



ABSTRACT

This user's guide describes the characteristics, operation, and use of the DRV5825P evaluation module (EVM). TI provides a GUI through [PurePath™ Console 3 \(PPC3\)](#) Smart Piezo Driver configuration. The main contents of this document are:

- Hardware descriptions and implementations
- Quick Start of the [PPC3™](#) application
- Schematic diagram
- Bill of Materials

Required equipment and accessories:

- DRV5825P EVM
- USB micro type-B cable
- Power supply unit (PSU) 5–14 A, 12–30 V_{DC}
- Two 2- to 8-Ω piezoelectric actuators or resistor loads (ensure load is appropriately sized for required wattage output) and cables
- Small screwdriver
- Desktop or laptop running Microsoft® Windows® 7 or later
- Audio source
 - Sony/Philips Digital Interface (S/PDIF) source (DVD, audio converter, Audio Precision (AP®))
 - Playback media from Microsoft Windows 7 or later
 - 3-mm audio jack analog output

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1 Hardware Overview

The DRV5825P showcases the latest TI digital input Class-D closed-loop amplifier for Piezo applications. The DRV5825P is a digital input Class-D audio amplifier with *Smart Piezo Driver Algorithm*.

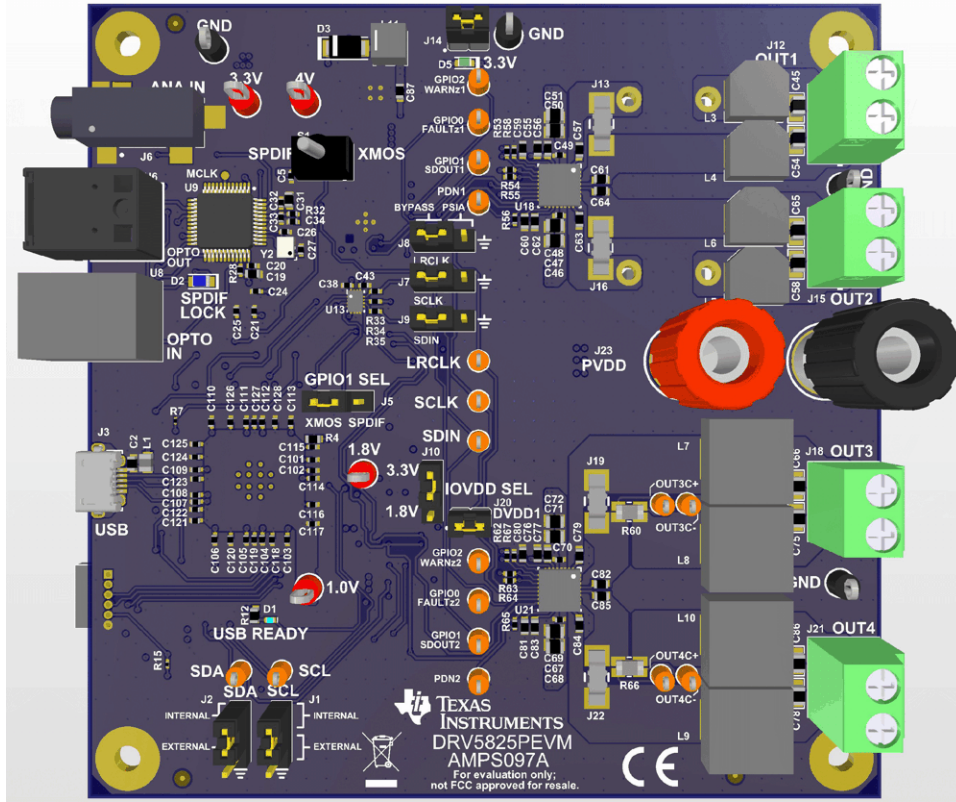


Figure 1-1. DRV5825PEVM (Top Side)

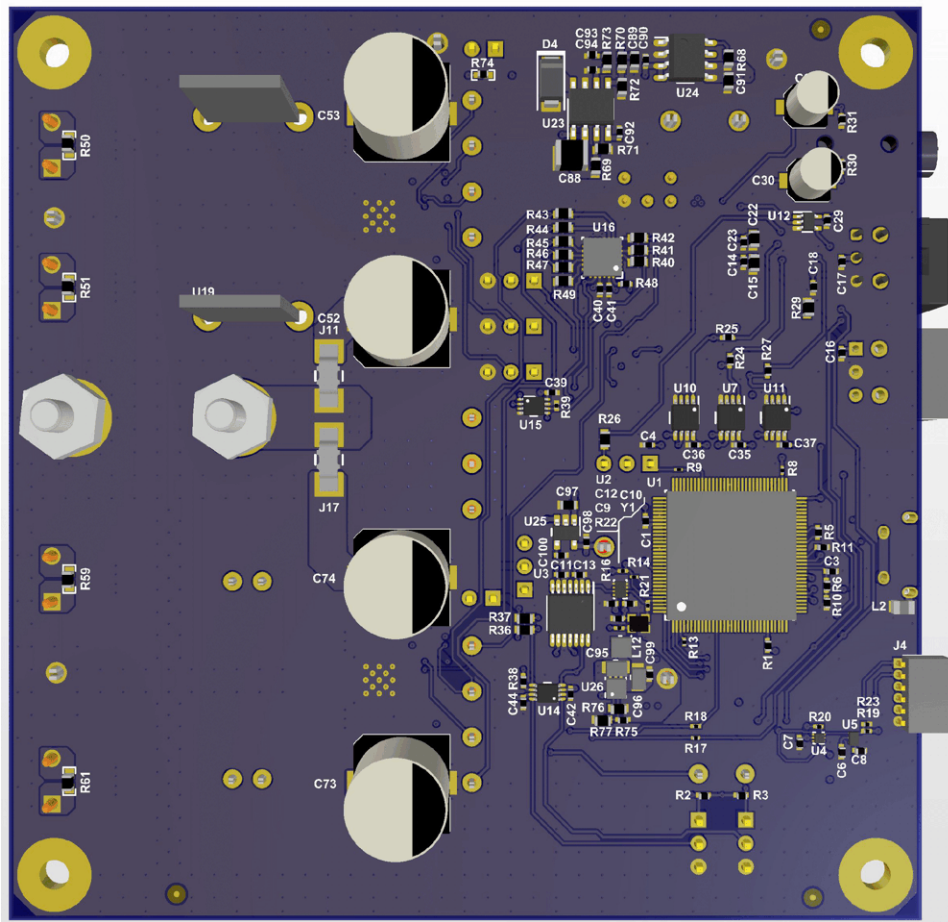


Figure 1-2. DRV5825PEVM (Bottom Side)

Features

The EVM has the following features:

- Two DRV5825P devices: 2.0 stereo, 1.0 mono, 2.1 and 2.2 capable
- Operates in BTL and PBTL
- Flexible audio source input (USB, S/PDIF, PSIA, and analog)
- Demonstration, evaluation and development via the [PPC3™](#) application

Functions

The DRV5825PEVM has several audio source options. The digital audio data input is selectable from USB audio, optical S/PDIF, and PSIA (external I2S). There is also an analog audio input to the DRV5825PEVM through 3-mm audio jack. The DRV5825PEVM also functions as an optical output source (labeled on the board as OPTO OUT U6) as [Figure 1-1](#) shows. The output of the DRV5825PEVM can either be configured in BTL or PBTL through the load connections to OUT1 (J12), OUT2 (J15), OUT3 (J18), and OUT4 (J21) shown in [Figure 1-1](#).

Detailed Operations

The DRV5825PEVM has four different optional audio sources:

1. If the XMOS is selected manually by toggling the S1 switch, the Windows Media® Player can be used to stream audio. GPIO1 SEL (J5) should be configured to XMOS as [Figure 1-1](#) (board view) or [Figure 3-2](#) (schematic view) show.
2. If S/PDIF is selected manually by toggling the S1 switch, an optical S/PDIF source (DVD, audio converter, or AP) can be used to stream audio from the OPTO IN connector (U8). GPIO1 SEL (J5) should be configured for S/PDIF as seen in [Figure 1-1](#) (board view) or [Figure 3-2](#) (schematic view).
3. If an external digital audio source, such as a Programmable Serial Interface Adapter (PSIA) from Audio Precision (AP)® is desired, the jumpers on the BYPASS selection of LRCLK (J8), SCLK (J7), and SDIN (J9) may be removed as [Figure 1-1](#) (board view) or [Figure 3-3](#) (schematic view) show. The PSIA inputs may be connected to the PSIA selection with the appropriate ground reference aligned with the ground signal on the board.
4. If the audio source is analog, it may input from the 3-mm audio jack as [Figure 1-1](#) (board view) or [Figure 3-2](#) (schematic view) show.

Both 3.3 V and 1.8 V DVDD and IOVDD are supported with the DRV5825PEVM. Jumper (J10) can be used to select accordingly based on the requirement of the digital signals to closely mimic the end equipment of the customer as [Figure 1-1](#) (board view) or [Figure 3-3](#) (schematic view) show. PVDD and DVDD of each device may be removed with the corresponding jumpers in [Table 1-1](#):

Table 1-1. Power Supplies per DRV5825P Device

Device	PVDD	DVDD
U18 (Top - OUT1 and OUT2)	J11	DVDD2 (J14)
U21 (Bottom OUT3 and OUT4)	J17	DVDD1 (J21)

The USB connection is also used to provide I2C communications with DRV5825P on the EVM. The EVM provides selection of providing external I2C is the use of the GUI/XMOS is not desired through SDA (J2) and SCL (J1) as seen in [Figure 1-1](#) (board view) or [Figure 3-1](#) (schematic view). The PPC3™ application for this device is used to initialize and operate this EVM.

2 Hardware Setup

Use the following steps when setting up the hardware:

1. Connect the piezo speakers (or equivalent load) to the DRV5825PEVM.
2. Connect a PSU to the DRV5825PEVM to PVDD (J23) and GND (J24) between 4.5 V and 26.4 V. The 5-V and 3.3-V LEDs (Yellow) should illuminate and the USB Lock LED (Blue) should also be illuminated.
3. Plug in a USB cable from the computer with the [PPC3™](#) GUI to the EVM.
4. If an optical S/PDIF source is used, the blue S/PDIF clock-locked LED is illuminated, S1 should be toggled to S/PDIF.

I2C Device Address

The default I2C addresses on the EVM are set to 0x98 for top device (U18) and 0x9A for the bottom device (U21).

Board-Level Troubleshooting

It is suggested to perform a power cycle, disconnect both the USB cable and the power supply from the board. To make sure the devices are properly initialized, TI recommends checking if the output is switching (square wave).

When XMOS is chosen as the audio source, the Windows 10 OS may have issues recognizing the correct USB audio driver.

Follow these steps to ensure the correct USB audio driver:

1. Navigate to Control Panel\All Control Panel Items
2. Select "Sound "
3. Under the "Playback" tab
 - a. Right-click on "TI USB Audio UAC2.0"
 - b. Select "Properties"
4. Navigate to the "Advanced" tab
 - a. Ensure the "Default Format" is "24 bit, 48000 Hz (Studio Quality)"
 - b. If the "Advanced" tab is not found, this is the incorrect driver.

Follow this set of steps to attain the correct USB audio driver:

1. Change to another USB of the computer, follow the previously-listed steps to see if this resolves the issue. If not, please continue to the following step.
2. To have the correct USB audio driver recognized by the computer:
 - a. Navigate to "Device Manager".
 - b. Expand "Sound, video and game controllers"
 - c. Right click on "TI USB Audio UAC2.0"
 - i. Select "Uninstall Device"
 - d. Unplug USB and re-plug in the USB into the computer. This will allow the correct driver to be recognized by the computer.

Last but not least, ensure that the computer audio source: "Speakers (TI USB Audio UAC2.0)" is set to 100%.

3 Schematic

Figure 3-1 to Figure 3-7 show the EVM schematics.

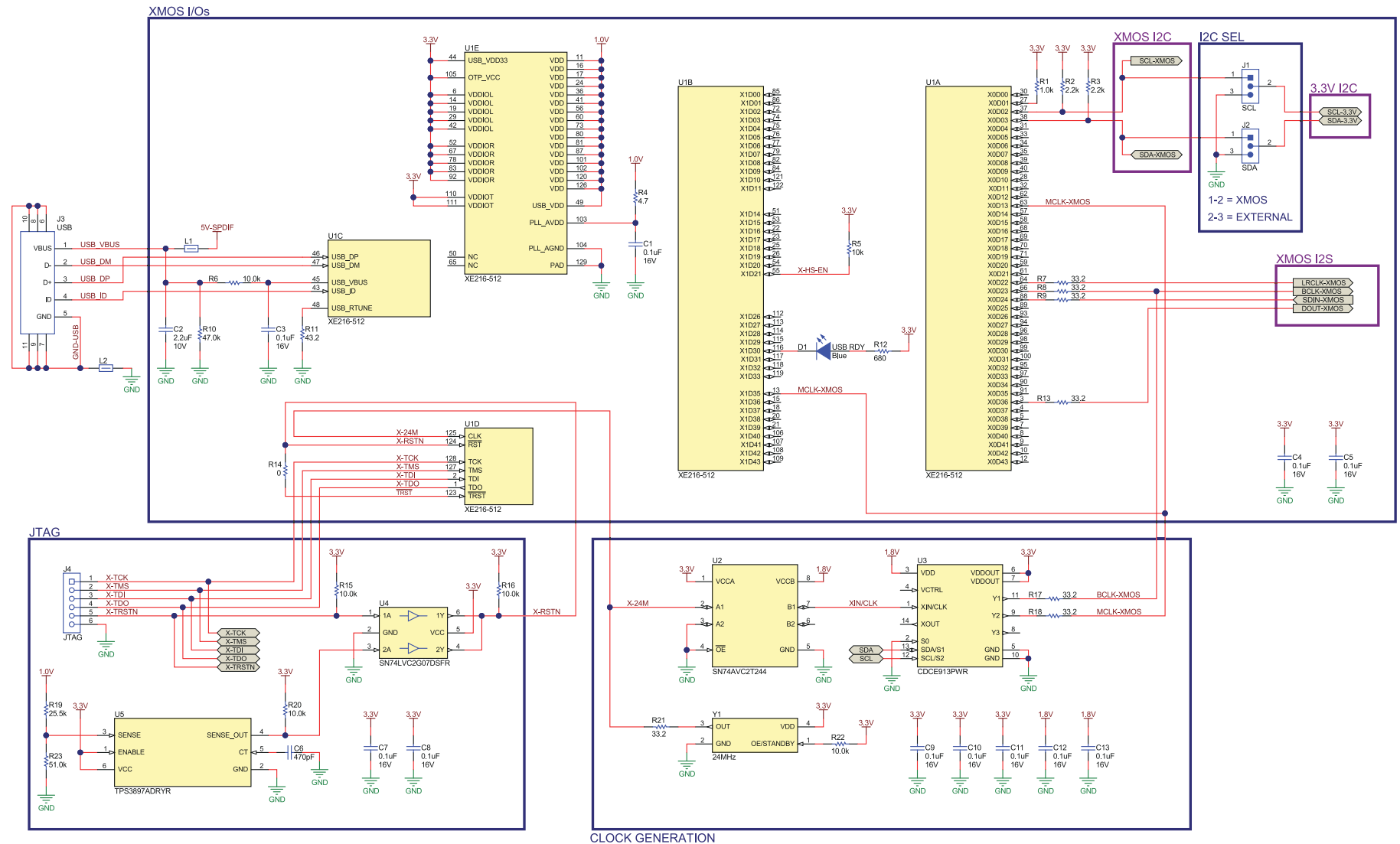


Figure 3-1. DRV5825PEVM Schematic - XMOS/USB

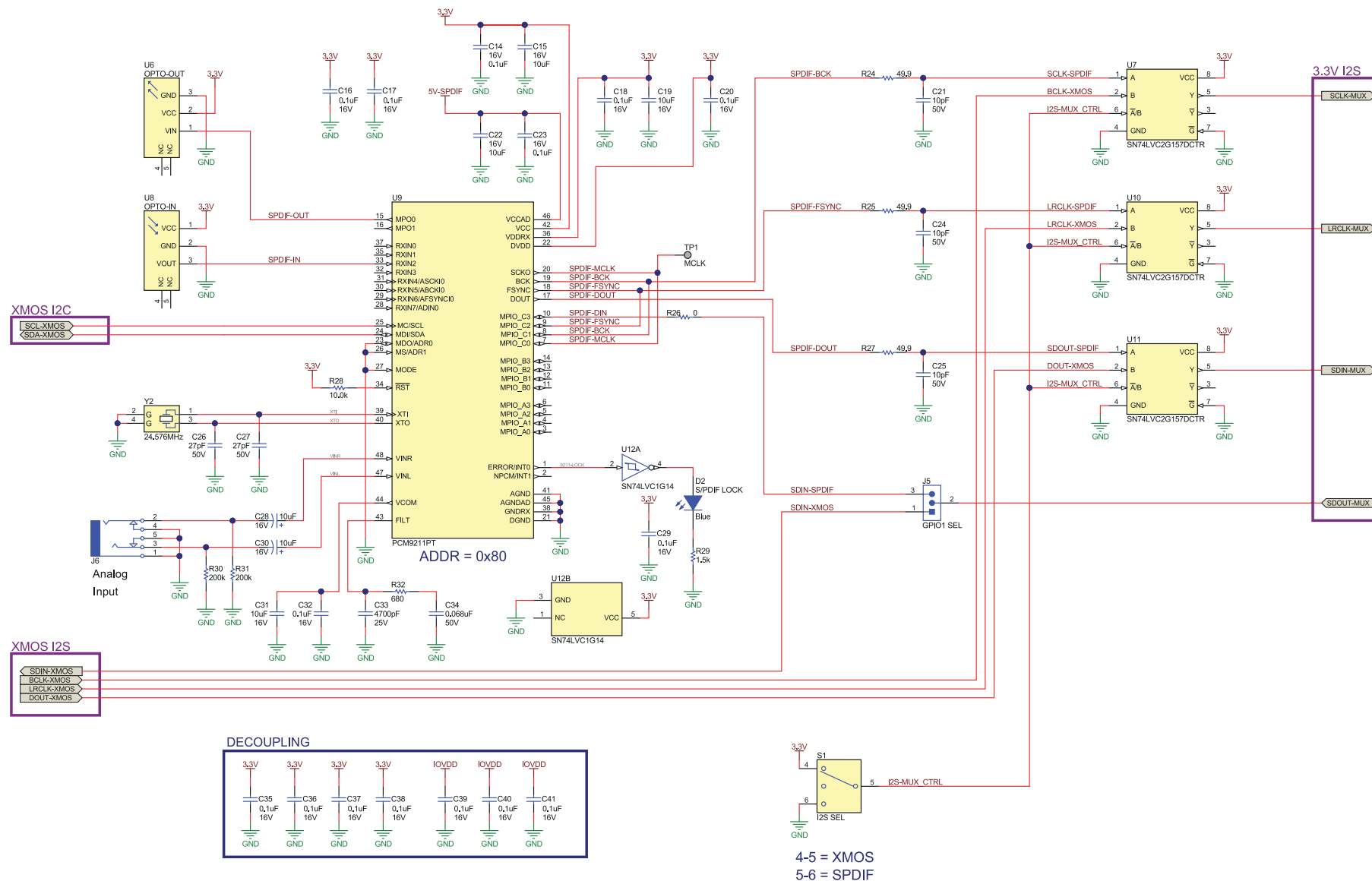


Figure 3-2. DRV5825PEVM Schematic - Optical S/PDIF

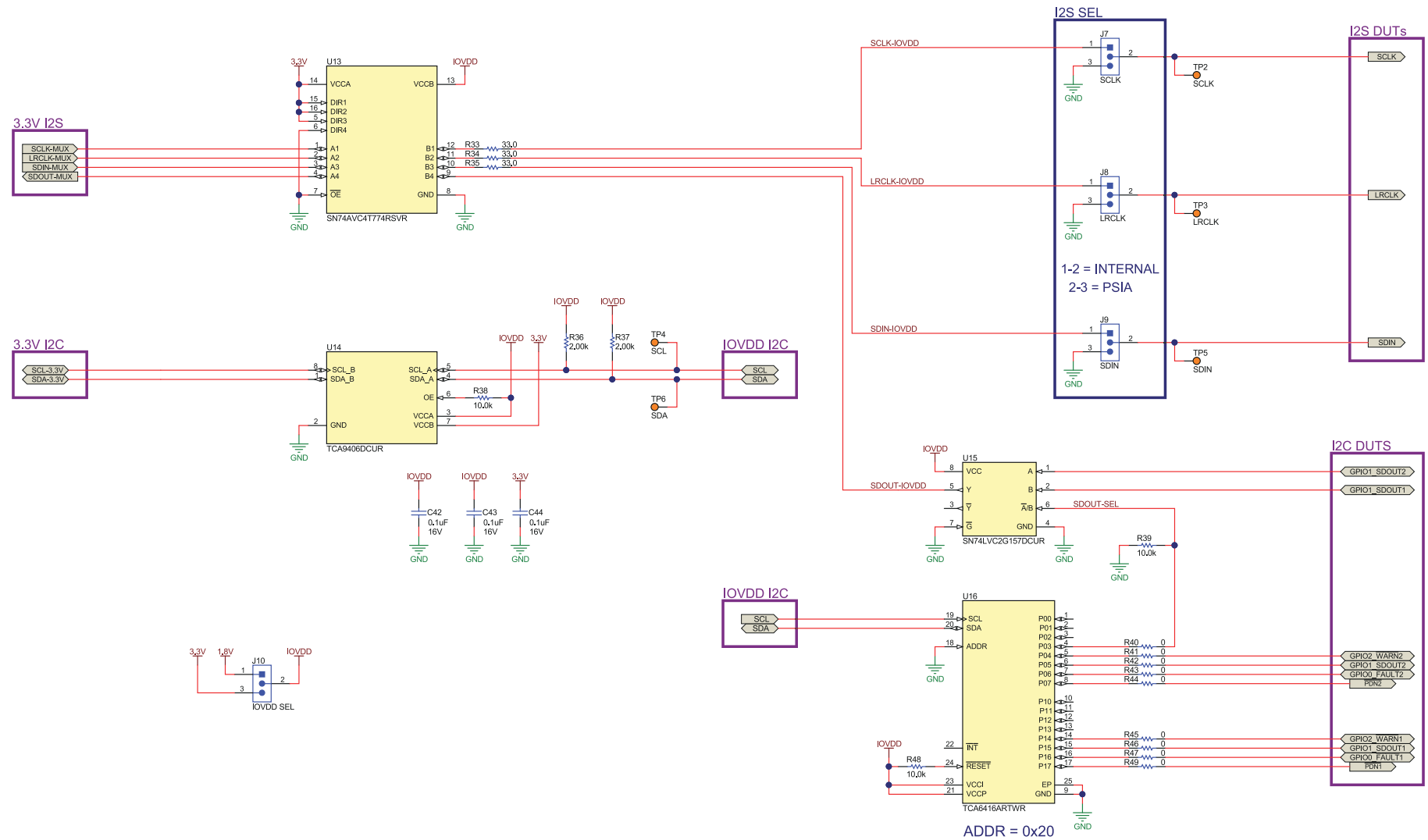


Figure 3-3. DRV5825PEVM Schematic - IOVDD Select

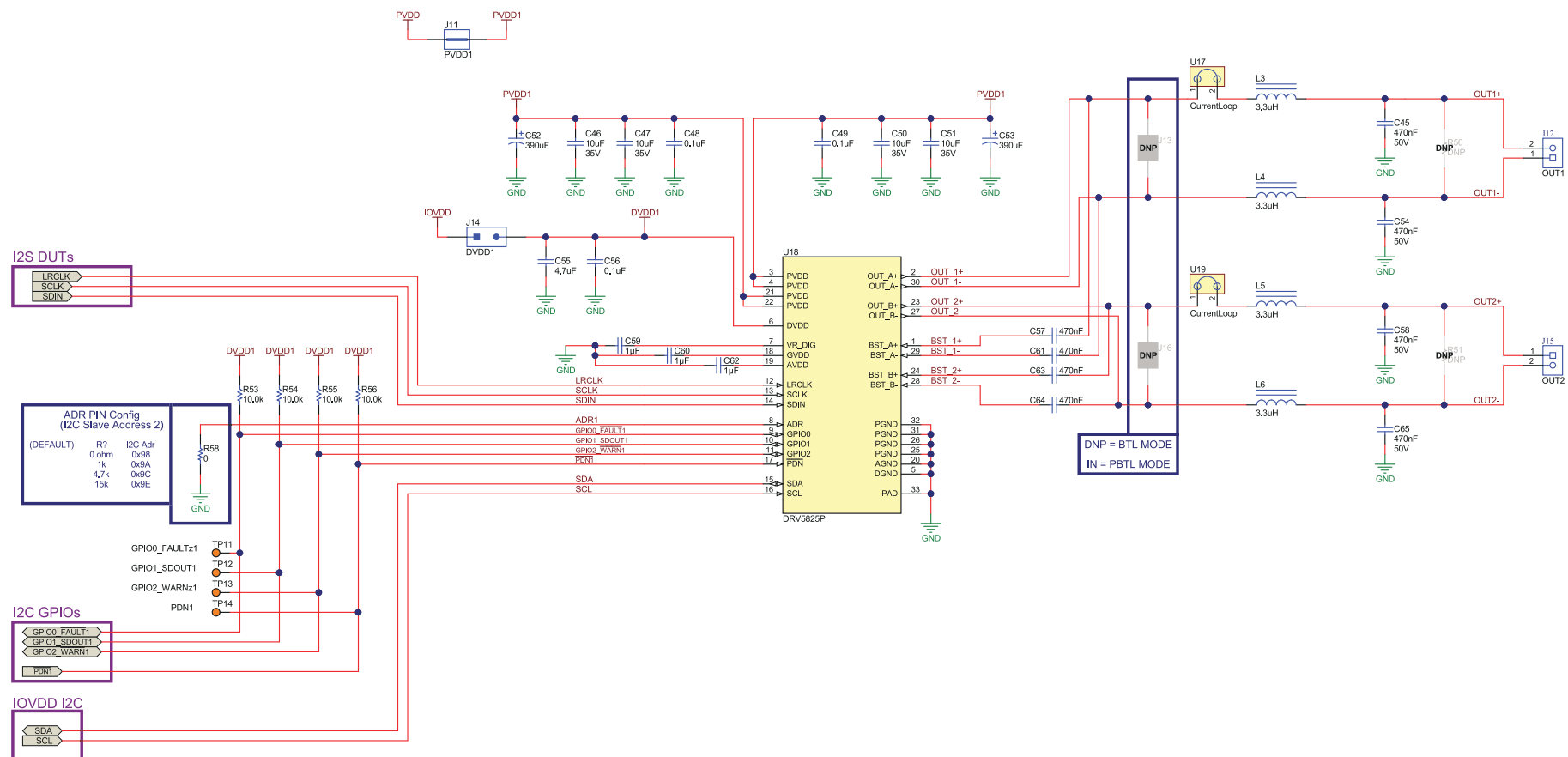


Figure 3-4. DRV5825PEVM Schematic - Top Device

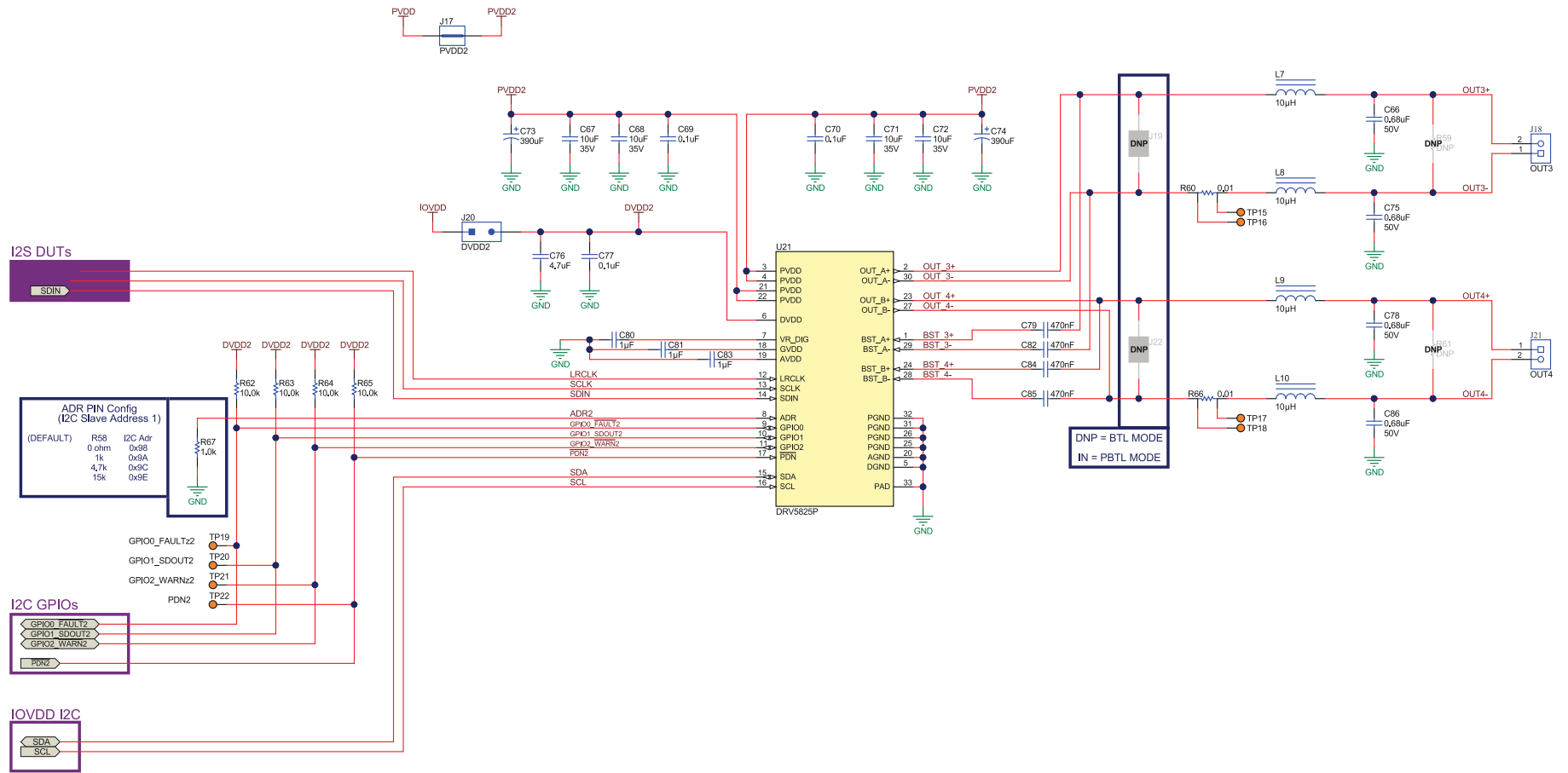


Figure 3-5. DRV5825PEVM Schematic - Bottom Device

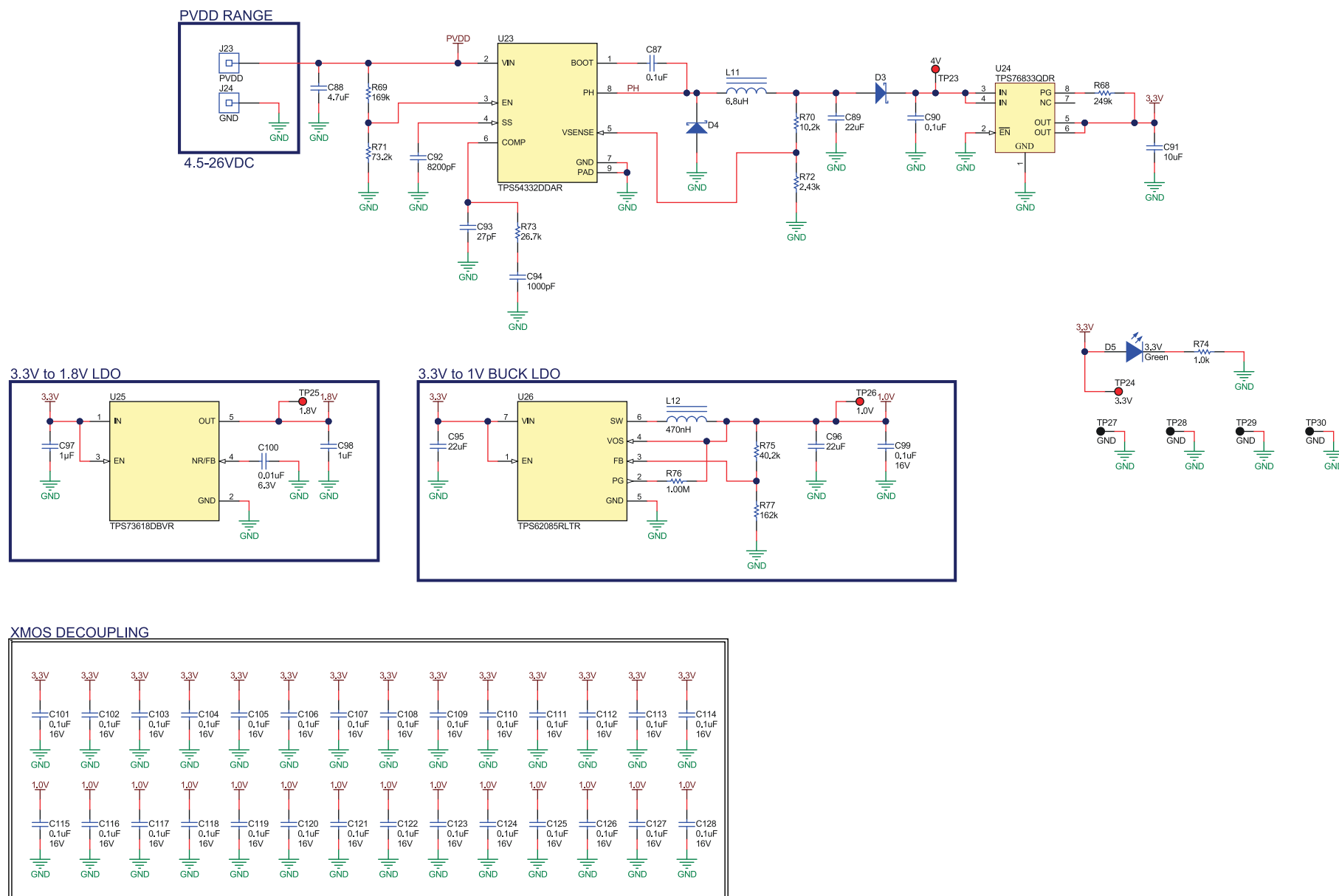
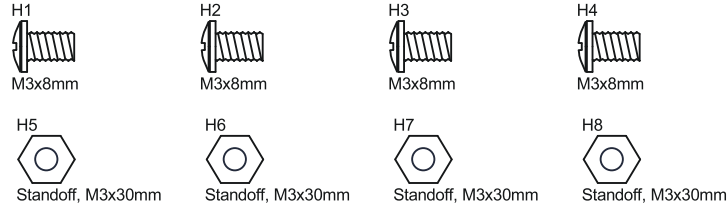
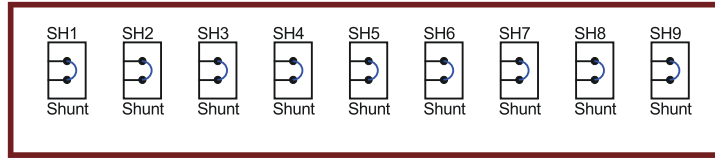


Figure 3-6. DRV5825PEVM - Power Supplies

SHUNTS



ZZ1
Assembly Note
 These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ2
Assembly Note
 These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ3
Assembly Note
 These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

Figure 3-7. DRV5825PEVM Schematic - Hardware

4 Board Layouts

This section shows the top and bottom overlay of the DRV5825PEVM to allow the visual representation of how to properly allow ground to flow to the device and have traces large enough to carry large currents.

Figure 4-1 and Figure 4-2 illustrate the EVM board layouts.

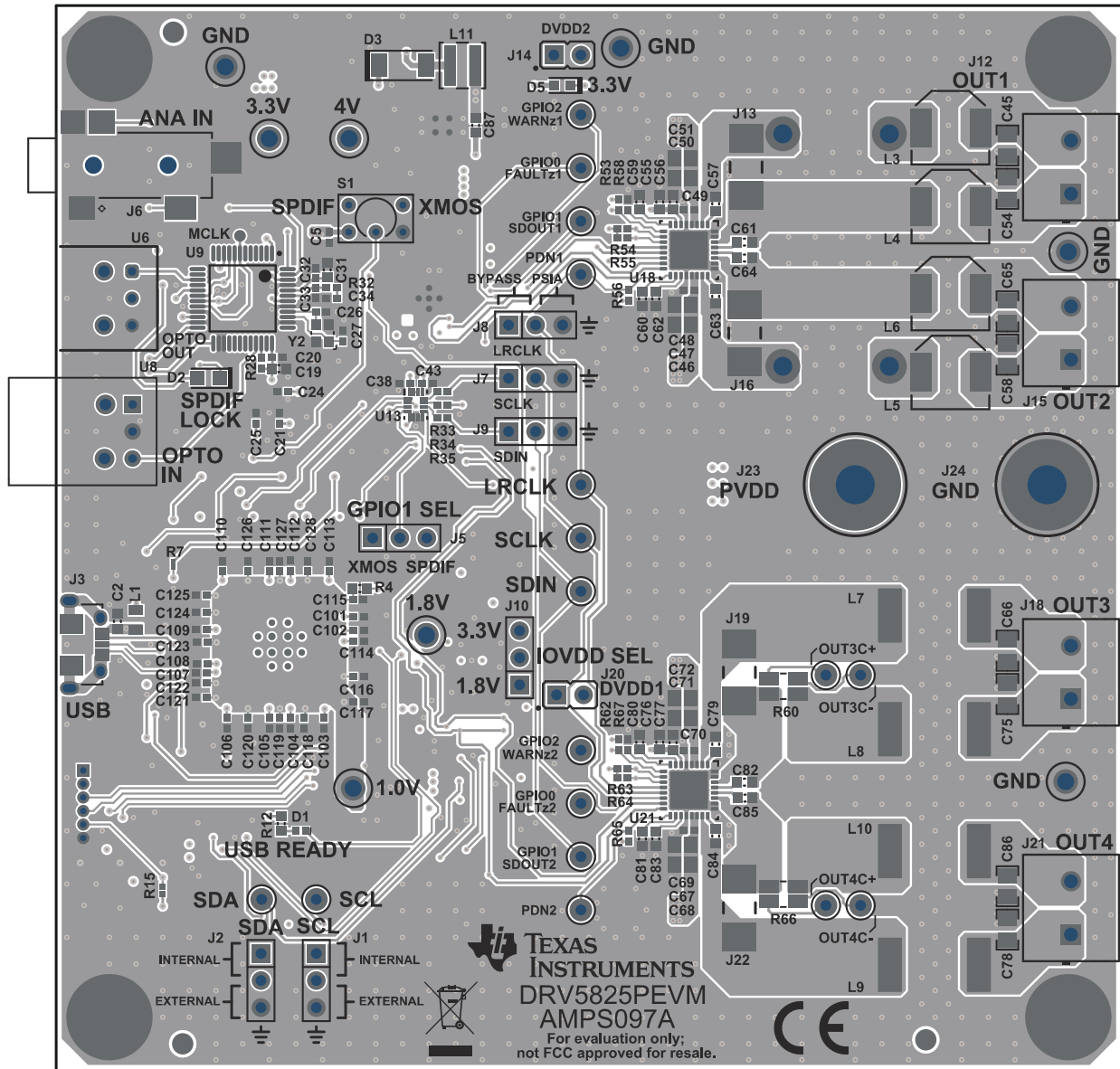


Figure 4-1. DRV5825PEVM Top Overlay

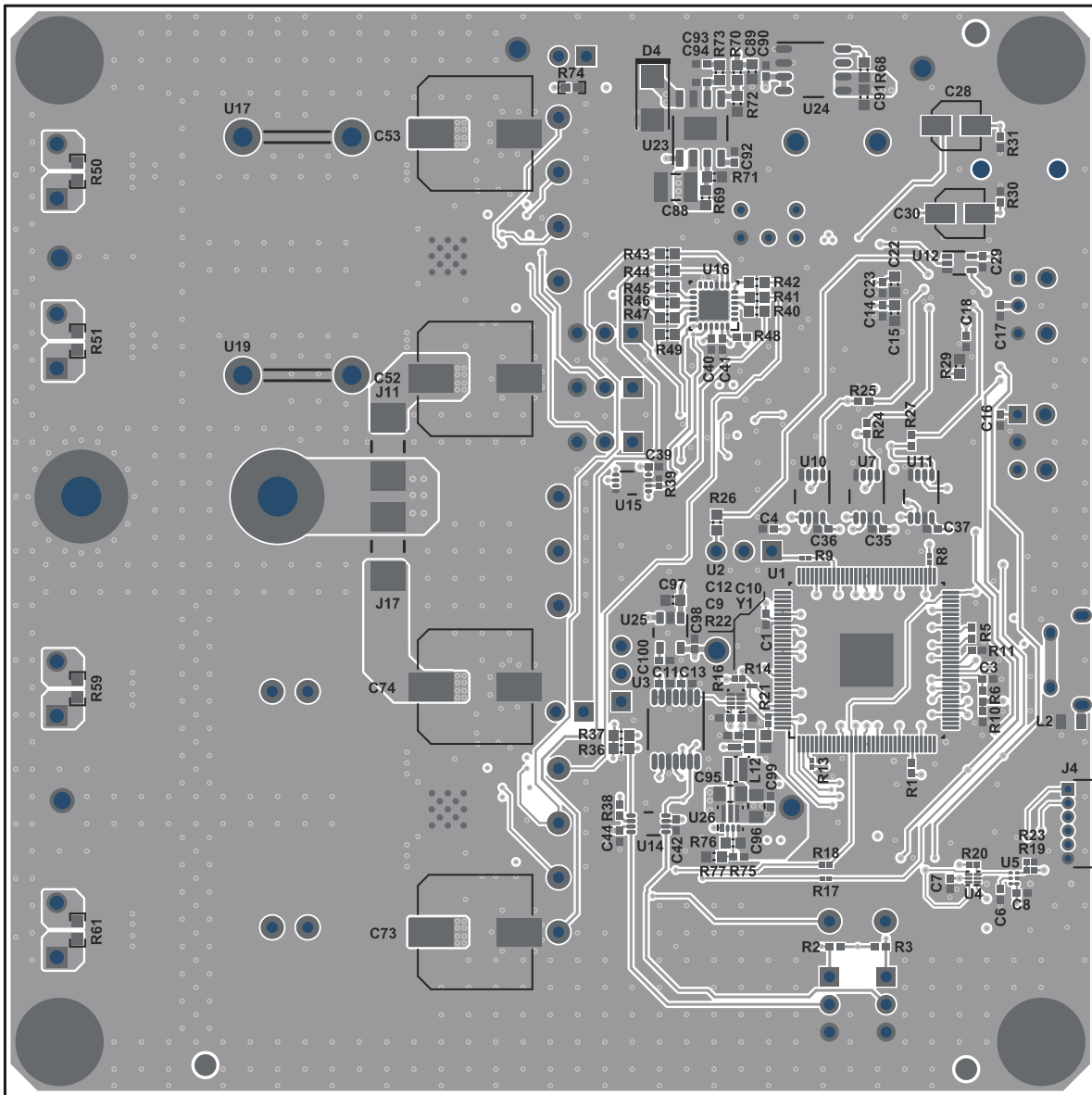


Figure 4-2. DRV5825PEVM Bottom Overlay

4.1 Bill of Materials

Table 4-1 shows the Bill of Materials (BOM) used in the manufacturing of the DRV5825PEVM.

Table 4-1. DRV5825PEVM Bill of Materials

Designator	QTY	Value	Description	Package Reference	Part Number	Manufacturer
PCB1	1		Printed Circuit Board		AMPS097	Any
C1, C3, C4, C5, C7, C8, C9, C10, C11, C12, C13, C90, C99, C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118, C119, C120, C121, C122, C123, C124, C125, C126, C127, C128	41	0.1uF	CAP, CERM, 0.1 uF, 16 V, ±10%, X7R, 0402	0402	GRM155R71C104KA88D	MuRata
C2	1	2.2uF	CAP, CERM, 2.2 uF, 10 V, ±10%, X7R, 0603	0603	GRM188R71A225KE15D	MuRata
C6	1	470pF	CAP, CERM, 470 pF, 25 V, ±5%, C0G/NP0, 0402	0402	GRM1555C1E471JA01D	MuRata
C14, C16, C17, C18, C20, C23, C29, C32, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44	18	0.1uF	CAP, CERM, 0.1 uF, 16 V, ±10%, X7R, 0402	0402	885012205037	Würth Elektronik
C15, C19, C22, C31	4	10uF	CAP, CERM, 10 uF, 16 V, ±20%, X5R, 0603	0603	EMK107BBJ106MA-T	Taiyo Yuden
C21, C24, C25	3	10pF	CAP, CERM, 10 pF, 50 V, ±5%, C0G/NP0, 0402	0402	885012005055	Würth Elektronik
C26, C27	2	27pF	CAP, CERM, 27 pF, 50 V, ±5%, C0G/NP0, 0402	0402	GJM1555C1H270JB01	MuRata
C28, C30	2	10uF	CAP, AL, 10 uF, 16 V, ±20%, SMD	D55	EMVE160ADA100MD55G	Chemi-Con
C33	1	4700pF	CAP, CERM, 4700 pF, 25 V, ±10%, X7R, 0402	0402	CC0402KRX7R8BB472	Yageo
C34	1	0.068uF	CAP, CERM, 0.068 uF, 50 V, ±10%, X7R, AEC-Q200 Grade 1, 0402	0402	CGA2B3X7R1H683K050BB	TDK
C45, C54, C58, C65	4	0.47uF	CAP, CERM, 0.47 uF, 50 V, ±10%, X7R, AEC-Q200 Grade 1, 0805	0805	GCM21BR71H474KA55L	MuRata
C46, C47, C50, C51, C67, C68, C71, C72	8	10uF	CAP, CERM, 10 uF, 35 V, ±10%, X5R, 0805	0805	C2012X5R1V106K085AC	TDK
C48, C49, C69, C70	4	0.1uF	CAP, CERM, 0.1 uF, 50 V, ±10%, X7R, AEC-Q200 Grade 1, 0402	0402	CGA2B3X7R1H104K050BB	TDK

Table 4-1. DRV5825PEVM Bill of Materials (continued)

Designator	QTY	Value	Description	Package Reference	Part Number	Manufacturer
C52, C53, C73, C74	4	390uF	CAP, AL, 390 uF, 35 V, ±20%, 0.08 ohm, SMD	10x10	UCL1V391MNL1GS	Nichicon
C55, C76	2	4.7uF	CAP, CERM, 4.7 uF, 10 V, ±10%, X5R, 0603	0603	C0603C475K8PACTU	Kemet
C56, C77	2	0.1uF	CAP, CERM, 0.1 uF, 16 V, ±10%, X7R, 0603	0603	C0603C104K4RACTU	Kemet
C57, C61, C63, C64, C79, C82, C84, C85	8	0.47uF	CAP, CERM, 0.47 uF, 16 V, ±10%, X7R, 0603	0603	C0603C474K4RACTU	Kemet
C59, C60, C62, C80, C81, C83, C97	7	1uF	CAP, CERM, 1 µF, 16 V, ±20%, X7R, 0603	0603	CL10B105MO8NNWC	Samsung
C66, C75, C78, C86	4	0.68uF	CAP, CERM, 0.68 uF, 50 V, ±10%, X7R, 0805	0805	C0805C684K5RACTU	Kemet
C87	1	0.1uF	CAP, CERM, 0.1 uF, 50 V, ±10%, X7R, 0603	0603	GCM188R71H104KA57D	MuRata
C88	1	4.7uF	CAP, CERM, 4.7 uF, 50 V, ±10%, X7R, 1210	1210	GRM32ER71H475KA88L	MuRata
C89	1	22uF	CAP, CERM, 22 uF, 6.3 V, ±20%, X5R, 0603	0603	GRM188R60J226MEA0J	MuRata
C91	1	10uF	CAP, CERM, 10 uF, 10 V, ±20%, X5R, 0603	0603	C1608X5R1A106M080AC	TDK
C92	1	8200pF	CAP, CERM, 8200 pF, 50 V, ±10%, X7R, 0402	0402	GRM155R71H822KA88D	MuRata
C93	1	27pF	CAP, CERM, 27 pF, 50 V, ±5%, C0G/NP0, 0402	0402	GRM1555C1H270JA01D	MuRata
C94	1	1000pF	CAP, CERM, 1000 pF, 50 V, ±10%, X7R, 0402	0402	GRM155R71H102KA01D	MuRata
C95, C96	2	22uF	CAP, CERM, 22 uF, 16 V, ±20%, X5R, 0805	0805	GRM219R61C226ME15L	MuRata
C98	1	1uF	CAP, CERM, 1 uF, 6.3 V, ±20%, X5R, 0402	0402	GRM152R60J105ME15D	MuRata
C100	1	0.01uF	CAP, CERM, 0.01 uF, 6.3 V, ±10%, X7R, 0402	0402	GRM155R70J103KA01D	MuRata
D1	1	Blue	LED, Blue, SMD	Blue LED	SMLP12BC7TT86	Rohm
D2	1	Blue	LED, Blue, SMD	LED_0805	LTST-C170TBKT	Lite-On
D3	1	30V	Diode, Schottky, 30 V, 3 A, M-FLAT	M-FLAT	CMS01(TE12L,Q,M)	Toshiba
D4	1	60V	Diode, Schottky, 60 V, 3 A, SMA	SMA	B360A-13-F	Diodes Inc.
D5	1	Green	LED, Green, SMD	LED_0603	150060GS75000	Würth Elektronik
H1, H2, H3, H4	4		MACHINE SCREW PAN PHILLIPS M3	M3 Screw	RM3X8MM 2701	APM HEXSEAL
H5, H6, H7, H8	4		Standoff, HexBrass M3, 30 mm	Spacer M3, 30mm	R30-1003002	Harwin
J1, J2, J5, J7, J8, J9, J10	7		Header, 100mil, 3x1, Gold, TH	PBC03SAAN	PBC03SAAN	Sullins Connector Solutions
J3	1		Connector, Receptacle, Micro-USB Type AB, R/A, Bottom Mount SMT	Connector, USB Micro AB	DX4R205JJAR1800	JAE Electronics

Table 4-1. DRV5825PEVM Bill of Materials (continued)

Designator	QTY	Value	Description	Package Reference	Part Number	Manufacturer
J4	1		Receptacle, 50mil, 6x1, Gold, R/A, TH	6x1 Receptacle	LPPB061NGCN-RC	Sullins Connector Solutions
J6	1		Audio Jack, 3.5mm, Stereo, R/A, SMT	Phone Jack, 6x5x17mm	35RASMT4BHNRX	Switchcraft
J11, J17	2		JUMPER TIN SMD	6.85x0.97x2.51 mm	S1911-46R	Harwin
J12, J15, J18, J21	4		Terminal Block, 2x1, 5mm, Green, TH	Terminal Block, 2x1, 5mm, TH	1935776	Phoenix Contact
J14, J20	2		Header, 100mil, 2x1, Gold, TH	Sullins 100mil, 1x2, 230 mil above insulator	PBC02SAAN	Sullins Connector Solutions
J23	1		Binding Post, RED, TH	11.4x27.2mm	7006	Keystone
J24	1		Binding Post, BLACK, TH	11.4x27.2mm	7007	Keystone
L1, L2	2	600 ohm	Ferrite Bead, 600 ohm @ 100 MHz, 2 A, 0805	0805	MPZ2012S601AT000	TDK
L3, L4, L5, L6	4	3.3uH	Inductor, Shielded, Metal Composite, 3.3 uH, 6.7 A, 0.024 ohm, AEC-Q200 Grade 1, SMD	7x6.6mm	DFEG7030D-3R3M=P3	MuRata Toko
L7, L8, L9, L10	4	10uH	Inductor, Shielded, Ferrite, 10 uH, 4.4 A, 0.0304 ohm, SMD		1274AS-H-100M=P3	MuRata
L11	1	6.8uH	Inductor, Shielded, Composite, 6.8 uH, 3.6 A, 0.0674 ohm, SMD	4.0x3.1x4.0mm	XAL4030-682MEB	Coilcraft
L12	1	470nH	Inductor, Shielded, Ferrite, 470 nH, 2 A, 0.059 ohm, SMD	Inductor, 2x1.2x2mm	VLS2012ET-R47N	TDK
R1, R67, R74	3	1.0k	RES, 1.0 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04021K00JNED	Vishay-Dale
R2, R3	2	2.2k	RES, 2.2 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04022K20JNED	Vishay-Dale
R4	1	4.7	RES, 4.7, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06034R70JNEA	Vishay-Dale
R5	1	10k	RES, 10 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210K0JNED	Vishay-Dale
R6, R38	2	10.0k	RES, 10.0 k, 1%, 0.1 W, 0402	0402	ERJ-2RKF1002X	Panasonic
R7, R8, R9, R13, R17, R18, R21	7	33.2	RES, 33.2, 1%, 0.05 W, 0201	0201	RC0201FR-0733R2L	Yageo America
R10	1	47.0k	RES, 47.0 k, 1%, 0.0625 W, 0402	0402	RC0402FR-0747KL	Yageo America

Table 4-1. DRV5825PEVM Bill of Materials (continued)

Designator	QTY	Value	Description	Package Reference	Part Number	Manufacturer
R11	1	43.2	RES, 43.2, 1%, 0.1 W, AEC-Q200 Grade 0, 0402	0402	ERJ2RKF43R2X	Panasonic
R12	1	680	RES, 680, 1%, 0.1 W, 0603	0603	RC0603FR-07680RL	Yageo America
R14	1	0	RES, 0, 5%, 0.05 W, 0201	0201	ERJ-1GE0R00C	Panasonic
R15, R16, R20, R22, R39	5	10.0k	RES, 10.0 k, 1%, 0.05 W, 0201	0201	CRCW020110K0FKED	Vishay-Dale
R19	1	25.5k	RES, 25.5 k, 1%, 0.05 W, 0201	0201	RC0201FR-0725K5L	Yageo America
R23	1	51.0k	RES, 51.0 k, 1%, 0.05 W, 0201	0201	RC0201FR-0751KL	Yageo America
R24, R25, R27	3	49.9	RES, 49.9, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040249R9FKED	Vishay-Dale
R26	1	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R28, R48, R54, R55, R56, R63, R64, R65	8	10.0k	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210K0FKED	Vishay-Dale
R29	1	1.5k	RES, 1.5 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031K50JNEA	Vishay-Dale
R30, R31	2	200k	RES, 200 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402200KJNED	Vishay-Dale
R32	1	680	RES, 680, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402680RJNED	Vishay-Dale
R33, R34, R35	3	33.0	RES, 33.0, 1%, 0.1 W, 0402	0402	ERJ-2RKF33R0X	Panasonic
R36, R37	2	2.00k	RES, 2.00 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ3EKF2001V	Panasonic
R40, R41, R42, R43, R44, R45, R46, R47, R49	9	0	RES, 0, 5%, 0.1 W, 0603	0603	RC0603JR-070RL	Yageo
R53, R62	2	15.0k	RES, 15.0 k, .1%, .063 W, AEC-Q200 Grade 0, 0402	0402	ERA-2AEB153X	Panasonic
R58	1	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0402	0402	ERJ-2GE0R00X	Panasonic
R60, R66	2	0.01	RES, 0.01, 1%, 0.5 W, 1206 sense	1206 sense	LVK12R010FER	Ohmite
R68	1	249k	RES, 249 k, 1%, 0.1 W, 0603	0603	RC0603FR-07249KL	Yageo America
R69	1	169k	RES, 169 k, 1%, 0.1 W, 0603	0603	RC0603FR-07169KL	Yageo America
R70	1	10.2k	RES, 10.2 k, 1%, 0.1 W, 0603	0603	RC0603FR-0710K2L	Yageo America
R71	1	73.2k	RES, 73.2 k, 1%, 0.1 W, 0603	0603	RC0603FR-0773K2L	Yageo America

Table 4-1. DRV5825PEVM Bill of Materials (continued)

Designator	QTY	Value	Description	Package Reference	Part Number	Manufacturer
R72	1	2.43k	RES, 2.43 k, 1%, 0.1 W, 0603	0603	RC0603FR-072K43L	Yageo America
R73	1	26.7k	RES, 26.7 k, 1%, 0.1 W, 0603	0603	RC0603FR-0726K7L	Yageo America
R75	1	40.2k	RES, 40.2 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0402	0402	ERJ-2RKF4022X	Panasonic
R76	1	1.00Meg	RES, 1.00 M, 1%, 0.1 W, 0603	0603	RC0603FR-071ML	Yageo America
R77	1	162k	RES, 162 k, 1%, 0.1 W, 0603	0603	RC0603FR-07162KL	Yageo America
S1	1		Switch, Toggle, SPDT 1Pos, TH	7 X 11 X4.5 mm	G12AP	NKK Switches
SH1, SH2, SH3, SH4, SH5, SH6, SH7, SH8, SH9	9	1x2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec
TP2, TP3, TP4, TP5, TP6, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22	17		Test Point, Miniature, Orange, TH	Orange Miniature Testpoint	5003	Keystone
TP23, TP24, TP25, TP26	4		Test Point, Multipurpose, Red, TH	Red Multipurpose Testpoint	5010	Keystone
TP27, TP28, TP29, TP30	4		Test Point, Compact, Black, TH	Black Compact Testpoint	5006	Keystone
U1	1		IC MCU 512KB RAM, 128TQFP	TQFP-128	XEF216-512-TQ128-C20	XMOS semiconductor
U2	1		Dual-Bit Dual-Supply Bus Transceiver, DQM0008A (X2SON-8)	DQM0008A	SN74AVC2T244DQMR	Texas Instruments
U3	1		Programmable 1-PLL VCXO Clock Synthesizer with 2.5-V or 3.3-V LVCMOS Outputs, PW0014A (TSSOP-14)	PW0014A	CDCE913PWR	Texas Instruments
U4	1		Enhanced Product Dual Buffer/Driver with Open-Drain Output, DCK0006A (SOT-SC70-6)	DSF0006A	SN74LVC2G07DSFR	Texas Instruments
U5	1		Single Channel, Ultra Small, Adjustable Supervisory Circuit with Active-High, Open-Drain Output, 1 Supply Monitored, -40 to 125 degC, 6-pin SON (DRY), Green (RoHS & no Sb/Br)	DRY0006A	TPS3897ADRYR	Texas Instruments
U6	1		Fiber Optic Transmitter, TH	9.7x13.5mm	EAPLTA4	Everlight
U7, U10, U11	3		Single 2-Line to 1-Line Data Selector/Multiplexer, DCT0008A, LARGE T&R	DCT0008A	SN74LVC2G157DCTR	Texas Instruments

Table 4-1. DRV5825PEVM Bill of Materials (continued)

Designator	QTY	Value	Description	Package Reference	Part Number	Manufacturer
U8	1		Photolink- Fiber Optic Receiver, TH	13.5x10x9.7mm	PLR135/T10	Everlight
U9	1		216 kHz Digital Audio Interface Transceiver (DIX) with Stereo ADC and Routing, PCM, S / PDIF, ADC, 4.5 - 5.5V for Analog, 2.9 - 3.6V for DIX, -40 to 85 degC, 48-Pin LQFP (PT), Green (RoHS & no Sb/Br)	PT0048A	PCM9211PT	Texas Instruments
U12	1		Single Schmitt-Trigger Inverter, DCK0005A (SOT-SC70-5)	DCK0005A	SN74LVC1G14DCKR	Texas Instruments
U13	1		4-Bit Dual-Supply Bus Transceiver With Configurable Voltage-Level Shifting and 3-State Outputs, RSV0016A (UQFN-16)	RSV0016A	SN74AVC4T774RSVR	Texas Instruments
U14	1		2-Bit Bidirectional 1-MHz I2C Bus and SMBus Voltage-Level Shifter, DCU0008A (VSSOP-8)	DCU0008A	TCA9406DCUR	Texas Instruments
U15	1		Single 2-Line to 1-Line Data Selector/Multiplexer, DCU0008A, LARGE T&R	DCU0008A	SN74LVC2G157DCUR	Texas Instruments
U16	1		Low-Voltage 16-Bit I2C and SMBus I/O Expander, 16 Outputs, 1.65 to 5.5 V, -40 to 85 degC, 24-pin QFN (RTW), Green (RoHS & no Sb/Br)	RTW0024B	TCA6416ARTWR	Texas Instruments
U17, U19	2		Current Loop, Insulated Hook Up Wire, 16AWG Stranded		5858 WH005	Alpha Wire
U18, U21	2		4.5V to 26.4V, 38W Stereo, Digital Input, High Efficiency Closed-Loop Class-D Audio Amplifier with Hybrid-Pro Algorithm, RHB0032E (VQFN-32)	RHB0032E	TAS5825PRHBR	Texas Instruments
U23	1		3.5V to 28V Input, 3.5A, 1MHz Step-Down Converter with Eco-mode, DDA0008H (SOIC-8)	DDA0008H	TPS54332DDAR	Texas Instruments
U24	1		Single Output Fast Transient Response LDO, 1 A, Fixed 3.3 V Output, 2.7 to 10 V Input, with Low IQ, 8-pin SOIC (D), -40 to 125 degC, Green (RoHS & no Sb/Br)	D0008A	TPS76833QDR	Texas Instruments
U25	1		Single Output LDO, 400mA, Adj.(1.2 to 5.5V), Cap free, Low Noise, Reverse Current Protection, DBV0005A (SOT-23-5)	DBV0005A	TPS73618DBVR	Texas Instruments

Table 4-1. DRV5825PEVM Bill of Materials (continued)

Designator	QTY	Value	Description	Package Reference	Part Number	Manufacturer
U26	1		3-A Step-Down Converter with DCS-Control and Hiccup Short Circuit Protection in 2x2 HotRod Package, RLT0007A (VSON-HR-7)	RLT0007A	TPS62085RLTR	Texas Instruments
Y1	1		OSC, 24 MHz, 2.25 - 3.63 V, SMD	2x1.6mm	ASTMLPA-24.000MHZ-EJ-E-T	Abracon Corporation
Y2	1		Crystal, 24.576 MHz, 10pF, SMD	2.5x0.5x2.0mm	ABM10-24.576MHZ-E20-T	Abracon Corporation
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
J13, J16, J19, J22	0		JUMPER TIN SMD	6.85x0.97x2.51 mm	S1911-46R	Harwin
R50, R51, R59, R61	0	22.0k	RES, 22.0 k, 1%, 0.1 W, 0603	0603	RC0603FR-0722KL	Yageo

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