EVM User's Guide: TPS25730AEVM

TPS25730A Evaluation Module

Description

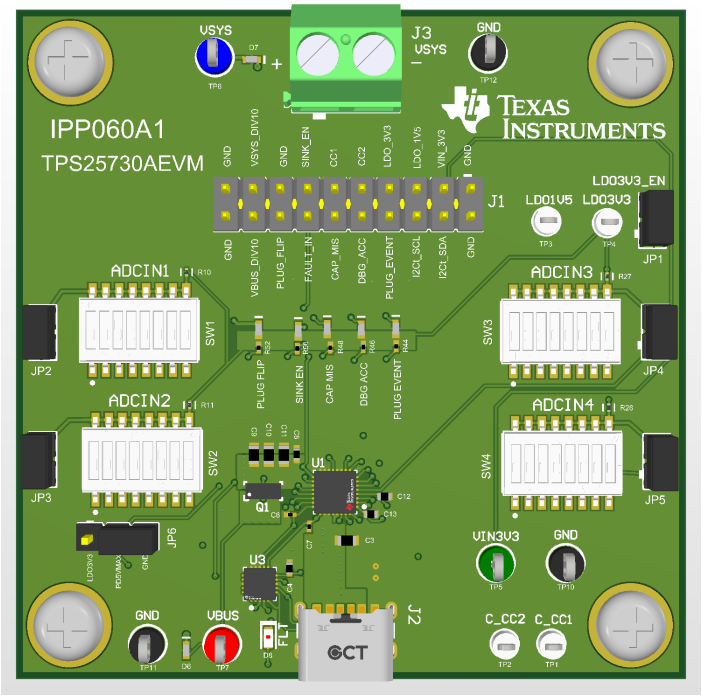
The TPS25730A evaluation module (EVM) shows the full feature set of the TPS25730A USB-PD controller. The simple resistor-strapped configuration setup allows for easy switching between VBUS voltages, operating currents, and fault and diagnostic behaviors. Two back-to-back NFETs turn on and off depending on the negotiated PDO of the USB-PD controller.

Features

- Full-featured evaluation board to configure the TPS25730A USB-PD controller
- Configurable sink voltage and current settings using resistors controlled by dip switches
- Indicator LEDs to show diagnostics such as capability mismatch and plug events
- Onboard TPD4S201RUKR chip used for short-to-VBUS and ESD protection

Get Started

1. Order the TPS25730AEVM
2. Download the datasheet (SLVSJG8)
3. Download the technical reference manual (SLVUCJ7)
4. Obtain a USB-PD source adapter
5. Order the TI-PD-Analyzer



TPS25730AEVM Top View

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1 Evaluation Module Overview

1.1 Introduction

The TPS25730AEVM evaluation module (EVM) configures and tests the TPS25730A device by using four sets of switches to configure the device and a terminal block to test the device under load. The labeled LEDs indicate the status of the device.

The TPS25730A device is a USB-PD controller used for sink-only applications. The TPS25730A device is intended for devices that only sink power by the USB-PD, in the standard power range (as defined by the USB-PD 3.2 specification), between 5V and 20V. Practically, this means that a design using this device utilizes a USB-C® connector and is compatible with the USB-PD 3.2 specification. To use the TPS25730AEVM evaluation module, a USB-PD capable power source must be connected using a USB-C cable to the USB-C port of the TPS25730AEVM. This user guide describes how the TPS25730AEVM evaluation module can test various sink power configurations using on-board switches.

1.2 Kit Contents

The kit for the TPS25730AEVM contains:

One TPS25730AEVM evaluation module

1.3 Specification

This section describes the applications for the TPS25730A device.

The TPS25730A device is a USB-PD controller that sinks power to the system through a USB-C® connector using the USB-PD specification, as shown in Figure 1-1. Electrically erasable programmable read-only memory (EEPROM) is not required because the power settings are configurable by voltage dividers at the ADCINx pins, which potentially reduces the bill of materials (BOM) cost and saves board space. Additionally, software and a graphical user interface (GUI) are not required, which potentially minimizes the development time.

When the ADCINx pins are configured to the desired settings, as described in Section 2.6, the TPS25730A device sinks the negotiated amount of power through the VSYS pin from a source compatible with USB-PD.

How this negotiation occurs is detailed in the *Universal Serial Bus Power Delivery Specification*. This specification is accessible at USB Power Delivery.

The following lists a quick overview of the guidelines outlined in the USB-PD specification:

1. The USB-C cable is connected to a source that is plugged into the USB-C port of the TPS25730AEVM evaluation module.
2. A 5V implicit USB Type-C® contract is established.
3. The capabilities of the source are advertised as an ordered list to the sink through the CC line.
4. The sink makes a request from the ordered list for a specific power data object (PDO) based on the settings of the ADCINx pin.
5. The source accepts this request and sends a PS_Ready message to indicate that the bus is ready to deliver power.
6. Power is delivered from the source through the VBUS line of the USB cable, through the power path controlled by the TPS25730A device and to the load through the VSYS pin.

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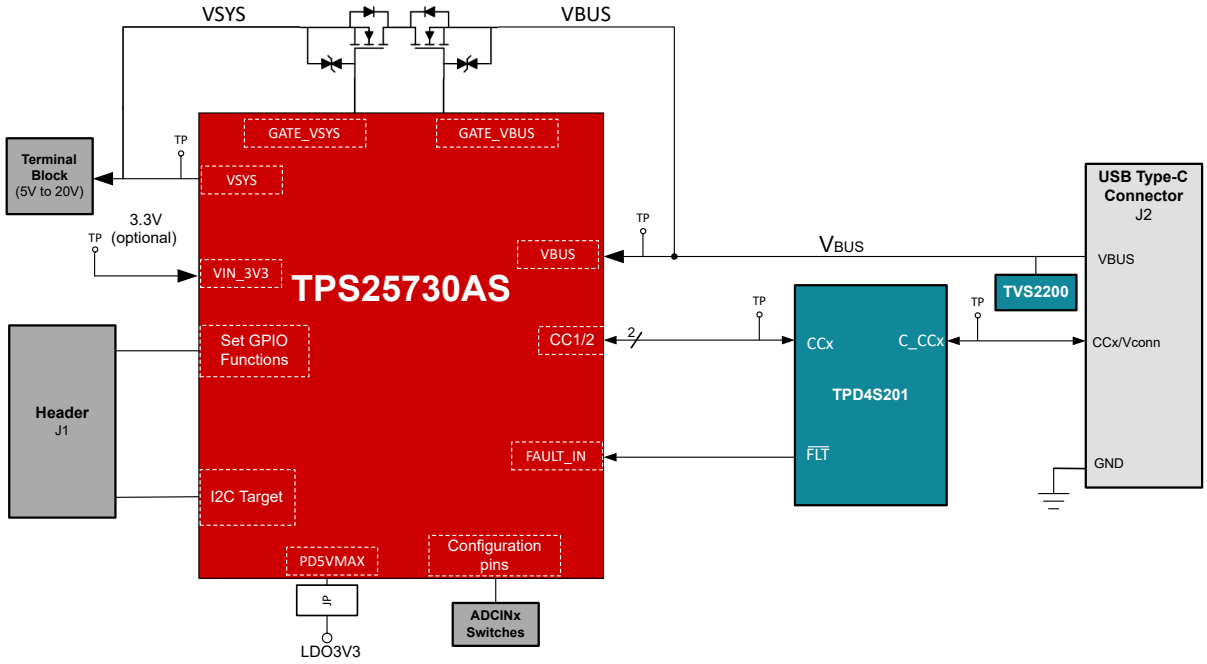

Figure 1-1. TPS25730AEVM Block Diagram

1.4 Device Information

The TPS25730AEVM evaluation module can configure the TPS25730A device without the need to program the device or use software. As the TPS25730A device is a USB-PD controller for use in sink-only applications, the following sink capabilities of the TPS25730AEVM evaluation module are configurable:

- Minimum voltage
- Maximum voltage
- Operating current
- Maximum current

The TPS25730AEVM evaluation module configures the listed capabilities using the ADCIN1, ADCIN2, ADCIN3, ADCIN4, and PD5VMAX input pins of the TPS25730A device. The TPS25730AEVM evaluation module utilizes four sets of switches. Each set of switches corresponds to one of the four ADCIN pins, and the PD5VMAX pin is configured by a jumper on the TPS25730AEVM EVM.

2 Hardware

2.1 Power Requirements

The TPS25730A device is powered by the USB-C® connector located at J2. The power source must be connected to a USB-C cable that is connected to the USB-C connector of the TPS25730AEVM evaluation module. The power source must be compatible with USB-PD to enable the full set of features available for the TPS25730AEVM evaluation module. Specifically, the power source must operate in the *Standard Power Range* (SPR) as defined by the USB-PD specification; which defines the SPR as a voltage between 5V and 20V, and not greater than 5A.

Items Required for Operation

- TPS25730AEVM evaluation module
- USB-C cable
- USB-PD capable power source

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2.2 Header Information

The TPS25730AEVM evaluation module contains one header: J1. The J1 header contains numerous pinouts for testing, evaluating, and debugging purposes. The header pins are clearly labeled on the top layer of the TPS25730AEVM. See Table 2-1 for a description of the pins.

The TPS25730AEVM evaluation module has one terminal block to connect a load at J3, which enables testing the TPS25730A device under load.

Table 2-1. J1 Header Description

Pin Number	Pin Label	Description
1	GND	Ground reference for the EVM.
2	GND	Ground reference for the EVM.
3	VIN_3V3	A 3.3V supply is connected to the VIN_3V3 pin of the TPS25730A device.
4	I2Ct_SDA	The I2C target data line of the TPS25730A device.
5	LDO_1V5	A 1.5V output supply from the LDO_1V5 pin of the TPS25730A device.
6	I2Ct_SCL	The I2C target clock line of the TPS25730A device.
7	LDO_3V3	A 3.3V output supply from the LDO_3V3 pin of the TPS25730A device.
8	PLUG_EVENT	The PLUG_EVENT pin indicates an attached plug event. High: Connection is present. Low: Connection is not present.
9	CC2	The CC2 pin is used for PD negotiation.
10	DBG_ACC	The DBG_ACC pin indicates an attached debug accessory. High: Debug accessory is present. Low: Debug accessory is not present.
11	CC1	The CC1 pin is used for PD negotiation.
12	CAP_MIS	The CAP_MIS pin indicates a mismatched capability between the source and sink. Toggled output: Capability mismatch. No toggled output: No capability mismatch.
13	SINK_EN	The SINK_EN pin indicates the enablement of the sink path. Low: Sink path is enabled. High: Sink path is disabled.
14	FAULT_IN	The FAULT_IN pin indicates the input of a fault. Low: Fault is detected. High: Fault is not detected. **Note** This pin can be driven low to trigger a fault which causes a port disconnect.
15	GND	A ground reference for the EVM.
16	PLUG_FLIP	The PLUG_FLIP pin indicates the orientation of the cable plug. High: CC2 connected (upside-down). Low: CC1 connected (upside-up).
17	VSYS_DIV10	The resistor divider output of the VSYS line. This output pin divides the voltage of the VSYS line by 10 for digital scopes. For example, when the VSYS line is at 20V, pin 17 is measured at 2V.
18	VBUS_DIV10	The resistor divider output of the VBUS line. This output pin divides the voltage of the VBUS line by 10 for digital scopes. For example, when the VBUS line is at 20V, pin 18 is measured at 2V.
19	GND	Ground reference for the EVM
20	GND	Ground reference for the EVM

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2.3 Jumper Information

There are six jumpers present on the TPS25730AEVM evaluation module, as shown in the table below.

Table 2-2. Jumper Decription

Jumper Designator	Description
JP1	The 3.3V output from the LDO_3V3 pin. Remove the jumper to disconnect the 3.3V power to the GPIOs. This act also disconnects the 3.3V pullup on the I2Ct lines.
JP2	Connects SW1 (switch one) to the ADCIN1 pin. The jumper can be removed to connect an external resistor divider network.
JP3	Connects SW2 (switch two) to the ADCIN2 pin. The jumper can be removed to connect an external resistor divider network.
JP4	Connects SW3 (switch three) to the ADCIN3 pin. The jumper can be removed to connect an external resistor divider network.
JP5	Connects SW4 (switch four) to the ADCIN4 pin. The jumper can be removed to connect an external resistor divider network.
JP6	PD5VMAX setting. Place the JP6 jumper across pins 1-2 to connect the PD5VMAX pin to the LDO_3V3 pin (device setting of maximum voltage = 5V). Place the JP6 jumper across pins 2-3 to connect the PD5VMAX pin to GND (device setting of maximum voltage = ADCIN2 setting).

2.4 Test Points

The test points available are as follows:

Table 2-3. TPS25730AEVM Evaluation Module Test Points

Test Point	Pin
TP1	C_CC1
TP2	C_CC2
TP3	LDO_1V5
TP4	LDO_3V3
TP5	VIN_3V3
TP6	VSYS
TP7	VBUS
TP8	GATE_VSYS
TP9	GATE_VBUS
TP10	GND
TP11	GND
TP12	GND

2.5 LED Information

The TPS25730AEVM evaluation module provides status information of the TPS25730A device using LEDs that correspond to general-purpose input-output (GPIO) events of the TPS25730A device. Each LED has the corresponding event printed on the silk screen.

Table 2-4. LED Indicator Events

LED	Description	Conditions for LED Turned On
$\overline{\text{SINK_EN}}$	Indicates when the VSYS pin is enabled. Can be used for GPIO control of an external power path.	The LED turns on when the VSYS pin is enabled.
PLUG_FLIP	Indicates the orientation of the USB-C® plug.	The LED turns on when the plug is connected in upside-down orientation.
DBG_ACC	Indicates whether or not a debug accessory is connected.	The LED turns on when a debug accessory is connected.
PLUG_EVENT	Indicates a connection to a source device through a USB-C® plug.	The LED turns on when a USB-C® cable is connected.
CAP_MIS	Indicates a mismatch in capabilities between the connected source and the TPS25730A device.	The LED blinks when a capabilities mismatch occurs.

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Table 2-4. LED Indicator Events (continued)

LED	Description	Conditions for LED Turned On
VBUS	Indicates when VBUS voltage is present.	The LED turns on when VBUS is present.
VSYS	Indicates when VSYS voltage is present.	The LED turns on when VSYS is present.
FLT	Indicates when a fault from TPD4S201 is asserted.	The LED turns on when a fault is asserted.

2.6 Configuring the TPS25730AEVM

Each switch set must have only one of the eight switches in the on position, for a total of four switches in the ON position, for a successful configuration. The *ADCIN Configuration* table shows which ADCIN pin configures which setting.

Note

The ADCIN3 and ADCIN4 pins together determine the operating current and maximum current based on the combination of the two inputs. The ADCIN3 pin alone does not directly map to the operating current, and the ADCIN4 pin does not directly map to the maximum current.

Table 2-5. ADCIN Configuration

ADCINx Pin	Corresponding Setting
ADCIN1	Minimum voltage
ADCIN2	Maximum voltage
ADCIN3 and ADCIN4	Operating current and maximum current

Each labeled switch number of the switch sets on the TPS25730AEVM evaluation module corresponds to an ADCIN decoded value, shown in the *Relationship Between Switch Number and ADCIN Decoded Value* table.

Table 2-6. Relationship Between Switch Number and ADCIN Decoded Value

ADCIN Switch Number	ADCIN Decoded Value
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7

2.6.1 Minimum Voltage Configuration

The minimum voltage for the USB power delivery sink capabilities can be set according to Table 2-7. When the received USB PD source capabilities do not meet the minimum and maximum voltage range the capabilities mismatch bit is set on the USB PD request. When the minimum voltage is set greater than 5V the higher capability bit is set in the sink capabilities.

Table 2-7. Minimum Voltage Configuration for Sink Capabilities – ADCIN1 Decoded

ADCIN1 Decoded Value	Minimum Voltage Configuration
0	5V
1	9V
2	12V
3	15V
4	20V
5	Reserved
6	Reserved

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Table 2-7. Minimum Voltage Configuration for Sink Capabilities – ADCIN1 Decoded (continued)

ADCIN1 Decoded Value	Minimum Voltage Configuration
7	Reserved

2.6.2 Maximum Voltage Configuration

The maximum voltage for the USB power delivery sink capabilities is set according to Table 2-8. When the received USB PD source capabilities do not meet the minimum and maximum voltage range the capabilities mismatch bit is set on the USB PD request.

Table 2-8. Maximum Voltage Configuration for Sink Capabilities – ADCIN2 Decoded

ADCIN2 Decoded Value	PD5VMAX Decoded Value	Maximum Voltage Configuration	Auto-Disable Sink Upon Capability Mismatch
0	1	5V	Yes
1	1	5V	No
0	0	9V	Yes
1	0	9V	No
2	0	12V	Yes
3	0	12V	No
4	0	15V	Yes
5	0	15V	No
6	0	20V	Yes
7	0	20V	No

2.6.3 Sink Current Configuration

The sink current is configured according to Table 2-9. The configuration sets the operating and maximum current in the USB PD request message. The operating current is defined as the current required for the sink to be functional. The maximum current is defined as the maximum current the sink can use. The operating and maximum current can be the same if the operational current is the maximum current required for the sink to be functional. The capabilities mismatch bit sets when the source capabilities of the PD do not meet the operating current. When the operating current is set to 0A, the capability mismatch bit is not set.

Table 2-9. ADCIN3 and ADCIN4 Sink Current Configuration

ADCIN3	ADCIN4	Operating Current	Maximum Current
0	0	0	1.5A
0	1	0	3A
0	2	0	4A
0	3	0	5A
0	4	0.5A	1.5A
0	5	0.5A	3A
0	6	0.5A	4A
0	7	0.5A	5A
1	0	1A	1.5A
1	1	1A	3A
1	2	1A	4A
1	3	1A	5A
1	4	1.5A	1.5A
1	5	1.5A	3A
1	6	1.5A	4A
1	7	1.5A	5A
2	1	2A	3A
2	2	2A	4A

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Table 2-9. ADCIN3 and ADCIN4 Sink Current Configuration (continued)

ADCIN3	ADCIN4	Operating Current	Maximum Current
2	3	2A	5A
2	5	2.5A	3A
2	6	2.5A	4A
2	7	2.5A	5A
3	1	3A	3A
3	2	3A	4A
3	3	3A	5A
3	6	3.5A	4A
3	7	3.5A	5A
4	2	4A	4A
4	3	4A	5A
4	7	4.5A	5A
5	3	5A	5A

2.6.4 Complete Example

Find the appropriate ADCIN decoded values for the ADCIN1, ADCIN2, ADCIN3, and ADCIN4 pins if the system must accept 5V–20V, and operate at 3A. The *Example Settings* table details the appropriate settings.

Table 2-10. Example Settings

ADCIN Pin	Desired Behavior	ADCIN Decoded Value	ADCIN Switch to Turn ON
ADCIN1	Minimum voltage: 5V	0	1
ADCIN2	Maximum voltage: 20V	7	8
ADCIN3 ADCIN4	Operating current: 3A	3	4
	Maximum current: 3A	1	2

The decoded value of the ADCIN1 pin for a minimum voltage configuration of 5V is 0. The decoded value of the ADCIN2 pin for a maximum value of 20V is 7. The decoded values for the combination of the ADCIN3 and ADCIN4 pins to meet the required combination of a 3A operating current and a 3A maximum current is 3 and 1, respectively. (Refer to Table 2-6).

Set the following switches to ON:

- Switch 1 of the ADCIN1 pin
- Switch 8 of the ADCIN2 pin
- Switch 4 of the ADCIN3 pin
- Switch 2 of the ADCIN4 pin

Set all other switches to the OFF position.

Place the jumper of the PD5VMAX pin across pins 2-3 to tie the PD5VMAX pin to GND.

Once the configuration is set, plug in the source to the USB-C® connector. The LED indicator of the PLUG_EVENT pin lights up to indicate the cable is plugged in. The LED indicator of the CAP_MIS pin blinks continuously if the capabilities mismatch bit is set, which occurs when a source cannot provide a minimum power of 15W, or a voltage inside the range of 5V to 20V (including 5V and 20V) cannot be provided. The LED indicator of the plug flip lights up if the plug is inserted upside down.

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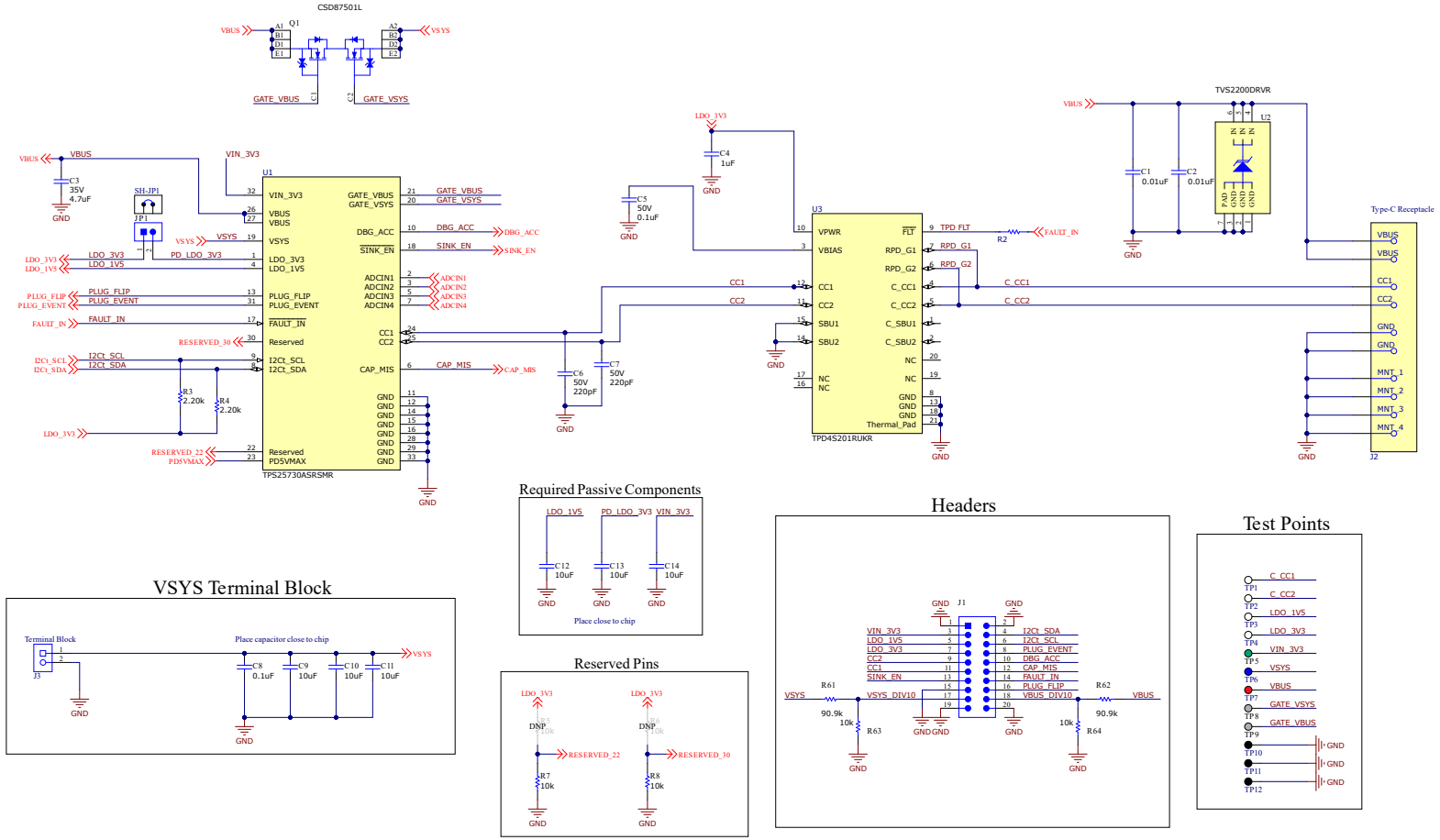
3 Hardware Design Files

3.1 Schematics

Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
N/A	N/A	N/A	N/A	N/A



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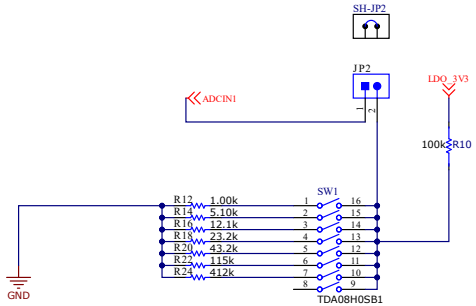
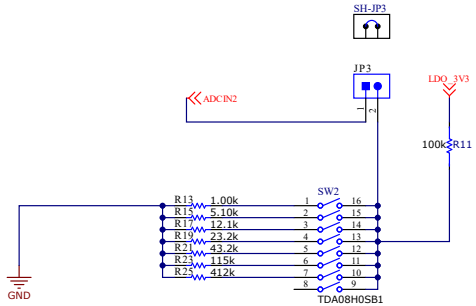
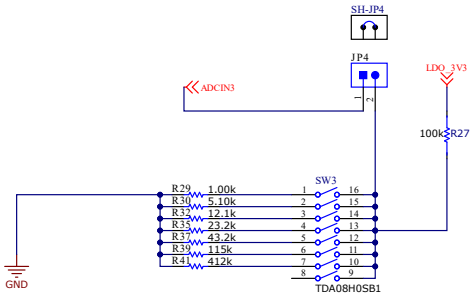


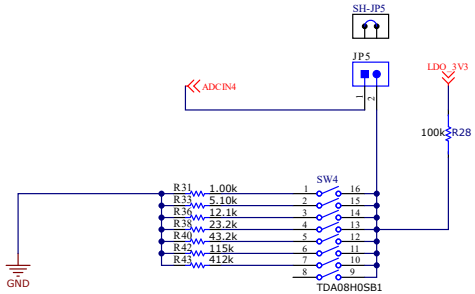
Switch 1 On: Setting 0
Switch 2 On: Setting 1
Switch 3 On: Setting 2
Switch 4 On: Setting 3
Switch 5 On: Setting 4
Switch 6 On: Setting 5
Switch 7 On: Setting 6
Switch 8 On: Setting 7



Switch 1 On: Setting 0
Switch 2 On: Setting 1
Switch 3 On: Setting 2
Switch 4 On: Setting 3
Switch 5 On: Setting 4
Switch 6 On: Setting 5
Switch 7 On: Setting 6
Switch 8 On: Setting 7



Switch 1 On: Setting 0
Switch 2 On: Setting 1
Switch 3 On: Setting 2
Switch 4 On: Setting 3
Switch 5 On: Setting 4
Switch 6 On: Setting 5
Switch 7 On: Setting 6
Switch 8 On: Setting 7



Switch 1 On: Setting 0
Switch 2 On: Setting 1
Switch 3 On: Setting 2
Switch 4 On: Setting 3
Switch 5 On: Setting 4
Switch 6 On: Setting 5
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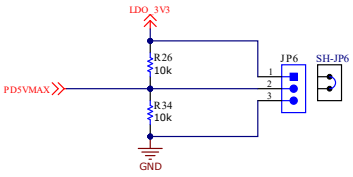
Switch 8 On: Setting 7



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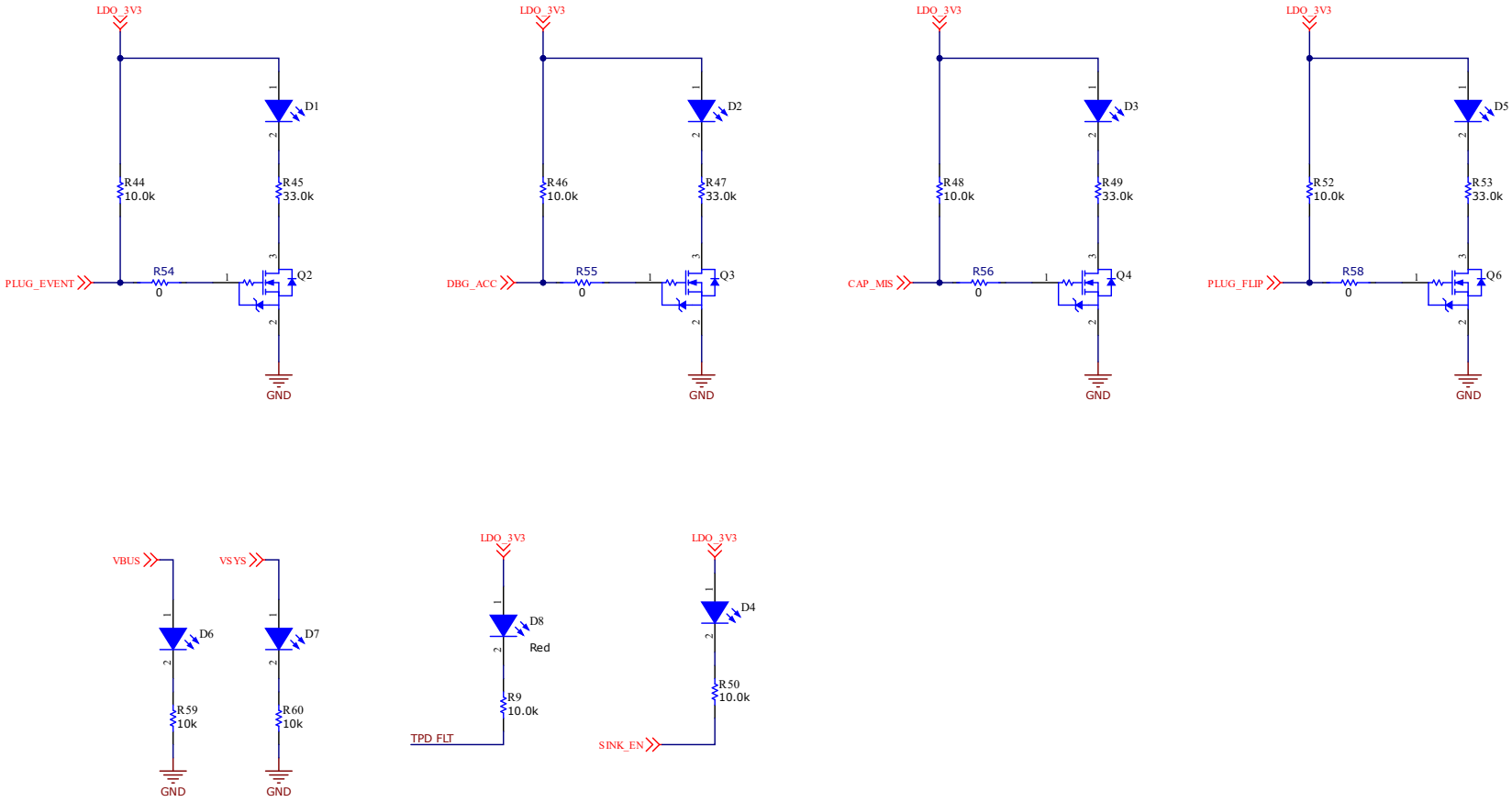

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3.2 PCB Layouts

Figure 3-1 through Figure 3-6 illustrate the EVM PCB layouts.

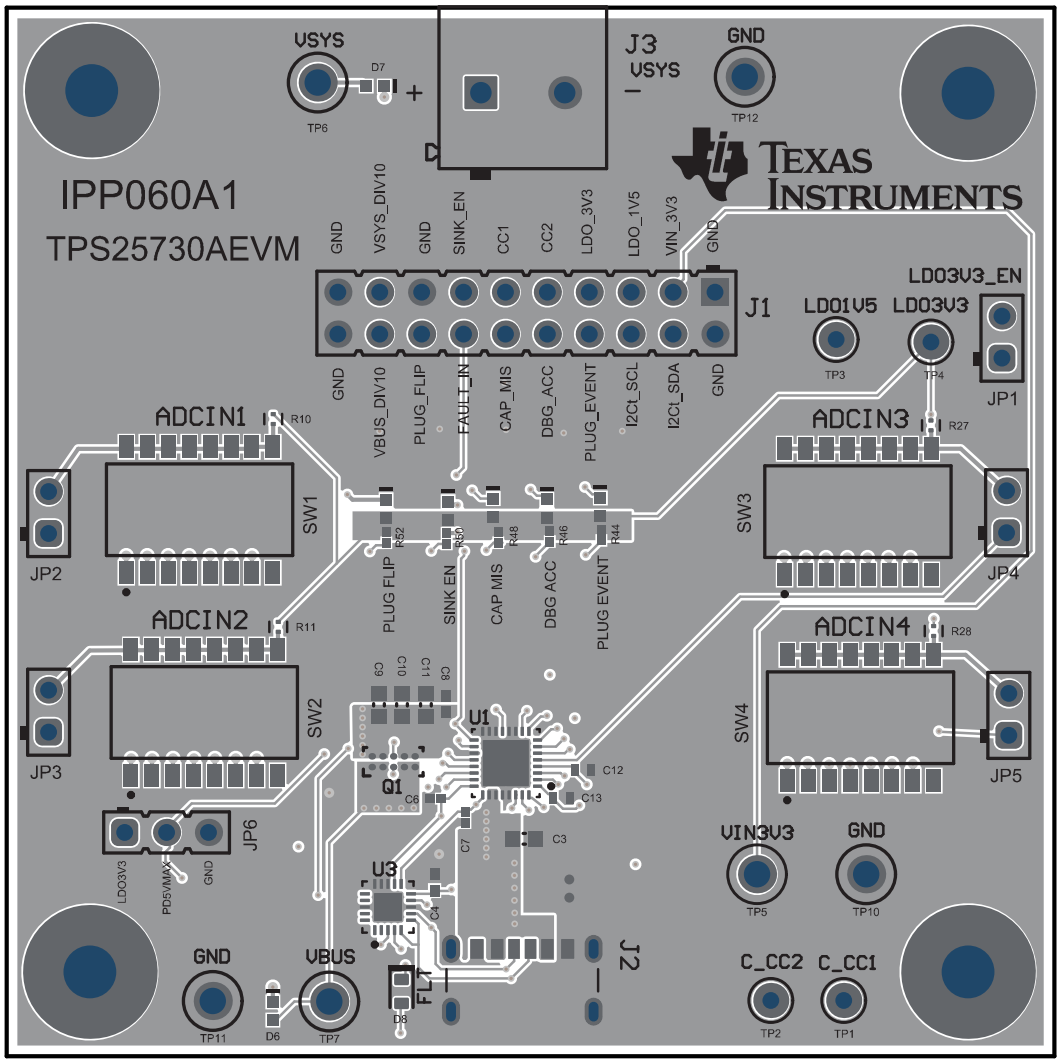

Figure 3-1. TPS25730AEVM Top Composite View

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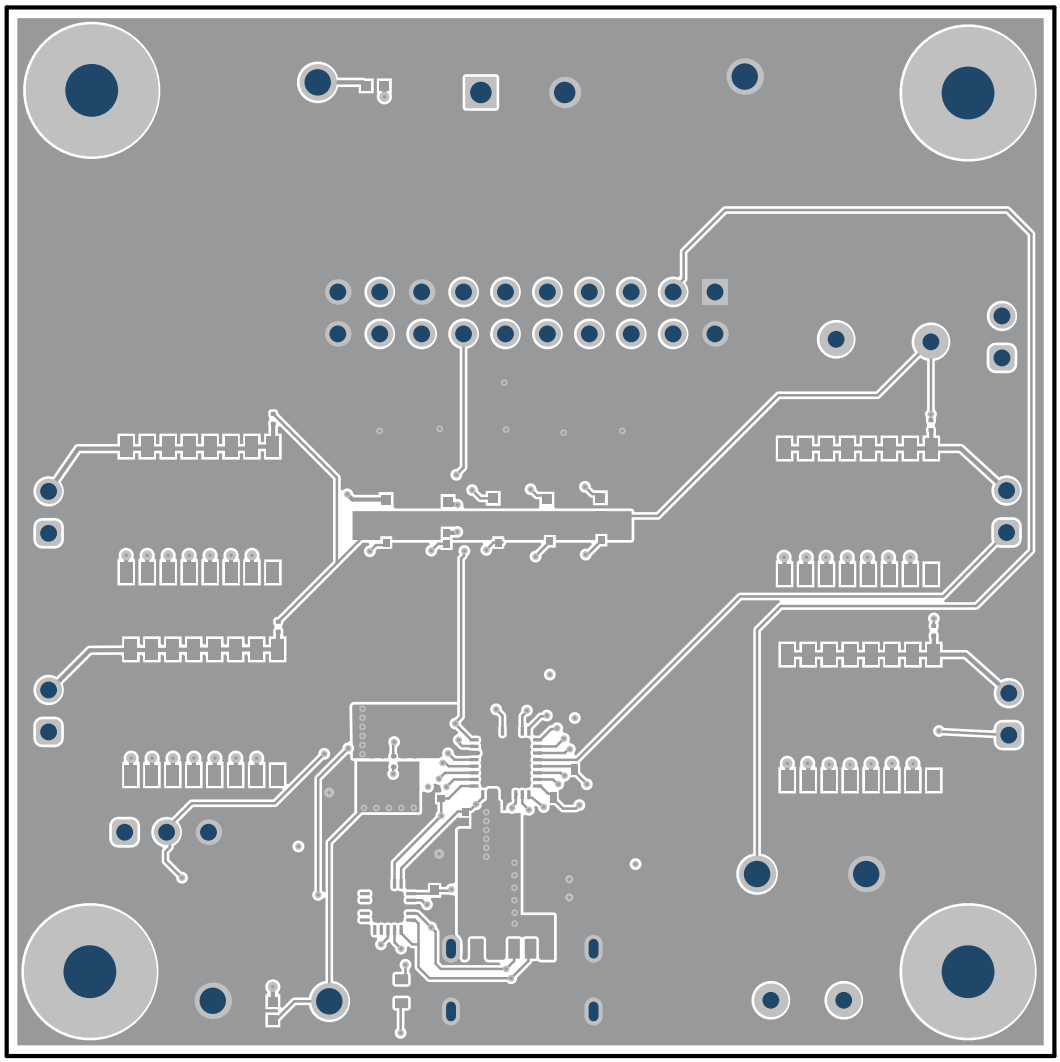

Figure 3-2. TPS25730AEVM Top Layer

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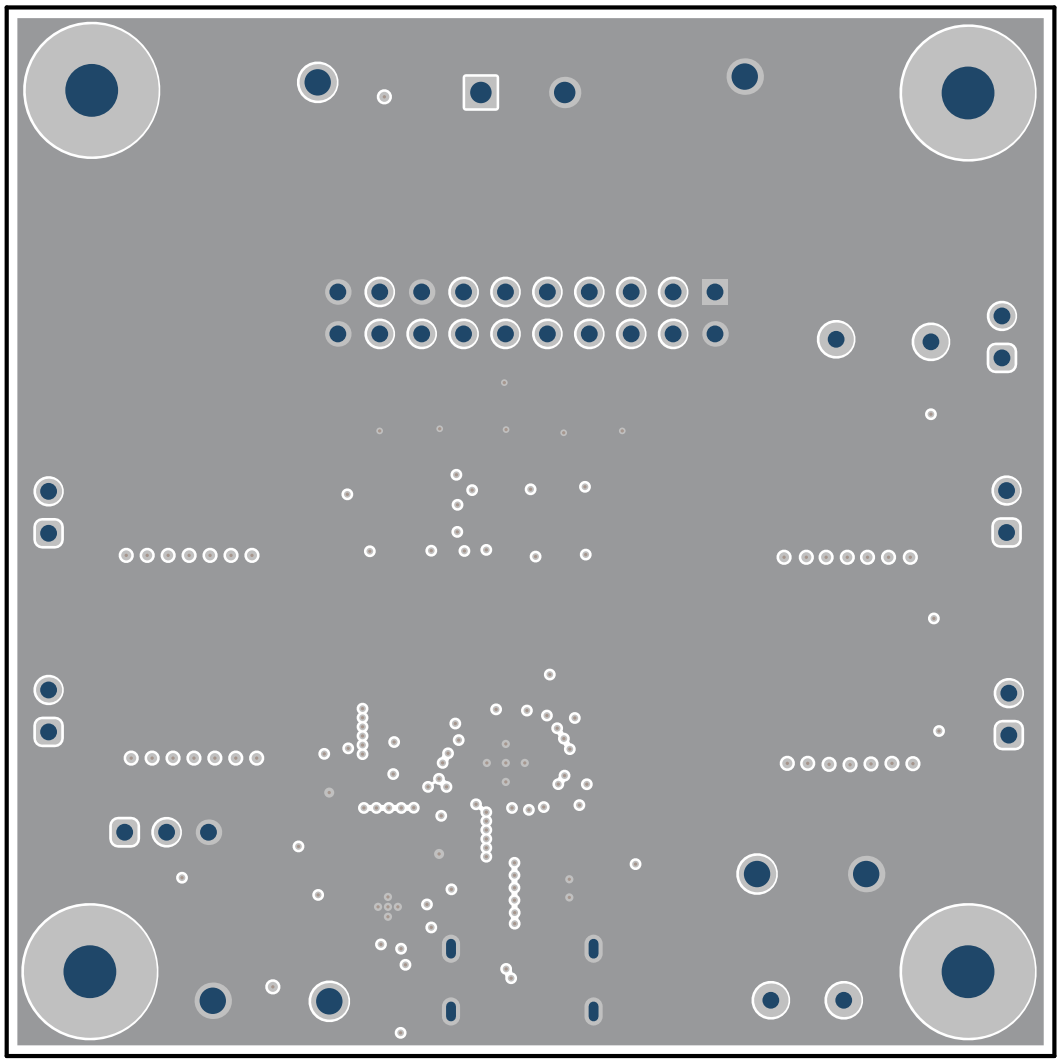

Figure 3-3. TPS25730AEVM Ground Plane

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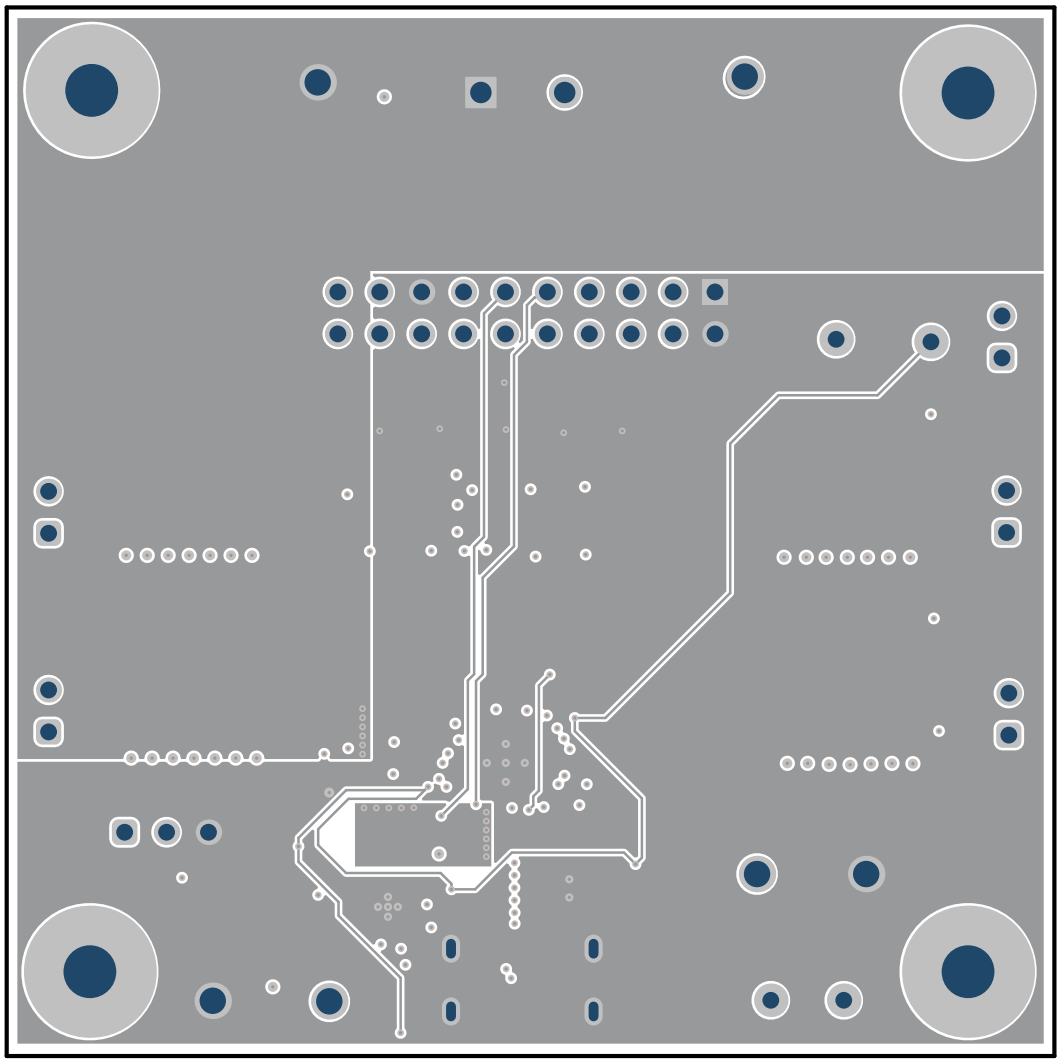

Figure 3-4. TPS25730AEVM Power Layer

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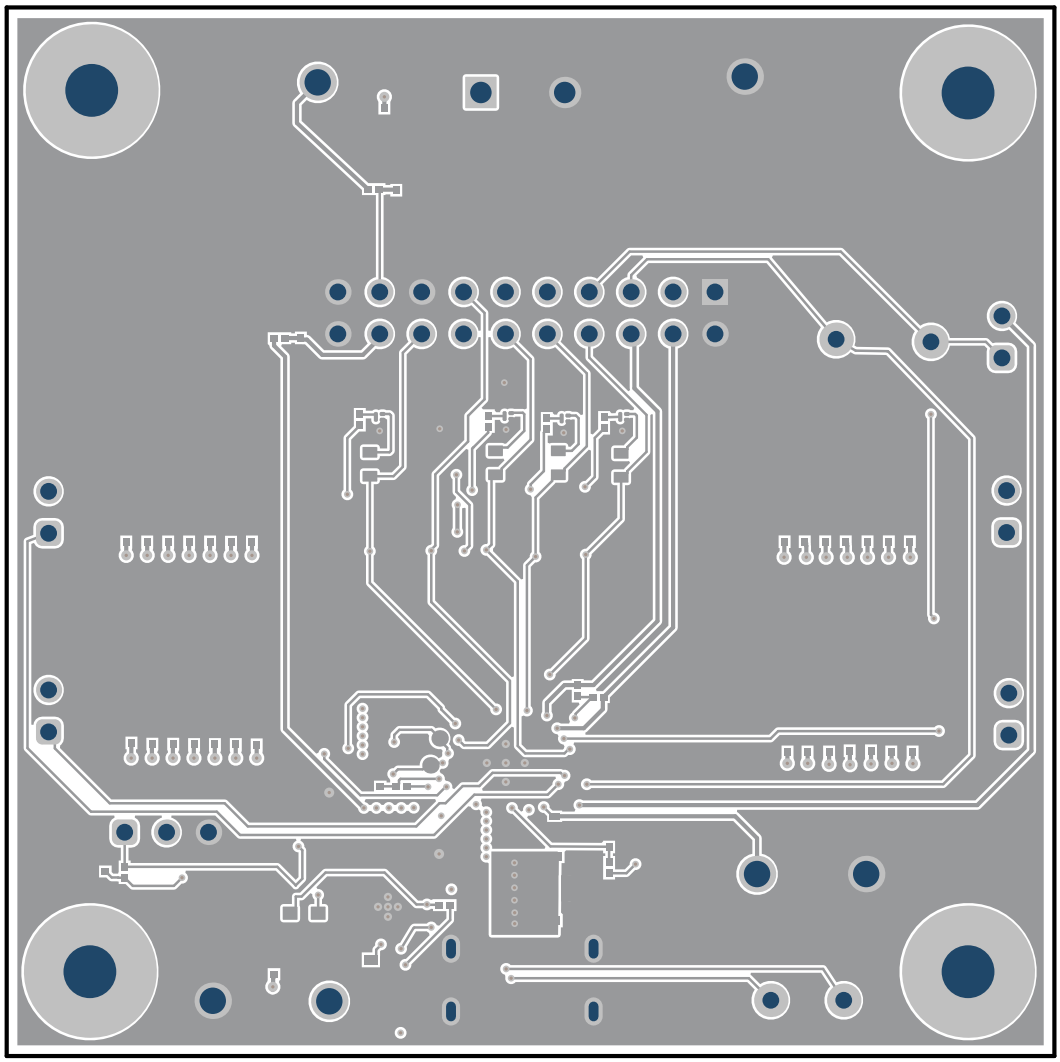

Figure 3-5. TPS25730A Bottom Layer

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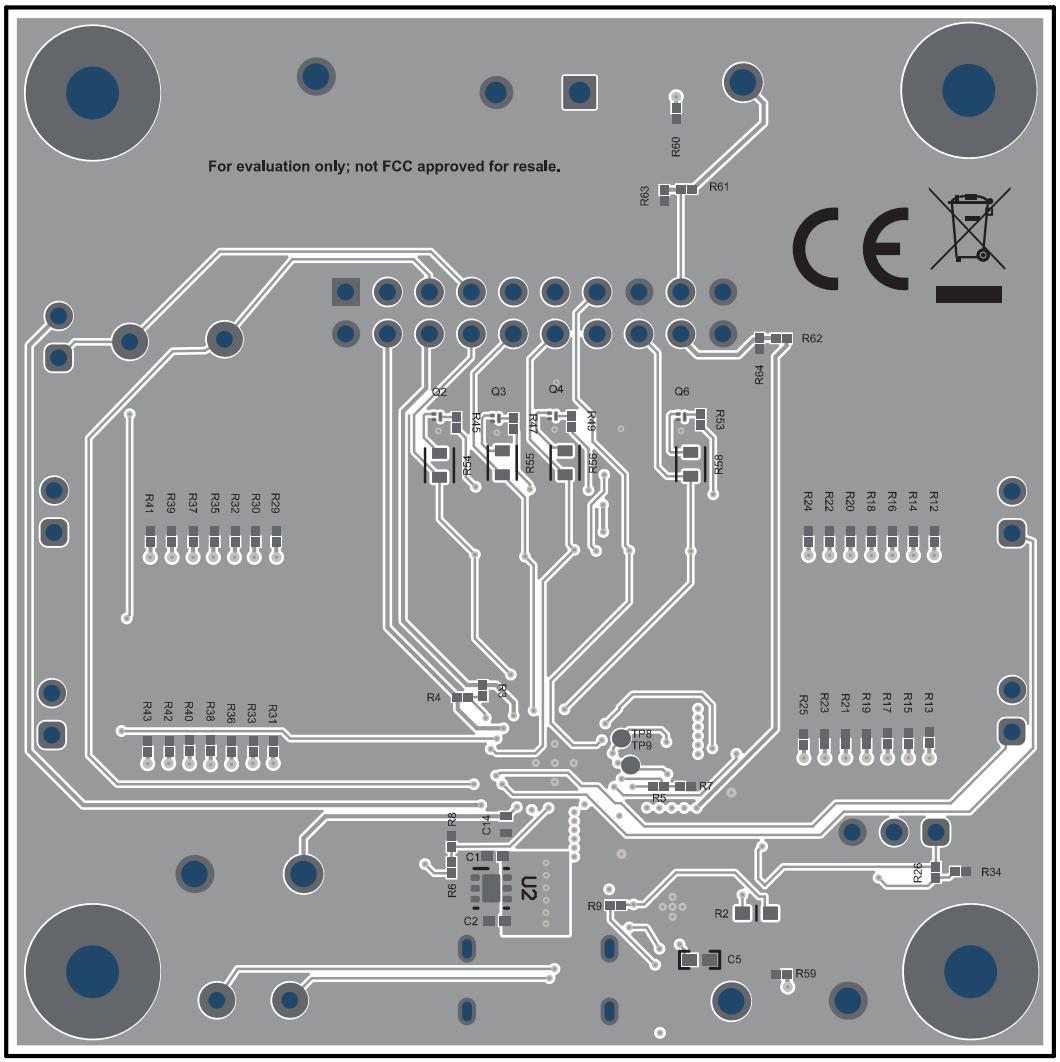

Figure 3-6. TPS25730A Bottom Composite View

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3.3 Bill of Materials (BOM)

Table 3-1 lists the EVM BOM.

Table 3-1. TPS25730AEVM Bill of Materials

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer
C1, C2	2	0.01uF	CAP, CERM, 0.01µF, 50V, ±5%, X7R, 0402	0402	C0402C103J5RACTU	Kemet
C3	1	4.7uF	CAP, CERM, 4.7µF, 35V, ±10%, X5R, 0603	0603	GRM188R6YA475KE15D	MuRata
C4	1	1uF	CAP, CERM, 1µF, 35V, ±10%, X5R, 0402	0402	GRM155R6YA105KE11D	MuRata
C5	1	0.1uF	CAP, CERM, 0.1µF, 50V, ±10%, X5R, 0402	0402	C1005X5R1H104K050BB	TDK
C6, C7	2	220pF	CAP, CERM, 220pF, 50V, ±10%, X7R, AEC-Q200 Grade 1, 0201	0201	CGA1A2X7R1H221K030BA	TDK
C8	1	0.1uF	CAP, CERM, 0.1µF, 35V, ±10%, X5R, 0402	0402	GMK105BJ104KV-F	Taiyo Yuden
C9, C10, C11	3	10uF	CAP, CERM, 10µF, 35V, ±20%, X5R, 0603	0603	GRM188R6YA106MA73D	Murata
C12, C13, C14	3	10uF	CAP, CERM, 10µF, 10V, ±20%, X5R, 0402	0402	CL05A106MP5NUNC	Samsung Electro-Mechanics
D1, D2, D3, D4, D5, D6, D7	7	White	LED, White, SMD	0402, White	LW QH8G-Q2S2-3K5L-1	OSRAM
D8	1	Red	LED, Red, SMD	1.6x0.8mm	TLMS1000-GS08	Vishay-Semiconductor
H1, H2, H3, H4	4	N/A	Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead	Screw	NY PMS 440 0025 PH	B&F Fastener Supply
H5, H6, H7, H8	4	N/A	Standoff, Hex, 0.5"L #4-40 Nylon	Standoff	1902C	Keystone
J1	1	N/A	Header, 10x2, 2.54mm, Tin, TH	Header, 10x2, 2.54mm, Tin, TH	TSW-110-07-T-D	Samtec
J2	1	N/A	24 (6+18 Dummy) Position USB-C (USB TYPE-C) USB 2.0 Receptacle Connector	CONN_USB	USB4125-GF-A-0190	GCT
J3	1	N/A	Terminal Block, 5.08mm, 2x1, TH	2POS Terminal Block	1715721	Phoenix Contact
JP1, JP2, JP3, JP4, JP5	5	N/A	Header, 2.54mm, 2x1, Gold, TH	Header, 2.54mm, 2x1, TH	TSW-102-08-G-S	Samtec
JP6	1	N/A	Header, 2.54mm, 3x1, Gold, TH	Header, 2.54mm, 3x1, TH	HMTSW-103-07-G-S-240	Samtec
Q1	1	30V	MOSFET, 2-CH, N-CH, 30V, A, YJG0010A (PICOSTAR-10)	YJG0010A	CSD87501L	Texas Instruments
Q2, Q3, Q4, Q6	4	20V	MOSFET, N-CH, 20V, 0.5A, YJM0003A (PICOSTAR-3)	YJM0003A	CSD15380F3	Texas Instruments
R2	1	0	0Ω Jumper Chip Resistor 0603 (1608 Metric) Moisture Resistant Thick Film	0603	RC0603FR-100RL	Yageo
R3, R4	2	2.20k	RES, 2.20k, 1%, 0.05W, 0201	0201	CRCW02012K20FKED	Vishay-Dale
R7, R8, R26, R34	4	10k	RES, 10k, 5%, 0.05W, 0201	0201	RC0201JS-7D10KL	Yageo America
R9	1	10.0k	RES, 10.0k, 1%, 0.05W, 0201	0201	CRCW020110K0FKED	Vishay-Dale

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Table 3-1. TPS25730AEVM Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer
R10, R11, R27, R28	4	100k	100kΩ ±1% 0.05W, 1/20W Chip Resistor 0201 (0603 Metric) Automotive AEC-Q200 Thick Film	0201	ERJ-1GNF1003C	Panasonic Electronic Components
R12, R13, R29, R31	4	1.00k	RES, 1.00k, 1%, 0.05W, 0201	0201	RC0201FR-071KL	Yageo America
R14, R15, R30, R33	4	5.10k	RES, 5.10k, 1%, 0.05W, 0201	0201	RC0201FR-075K1L	Yageo America
R16, R17, R32, R36	4	12.1k	RES, 12.1k, 1%, 0.05W, 0201	0201	RC0201FS-7D12K1L	Yageo America
R18, R19, R35, R38	4	23.2k	RES, 23.2k, 1%, 0.05W, 0201	0201	RC0201FR-0723K2L	Yageo America
R20, R21, R37, R40	4	43.2k	RES, 43.2k, 1%, 0.05W, 0201	0201	RC0201FR-0743K2L	Yageo America
R22, R23, R39, R42	4	115k	RES, 115k, 1%, 0.05W, 0201	0201	RC0201FR-07115KL	Yageo America
R24, R25, R41, R43	4	412k	RES, 412k, 1%, 0.05W, 0201	0201	RC0201FR-07412KL	Yageo America
R44, R46, R48, R50, R52	5	10.0k	RES, 10.0k, 1%, 0.05W, 0201	0201	RC0201FS-7D10KL	Yageo America
R45, R47, R49, R53	4	33.0k	RES, 33.0k, 1%, 0.05W, 0201	0201	RC0201FR-0733KL	Yageo America
R54, R55, R56, R58	4	N/A	0Ω Jumper 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200 Thick Film	0603	ERJ-3GEY0R00V	Panasonic
R59, R60	2	10k	RES, 10k, 5%, 0.05W, 0201	0201	RC0201JR-7D10KL	Yageo America
R61, R62	2	N/A	RES, 90.9k, 1%, 0.05W, 0201	0201	RC0201FR-0790K9L	Yageo America
R63, R64	2	N/A	RES, 10k, 5%, 0.05W, 0201	0201	RC0201JR-0710KL	Yageo America
SH-JP1, SH-JP2, SH-JP3, SH-JP4, SH-JP5, SH-JP6	6	1x2	Shunt, 100mil, Flash Gold, Black	Closed Top 100mil Shunt	SPC02SYAN	Sullins Connector Solutions
SW1, SW2, SW3, SW4	4	N/A	Ultra-Miniature Surface Mount Half-Pitch DIP Switch, –40 to 85°C, 16-Pin SMD (DIP), RoHS, Tube	N/A	N/A	C&K Components
TP1, TP2, TP3, TP4	4	N/A	Test Point, Miniature, White, TH	White Miniature Testpoint	5002	Keystone Electronics
TP5	1	N/A	Test Point, Multipurpose, Green, TH	Green Multipurpose Testpoint	5126	Keystone Electronics
TP6	1	N/A	Test Point, Multipurpose, Blue, TH	Blue Multipurpose Testpoint	5127	Keystone Electronics
TP7	1	N/A	Test Point, Multipurpose, Red, TH	Red Multipurpose Testpoint	5010	Keystone Electronics

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Table 3-1. TPS25730AEVM Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer
TP10, TP11, TP12	3	N/A	Test Point, Multipurpose, Black, TH	Black Multipurpose Testpoint	5011	Keystone Electronics
U1	1	N/A	USB Type-C® and USB PD Controller With Integrated Power Switches Optimized for Power Applications	VQFN32	TPS25730ASRSMR	Texas Instruments
U2	1	N/A	22V Precision Surge Protection Clamp, DRV0006A (WSON-6)	DRV0006A	TVS2200DRVR	Texas Instruments
U3	1	N/A	USB Type-C® 28V SPR Port Protector: Short-to-VBUS Overvoltage and IEC ESD Protection	WQFN20	TPD4S201RUKR	Texas Instruments
R5, R6	0	10k	RES, 10k, 5%, 0.05W, 0201	0201	RC0201JS-7D10KL	Yageo America

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4 Additional Information

4.1 Trademarks

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5 Revision History

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

Changes from March 25, 2026 to April 13, 2026 (from Revision * (March 2026) to Revision A (April 2026))	Page
• Updated the *Description* section to reflect the EVM	1
• Updated *Features* section to reflect the EVM	1

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