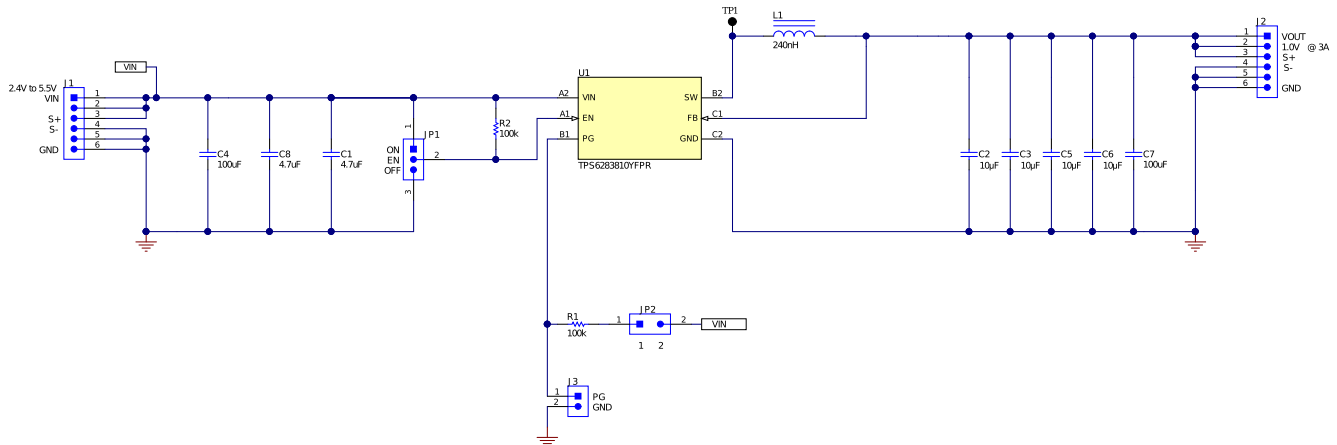


Figure 8. TPS6283810EVM-078 Schematic

5.2 List of Materials

Table 2 lists a list of materials for this EVM.

Table 2. TPS6283810EVM-078 List of Materials

DESIGNATOR	QTY	DESCRIPTION	PART NUMBER	MANUFACTURER
C1	1	Capacitor, ceramic, 4.7 µF, 6.3 V, ±10%, X7R, 0603	JMK107BB7475MA-T	Taiyo Yuden
C2, C3	2	Capacitor, ceramic, 10 µF, 10 V, ±20%, X7T, 0603	GRM188D71A106MA73D	Murata
C4	1	Capacitor, ceramic, 100 µF, 6.3 V, ±20%, X5R, 1210	GRM32ER60J107ME20L	Murata
L1	1	Inductor, 240 nH, 3.5 A, 0.03 Ω, SMD, 1608	DFE18SANR24MG0L	Murata
R1, R2	2	Resistor, 100 kΩ, 1%, 0.1 W, 0603	Std	Std
U1	1	Tiny 3-A high efficiency synchronous buck converter in chip scale package, 1.2 mm x 0.8 mm	TPS6283810YFP	Texas Instruments

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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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http://www.tij.co.jp/lstds/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
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