

EVM User's Guide: TPS26744EQ1EVM

TPS26744E-Q1 USB PD EPR + DisplayPort EVM



Description

The TPS26744EQ1EVM is designed to evaluate the TPS26744E-Q1 for USB Type-C® and Power Delivery (PD) applications. This EVM supports dual port USB PD EPR charging and DisplayPort™ over USB-C® (DP Alt Mode) and comes with two other variants: dual port USB PD SPR charging (TPS26742Q1EVM) and dual port USB PD EPR charging (TPS26742EQ1EVM). The EVM integrates an onboard microcontroller (MCU), enabling flash programming and debugging.

Device configuration settings are selected through an intuitive Application Customization Tool in the form of a graphical user interface (TPS267XX-Q1-GUI), reducing much of the complexity associated with competitive USB-PD designs.

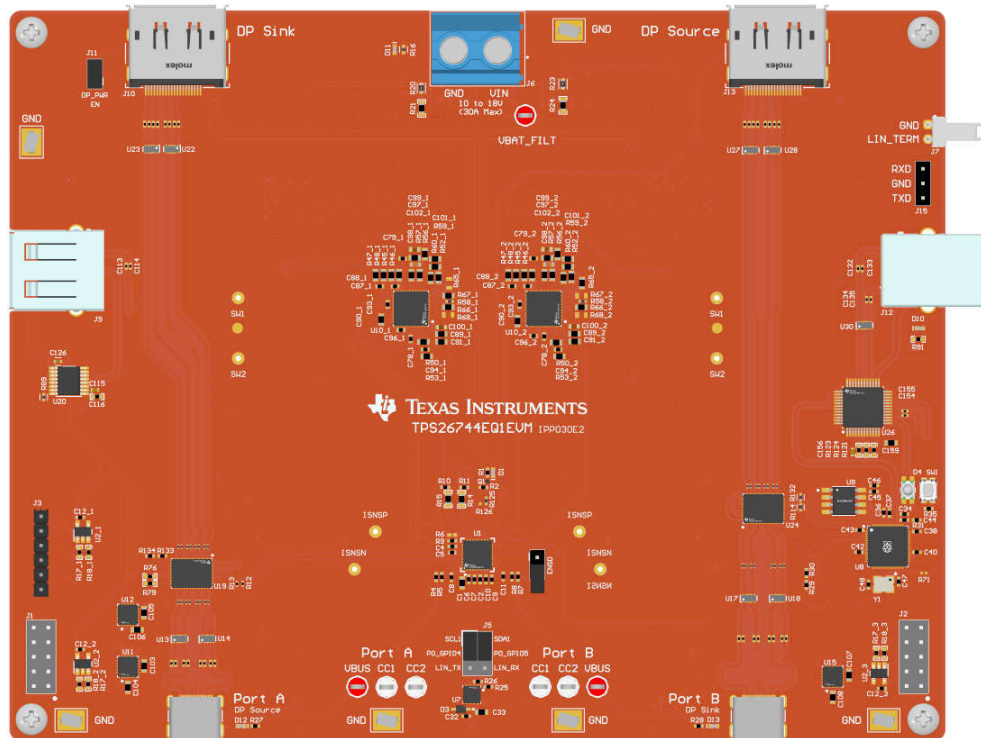
Features

- USB-IF certification, TID: (TBD)

- Charging up to 140W on Port A and Port B with the [LM251772-Q1](#) (TBD)
- TPD4S481-Q1 USB Type-C 48V EPR Port Protector
- [TUSB564-Q1](#) USB Type-C DP Alt Mode for sink side
- [TUSB5461-Q1](#) USB Type-C DP Alt Mode for source side
- Easy-to-use GUI with preconfigured firmware to configure device
- VBUS and CCx test points for both Type-C ports to monitor PD traffic
- MCU for flash programming and system telemetry

Applications

- [Automotive USB charging](#)
- [Automotive media hub](#)
- [Automotive head unit](#)
- [Automotive rear seat entertainment](#)



TPS26744EQ1EVM

1 Evaluation Module Overview

1.1 Introduction

The TPS26744EQ1EVM is an evaluation module for the TPS26744E-Q1, a highly integrated USB Type-C Power Delivery (PD) controller for use in dual-port USB PD applications including charging (up to 240W EPR per port) as well as DisplayPort over USB-C (DP Alt Mode). The EVM is designed to enable easy application configuration development using the Graphical User Interface (TPS267XX-Q1-GUI) and evaluation. The TPS26744EQ1EVM is also equipped with 100 mil connectors to I2C interfaces and a USB Type-B interface for debugging and development.

This user's guide describes how the TPS26744EQ1EVM is used to test USB PD functions, DisplayPort Alt Mode, and USB data. This document includes descriptions of how to use the EVM, contents, schematics, printed circuit board (PCB) layouts, and bill of materials (BOM).

1.2 Kit Contents

The EVM Kit contains the TPS26744EQ1EVM.

1.3 Specification

The board specifications of the TPS26744EQ1EVM is shown in [Table 1-1](#).

Table 1-1. Board Specifications

Parameter	Value
Input voltage	10V to 18V ⁽¹⁾
Maximum input current	30A
Output voltage	5V to 28V ⁽¹⁾
Maximum output current	5A ⁽¹⁾
LM251772-Q1 default switching frequency	320kHz
Board size (six layers)	6.4 inch × 5.0 inch

- (1) Although the TPS26744E-Q1 supports VIN up to 32V and VOUT up to 240W EPR per port, the external circuit of each onboard LM251772-Q1 were optimally designed to efficiently output max 140W with a 10V to 18V input.

The block diagram for the TPS26744EQ1EVM is shown in [Figure 1-1](#).

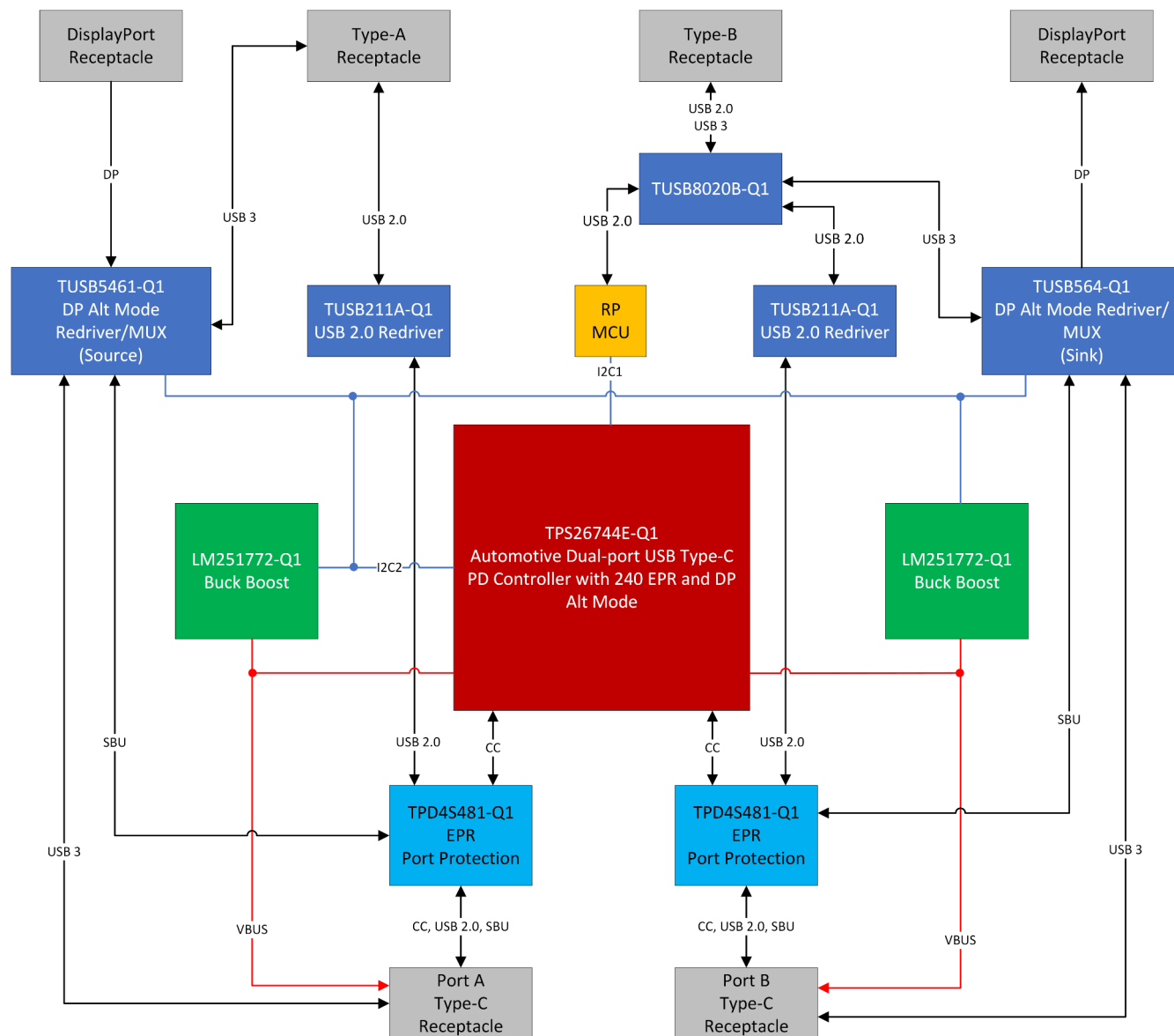


Figure 1-1. EVM Simplified Block Diagram

1.4 Device Information

The purpose of the TPS26744EQ1EVM is to showcase the hardware and firmware capabilities of the TPS26744E-Q1 device. The other components on the board are populated for testing and support of the main device, including two LM251772-Q1 buck-boost controllers, a TUSB564-Q1 DP Alt Mode sink-side redriver, and a TUSB5461-Q1 DP Alt Mode source-side redriver.

2 Hardware

Figure 2-1 shows the overview of the TPS26744EQ1EVM Top Layer.

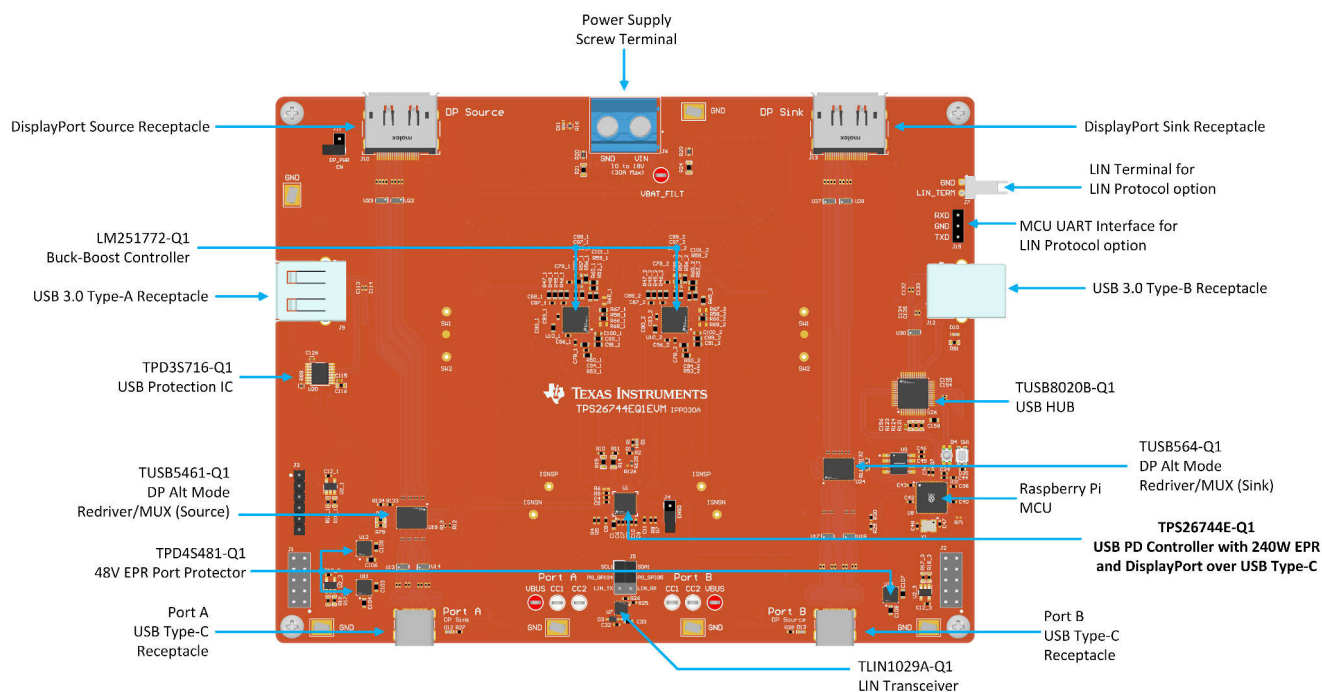


Figure 2-1. TPS26744EQ1EVM Overview (Top Layer)

Figure 2-2 shows the overview of the TPS26744EQ1EVM Bottom Layer.

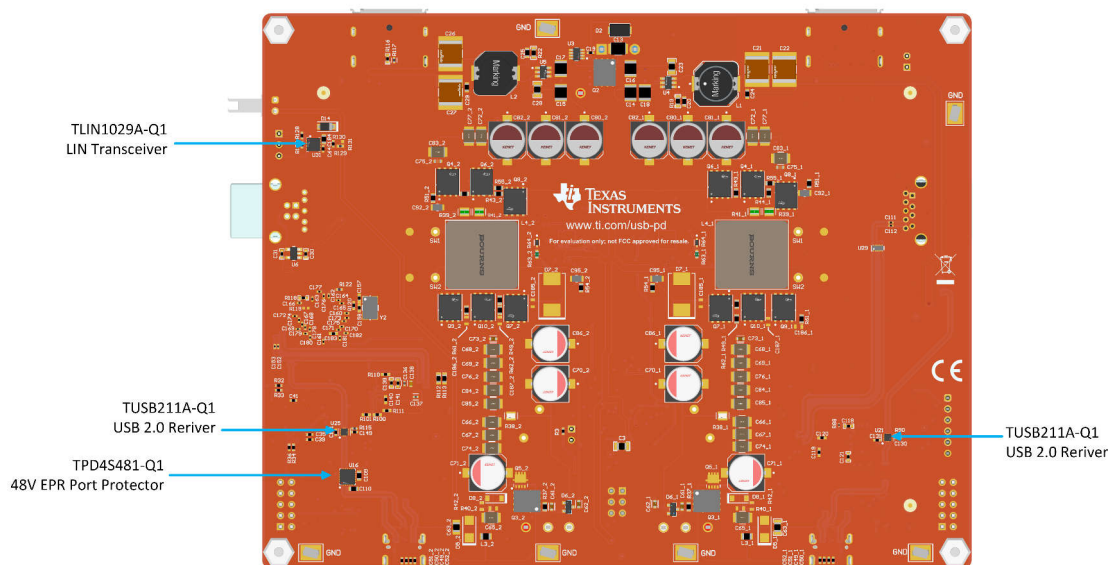


Figure 2-2. TPS26744EQ1EVM Overview (Bottom Layer)

2.1 EVM Operation

An easy way to get started with the TPS26744EQ1EVM is by using the preprogrammed out-of-box experience demo which demonstrates the key features of the EVM.

Connections to achieve EVM operation:

1. Connect a 10-18V (30A max) DC power supply to the J6 input screw terminals.
2. Port A and Port B Type-C receptacles are provided to connect to Power Delivery or Type-C sink devices or test equipment as well as DisplayPort source or sink devices, as shown in [Figure 2-4](#).
 - a. The Port A Type-C receptacle is dedicated for a DisplayPort source device as the USB 3 pins connect to the U19 TUSB5461-Q1 redriver. The DisplayPort data path is routed from the J10 DisplayPort receptacle to Port A.
 - b. The Port B Type-C receptacle is dedicated for a DisplayPort source device as the USB 3 pins connect to the U24 TUSB564-Q1 redriver. The DisplayPort data path is routed from Port B to the J13 DisplayPort receptacle.
3. DisplayPort receptacles are provided to connect to DisplayPort source or sink devices, as shown in [Figure 2-4](#).
4. Using the GUI, connect a Type-B USB cable from the J12 receptacle to a PC to program the integrated flash memory of the TPS26744E-Q1.
5. I2C logic analyzer to observe I2C traffic between TPS26744E-Q1 and LM251772-Q1, TUSB564-Q1, or TUSB5461-Q1 during operation. See [Section 2.3.4](#) for more details.

2.2 Setup

Items required for operation

- *TPS26744E-Q1 Automotive Dual-Port USB Type-C® PD Controller with 240W EPR and DisplayPort™ over USB Type-C® data sheet*
- TPS267XX-Q1-GUI
- 10-18V (max 30A) DC power supply
- Type-C cables capable of supporting EPR and DisplayPort
- UFP sink or UFP emulator for operation
- DisplayPort cables
- DisplayPort source and DisplayPort sink devices
- USB Type-B cable
- PC with USB 2.0 capabilities

2.3 LED, Jumper, and Connector Descriptions

2.3.1 LED Indicators

[Table 2-1](#) lists the LED descriptions.

Table 2-1. LEDs

Reference	Color	Usage	Comments
D1	White	P0_GPIO3	Drive the D1 LED by configuring P0_GPIO3 as PA_PWM (DNP R126 and populate an 0402 sized 0Ω resistor on the R125).
D10		J12 Type-B VBUS indicator	On: Type-B plug is connected to J12. Off: A Type-B plug is not connected to J12.
D11		VIN power indicator	On: VIN power rail is up. Off: No VIN power supplied.
D12		Port A VBUS indicator	On: Power on Port A VBUS. Off: No power on Port A VBUS.
D13		Port B VBUS indicator	On: Power on Port B VBUS. Off: No power on Port B VBUS.

[Figure 2-3](#) shows the mentioned LEDs on the board.

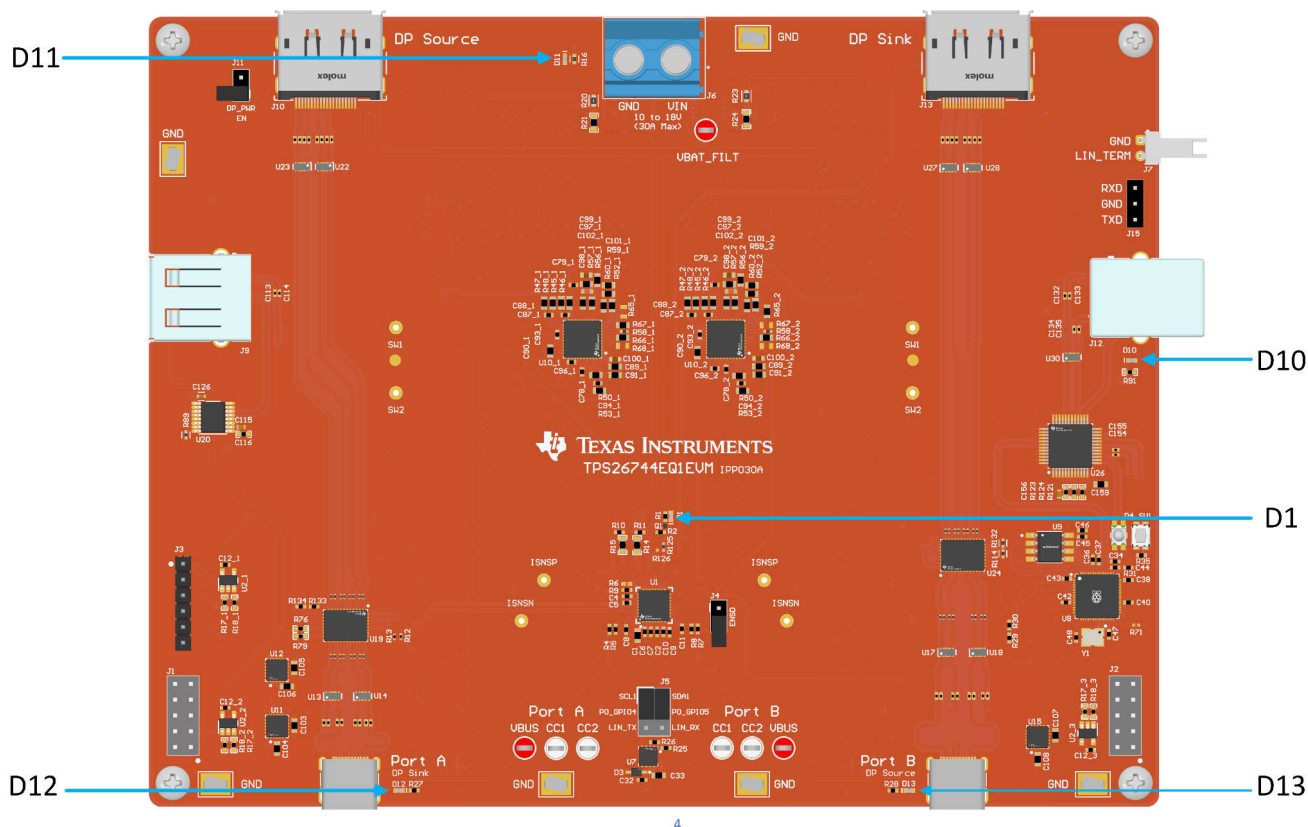


Figure 2-3. LED Indicators

2.3.2 Jumper Settings

Jumper Settings

Table 2-2 lists the jumper settings. To reference the default jumper configurations, see Figure 2-1.

Table 2-2. Jumper Settings

Jumper	Connection	Description
J4	Open	Leaves P1_GPO4 floating and allows the TPS26744E-Q1 to operate in Active Mode.
	Installed	Pulls P1_GPO4 low and enables the ENSD function placing the TPS26744E-Q1 in Shutdown Mode.
J5	Open	P0_GPIO4 and P0_GPIO5 are open.
	Jumpers installed between pins 1-3 and 2-4	P0_GPIO4 connected to I2C1_SCL and P0_GPIO5 connected to I2C1_SDA. Choose this jumper setting to connect the Raspberry Pi MCU to the TPS26744E-Q1.
	Jumpers installed between pins 3-5 and 4-6	P0_GPIO4 connected to LIN_TXD and P0_GPIO5 connected to LIN_RXD. Choose this jumper setting to connect the U7 LIN transceiver to the TPS26744E-Q1.
J11	Open	No 3.3V power supplied to the DP_PWR pin of the J10 DisplayPort receptacle.
	Installed	Installing the jumper provides 3.3V to the DP_PWR pin of the J10 DisplayPort receptacle.

2.3.3 Connector Descriptions

Table 2-3 lists the connectors on the TPS26744EQ1EVM.

Table 2-3. EVM Connectors

Reference	Usage	Comments
J6	Screw Terminal Block	Power supply input
J7	LIN commander interface option #1	LIN bus connects directly to U7 LIN transceiver via R131.
J8_1	Port A USB Type-C receptacle	USB PD output/DP Source
J8_2	Port B USB Type-C receptacle	USB PD output/DP Sink
J9	USB Type-A receptacle	USB data connects to Port A (J8_1).
J10	DisplayPort receptacle	DP Sink. Connects to TUSB5461-Q1 and Port A (J8_1).
J12	USB Type-B receptacle	USB data connects to Port B (J8_2).
J13	DisplayPort receptacle	DP Source. Connects to TUSB564-Q1 and Port B (J8_2).
J15	LIN commander interface option #2	TXD/RXD connects to U31 LIN transceiver and the LIN bus from U31 connects to U7 LIN transceiver via R129.

When evaluating DisplayPort Alt Mode, connect the DisplayPort sink and source devices to the EVM as shown in [Figure 2-4](#) or [Figure 2-5](#).

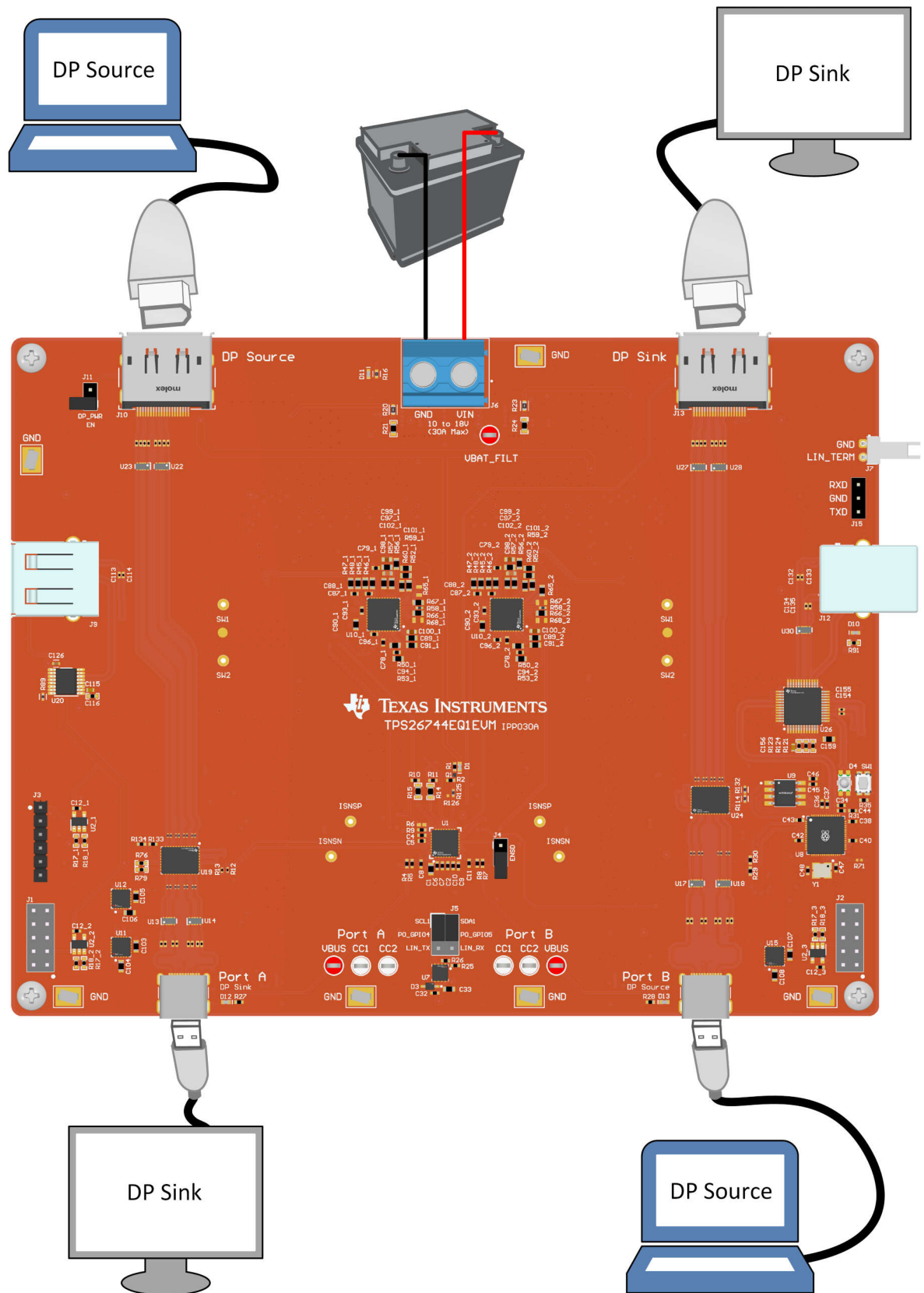


Figure 2-4. DisplayPort Connections

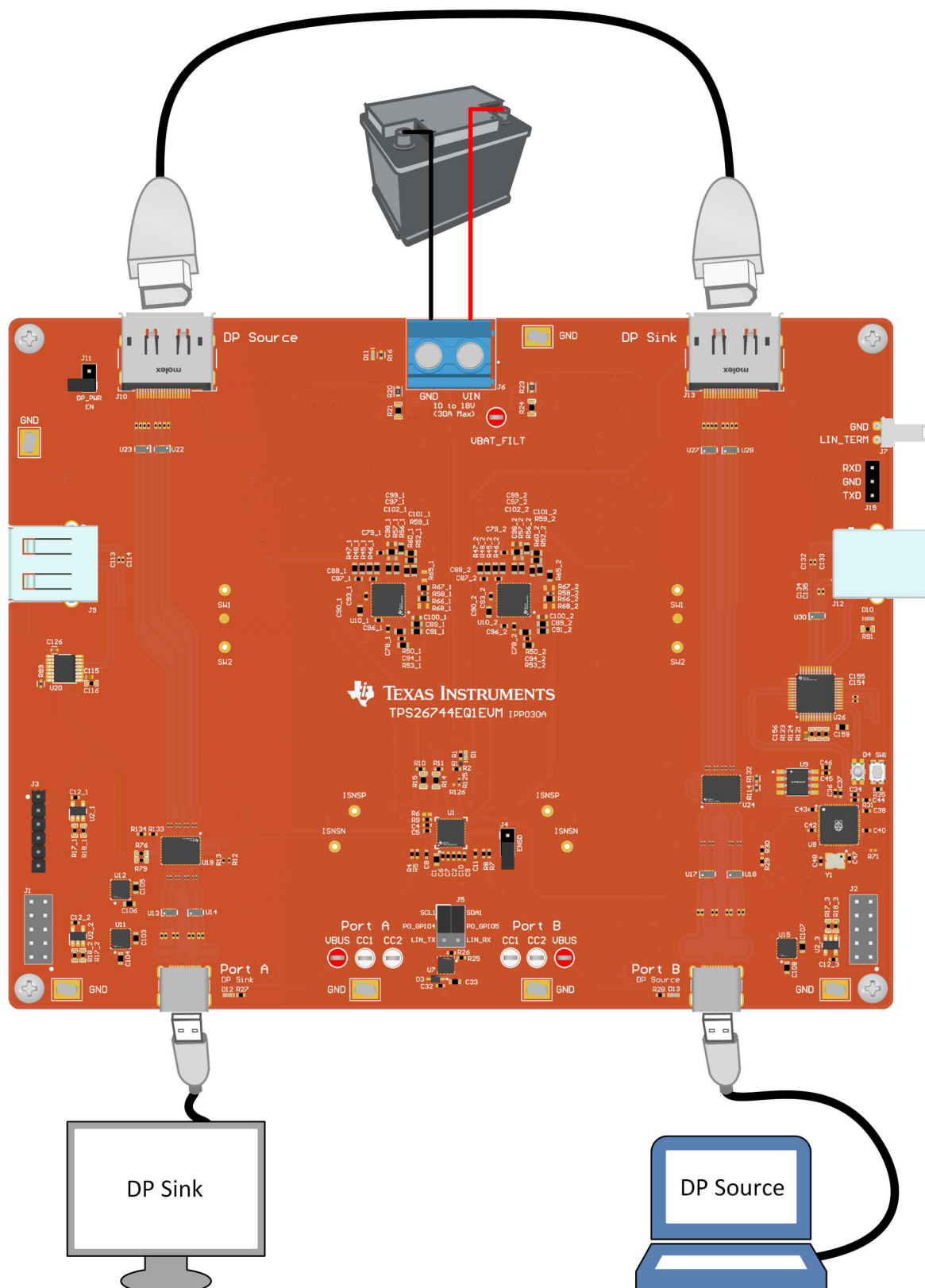


Figure 2-5. DisplayPort Connections (Loopback)

2.3.4 Debug Headers

The J1, J2 and J3 headers are provided to allow the EVM to connect to a debug digitizer with a range of 5V.

J1 and J3 Debug Headers

The J1 and J3 header locations are shown in [Figure 2-6](#) and the signal assignments are shown in [Table 2-4](#) and [Table 2-5](#).

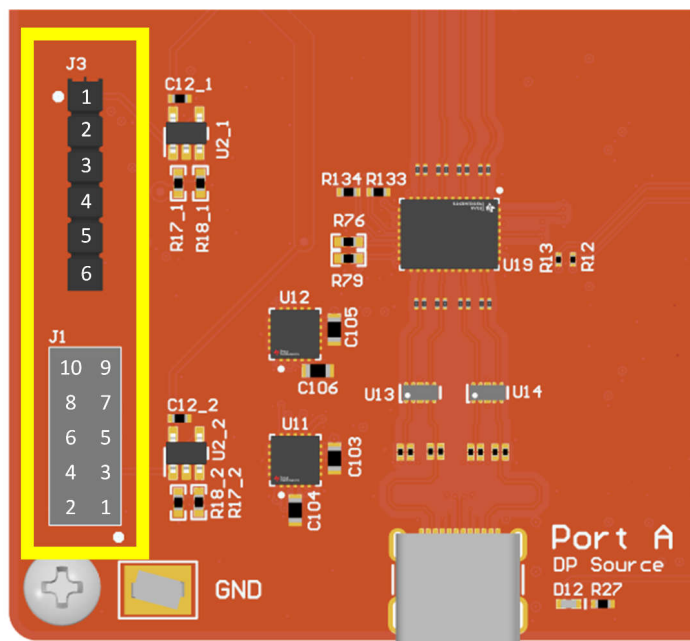


Figure 2-6. J1 and J3 Debug Headers

Table 2-4. J1 Header Pin Assignment

Pin	Name	Description
1	PA.CC1	Port A CC1
2	PA.CC2	Port A CC2
3	PA_VBUS_D10	Port A VBUS scaled to 10%
4	P0_GPIO9	Observe P0_GPIO9
5	GND	Ground reference
6	GND	Ground reference
7	I2C2.SCL	I2C2 clock (Controller)
8	I2C2.SDA	I2C2 data (Controller)
9	GND	Ground reference
10	P0_GPIO0	Observe P0_GPIO0

Table 2-5. J3 Header Pin Assignment

Pin	Name	Description
1	VBAT_D10	VBAT input power supply scaled to 10%
2	I2C1.SDA	I2C1 data (Target)
3	I2C1.SCL	I2C1 clock (Target)
4	P0_GPIO3	Observe P0_GPIO3 (DNP R125 and populate an 0402 sized 0Ω resistor on the R126 pad)
5	P1_GPO5	Observe P1_GPO5 or use as an ADC input
6	GND	Ground reference

J2 Debug Header

The J2 header location is shown in [Figure 2-7](#) and the signal assignment is shown in [Table 2-6](#).

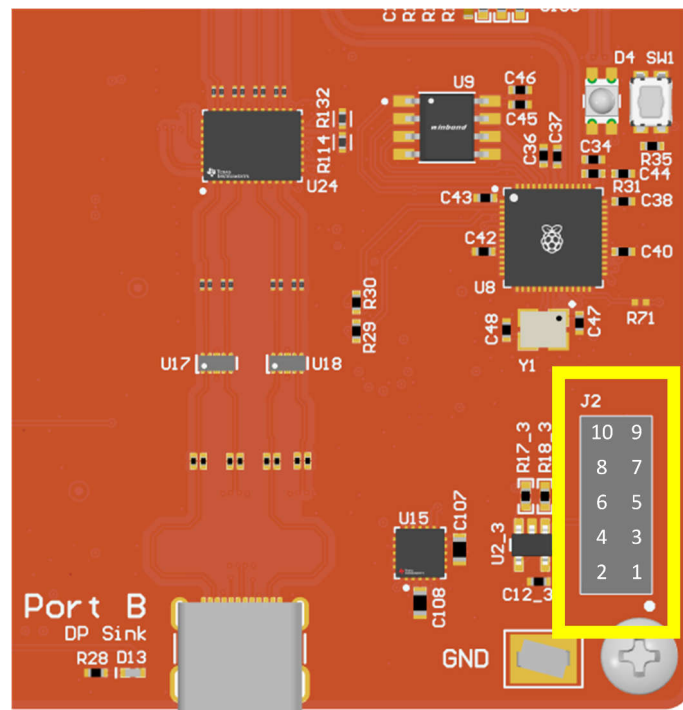


Figure 2-7. J2 Debug Header

Table 2-6. J2 Header Pin Assignment

Pin	Name	Description
1	PB.CC1	Port B CC1
2	PB.CC2	Port B CC2
3	PB_VBUS_D10	Port B VBUS scaled to 10%
4	P0_GPIO9	Observe P0_GPIO9
5	GND	Ground reference
6	GND	Ground reference
7	I2C2.SCL	I2C2 clock (Controller)
8	I2C2.SDA	I2C2 data (Controller)
9	GND	Ground reference
10	PO_GPIO0	Observe P0_GPIO0

2.4 Default I2C Addresses

The TPS26744E-Q1EVM features the LM251772-Q1, TUSB564-Q1, and TUSB5461-Q1 to evaluate the ability of the TPS26744E-Q1 to support USB PD EPR and DisplayPort Alt Mode. These devices are connected to the I2C2 bus and their default I2C addresses are listed in [Table 2-7](#).

Table 2-7. Default I2C Addresses

Reference	Usage	Part Number	Default Target Address
U10_1	Port A DCDC	LM251772-Q1	0x6a
U10_2	Port B DCDC		0x6b
U19	Port A DP Redriver	TUSB5461-Q1	0x12
U24	Port B DP Redriver	TUSB564-Q1	0x44

3 Thermal Images

Thermal images are shown in the following figures. The ambient temperature is 25°C, and the thermal images were taken with a 13.5V input and all outputs at a full load of 28V 5A, or 140W. The controller was operated for approximately 30 minutes before the images were taken to so that thermal steady state was reached. The TPS26744EQ1EVM is a 6-layer PCB and the copper of all layers is 1 oz.

CAUTION

Hot surfaces exceeding 55°C cause burns. Do not touch!

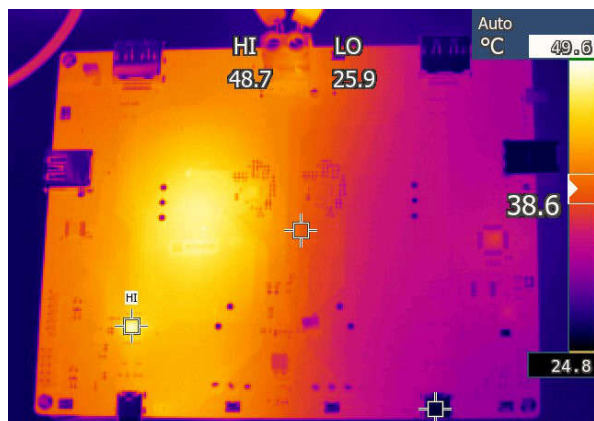


Figure 3-1. Top Side Thermal Image, Port A

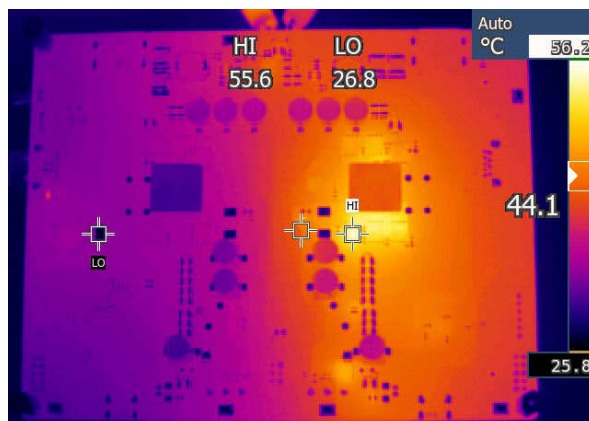


Figure 3-2. Bottom Side Thermal Image, Port A

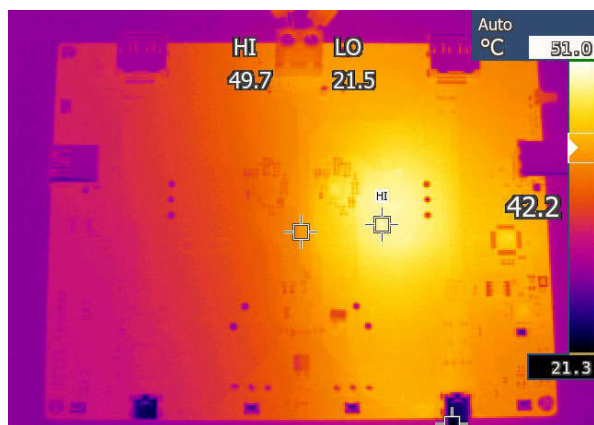


Figure 3-3. Top Side Thermal Image, Port B

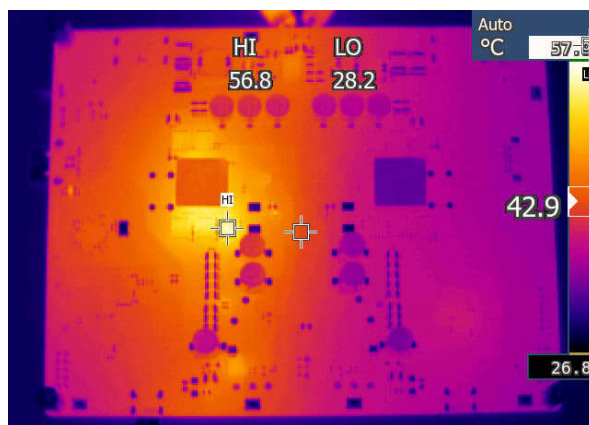


Figure 3-4. Bottom Side Thermal Image, Port B

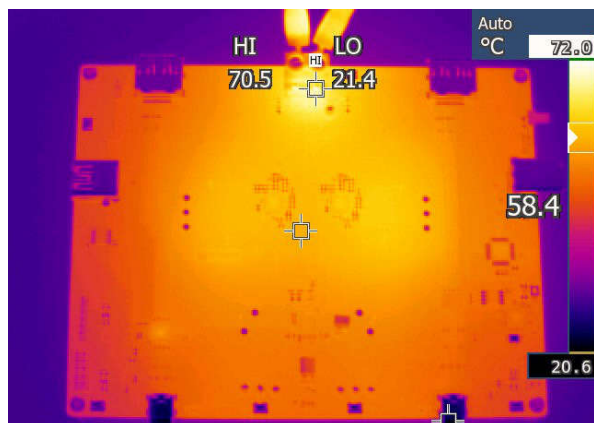


Figure 3-5. Top Side Thermal Image, Port A & Port B

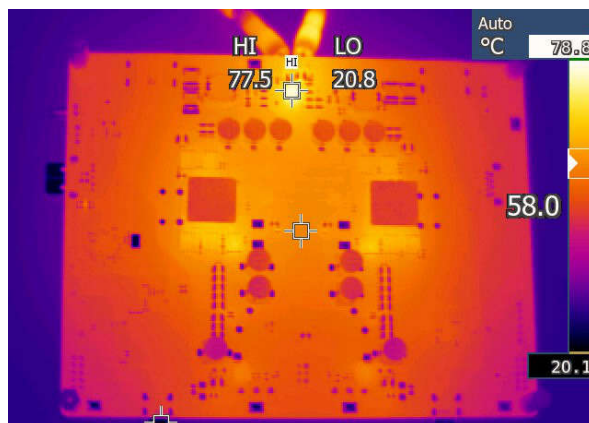


Figure 3-6. Bottom Side Thermal Image, Port A & Port B

4 Layout Guidelines

TI recommends that customers follow the guidelines described in this section to achieve similar performance as the TPS26744EQ1EVM.

4.1 General Layout Recommendations

Proper routing and placement maintains signal integrity for high speed signals, enabling the DCDC's high di/dt paths enabling them to deliver the required power and improves the heat dissipation from the power paths. The combination of power and high speed data signals are successfully designed if TI's layout guidelines are followed. It is a best practice to consult with board manufacturing to verify manufacturing capabilities.

- Place all decoupling capacitors as close to the respective pins as possible.
- For EPR, maintain the thickness of the DCDC power traces on 1oz copper layers to be at least 130 mils.
- Route digital signals away from USB data traces to prevent interference.
- Route high-speed lines with a ground reference plane continuously below it to offer good impedance throughout and help shield the trace against EMI.
- Avoid stubs on high-speed lines to minimize the reflections. If the line is be routed to multiple locations, use a separate line driver for each line.

For additional layout guidelines for 4-switch buck-boost converters, see the [Layout Optimization of 4-Switch Buck-Boost Converters](#) Application Note. For additional high-speed layout guidelines, see the [High-Speed Layout Guidelines for Signal Conditioners and USB Hubs](#) Application Report.

4.1.1 Short-to-VBUS Protection for USB SuperSpeed Pins

VBUS shorts do not normally occur if the USB-C plug and receptacle are within the specification limits as defined by USB-IF. However, there is still risk where the VBUS pin inadvertently comes in contact with the Type-C superspeed data pins causing an Electrical Over Stress (EOS) event. To mitigate this risk, place series AC coupling capacitors on the superspeed data traces close to the Type-C receptacle. Additionally, place ESD protection diodes, such as the [TPD4E05U06-Q1](#) between these AC coupling capacitors and the DisplayPort redriver.

Select AC coupling capacitors with adequate voltage rating. Note that although 0201 AC coupling capacitors rated for 25V are used on the TPS26744EQ1EVM, capacitors with a higher voltage ratings are recommended. One trade-off for having a higher voltage rating is the capacitor package size. For 5Gbps DP Alt Mode, TI recommends not to use package sizes larger than 0402 to maintain signal integrity.

5 Hardware Design Files

5.1 Schematics

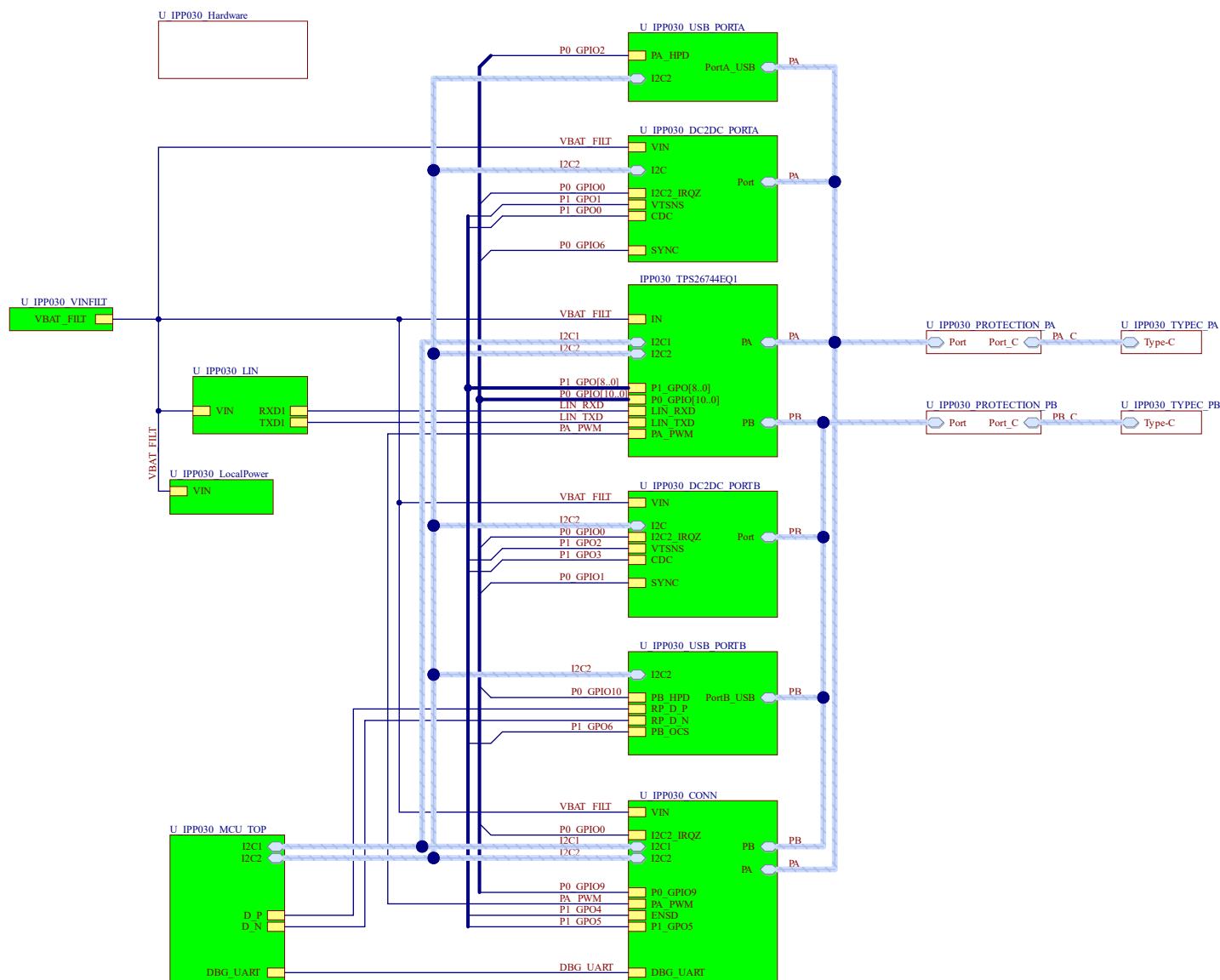


Figure 5-1. EVM Top Level Schematic (Block Diagram)

TPS26744E-Q1 TARGET

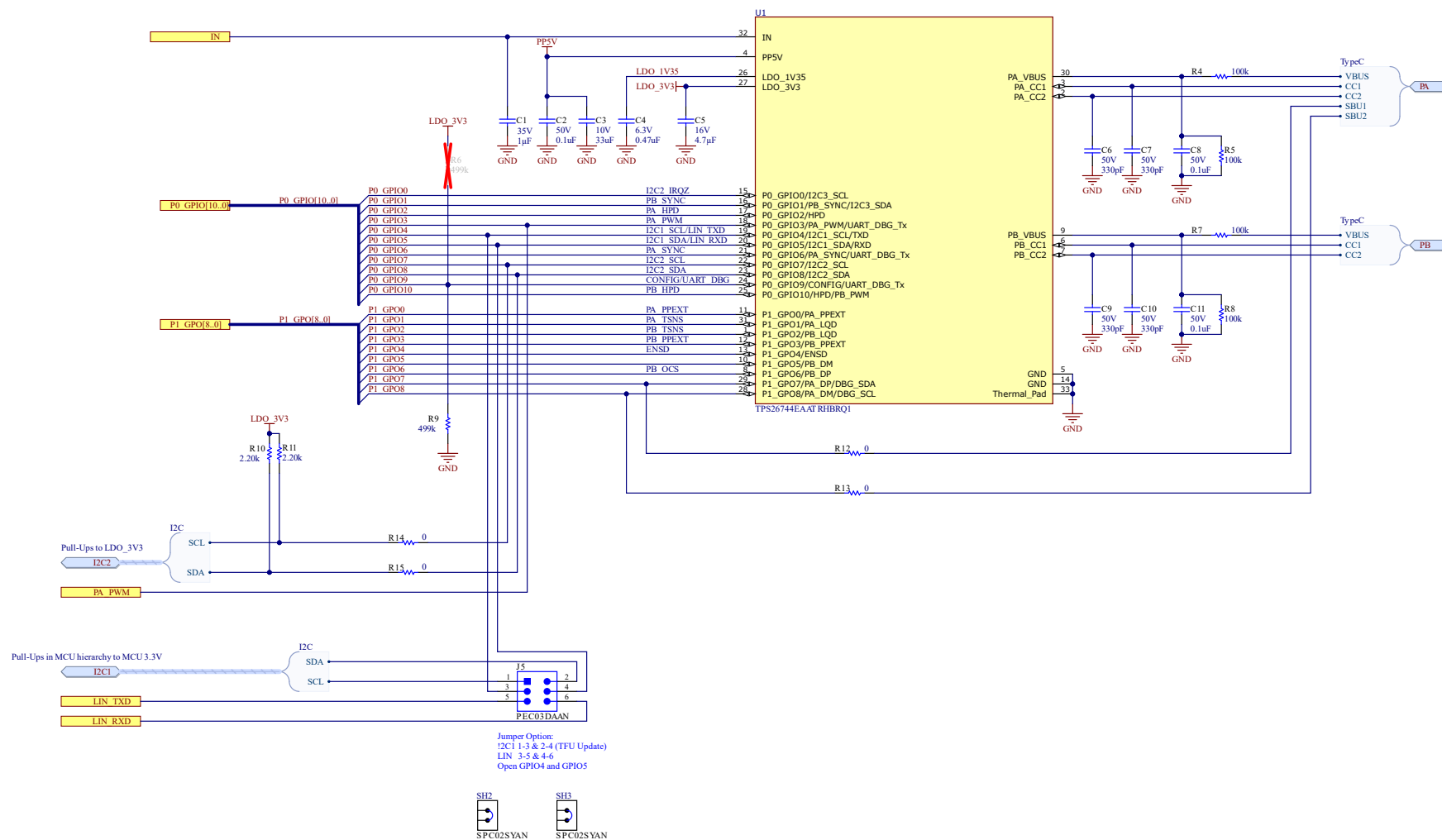


Figure 5-2. TPS26744E-Q1 Schematic

VIN REVERSE VOLTAGE PROTECTION

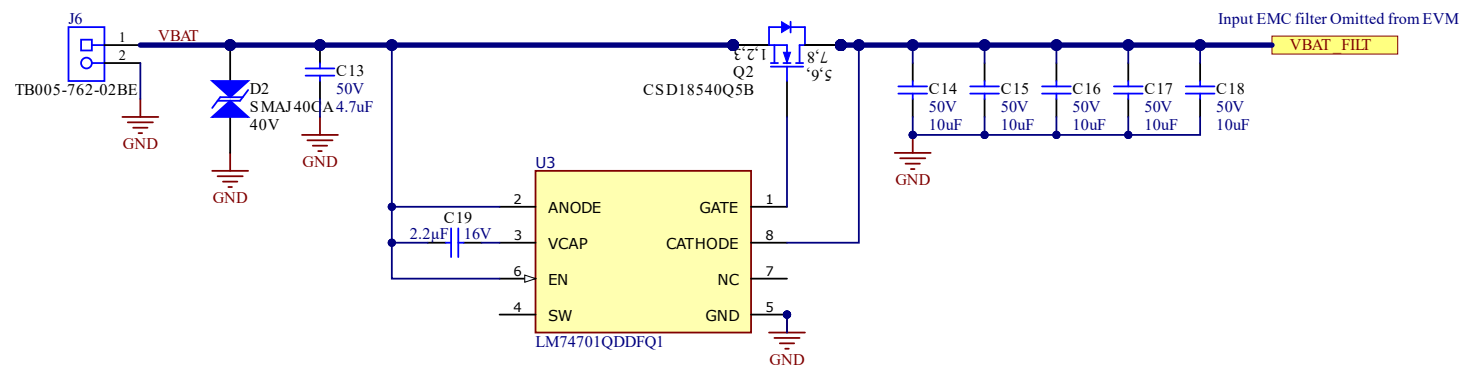


Figure 5-3. Input Connector and RCP Protection

POWER MANAGEMENT

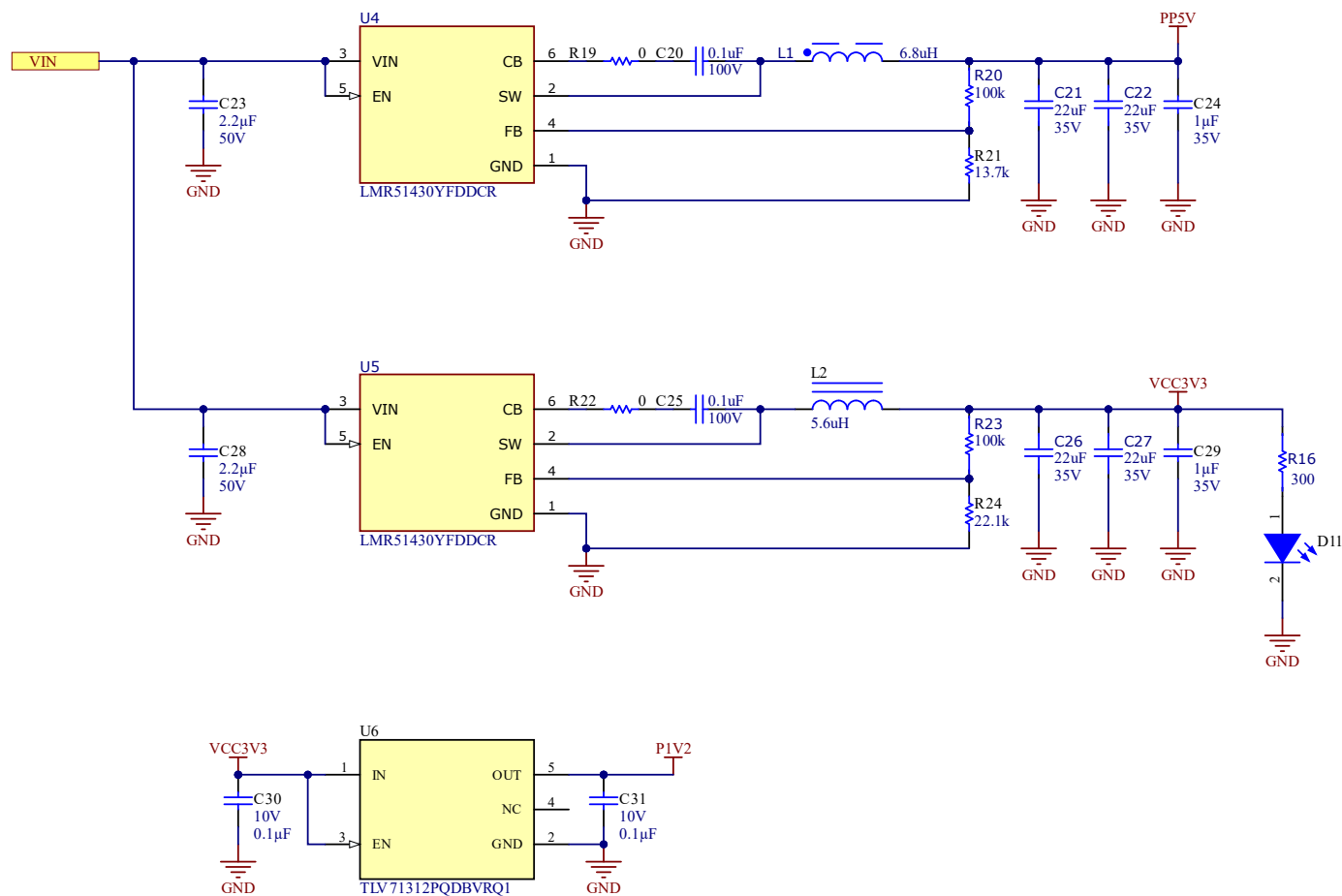


Figure 5-4. Local Power



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BUCK-BOOST CONTROLLER

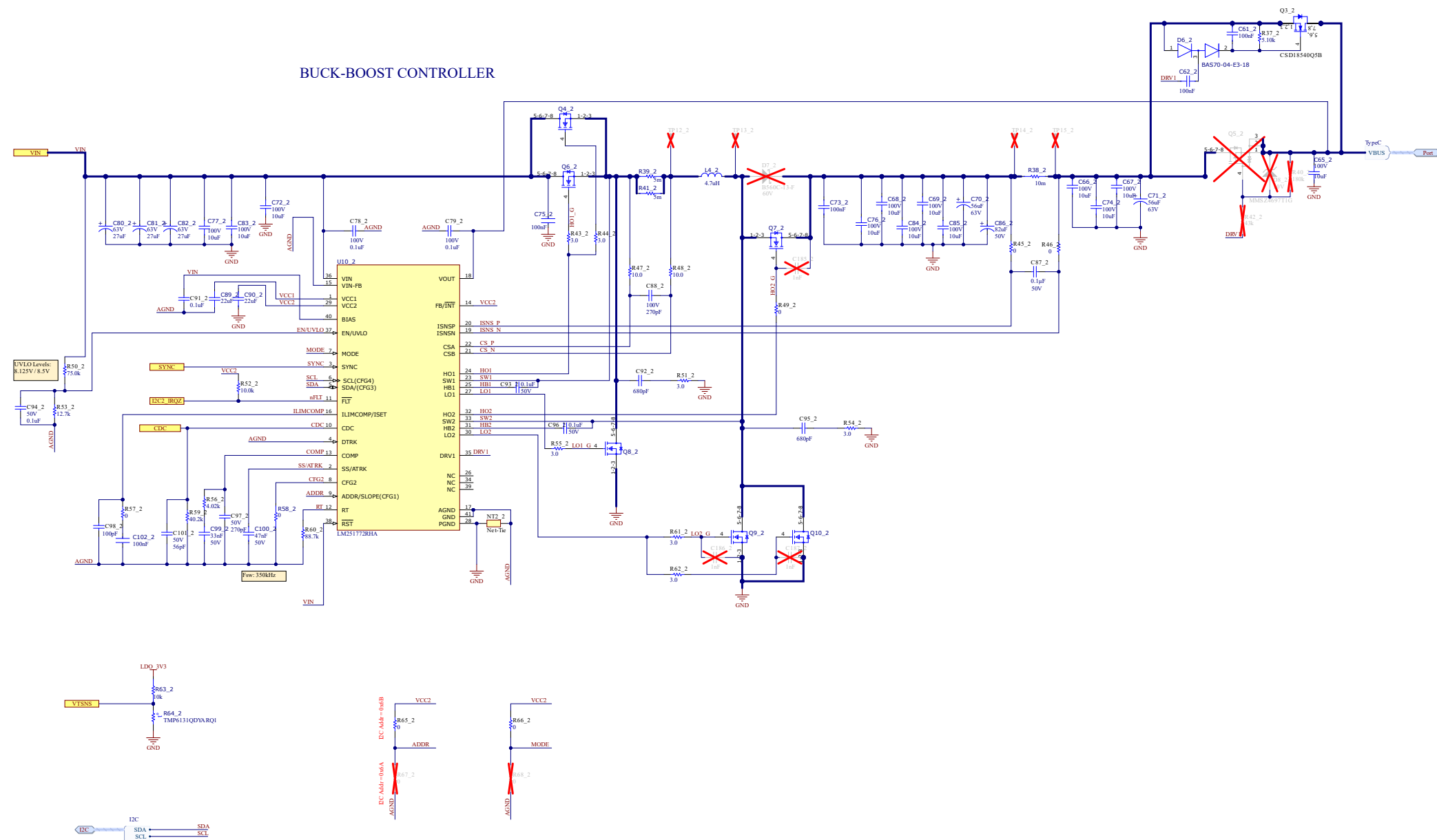
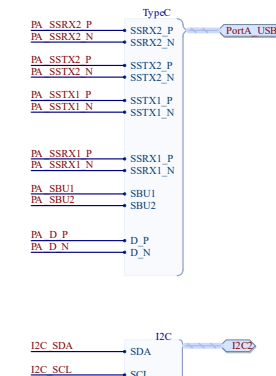
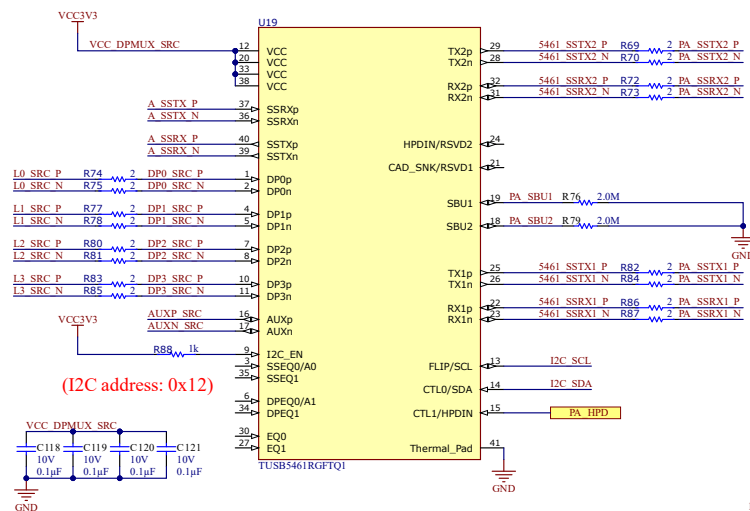
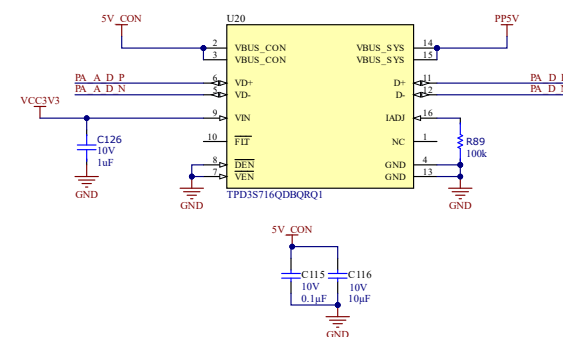


Figure 5-6. LM251772-Q1 (Port B)

USB REDRIVER & ALT MODE MUX FOR SOURCE SIDE



USB 2.0 INTERFACE PROTECTION



ESD PROTECTION

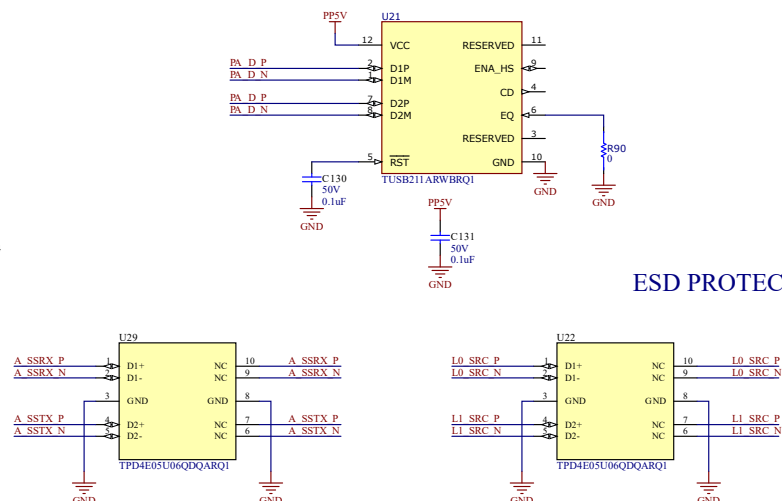
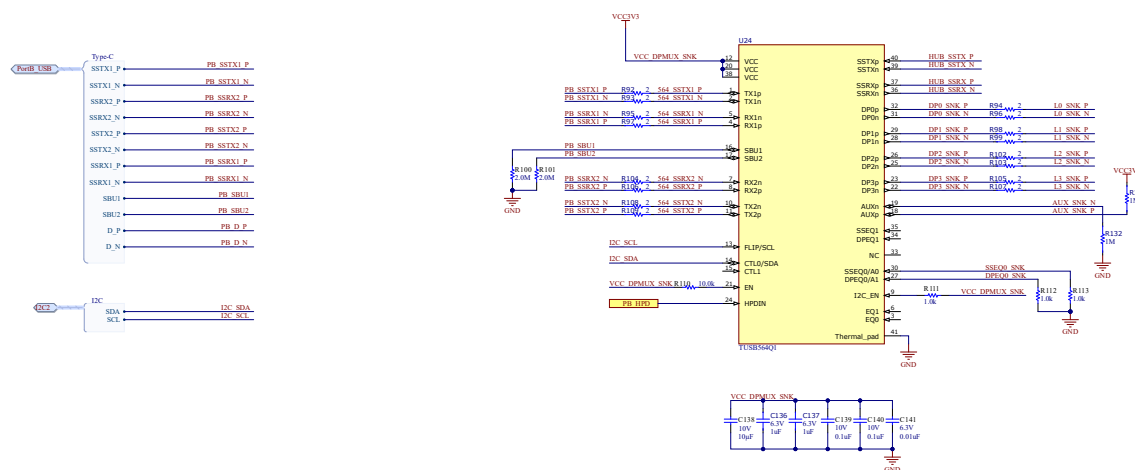
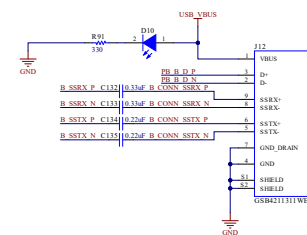


Figure 5-7. USB Data (Port A)

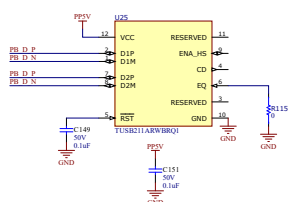
USB REDRIVER & ALT MODE MUX FOR SINK SIDE



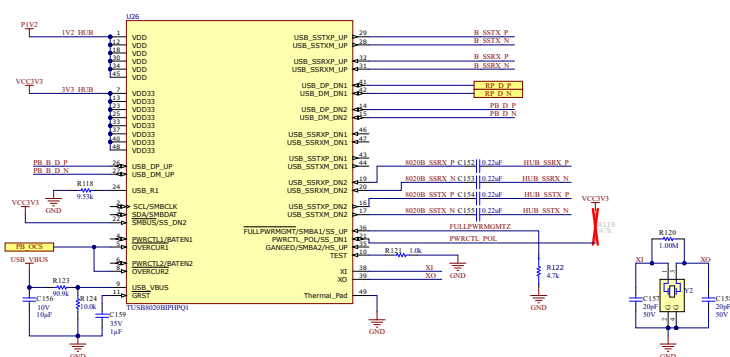
USB TYPE-B CONNECTOR



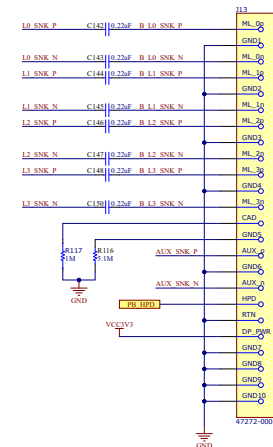
USB 2.0 SIGNAL CONDITIONER



SUPERSPEED 5.0GBPS USB 3.0 HUB



DISPLAYPORT CONNECTOR



ESD PROTECTION

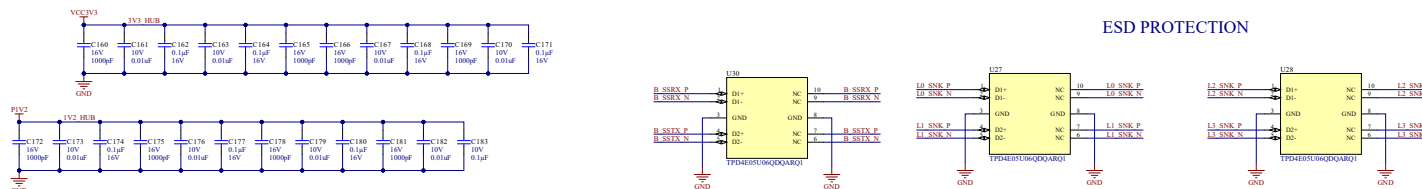


Figure 5-8. USB Data (Port B)

PORT A USB PROTECTION

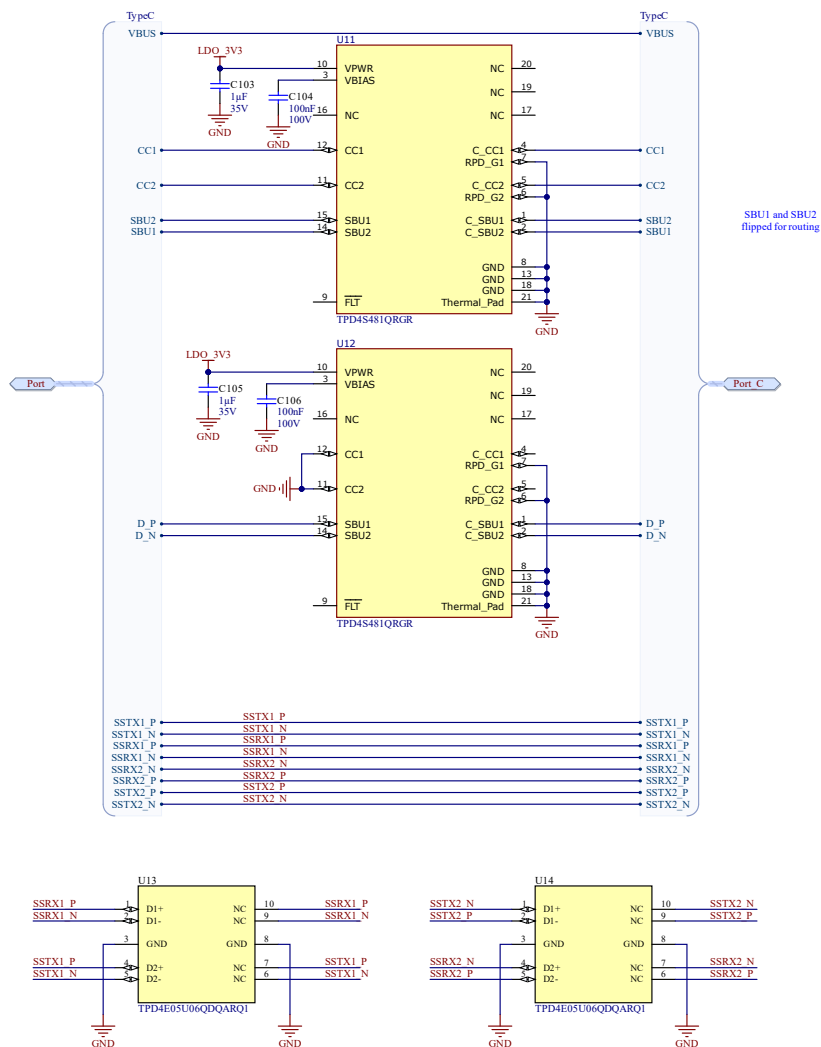


Figure 5-9. TPD4S481-Q1 Protection (Port A)

PORT B USB PROTECTION

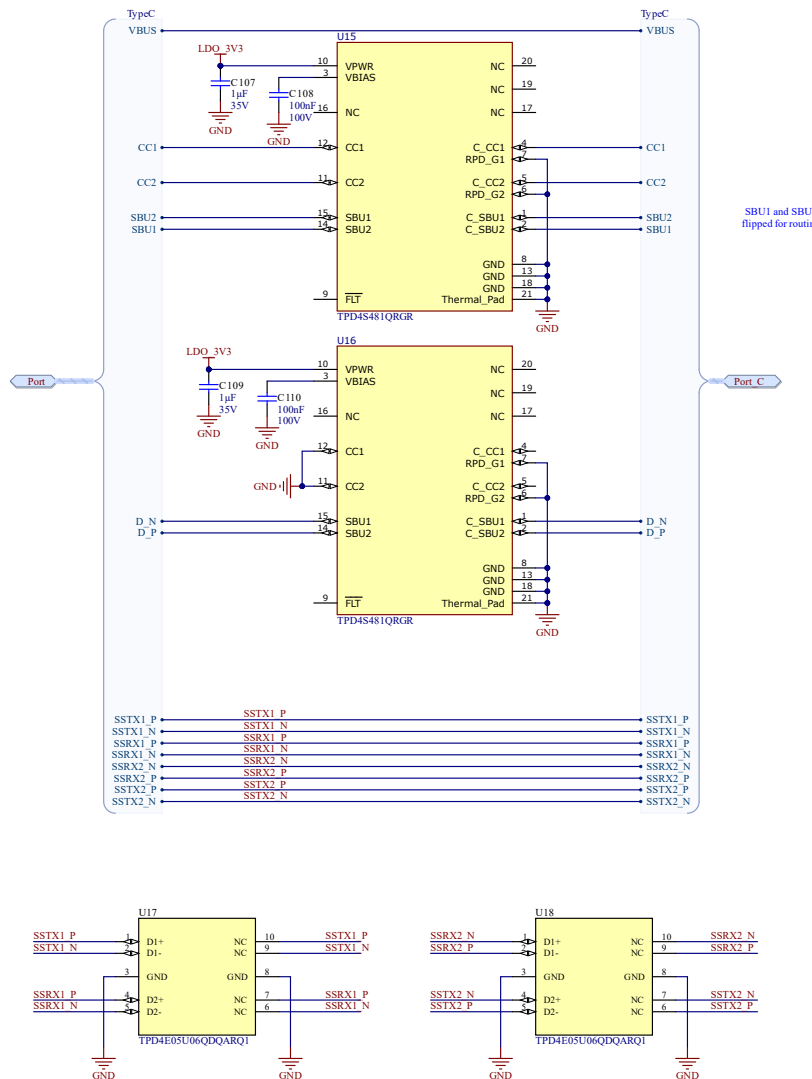


Figure 5-10. TPD4S481-Q1 Protection (Port B)

USB TYPE-C RECEPTACLE

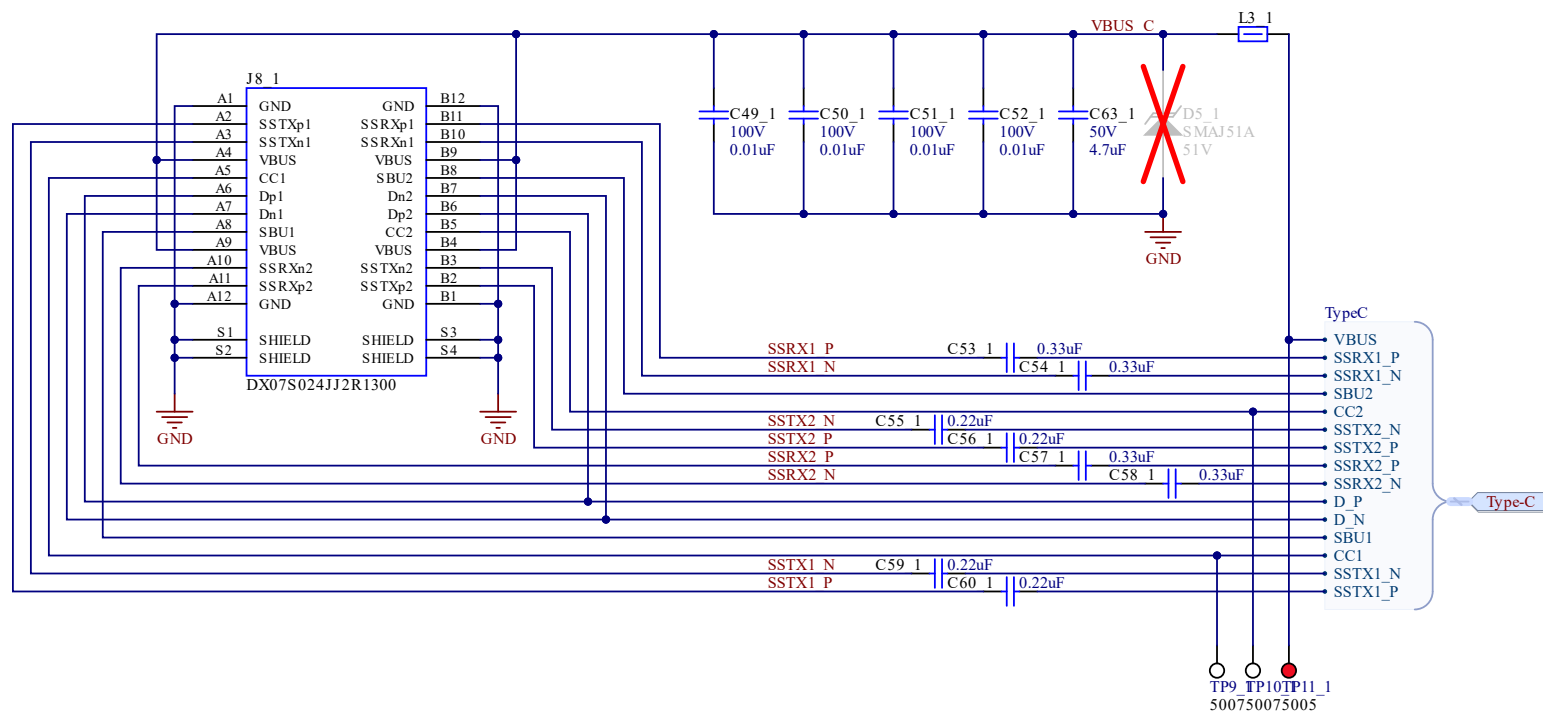


Figure 5-11. Type-C Receptacle (Port A)

USB TYPE-C RECEPTACLE

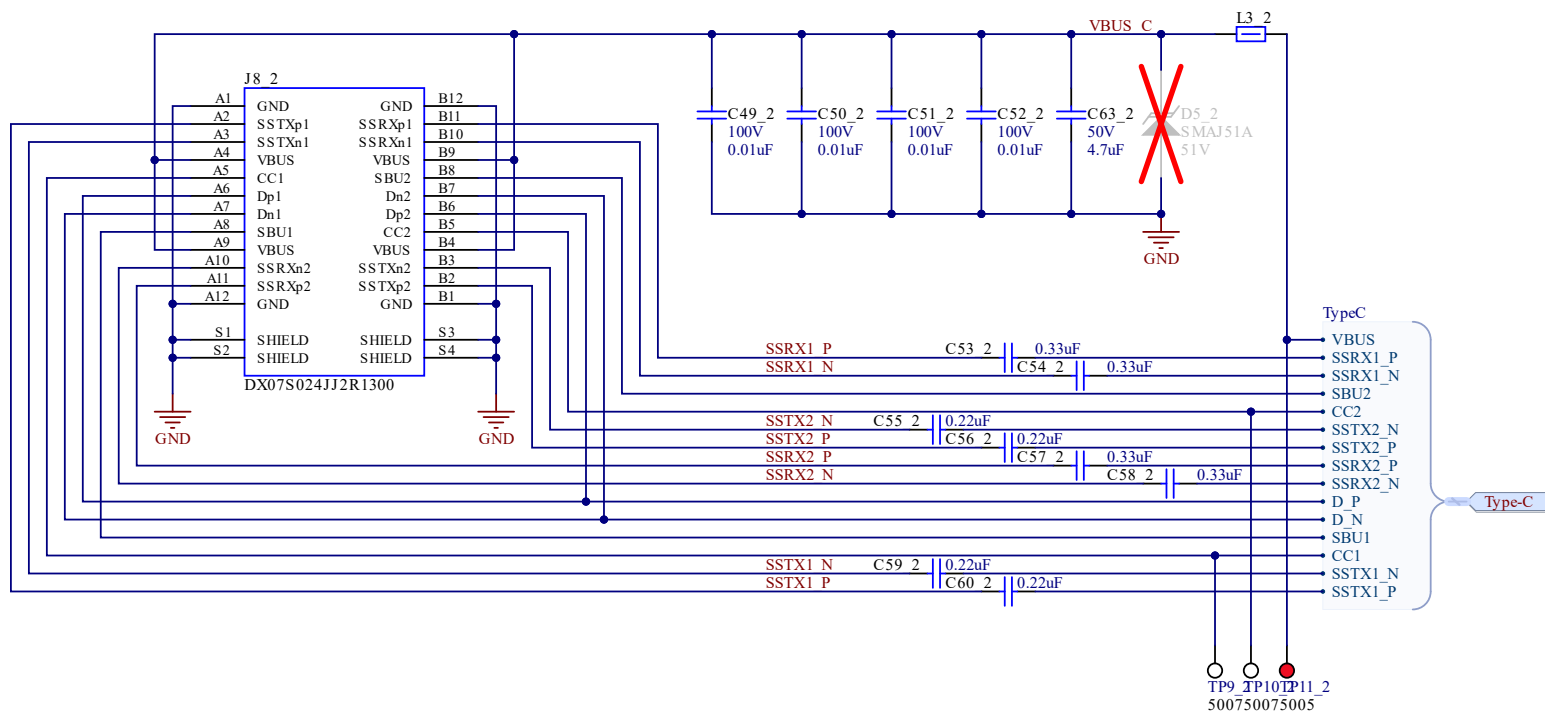


Figure 5-12. Type-C Receptacle (Port B)

LIN TRANSCEIVERS

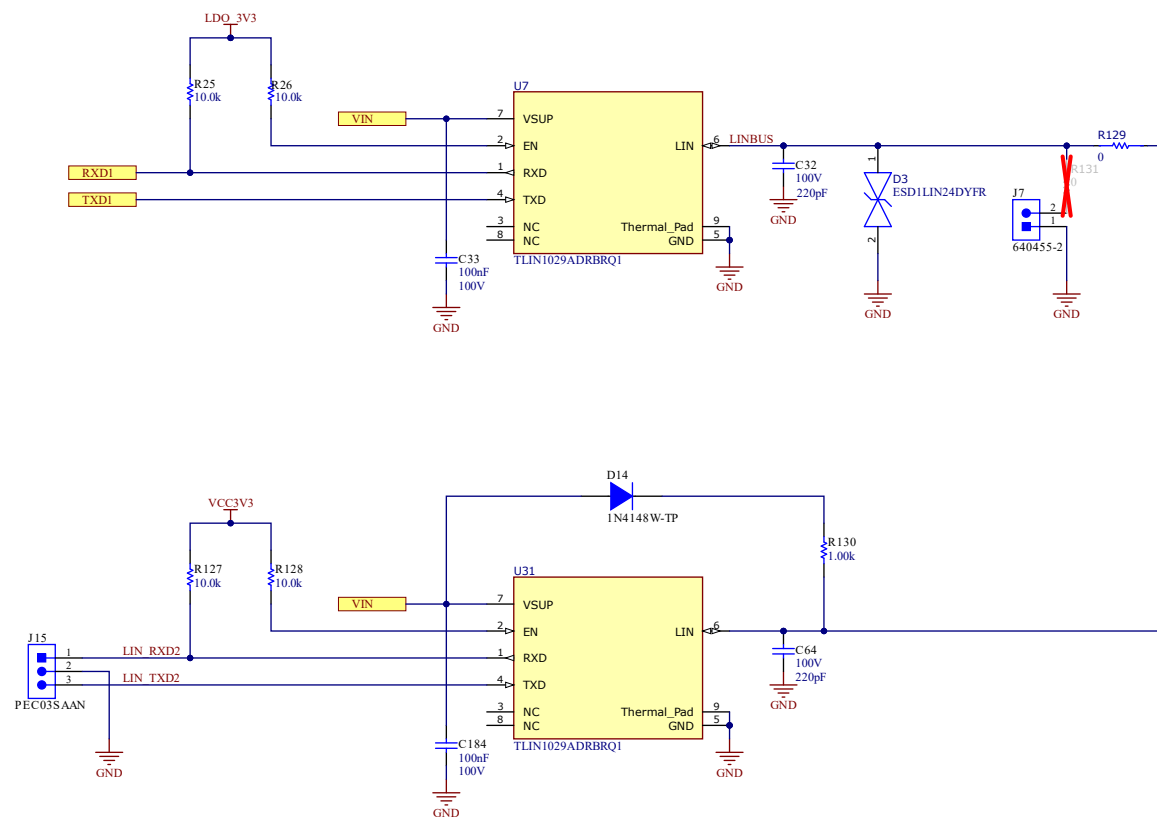


Figure 5-13. LIN Transceivers

HOST MCU FOR EMULATION

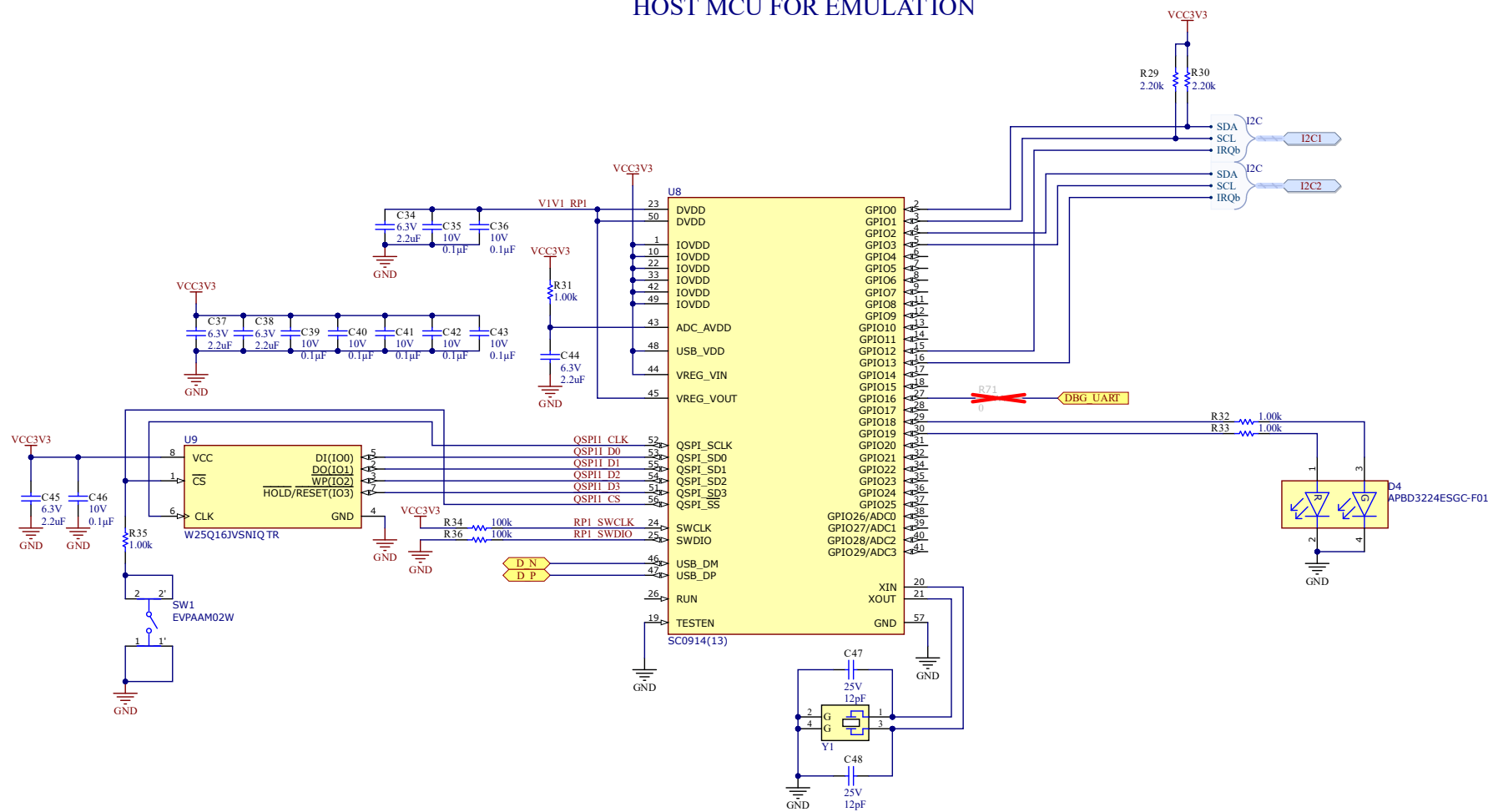


Figure 5-14. Host MCU

HEADERS & TEST POINTS

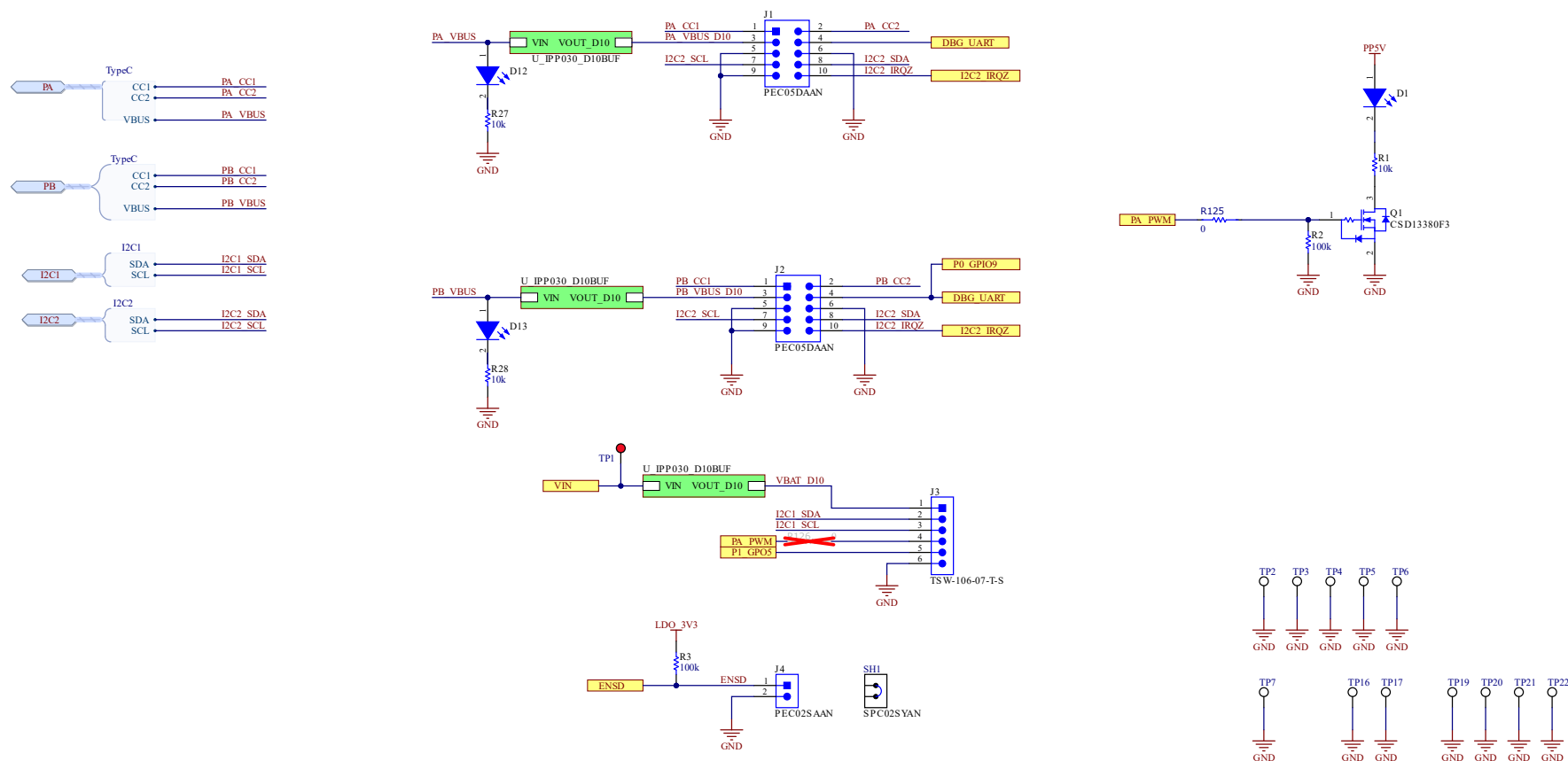


Figure 5-15. EVM Headers and Test Points

VOLTAGE DIVIDER & VOLTAGE FOLLOWER OP AMP

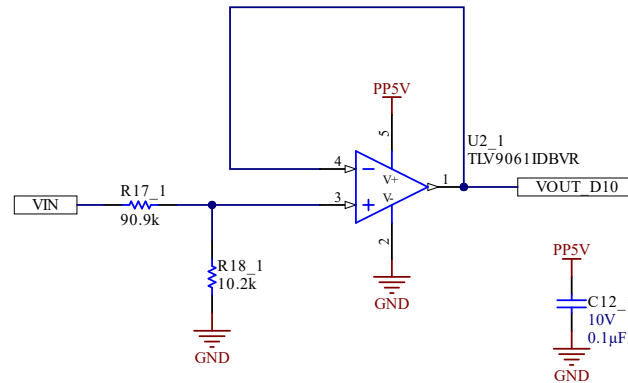


Figure 5-16. Signal Buffer

5.2 PCB Layouts

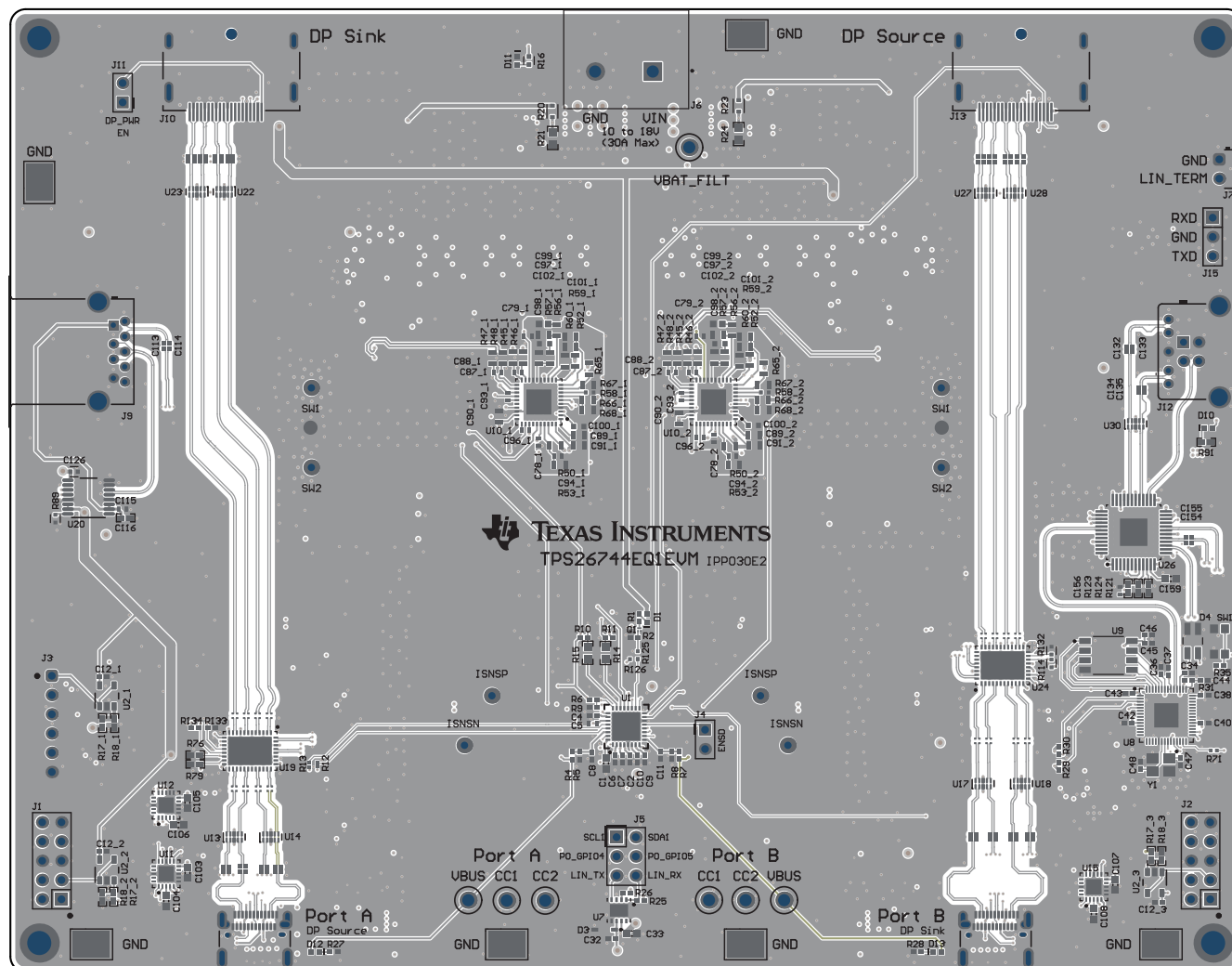


Figure 5-17. Top Layer Composite

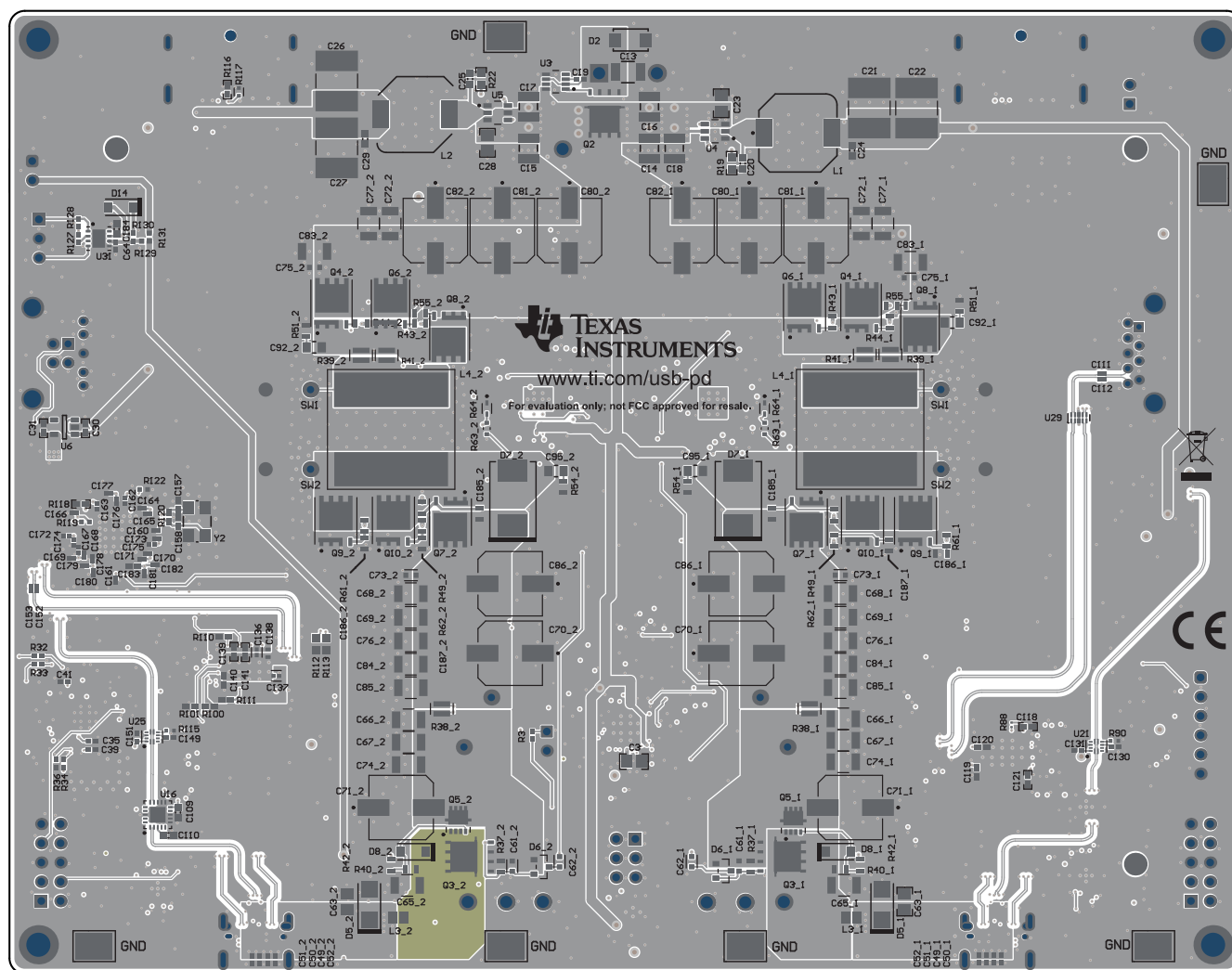


Figure 5-18. Bottom Layer Composite

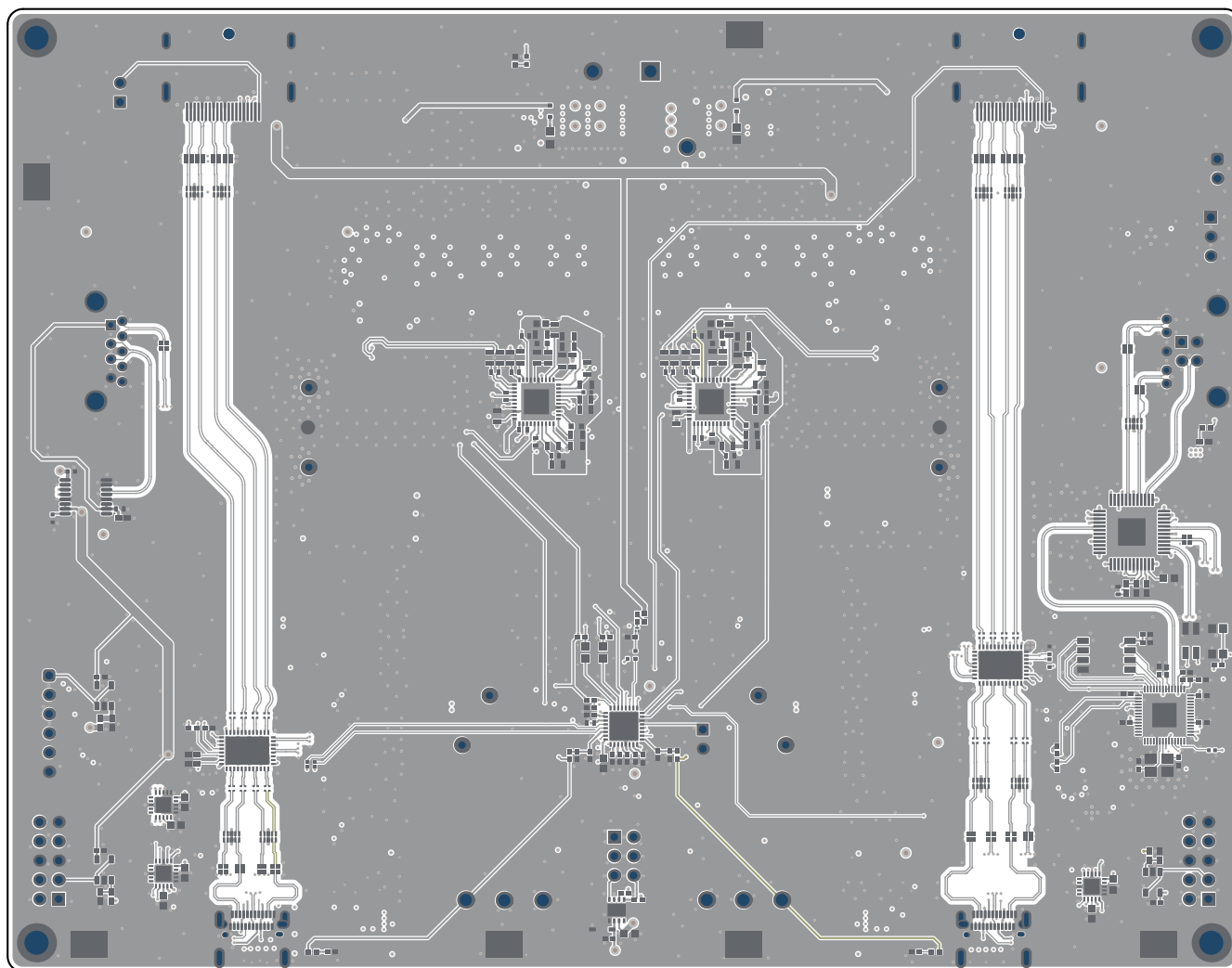


Figure 5-19. Top Layer Mask

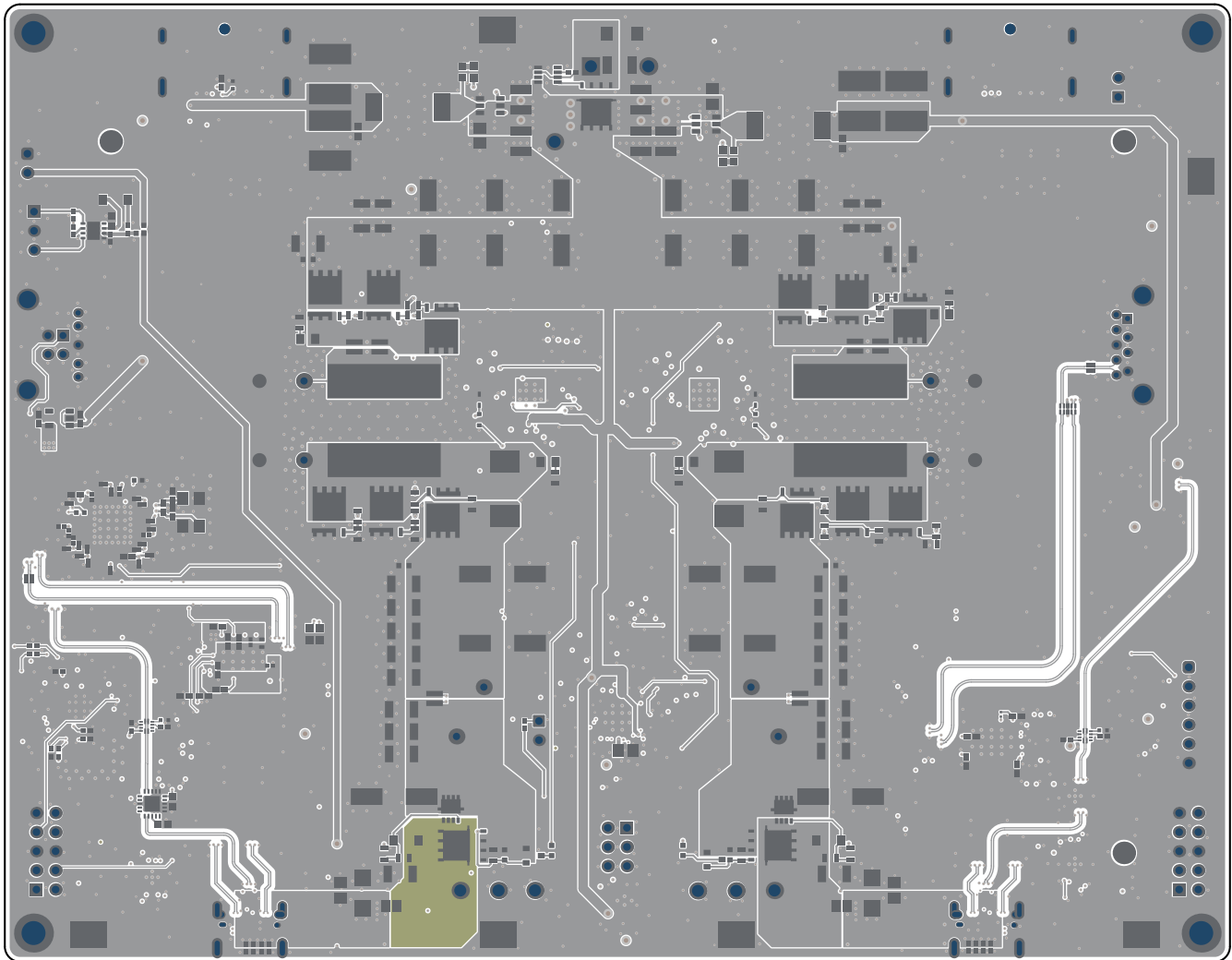


Figure 5-20. Bottom Layer Mask

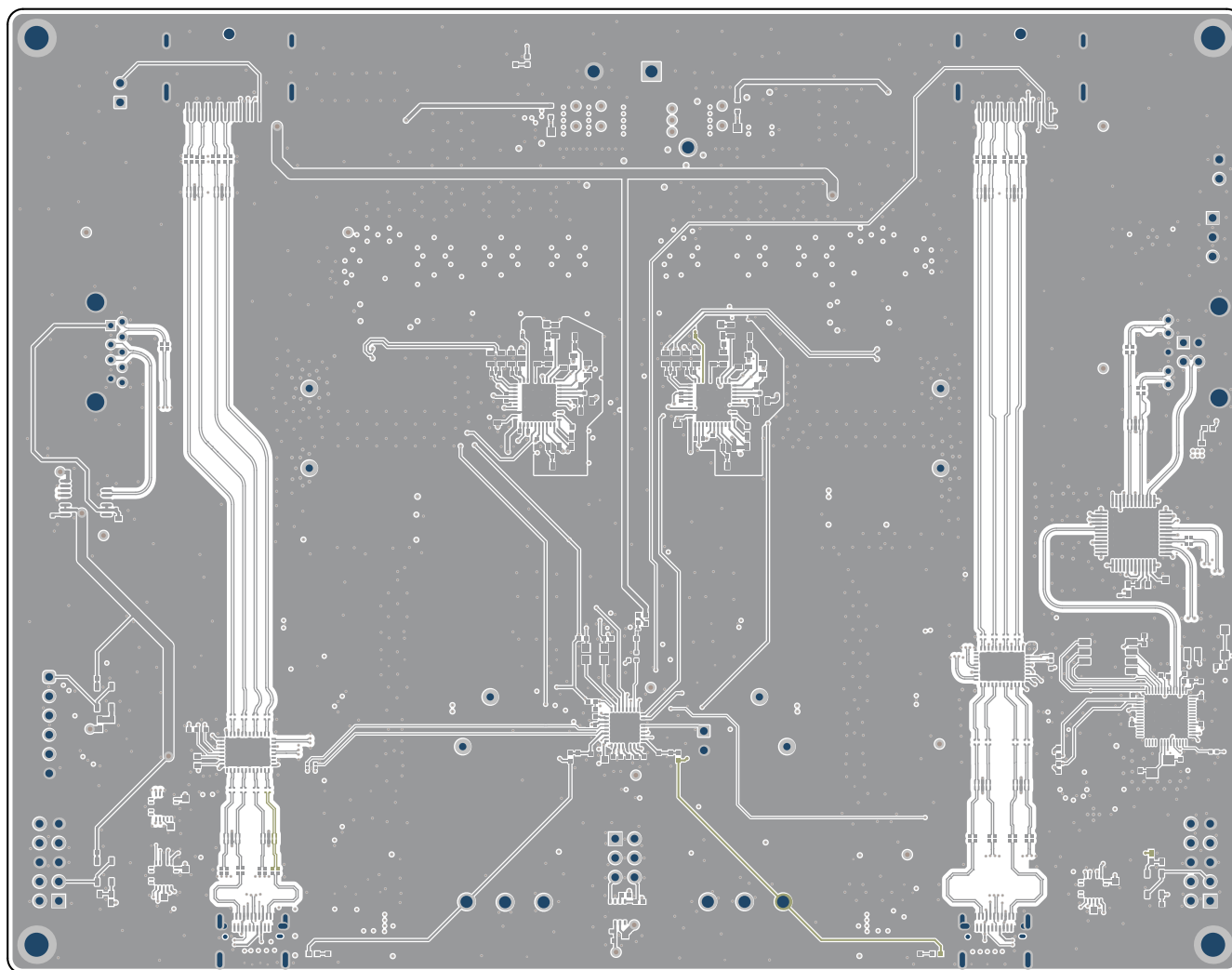


Figure 5-21. Top Layer

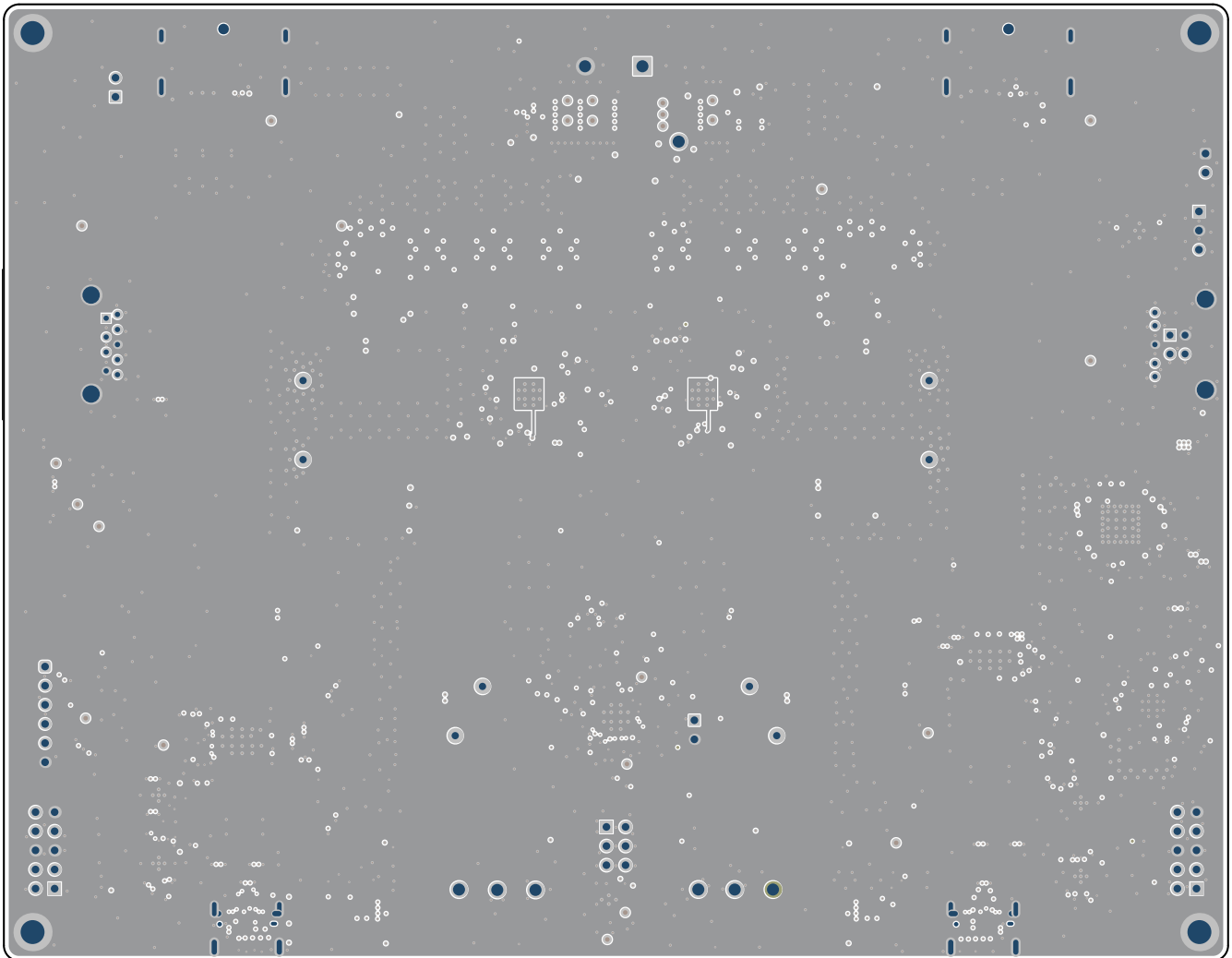


Figure 5-22. Layer 2 (GND)

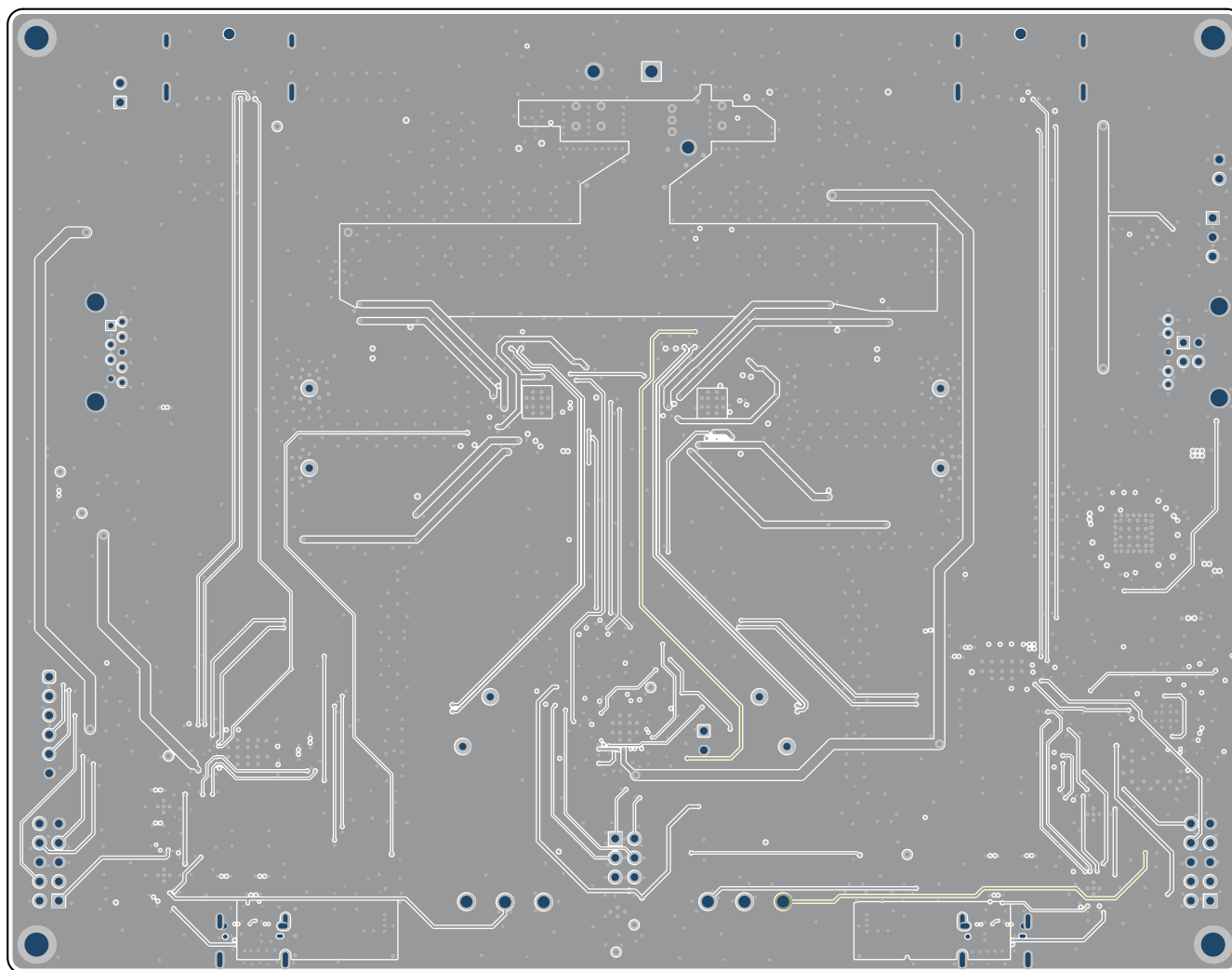


Figure 5-23. Layer 3 (SIG)

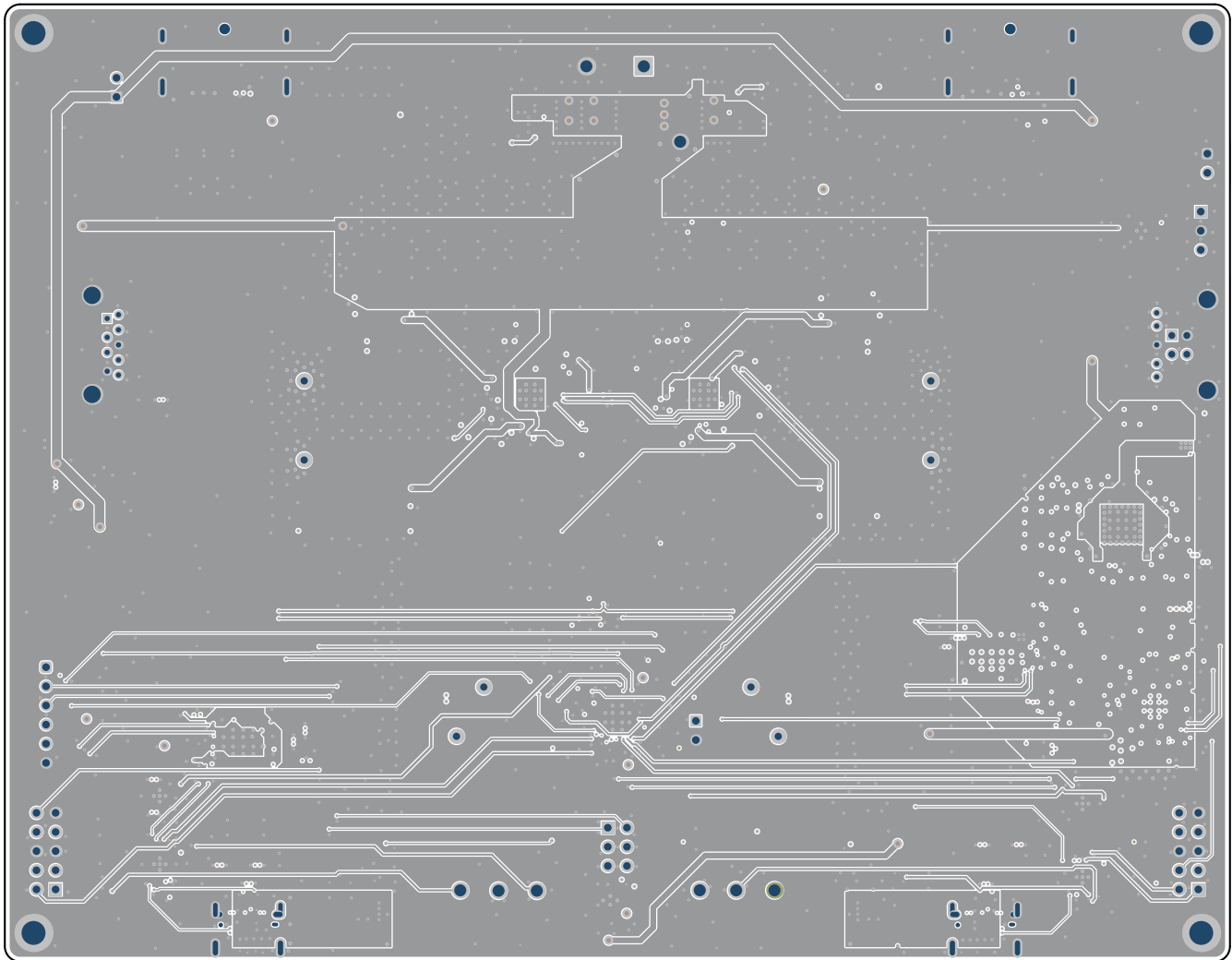


Figure 5-24. Layer 4 (SIG)

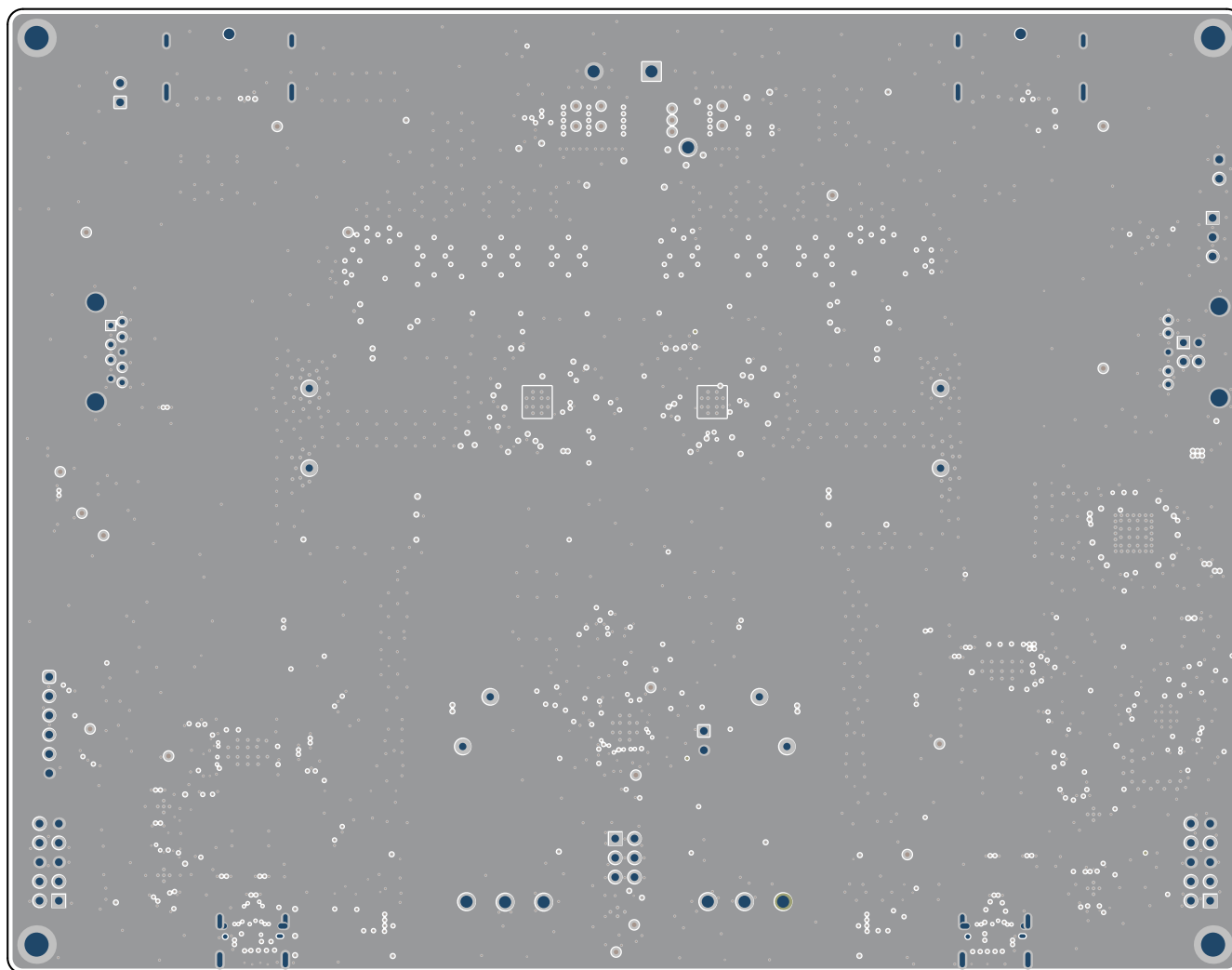


Figure 5-25. Layer 5 (GND)

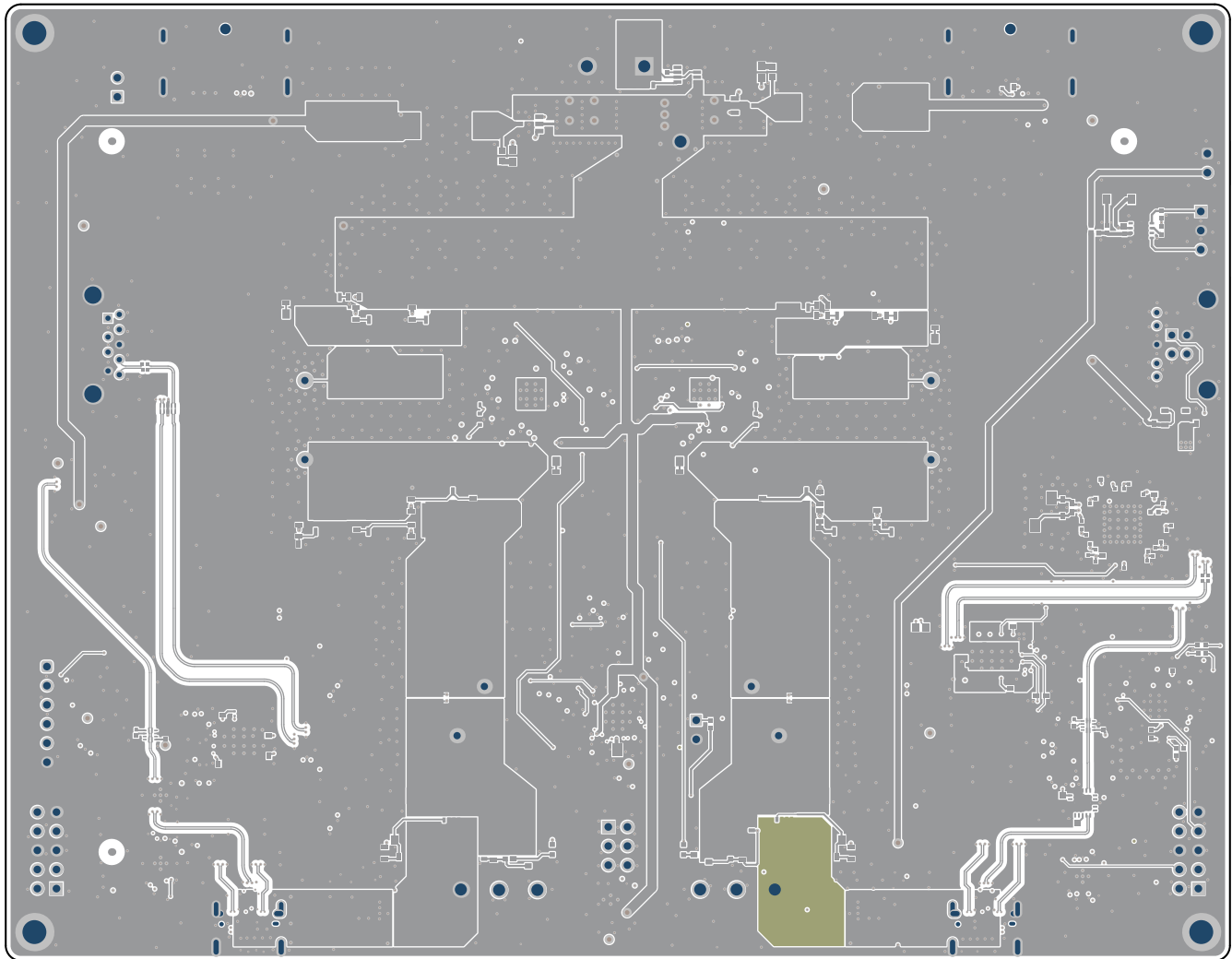
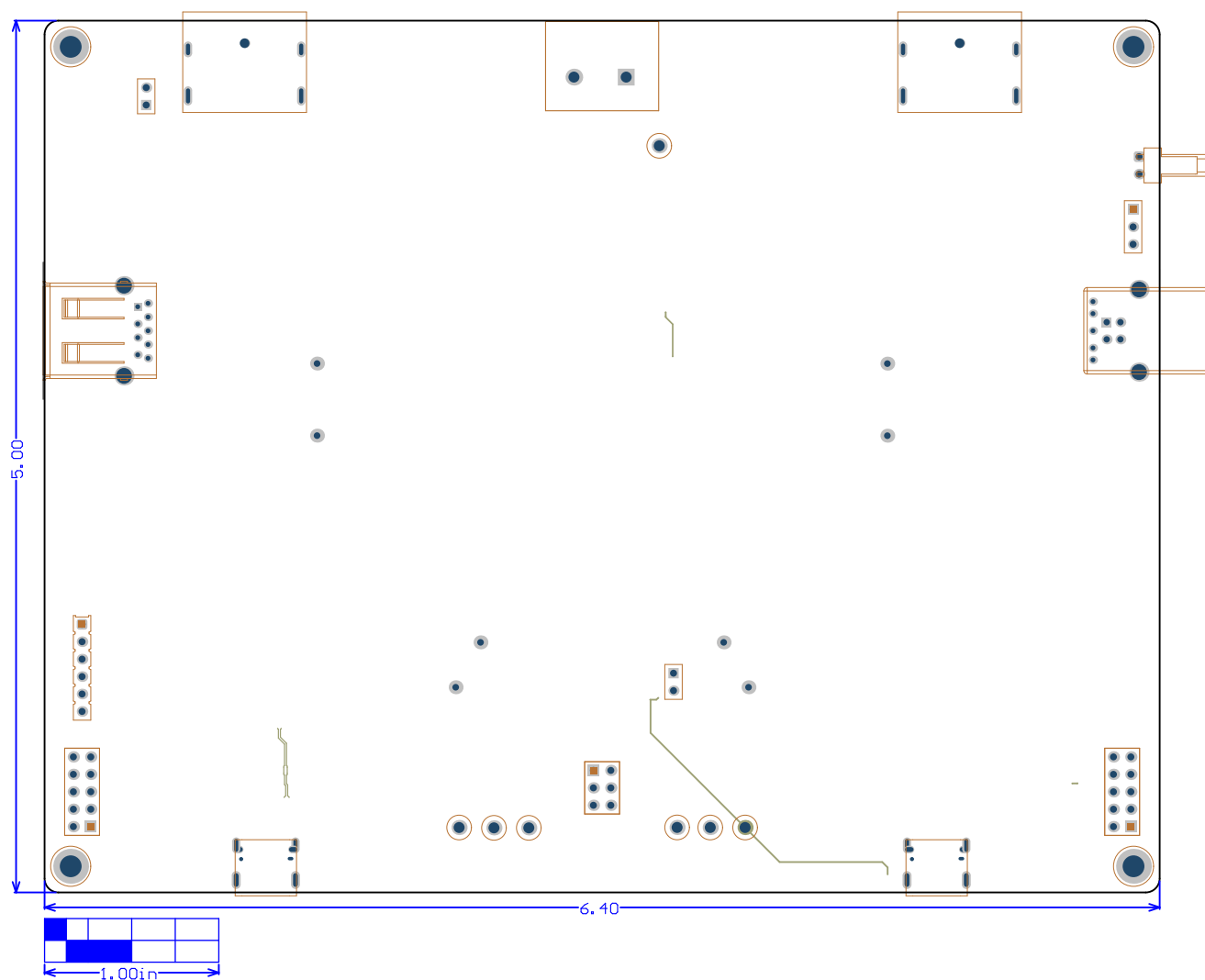


Figure 5-26. Bottom Layer

**Figure 5-27. Board Level Dimensions**

5.3 Bill of Materials (BOM)

The bill of materials for the TPS26744EQ1EVM is listed in [Table 5-1](#).

Table 5-1. TPS26744EQ1EVM Bill of Materials

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
C1, C24, C29, C103, C105, C107, C109, C159	8	1uF	CAP, CERM, 1uF, 35V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	603	CGA3E1X7R1V105K080 AC	TDK
C2, C8, C11, C130, C131, C149, C151	7	0.1uF	CAP, CERM, 0.1uF, 50V, +/- 20%, X7R, AEC-Q200 Grade 1, 0402	402	CGA2B3X7R1H104M050 BB	TDK
C3	1	33uF	CAP, CERM, 33uF, 10V, +/- 20%, X5R, 0805	805	C2012X5R1A336M125A C	TDK
C4	1	0.47uF	CAP, CERM, 0.47uF, 6.3V, +/- 10%, X6S, 0402	402	GRM155C80J474KE19D	MuRata
C5	1	4.7uF	CAP, CERM, 4.7uF, 16 V, +/- 20%, X5R, 0402	402	CC0402MRX5R7BB475	Yageo America
C6, C7, C9, C10	4	330pF	CAP, CERM, 330 pF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	402	CGA2B2X7R1H331K050 BA	TDK
C12_1, C12_2, C12_3, C35, C36, C39, C40, C41, C42, C43, C46	11	0.1uF	CAP, CERM, 0.1 uF, 10 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	402	C0402C104K8RACAUTO	Kemet
C13	1	4.7uF	CAP, CERM, 4.7 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1210	1210	CGA6P3X7R1H475K250 AB	TDK
C14, C15, C16, C17, C18	5	10uF	CAP, CERM, 10 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1210	1210	UMJ325KB7106KMHT	Taiyo Yuden
C19	1	2.2uF	CAP, CERM, 2.2 uF, 16 V, +/- 20%, X6S, AEC-Q200 Grade 2, 0402	402	GRT155C81C225ME13D	MuRata
C20, C25, C91_1, C91_2	4	0.1uF	CAP, CERM, 0.1 uF, 100 V, +/- 10%, X7S, AEC-Q200 Grade 1, 0603	603	CGA3E3X7S2A104K080 AB	TDK
C21, C22, C26, C27	4	22uF	22uF ±10% 35V Ceramic Capacitor X7R SMD, J-Lead	2220	KCM55QR7YA226KH01L	Murata
C23, C28	2	2.2uF	CAP, CERM, 2.2 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0805	805	CGA4J3X7R1H225K125 AB	TDK
C30, C31, C115, C118, C119, C120, C121, C183	8	0.1uF	CAP, CERM, 0.1 uF, 10 V, +/- 10%, X7R, 0402	402	C0402C104K8RACTU	Kemet

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
C32, C64	2	220pF	CAP, CERM, 220 pF, 100 V, +/- 10%, X7R, 0402	402	GRM155R72A221KA01D	MuRata
C33, C104, C106, C108, C110, C184	6	0.1uF	CAP, CERM, 0.1 uF, 100 V, +/- 10%, X7R, 0603	603	GRM188R72A104KA35D	MuRata
C34, C37, C38, C44, C45	5	2.2uF	CAP, CERM, 2.2 uF, 6.3 V, +/- 20%, X5R, 0402	402	JMK105BJ225MV-F	Taiyo Yuden
C47, C48	2	12pF	CAP, CERM, 12 pF, 25 V, +/- 5%, C0G/NP0, 0402	402	GRM1555C1E120JA01D	MuRata
C49_1, C49_2, C50_1, C50_2, C51_1, C51_2, C52_1, C52_2	8	0.01uF	CAP, CERM, 0.01 uF, 100 V, +/- 10%, X7S, AEC-Q200 Grade 1, 0402	402	CGA2B3X7S2A103K050BB	TDK
C53_1, C53_2, C54_1, C54_2, C57_1, C57_2, C58_1, C58_2, C111, C112, C132, C133	12	0.33uF	CAP, CERM, 0.33 uF, 10 V, +/- 10%, X5R, 0201	201	C0603X5R1A334K030BC	TDK
C55_1, C55_2, C56_1, C56_2, C59_1, C59_2, C60_1, C60_2, C113, C114, C117, C122, C123, C124, C125, C127, C128, C129, C134, C135, C142, C143, C144, C145, C146, C147, C148, C150, C152, C153, C154, C155	32	0.22uF	CAP, CERM, 0.22 uF, 6.3 V, +/- 20%, X5R, 0201	201	GRM033R60J224ME90	MuRata
C61_1, C61_2, C62_1, C62_2, C73_1, C73_2	6		0.1µF ±10% 100V Ceramic Capacitor X7R 0603 (1608 Metric)	603	GRM188R72A104KA35D	Murata
C63_1, C63_2	2	4.7uF	CAP, CERM, 4.7 uF, 50 V, +/- 10%, X5R, AEC-Q200 Grade 3, 0805	805	GRT21BR61H475KE13L	MuRata
C65_1, C65_2, C66_1, C66_2, C67_1, C67_2, C68_1, C68_2, C69_1, C69_2, C72_1, C72_2, C74_1, C74_2, C76_1, C76_2, C77_1, C77_2, C83_1, C83_2, C84_1, C84_2, C85_1, C85_2	24	10µF	10 µF ±10% 100V Ceramic Capacitor X7R 1210 (3225 Metric)	1210	C3225X7R2A106K250AC	TDK
C70_1, C70_2, C71_1, C71_2	4	56µF	56 µF 63 V Aluminum - Polymer Capacitors Radial, Can - SMD 31mOhm 2000 Hrs @ 125°C	SMT_CAP_8MM3_8MM3	A770KS566M1JLAS031	KEMET

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
C75_1, C75_2, C102_1, C102_2	4		0.1µF ±10% 50V Ceramic Capacitor X8L 0603 (1608 Metric)	603	GCM188L81H104KA57D	Murata Electronics North America
C78_1, C78_2, C79_1, C79_2	4	0.1uF	CAP, CERM, 0.1 uF, 100 V, +/- 10%, X5R, 0402	402	GRM155R62A104KE14D	MuRata
C80_1, C80_2, C81_1, C81_2, C82_1, C82_2	6	27µF	Cap Aluminum Polymer 27uF 63V 20% Solder Cylindrical 54m Ohm 1175mA 2000 hr 125°C T/R	SMT_CAP_8MM3_8MM3	A768KE276M1JLAE054	KEMET
C86_1, C86_2	2	82µF	82 µF 50 V Aluminum - Polymer Capacitors Radial, Can - SMD 20mOhm 2000 Hrs @ 125°C	SMT_CAP_8MM3_8MM3	A768KS826M1HLAS020	KEMET
C87_1, C87_2	2	0.1uF	CAP, CERM, 0.1 µF, 50 V, +/- 10%, X7R, 0402	402	0402BB104KW500	Passive Plus
C88_1, C88_2	2	270pF	CAP, CERM, 270 pF, 100 V, +/- 10%, X7R, 0402	402	GRM155R72A271KA01D	MuRata
C89_1, C89_2, C90_1, C90_2	4	22µF	Multi-Layer Ceramic Capacitor 22uF 10V X5R ±20% 0603 Paper T/R	603	GRT188R61A226ME13D	Murata
C92_1, C92_2, C95_1, C95_2	4	680pF	CAP, CERM, 680 pF, 100 V, +/- 5%, C0G/NP0, 0805	805	GRM2195C2A681JA01D	MuRata
C93_1, C93_2, C96_1, C96_2	4	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	402	GCM155R71H104KE02D	MuRata
C94_1, C94_2	2	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 20%, X7R, 0402	402	GRM155R71H104ME14D	MuRata
C97_1, C97_2	2	270pF	CAP, CERM, 270 pF, 50 V, +/- 5%, C0G/NP0, 0603	603	GRM1885C1H271JA01D	MuRata
C98_1, C98_2	2	100pF	CAP, CERM, 100 pF, 50 V, +/- 1%, C0G/NP0, 0603	603	06035A101FAT2A	AVX
C99_1, C99_2	2	33nF	0.033 µF ±10% 50V Ceramic Capacitor X7R 0603 (1608 Metric)	603	0603B333K500CT	Walsin Technologies
C100_1, C100_2	2		0.047µF ±10% 50V Ceramic Capacitor X7R 0603 (1608 Metric)	603		Murata Electronics North America

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
C101_1, C101_2	2	56pF	CAP, CERM, 56 pF, 50 V, +/- 1%, C0G/NP0, 0603	603	06035A560FAT2A	AVX
C116, C138, C156	3	10uF	CAP, CERM, 10 µF, 10 V, +/- 20%, X5R, 0402	402	CL05A106MP8NUB8	Samsung Electro-Mechanics
C126	1	1µF	1µF ±10% 10V Ceramic Capacitor X7R 0402 (1005 Metric)	402	GMC04X7R105K10NT	Cal-Chip Electronics
C136, C137	2		CAP CER 1UF 6.3V X7R 0402	402	CL05B105KQ5NQNC	Samsung Electro-Mechanics America, Inc
C139, C140	2	0.1uF	CAP, CERM, 0.1 uF, 10 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	402	GCM155R71A104KA55D	MuRata
C141	1	0.01uF	CAP, CERM, 0.01 uF, 6.3 V, +/- 10%, X7R, 0402	402	GRM155R70J103KA01D	MuRata
C157, C158	2	20pF	CAP, CERM, 20 pF, 50 V, +/- 5%, C0G/NP0, AEC-Q200 Grade 1, 0402	402	GCQ1555C1H200JB01D	MuRata
C160, C165, C166, C169, C172, C175, C178, C181	8	1000pF	CAP, CERM, 1000 pF, 16 V, +/- 10%, X7R, 0201	201	GRM033R71C102KA01D	MuRata
C161, C163, C167, C170, C173, C176, C179, C182	8	0.01uF	CAP, CERM, 0.01 uF, 10 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0201	201	CGA1A2X7R1A103K030 BA	TDK
C162, C164, C168, C171, C174, C177, C180	7	0.1uF	CAP, CERM, 0.1 µF, 16 V, +/- 10%, X7R, 0201	201	0201BB104KW160	Passive Plus
D1, D10, D11, D12, D13	5	White	LED, White, SMD	0402, White	LW QH8G-Q2S2-3K5L-1	OSRAM
D2	1	40V	Diode, TVS, Bi, 40 V, 64.5 Vc, 400 W, 6.2 A, SMA (non-polarized)	SMA (non-polarized)	SMAJ40CA	Littelfuse
D3	1		24-V, 1-Channel ESD Protection Diode	SOD323	ESD1LIN24DYFR	Texas Instruments
D4	1		LED Bi-Color Green/Red 565nm/627nm 4-Pin Chip LED T/R	SMT_LED_3MM2_2MM4	APBD3224ESGC-F01	Kingbright
D6_1, D6_2	2		Diode Array 1 Pair Series Connection Schottky 70 V 200mA (DC) Surface Mount TO-236-3, SC-59, SOT-23-3	SOT23-3	BAS70-04-E3-18	Vishay
D14	1	100V	Diode, Switching, 100 V, 0.15 A, SOD-123	SOD-123	1N4148W-TP	Micro Commercial Components

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
H1, H2, H3, H4	4		Hex Standoff Threaded #4-40 Nylon 0.750" (19.05mm) 3/4" Natural	HEX_STANDOFF	1902D_Ndrill	Keystone Electronics
H5, H6, H7, H8	4		MACHINE SCREW PAN PHILLIPS 4-40	Machine Screw, 4-40, 1/4 inch	PMSSS 440 0025 PH	B&F Fastener Supply
J1, J2	2		Header, 100mil, 5x2, Tin, TH	Header, 5x2, 100mil, Tin	PEC05DAAN	Sullins Connector Solutions
J3	1		Header, 100mil, 6x1, Tin, TH	6x1 Header	TSW-106-07-T-S	Samtec
J4, J11	2		Header, 100mil, 2x1, Tin, TH	Header, 2 PIN, 100mil, Tin	PEC02SAAN	Sullins Connector Solutions
J5	1		Header, 100mil, 3x2, Tin, TH	3x2 Header	PEC03DAAN	Sullins Connector Solutions
J6	1		2 Position Wire to Board Terminal Block Horizontal with Board 0.300" (7.62mm) Through Hole	TERM_CONN	TB005-762-02BE	CUI Devices
J7	1		Header, 2.54mm, 2x1, R/A, Tin, TH	Header, 2.54mm, 2x1, R/A, TH	640455-2	TE Connectivity
J8_1, J8_2	2		Receptacle, USB 3.1 Type C, R/A, Gold, SMT	Receptacle, USB 3.1 Type C, R/A, SMT	DX07S024JJ2R1300	JAE Electronics
J9	1		Connector, Receptacle, USB 3.1 Type A, R/A, TH	Connector, Receptacle, USB 3.1 Type A, R/A, TH	GSB4111312HR	Amphenol Canada
J10, J13	2		HDMI, Displayport & DVI Connectors .5MM RA SMT RCPT	CONN_HDMI_14MM39_17MM79	47272-0001	Molex
J12	1		Connector, Receptacle, USB 3.1 Type B, R/A, TH	Connector, Receptacle, USB 3.1 Type B, R/A, TH	GSB4211311WEU	Amphenol Canada
J15	1		Header, 100mil, 3x1, Tin, TH	Header, 3 PIN, 100mil, Tin	PEC03SAAN	Sullins Connector Solutions
L1	1	6.8uH	WE-PD SMT Power Inductor, size 1050P, 6.8uH, 5.2A, 22mOhm		7447714068	Würth Elektronik
L2	1	5.6uH	Inductor, Shielded Drum Core, Ferrite, 5.6 uH, 6 A, 0.012 ohm, SMD	SMD	7447714056	Würth Elektronik
L3_1, L3_2	2	22 ohm	Ferrite Bead, 22 ohm @ 100 MHz, 6 A, 0805	805	742792021	Würth Elektronik

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
L4_1, L4_2	2	4.7uH	Inductor Power Shielded Wirewound 4.7uH 20% 100KHz 30Q-Factor Metal Alloy Powder 30A 0.0038Ohm DCR Automotive AEC-Q200 T/R	SMT_IND_16MM5_15M M5	SRP1510CA-4R7M	Bourns
Q1	1	12V	MOSFET, N-CH, 12 V, 3.6 A, YJM0003A (PICOSTAR-3)	YJM0003A	CSD13380F3	Texas Instruments
Q2, Q3_1, Q3_2	3	60V	MOSFET, N-CH, 60 V, 100 A, DNK0008A (VSON-CLIP-8)	DNK0008A	CSD18540Q5B	Texas Instruments
Q4_1, Q4_2, Q6_1, Q6_2, Q7_1, Q7_2, Q8_1, Q8_2, Q9_1, Q9_2, Q10_1, Q10_2	12		N-Channel 40V 17A (Ta), 49A (Tc), 59A (Tc) 3W (Ta), 38W (Tc) Surface Mount PG-TDSON-8-6	TDSON-8	BSC059N04LS6ATMA1	Infineon
R1, R27, R28	3	10k	RES, 10 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW040210K0JNED	Vishay-Dale
R2, R3, R4, R5, R7, R8, R133, R134	8	100k	RES, 100 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW0402100KFKED	Vishay-Dale
R9	1	499k	RES, 499 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW0402499KFKED	Vishay-Dale
R10, R11, R29, R30	4	2.20k	RES, 2.20 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW04022K20FKED	Vishay-Dale
R12, R13	2	0	RES, 0, 5%, 0.05 W, AEC-Q200 Grade 1, 0201	201	ERJ-1GE0R00C	Panasonic
R14, R15, R49_1, R49_2	4	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	603	CRCW06030000Z0EA	Vishay-Dale
R16	1	300	RES Thick Film, 300Ω, 1%, 0.063W, 100ppm/°C, 0402	402	CRCW0402300RFKED	Vishay
R17_1, R17_2, R17_3	3	90.9k	RES, 90.9 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0402	402	ERJ-2RKF9092X	Panasonic
R18_1, R18_2, R18_3	3	10.2k	RES, 10.2 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW040210K2FKED	Vishay-Dale
R19, R22	2	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	603	ERJ-3GEY0R00V	Panasonic

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
R20, R23	2	100k	100kΩ ±0.1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Moisture Resistant Thin Film	603	RN73R1JTDD1003B25	KOA Speer
R21	1	13.7k	RES, 13.7 k, 1%, 0.1 W, 0603	603	RC0603FR-0713K7L	Yageo
R24	1	22.1k	RES, 22.1 k, 1%, 0.1 W, 0603	603	RC0603FR-0722K1L	Yageo
R25, R26, R127, R128	4	10.0k	RES, 10.0 k, 0.1%, 0.1 W, AEC-Q200 Grade 0, 0402	402	MCS0402MD1002BE100	Vishay/Beyschlag
R31, R32, R33, R35, R130	5	1.00k	RES, 1.00 k, 1%, 0.0625 W, 0402	402	RC0402FR-071KL	Yageo America
R34, R36	2	100k	RES, 100 k, 1%, 0.0625 W, 0402	402	RC0402FR-07100KL	Yageo America
R37_1, R37_2	2	5.10k	RES, 5.10 k, 1%, 0.1 W, 0603	603	RC0603FR-075K1L	Yageo
R38_1, R38_2	2	10m	10 mOhms ±1% 1W Chip Resistor Wide 0805 (2012 Metric), 0508 Automotive AEC-Q200, Current Sense Metal Foil	508	KRL2012E-C-R010-F- T05	Susumu
R39_1, R39_2, R41_1, R41_2	4	5m	5 mOhms ±1% 1W Chip Resistor Wide 0805 (2012 Metric), 0508 Automotive AEC-Q200, Current Sense Metal Foil	0805_WIDE	KRL2012E-M-R005-F-T5	Susumu
R43_1, R43_2, R44_1, R44_2, R51_1, R51_2, R54_1, R54_2, R55_1, R55_2, R61_1, R61_2, R62_1, R62_2	14	3	RES, 3.0, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	603	CRCW06033R00JNEA	Vishay-Dale
R45_1, R45_2, R46_1, R46_2, R57_1, R57_2, R65_2, R66_1, R66_2, R67_1	10	0	RES, 0, 1%, 0.1 W, AEC- Q200 Grade 0, 0603	603	RMCF0603ZT0R00	Stackpole Electronics Inc
R47_1, R47_2, R48_1, R48_2	4	10	RES, 10.0, 1%, 0.25 W, AEC-Q200 Grade 0, 0603	603	CRCW060310R0FKEAH P	Vishay-Dale
R50_1, R50_2	2	75.0k	RES, 75.0 k, 1%, 0.1 W, 0603	603	RC0603FR-0775KL	Yageo
R52_1, R52_2	2	10.0k	RES, 10.0 k, 0.1%, 0.1 W, 0603	603	RT0603BRD0710KL	Yageo America

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
R53_1, R53_2	2	12.7k	RES, 12.7 k, 1%, 0.1 W, 0603	603	RC0603FR-0712K7L	Yageo
R56_1, R56_2	2	4.02k	RES, 4.02 k, 1%, 0.1 W, 0603	603	RC0603FR-074K02L	Yageo
R58_1, R58_2, R125, R129	4	0	0 Ohms Jumper Chip Resistor 0402 (1005 Metric) Automotive AEC-Q200 Thick Film	402	ERJ-2GE0R00X	Panasonic
R59_1, R59_2	2	40.2k	RES, 40.2 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	603	CRCW060340K2FKEA	Vishay-Dale
R60_1, R60_2	2	88.7k	RES, 88.7 k, 1%, 0.1 W, 0603	603	RC0603FR-0788K7L	Yageo
R63_1, R63_2	2	10k	Res Thick Film 0603 10K Ohm 1% 0.2W(1/5W) $\pm 100\text{ppm}/^\circ\text{C}$ Pad SMD Automotive T/R	603	SG73P1JTDD1002F	KOA Speer
R64_1, R64_2	2	10k Ω	Automotive $\pm 1\%$ tolerance 10k Ω linear thermistor available in an 0402 package option 2-SOT-5X3 -40 to 150	SOT-523	TMP6131QDYARQ1	Texas Instruments
R69, R70, R72, R73, R74, R75, R77, R78, R80, R81, R82, R83, R84, R85, R86, R87, R92, R93, R94, R95, R96, R97, R98, R99, R102, R103, R104, R105, R106, R107, R108, R109	32	2	Res Thick Film 0201 2 Ohm 5% 0.05W(1/20W) -100ppm/C to 600ppm/C Pad SMD Automotive T/R	201	ERJ-1GNJ2R0C	Panasonic Electronic Components
R76, R79, R100, R101	4	2.0Meg	RES, 2.0 M, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW04022M00JNED	Vishay-Dale
R88	1	1k	1 kOhms $\pm 5\%$ 0.05W, 1/20W Chip Resistor 0201 (0603 Metric) Automotive AEC-Q200 Thick Film	201	ERJ-1GNJ102C	Panasonic Electronic Components
R89	1	100k	100 kOhms $\pm 1\%$ 0.1W, 1/10W Chip Resistor 0402 (1005 Metric) Automotive AEC-Q200 Thick Film	402	ERJ-H2RF1003X	Panasonic

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
R90, R115	2	0	0 Ohms Jumper Chip Resistor 0402 (1005 Metric) Automotive AEC-Q200 Thick Film	402	ERJ-H2G0R00X	Panasonic
R91	1	330	RES, 330, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW0402330RJNED	Vishay-Dale
R110, R124	2	10.0k	RES, 10.0 k, 1%, 0.2 W, AEC-Q200 Grade 0, 0402	402	ERJPA2F1002X	Panasonic
R111, R121	2	1.0k	RES, 1.0 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0402	402	ERJ-2GEJ102X	Panasonic
R112, R113	2	1.0k	RES, 1.0 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	603	CRCW06031K00JNEA	Vishay-Dale
R114, R117, R132	3	1M	Res Thick Film 0402 1M Ohm 5% 1/10W ±200ppm/°C Molded SMD Punched Carrier T/R	402	ERJ-2GEJ105X	Panasonic
R116	1	5.1Meg	RES, 5.1 M, 5%, 0.063 W, 0402	402	CRCW04025M10JNED	Vishay-Dale
R118	1	9.53k	RES, 9.53 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW04029K53FKED	Vishay-Dale
R120	1	1.00Meg	RES, 1.00 M, 1%, 0.1 W, 0402	402	ERJ-2RKF1004X	Panasonic
R122	1	4.7k	RES Thick Film, 4.7kΩ, 1%, 0.063W, 100ppm/°C, 0402	402	CRCW04024K70FKED	Vishay
R123	1	90.9k	RES, 90.9 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW040290K9FKED	Vishay-Dale
SH1, SH2, SH3, SH4	4	1x2	Shunt, 100mil, Flash Gold, Black	Closed Top 100mil Shunt	SPC02SYAN	Sullins Connector Solutions
SW1	1		SWITCH TACTILE SPST-NO 0.02A 15V	SMT_SW_3MM5_2MM9	EVPAAM02W	Panasonic
TP1, TP11_1, TP11_2	3		Test Point, Compact, Red, TH	Red Compact Testpoint	5005	Keystone Electronics
TP2, TP3, TP4, TP5, TP6, TP7, TP16, TP17, TP19, TP20, TP21, TP22	12		Test Point, Compact, SMT	Testpoint_Keystone_Compact	5016	Keystone Electronics
TP9_1, TP9_2, TP10_1, TP10_2	4		Test Point, Compact, White, TH	White Compact Testpoint	5007	Keystone Electronics

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
U1	1		Automotive Dual-Port USB Type-C® PD Controller with 240W EPR and DisplayPort™ over USB Type-C	VQFN32	TPS26744EAATRHBRQ1	Texas Instruments
U2_1, U2_2, U2_3	3		10-MHz, RRIO, CMOS Operational Amplifier for Cost-Sensitive Systems, DBV0005A (SOT-23-5)	DBV0005A	TLV9061IDBVR	Texas Instruments
U3	1		Low IQ Reverse Battery Protection Ideal Diode Controller with Integrated VDS Clamp	SOT23-8	LM74701QDDFQ1	Texas Instruments
U4, U5	2		SIMPLE SWITCHER® Power Converter 4.5-V to 36-V, 2-A, Synchronous Buck Converter in a SOT-6 Package	SOT-23-6	LMR51430YFDDCR	Texas Instruments
U6	1		Capacitor-Free, 150-mA, LDO Regulator w/ Foldback Current Limit, DBV0005A (SOT-23-5)	DBV0005A	TLV71312PQDBVRQ1	Texas Instruments
U7, U31	2		LIN Transceiver with Integrated Vreg 20kBd Automotive 8-Pin VSON EP T/R	VSON8	TLIN1029ADRBRQ1	Texas Instruments
U8	1		ARM® Cortex®-M0+ - Microcontroller IC 32-Bit Dual-Core 133MHz External Program Memory 56-QFN (7x7)	QFN56	SC0914(13)	Raspberry Pi
U9	1		NOR Flash Serial (SPI, Dual SPI, Quad SPI) 3V/ 3.3V 16M-bit 2M x 8 6ns 8-Pin SOIC N T/R	SOIC8	W25Q16JVSNIQ TR	Winbond
U10_1, U10_2	2		55V 4-Switch Buck-Boost Controller with I2C interface	VQFN40	LM251772RHA	Texas Instruments
U11, U12, U15, U16	4		USB Type-C® 48V EPR Port Protector: Short-to-VBUS Overvoltage and IEC ESD Protection	VQFN20	TPD4S481QRGR	Texas Instruments

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
U13, U14, U17, U18, U22, U23, U27, U28, U29, U30	10		Automotive 4-Channel ESD Protection Solution for SuperSpeed (up to 5 Gbps) Interface, DQA0010A (USON-10)	DQA0010A	TPD4E05U06QDQARQ1	Texas Instruments
U19	1		USB Type-C® DisplayPort™ Alt Mode Source 8.1-Gbps Linear Redriver Crosspoint Switch	VQFN40	TUSB5461RGFTQ1	Texas Instruments
U20	1		Automotive USB 2.0 Interface Protection w/ Adjustable Current Limit and Short-to-Battery Protection, DBQ0016A (SSOP-16)	DBQ0016A	TPD3S716QDBQRQ1	Texas Instruments
U21, U25	2		Automotive, USB 2.0 480Mbps high-speed signal conditioner 12- X2QFN -40 to 105	X2QFN12	TUSB211ARWBRQ1	Texas Instruments
U24	1		Automotive USB TYPE- C® DP Alt Mode 8.1 Gbps Sink-Side Linear Redriver Crosspoint Switch	VQFN40	TUSB564Q1	Texas Instruments
U26	1		Automotive Two-Port USB 3.0 Hub	HTQFP48	TUSB8020BIPHPQ1	Texas Instruments
Y1	1		Crystal, 12 MHz, 30 ppm, SMD	3.20x0.70x2.50mm	7M-12.000MAHE-T	TXC Corporation
Y2	1		Crystal, 24 MHz, 30 ppm, 18 pF, AEC-Q200 Grade 1, SMD	5x3.2mm	ECS-240-18-30BQ-DS	ECS Inc.
C185_1, C185_2, C186_1, C186_2, C187_1, C187_2	0	1000pF	CAP, CERM, 1000 pF, 250 V, +/- 10%, X7R, 0603	603	GRM188R72E102KW07 D	MuRata
D5_1, D5_2	0	51V	Diode, TVS, Uni, 51 V, 82.4 Vc, 400 W, 4.9 A, SMA	SMA	SMAJ51A	Littelfuse
D7_1, D7_2	0	60V	Diode, Schottky, 60 V, 5 A, SMC	SMC	B560C-13-F	Diodes Inc.
D8_1, D8_2	0	10V	Diode, Zener, 10 V, 500 mW, SOD-123	SOD-123	MMSZ4697T1G	ON Semiconductor

Table 5-1. TPS26744EQ1EVM Bill of Materials (continued)

Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
Q5_1, Q5_2	0		Trans MOSFET P-CH 30V 19.8A Automotive AEC-Q101 8-Pin PowerDI EP T/R	PowerDI3333-8	DMP3011SFVWQ-13	Diodes
R6	0	499k	RES, 499 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	402	CRCW0402499KFKED	Vishay-Dale
R40_1, R40_2	0	180k	RES, 180 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	603	CRCW0603180KJNEA	Vishay-Dale
R42_1, R42_2	0	43k	RES, 43 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	603	CRCW060343K0JNEA	Vishay-Dale
R65_1, R67_2, R68_1, R68_2	0	0	RES, 0, 1%, 0.1 W, AEC- Q200 Grade 0, 0603	603	RMCF0603ZT0R00	Stackpole Electronics Inc
R71, R126, R131	0	0	0 Ohms Jumper Chip Resistor 0402 (1005 Metric) Automotive AEC- Q200 Thick Film	402	ERJ-2GE0R00X	Panasonic
R119	0	4.7k	RES Thick Film, 4.7k Ω , 1%, 0.063W, 100ppm/ $^{\circ}$ C, 0402	402	CRCW04024K70FKED	Vishay

6 Additional Information

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