

1 Evaluation Module Overview

1.1 Introduction

This user’s guide describes the operation of the TAS5802PWP Evaluation Modules (EVM). The TAS5802PWPEVM is a stand-alone EVM. Use the PurePath Control Console 3 GUI (PPC3) to initialize and operate this EVM. To utilize the advanced processing features, use the TAS5802-SW to configure the DSP processing blocks, write I²C commands

1.2 Kit Contents

- TAS5802PWPEVM
- EVM Disclaimer Read Me

1.3 Specification

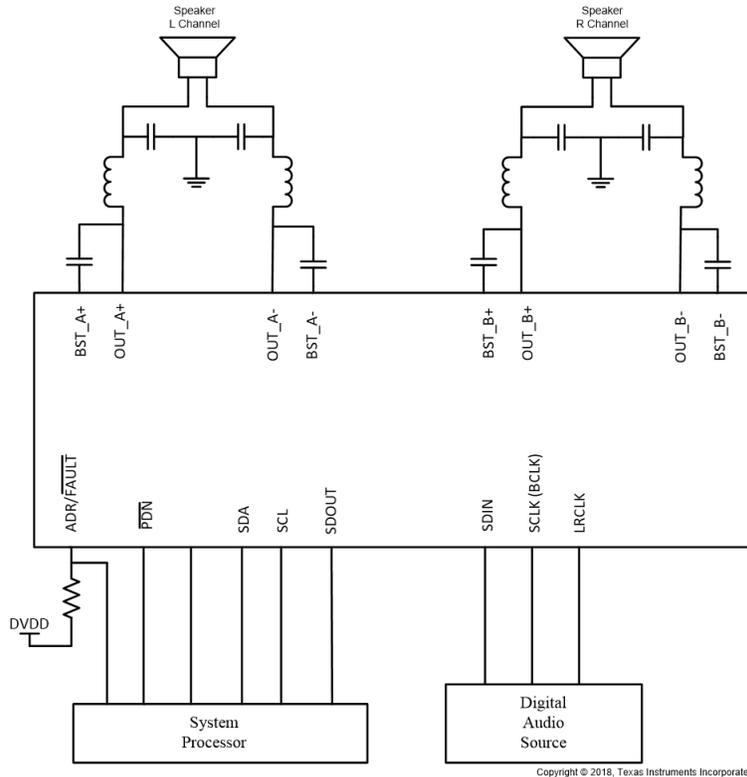


Figure 1-1. TAS5802 Simplified System Diagram

1.4 Device Information

The TAS5802PWPEVM showcases the latest TI digital input Class-D closed loop amplifier. The TAS5802PWP is a digital input stereo high-efficiency Closed-Loop Class-D audio amplifier with advanced processing. The TAS5802PWPEVM is a stand-alone EVM, which has a single power supply input, USB control via PurePath Control Console 3 (PPC3), and flexible audio input options.

2 Hardware

2.1 Setup

Software Control Mode

1. Connect speakers to TAS5802PWPEVM.
2. Connect a PSU to the TAS5802PWPEVM and turn on the power.
3. Plug in a USB cable from the PC to the TAS5802PWPEVM. The USB READY LED (Blue) is also illuminated.
4. If an optical source is used, then the blue SPDIF LOCK LED is illuminated.
5. Initialize the TAS5802PWP device using PPC3 to begin playing audio and testing the different features.

2.1.1 I²C Device Addresses

The default 7-bit I²C address on the EVM is set to 0xA8 for the first TAS5802PWP device and 0xAA for the second device.

2.2 Header and Jumper Information

Table 2-1. TAS5802 Circuit Jumpers

Designator	Name	Positions	Description
J2	PVDD_EXT	IN: Default, external PVDD supplies PVDD for device 1 OUT: PVDD disconnected for device 1	Drives the analog power supply for the first TAS5802. If PVDD current draw wants to be measured can use this jumper for a current probe
J5	PVDD1	IN: Default, external PVDD supplies PVDD for device 1 OUT: PVDD disconnected for device 1	Drives the analog power supply for the first TAS5802. If PVDD current draw wants to be measured can use this jumper for a current probe
J7	DVDD1	IN: Default, IOVDD supplies DVDD for device 1 OUT: DVDD disconnected for device 1	Drives the digital power supply for the first TAS5802. If DVDD current draw wants to be measured need to externally drive DVDD to pin 2
J12	PVDD2	IN: Default, external PVDD supplies PVDD for device 2 OUT: PVDD disconnected for device 2	Drives the analog power supply for the second TAS5802. If PVDD current draw wants to be measured can use this jumper for a current probe
J13	DVDD2	IN: Default, IOVDD supplies DVDD for device 2 OUT: DVDD disconnected for device 2	Drives the digital power supply for the second TAS5802. If DVDD current draw wants to be measured need to externally drive DVDD to pin 2
J16	SDIN2_SEL	1-2: SDIN from I2S MUX 2-3: Default, SDIN from SDOOUT of first TAS5802	Selects the serial data input for the second device.

Table 2-2. R6: I2C Address - Device 1

R6	Address
4.7kΩ (Default)	0xA8
15kΩ	0xAA
47kΩ	0xAC
120kΩ	0xAE

Table 2-3. J12: I2C Address - Device 2

R12	Address
4.7kΩ	0xA8
15kΩ (Default)	0xAA
47kΩ	0xAC
120kΩ	0xAE

Table 2-4. XMOS Circuit Jumpers

Designator	Name	Position	Description
J17	SCL	1-2: Default, PPC3 drives XMOS I2C bus to the TAS5802 OUT: Use Pin 1 and 3 to drive SCL externally to the TAS5802 on the EVM	The SCL Jumper offers a few options to provide or receive I2C signals. Default configuration connects the XMOS I2C bus to the TAS5802 to configure the device with PPC3. Disconnecting the jumper allows for the XMOS I2C bus to be connected to an external TAS5802 system board to configure that device with PPC3 using pins 2 and 3. Alternatively can use an external I2C bus to drive the TAS5802 on the EVM using pins 1 and 3.
J18	SDA	1-2: Default, PPC3 drives XMOS I2C bus to TAS5802 OUT: Use Pin 1 and 3 to drive SDA externally to the TAS5802 on the EVM	The SDA Jumper offers a few options to provide or receive I2C signals. Default configuration connects the XMOS I2C bus to the TAS5802 to configure the device with PPC3. Disconnecting the jumper allows for the XMOS I2C bus to be connected to an external TAS5802 system board to configure that device with PPC3 using pins 2 and 3. Alternatively can use an external I2C bus to drive the TAS5802 on the EVM using pins 1 and 3.

Table 2-5. Audio Input IO Circuit Jumpers and Switches

Designator	Name	Positions	Description
J21	IOVDD	1-2: 1.8V IOVDD 2-3: Default, 3.3V IOVDD	Sets the IOVDD voltage for the digital interfaces
J22	SCLK	1-2: Default, Bypass mode that sends SPDIF and XMOS I2S input to the TAS5802 2-3: Connect external PSIA connector to Pin 2-3 to drive input to TAS5802	Sets the SCLK input to be driven internally using USB/Optical input or driven externally with a PSIA connector
J23	LRCLK	1-2: Default, Bypass mode that sends SPDIF and XMOS I2S input to the TAS5802 2-3: Connect external PSIA connector to Pin 2-3 to drive input to TAS5802	Sets the LRCLK input to be driven internally using USB/Optical input or driven externally with a PSIA connector
J24	SDIN	1-2: Default, Bypass mode that sends SPDIF and XMOS I2S input to the TAS5802 2-3: Connect external PSIA connector to Pin 2-3 to drive input to TAS5802	Sets the SDIN input to be driven internally using USB or optical input or driven externally with a PSIA connector
J26	GPIO1 SEL	1-2: Default, sends the SDOOUT data to the XMOS 2-3: Sends SDOOUT Data to SPDIF Optical Output	If the device is not using the Class-H feature, then this jumper can be using to sent the output I2S/TDM data to an external source of either the XMOS and USB or the optical output

Table 2-6. J33: IO-EXT Pin Description

Number	Name	Description
All odd pins (1 to 27)	GND	Ground connection.
2	IOVDD	The 3.3V or 1.8V digital power supply.
4,6	N/A	Unused floating pins.
8	SCL	I ² C serial control clock input for the TAS5802.
10	SDA	I ² C serial control clock input for the TAS5802.
12	LRCLK	I ² S/TDM frame clock.
14	SCLK	I ² S/TDM bit clock.
16	SDIN	I ² S/TDM data.
18	SDOUT1	SDOUT from first TAS5802.
20	SDOUT2	SDOUT from second TAS5802.
22	$\overline{\text{PDN1}}$	Power down, active-low for first device. PDN place the amplifier in shutdown, turn off all internal regulators.
24	$\overline{\text{PDN2}}$	Power down, active-low for second device. PDN place the amplifier in shutdown, turn off all internal regulators.
26	ADR_FAULT1	Active-low fault pin for second TAS5802.
28	ADR_FAULT2	Active-low fault pin for second TAS5802.

2.3 Test Points

Table 2-7. Test Points

Designator	Name	Description
TP1	PVDD1	PVDD for device 1
TP2	DVDD1	Digital power supply for device 1
TP3	AVDD1	AVDD internally regulated voltage for device 1
TP4	VR_DIG1	VR_DIG internally regulated voltage for device 1
TP5	SDOUT1	Serial data output for device 1
TP7	ADR/FAULT1	Active low fault pin for device 1
TP8	PDN1	Active low power down input for device 1
TP9	PVDD2	PVDD for device 2
TP10	DVDD2	Digital power supply for device 2
TP11	AVDD2	AVDD internally regulated voltage for device 2
TP12	VR_DIG2	VR_DIG internally regulated voltage for device 2
TP13	SDIN2	Serial data input for device 2
TP14	SDOUT2	Serial data output for device 2
TP16	ADR/FAULT2	Active low fault pin for device 2
TP17	PDN2	Active low power down input for device 2
TP18	1V	The 1V rail used in the XMOS.
TP19	SCL_XMOS	Probe point for the I2C serial clock input going generated by the XMOS.
TP20	SCL_AMP	Probe point for the I2C serial clock input going into the TAS5802
TP21	SDA_AMP	The I2C serial control data interface input/output going into the TAS5827.
TP22	SDA_XMOS	The I2C serial control data interface input/output generated by the XMOS.
TP23	MCLK	Master clock for the digital signal that is active on the input data line of the serial data port
TP24	SCLK	Bit clock for the digital signal that is active on the input data line of the serial data port.
TP25	LRCLK	Word select clock for the digital signal that is active on the serial port's input data line. In I2S, LJ and RJ, this corresponds to the left channel and right channel boundary. In TDM mode, this corresponds to the frame sync boundary.
TP26	SDIN	Data line to the serial data port.
All other TP	GND	Ground reference pins for probes.

3 Hardware Design Files

3.1 Schematics

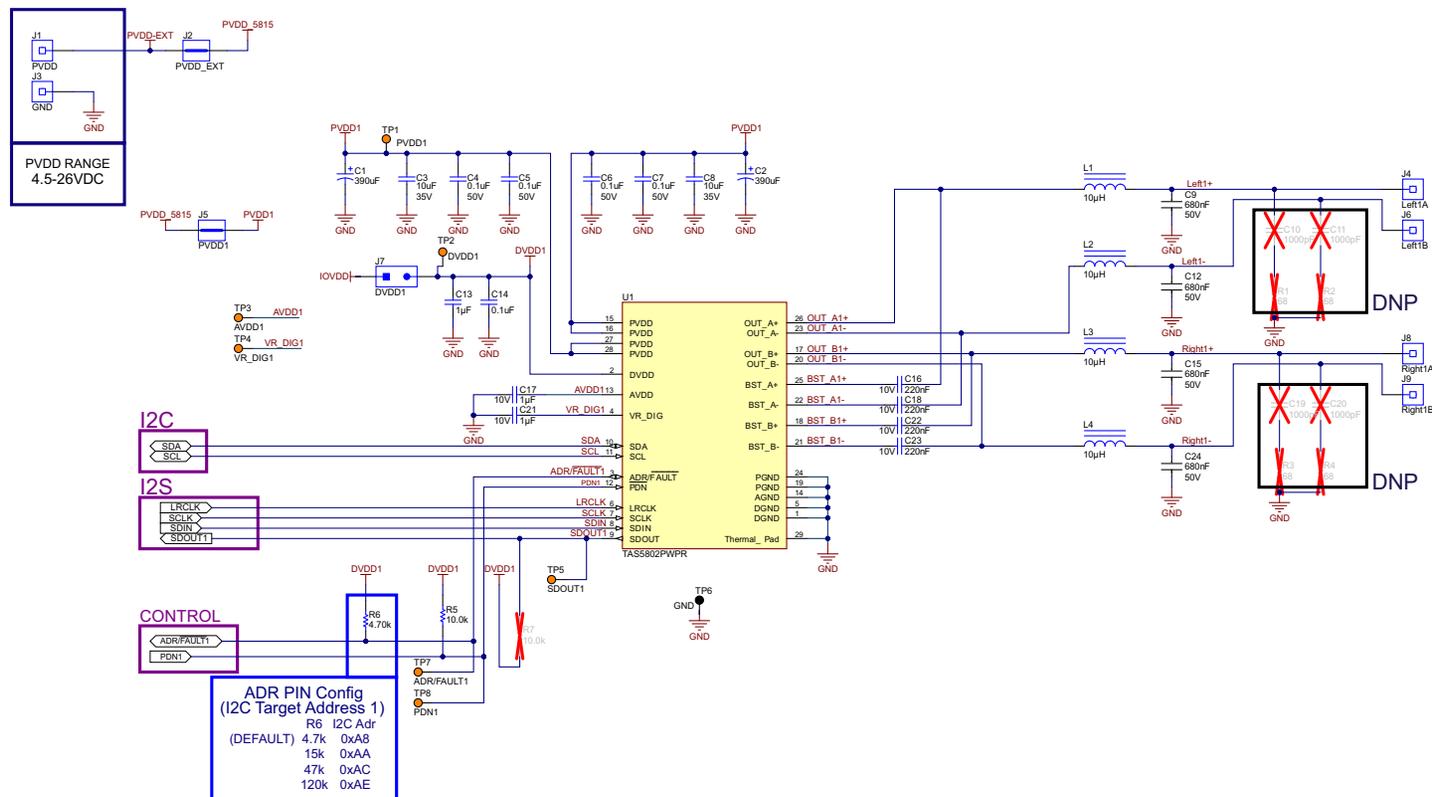


Figure 3-1. TAS5802PWPEVM Schematic (1 of 6)

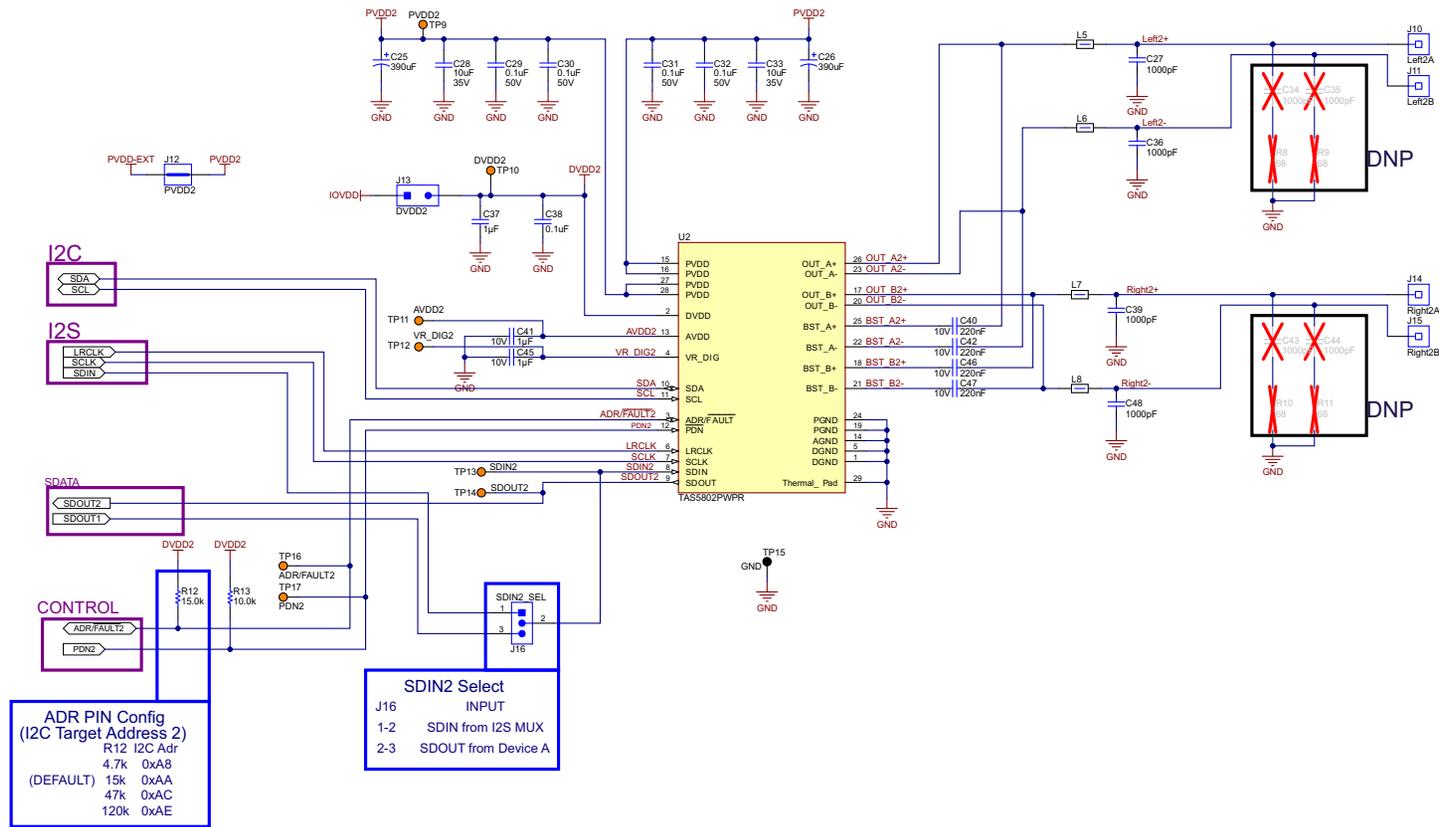


Figure 3-2. TAS5802PWPEVM Schematic (2 of 6)

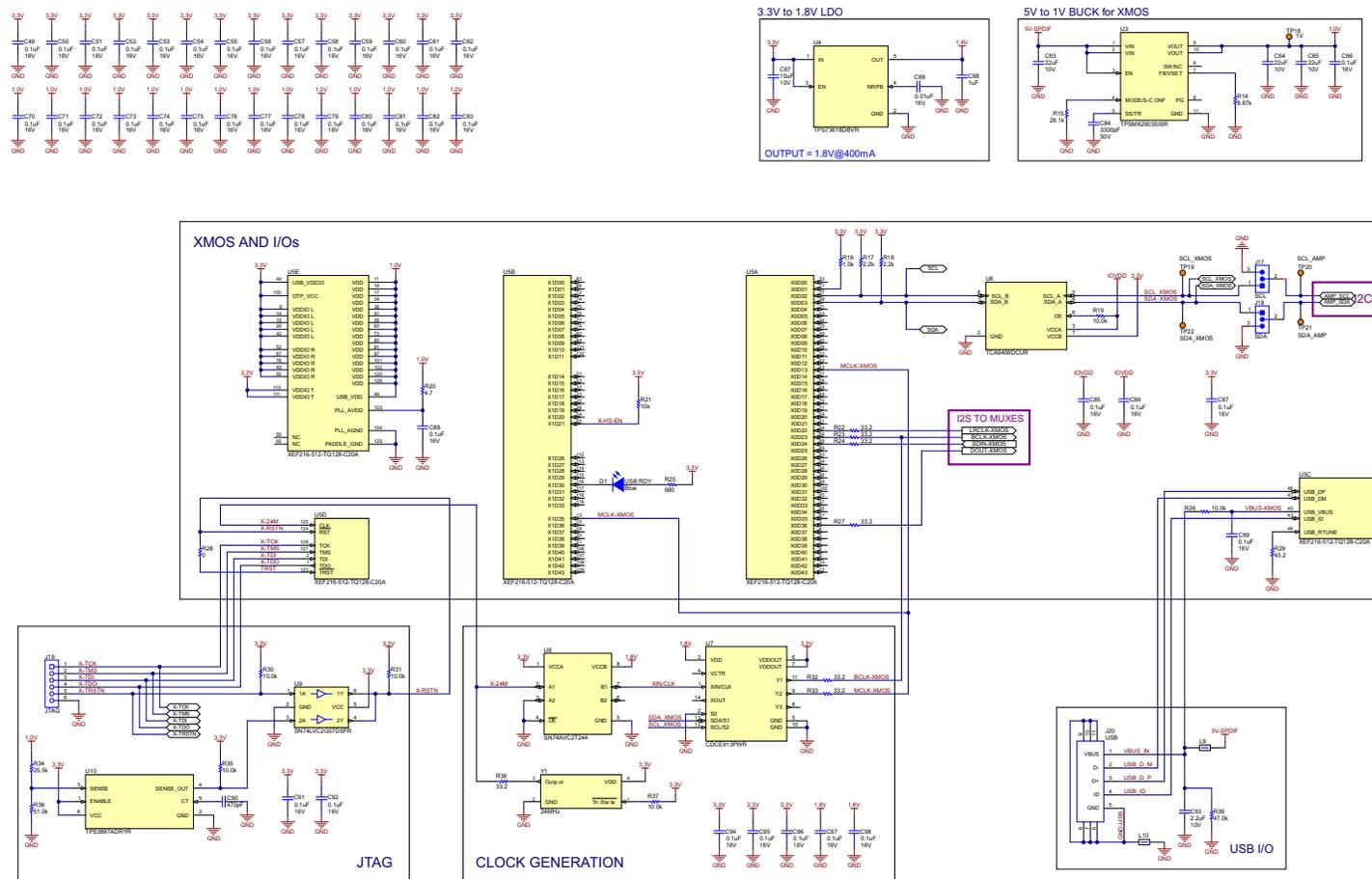
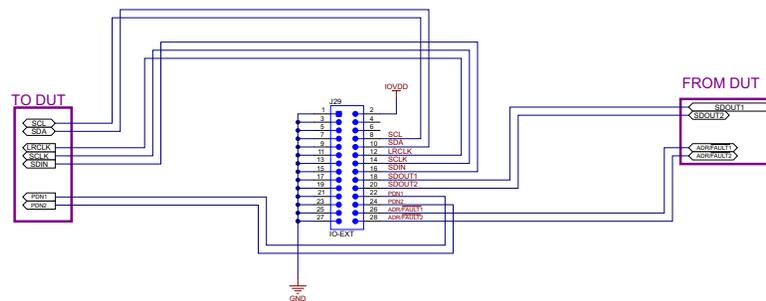
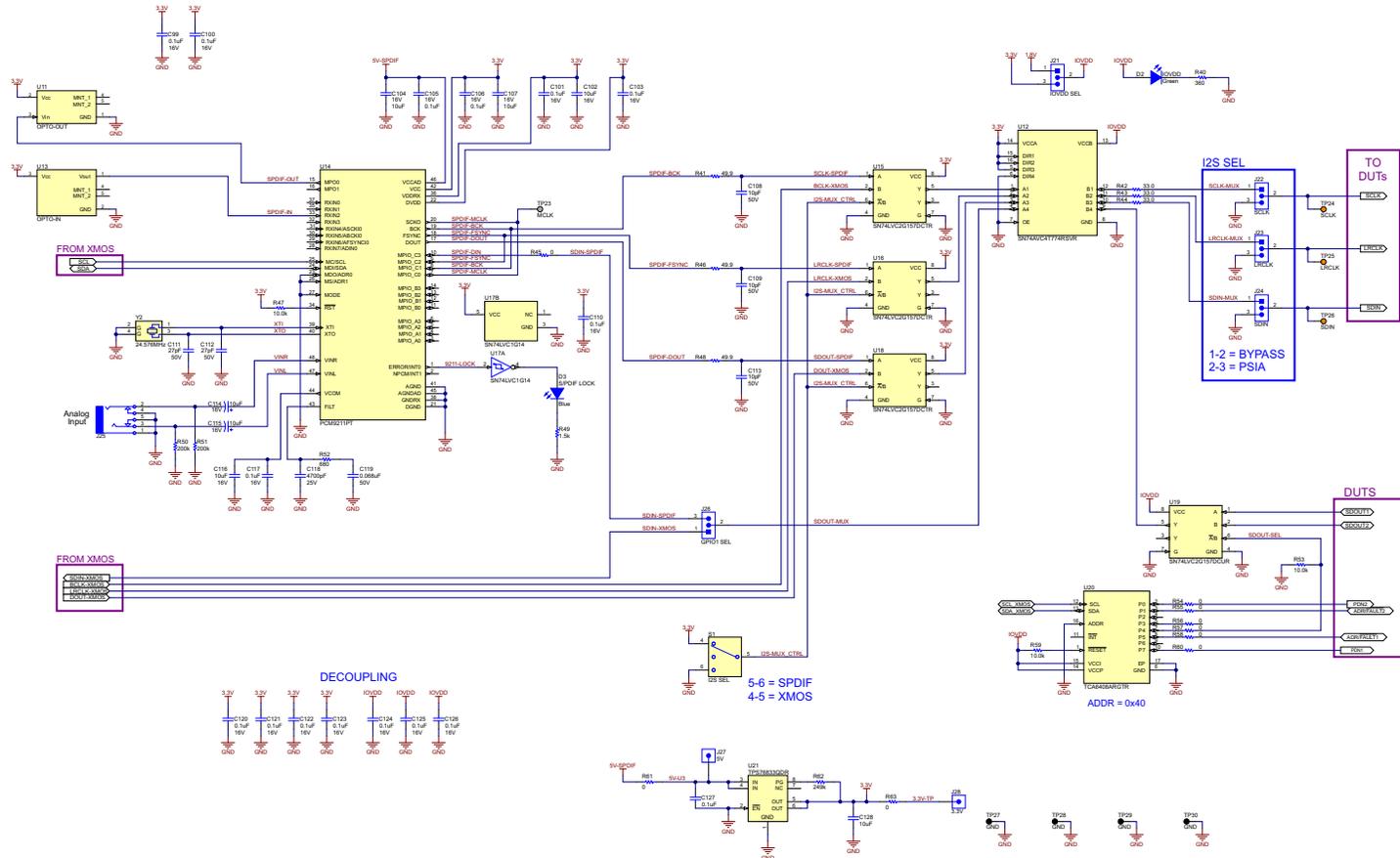


Figure 3-3. TAS5802PWPEVM Schematic (3 of 6)



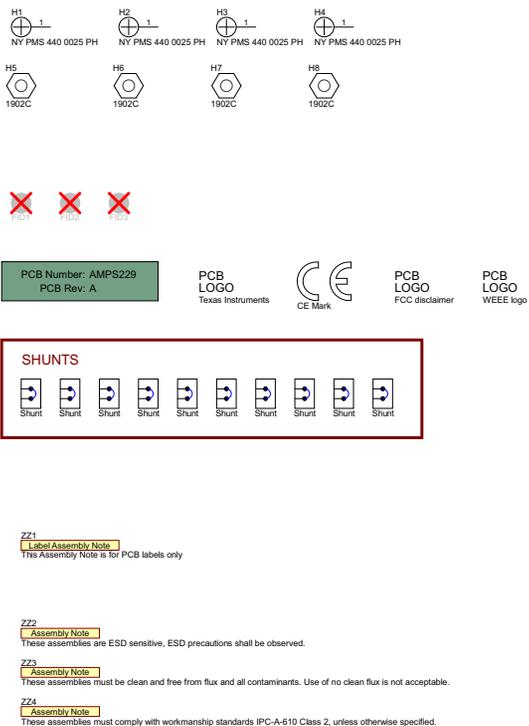


Figure 3-6. TAS5802PWPEVM Schematic (6 of 6)

3.2 PCB Layout

Figure 3-7 and Figure 3-8 illustrate the board layouts for the EVM.

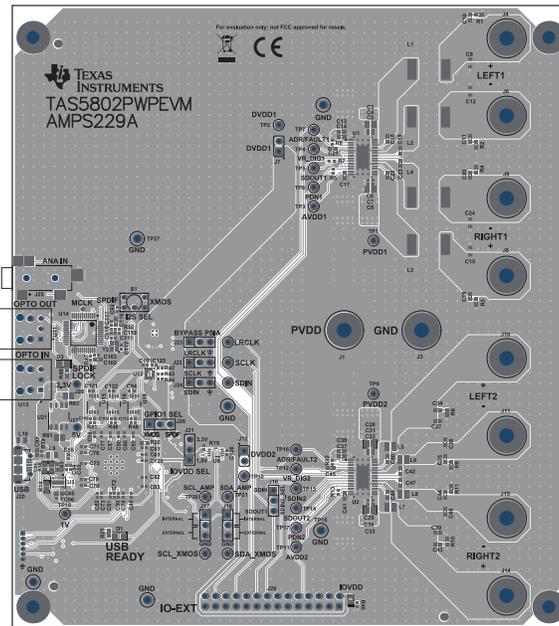


Figure 3-7. TAS5802PWPEVM Top Overlay

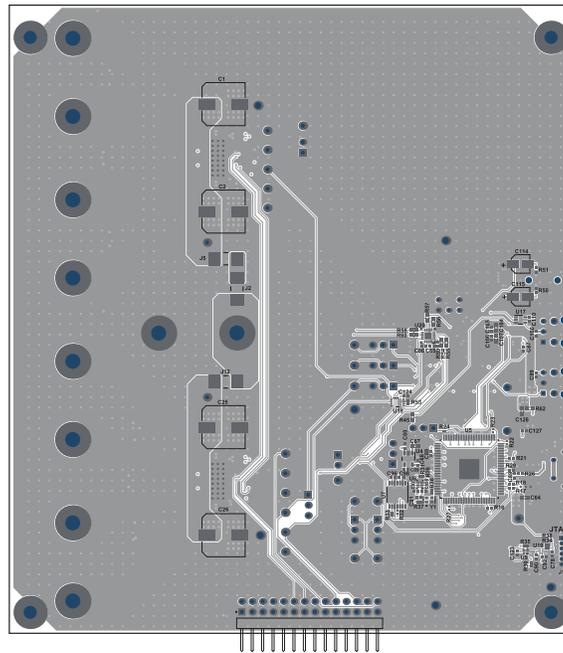


Figure 3-8. TAS5802PWPEVM Bottom Overlay

3.3 Bill of Materials

Table 3-1. Bill of Materials

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number	Alternate Manufacturer
C1, C2, C25, C26	4	390uF	CAP, AL, 390uF, 35V, +/- 20%, 0.08 ohm, SMD	10x10	UCL1V391MNL1GS	Nichicon		
C3, C8, C28, C33	4	10uF	CAP, CERM, 10uF, 35V, +/- 10%, X5R, 0805	0805	GRM21BR6YA106KE43L	MuRata		
C4, C5, C6, C7, C29, C30, C31, C32	8	0.1uF	CAP, CERM, 0.1uF, 50V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	CGA2B3X7R1H104K050BB	TDK		
C9, C12, C15, C24	4		CAP CER 0.68UF 50V X7R 0805	0805	CGA4J3X7R1H684M125AB	TDK Corporation		
C13, C37	2	1uF	CAP, CERM, 1uF, 50V, +/- 10%, X7R, 0603	0603	UMK107AB7105KA-T	Taiyo Yuden		
C14, C38	2	0.1uF	CAP, CERM, 0.1uF, 50V, +/- 10%, X7R, 0603	0603	C0603C104K5RACTU	Kemet		
C16, C18, C22, C23, C40, C42, C46, C47	8	0.22uF	CAP, CERM, 0.22uF, 10V, +/- 10%, X7R, 0603	0603	GRM188R71A224KA01D	MuRata		
C17, C21, C41, C45	4	1uF	CAP, CERM, 1uF, 10V, +/- 10%, X7R, 0603	0603	LMK107B7105KA-T	Taiyo Yuden		
C27, C36, C39, C48	4	1000pF	CAP, CERM, 1000pF, 100V, +/- 10%, X7R, 0603	0603	GRM188R72A102KA01D	MuRata		
C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C66, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C85, C86, C87, C88, C89, C91, C92, C94, C95, C96, C97, C98, C99, C100, C101, C103, C105, C106, C110, C117, C120, C121, C122, C123, C124, C125, C126, C127	57	0.1uF	CAP, CERM, 0.1uF, 16V, +/- 10%, X7R, 0402	0402	8.85012E+11	Würth Elektronik		

Table 3-1. Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number	Alternate Manufacturer
C63, C64, C65	3	22uF	CAP, CERM, 22uF, 10V, +/- 20%, X5R, 0603	0603	C1608X5R1A226M080AC	TDK		
C67, C128	2	10uF	CAP, CERM, 10uF, 10V, +/- 20%, X5R, 0603	0603	C1608X5R1A106M080AC	TDK		
C68	1	1uF	CAP, CERM, 1uF, 6.3V, +/- 20%, X5R, 0402	0402	GRM152R60J105ME15D	MuRata		
C69	1	0.01uF	CAP, CERM, 0.01uF, 16V, +/- 10%, X7R, 0402	0402	8.85012E+11	Wurth Elektronik		
C84	1	3300pF	CAP, CERM, 3300pF, 50V, +/- 5%, C0G/NP0, 0603	0603	GRM1885C1H332JA01D	MuRata		
C90	1	470pF	CAP, CERM, 470pF, 50V, +/- 5%, C0G/NP0, 0402	0402	GRM1555C1H471JA01D	MuRata		
C93	1	2.2uF	CAP, CERM, 2.2uF, 10V, +/- 10%, X7R, 0603	0603	GRM188R71A225KE15D	MuRata		
C102, C104, C107, C116	4	10uF	CAP, CERM, 10uF, 16V, +/- 20%, X5R, 0603	0603	EMK107BBJ106MA-T	Taiyo Yuden	GMC10X5R106M16NT	CAL-CHIP ELECTRONICS, INC.
C108, C109, C113	3	10pF	CAP, CERM, 10pF, 50V, +/- 5%, C0G/NP0, 0402	0402	8.85012E+11	Wurth Elektronik		
C111, C112	2	27pF	CAP, CERM, 27pF, 50V, +/- 5%, C0G/NP0, 0402	0402	GJM1555C1H270JB01D	MuRata		
C114, C115	2	10uF	CAP, AL, 10uF, 16V, +/- 20%, SMD	D55	EMVE160ADA100MD55G	Chemi-Con	UWX1C100MCL1GB	Nichicon
C118	1	4700pF	CAP, CERM, 4700pF, 25V, +/- 10%, X7R, 0402	0402	CC0402KRX7R8BB472	Yageo		
C119	1	0.068uF	CAP, CERM, 0.068uF, 50V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	CGA2B3X7R1H683K050BB	TDK		
D1, D3	2	Blue	LED, Blue, SMD	LED_0805	LTST-C170TBKT	Lite-On		
D2	1	Green	LED, Green, SMD	LED_0603	150060GS75000	Wurth Elektronik		
H1, H2, H3, H4	4		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		Standoff, Hex, 0.5"L #4-40 Nylon	Standoff	1902C	Keystone		
J1, J4, J8, J10, J14	5		Binding Post, RED, TH	11.4x27.2mm	7006	Keystone		
J2, J5, J12	3		JUMPER TIN SMD	6.85x0.97x2.5 1 mm	S1911-46R	Harwin		
J3, J6, J9, J11, J15	5		Binding Post, BLACK, TH	11.4x27.2mm	7007	Keystone		

Table 3-1. Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number	Alternate Manufacturer
J7, J13	2		Header, 100mil, 2x1, Gold, TH	Sullins 100mil, 1x2, 230 mil above insulator	PBC02SAAN	Sullins Connector Solutions		
J16, J17, J18, J21, J22, J23, J24, J26	8		Header, 100mil, 3x1, Gold, TH	PBC03SAAN	PBC03SAAN	Sullins Connector Solutions		
J19	1		Receptacle, 50mil, 6x1, Gold, R/A, TH	6x1 Receptacle	LPPB061NGCN-RC	Sullins Connector Solutions		
J20	1		Connector, Receptacle, Micro-USB Type AB, R/A, Bottom Mount SMT	5.6x2.5x8.2m m	475890001	Molex		
J25	1		Audio Jack, 3.5mm, Stereo, R/A, SMT	Phone Jack, 6x5x17mm	35RASMT4BHNTX	Switchcraft		
J27, J28	2			Test point, TH Slot Test point	1040	Keystone		
J29	1		Header, 100mil, 14x2, Gold, R/A, TH	14x2 R/A Header	TSW-114-08-G-D-RA	Samtec		
L1, L2, L3, L4	4	10uH	Inductor, Shielded, Ferrite, 10µH, 4.4A, 0.0304 ohm, SMD		1274AS-H-100M=P3	MuRata		
L5, L6, L7, L8	4	300 ohm	Ferrite Bead, 300ohm at 100MHz, 3.1A, 0806	0806	NFZ2MSM301SN10L	MuRata		
L9, L10	2	600 ohm	Ferrite Bead, 600ohm at 100MHz, 2A, 0805	0805	MPZ2012S601AT000	TDK		
R5, R13	2	15.0k	RES, 15.0 k, .1%, .063 W, AEC-Q200 Grade 0, 0402	0402	ERA-2AEB153X	Panasonic		
R6	1	4.70k	RES, 4.70 k, 1%, 0.0625 W, 0402	0402	RC0402FR-074K7L	Yageo America		
R12	1	15.0k	RES, 15.0 k, 1%, 0.063 W, 0402	0402	RC0402FR-0715KL	Yageo America		
R14	1	8.87k	RES, 8.87 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06038K87FKEA	Vishay-Dale		
R15	1	26.1k	RES, 26.1 k, 0.1%, 0.1 W, 0603	0603	RT0603BRD0726K1L	Yageo America		
R16	1	1.0k	RES, 1.0 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04021K00JNED	Vishay-Dale	CRCW04021K00JNTD	Vishay Dale
R17, R18	2	2.2k	RES, 2.2 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04022K20JNED	Vishay-Dale		
R19, R26	2	10.0k	RES, 10.0 k, 1%, 0.1 W, 0402	0402	ERJ-2RKF1002X	Panasonic	ERJ-U02F1002X	Panasonic
R20	1	4.7	RES, 4.7, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06034R70JNEA	Vishay-Dale		

Table 3-1. Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number	Alternate Manufacturer
R21	1	10k	RES, 10 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210K0JNED	Vishay-Dale	ERJ-U02F1002X	Panasonic
R22, R23, R24, R27, R32, R33, R36	7	33.2	RES, 33.2, 1%, 0.05 W, 0201	0201	RC0201FR-0733R2L	Yageo America		
R25	1	680	RES, 680, 1%, 0.1 W, 0603	0603	RC0603FR-07680RL	Yageo		
R28	1	0	RES, 0, 5%, .05 W, AEC-Q200 Grade 0, 0201	0201	ERJ-1GN0R00C	Panasonic		
R29	1	43.2	RES, 43.2, 1%, 0.1 W, AEC-Q200 Grade 0, 0402	0402	ERJ2RKF43R2X	Panasonic		
R30, R31, R35, R37, R53	5	10.0k	RES, 10.0 k, 1%, 0.05 W, 0201	0201	CRCW020110K0FKED	Vishay-Dale		
R34	1	25.5k	RES, 25.5 k, 1%, 0.05 W, 0201	0201	RC0201FR-0725K5L	Yageo America		
R38	1	51.0k	RES, 51.0 k, 1%, 0.05 W, 0201	0201	RC0201FR-0751KL	Yageo America		
R39	1	47.0k	RES, 47.0 k, 1%, 0.0625 W, 0402	0402	RC0402FR-0747KL	Yageo America		
R40	1	360	RES, 360, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402360RJNED	Vishay-Dale		
R41, R46, R48	3	49.9	RES, 49.9, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040249R9FKED	Vishay-Dale	CRCW040249R9FKED C	Vishay-Dale
R42, R43, R44	3	33	RES, 33.0, 1%, 0.1 W, 0402	0402	ERJ-2RKF33R0X	Panasonic	ERJ-U02F33R0X	Panasonic
R45	1	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc		
R47, R59	2	10.0k	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210K0FKED	Vishay-Dale		
R49	1	1.5k	RES, 1.5 k, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031K50JNEA	Vishay-Dale	CRCW06031K50JNEA C	Vishay-Dale
R50, R51	2	200k	RES, 200 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402200KJNED	Vishay-Dale		
R52	1	680	RES, 680, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402680RJNED	Vishay-Dale		
R54, R55, R56, R57, R58, R60	6	0	RES, 0, 5%, 0.1 W, 0603	0603	RC0603JR-070RL	Yageo		
R61, R63	2	0	RES, 0, 5%, 0.125 W, 0805	0805	RC0805JR-070RL	Yageo America		
R62	1	249k	RES, 249 k, 1%, 0.1 W, 0603	0603	RC0603FR-07249KL	Yageo		
S1	1		Switch, Toggle, SPDT 1Pos, TH	7 X 11 X4.5 mm	G12AP	NKK Switches		

Table 3-1. Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number	Alternate Manufacturer
SH1, SH2, SH3, SH4, SH5, SH6, SH7, SH8, SH9, SH10	10	1x2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA	3M
TP1, TP2, TP3, TP4, TP5, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP24, TP25, TP26	23		Test Point, Miniature, Orange, TH	Orange Miniature Testpoint	5003	Keystone Electronics		
TP6, TP15, TP27, TP28, TP29, TP30	6		Test Point, Compact, Black, TH	Black Compact Testpoint	5006	Keystone Electronics		
U1, U2	2		20W Stereo, Inductor-Less, Digital Input, Closed-Loop Class-D Audio Amplifier with 96Khz Extended Processing and Low Idle Power Dissipation, HTSSOP28	HTSSOP28	TAS5802PWPR	Texas Instruments		
U3	1		3V to 17V, High Efficiency and Low IQ Buck Converter Module in MicroSiP Package with Integrated Inductor	uSiL11	TPSM82903SISR	Texas Instruments		
U4	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		
U5	1		XCore XEF Microcontroller IC 32-Bit 16-Core 2000MIPs 2MB (2M x 8) FLASH 128-TQFP (14x14)	TQFP128	XEF216-512-TQ128-C20A	XMOS		
U6	1		2-Bit Bidirectional 1MHz I2C Bus and SMBus Voltage-Level Shifter, DCU0008A (VSSOP-8)	DCU0008A	TCA9406DCUR	Texas Instruments		
U7	1		Programmable 1-PLL VCXO Clock Synthesizer with 2.5V or 3.3V LVCMOS Outputs, PW0014A (TSSOP-14)	PW0014A	CDCE913PWR	Texas Instruments	CDCE913PW	Texas Instruments
U8	1		Dual-Bit Dual-Supply Bus Transceiver, DQM0008A (X2SON-8)	DQM0008A	SN74AVC2T244DQMR	Texas Instruments		

Table 3-1. Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number	Alternate Manufacturer
U9	1		Enhanced Product Dual Buffer/Driver with Open-Drain Output, DCK0006A (SOT-SC70-6)	DSF0006A	SN74LVC2G07DSFR	Texas Instruments		
U10	1		Single-Channel Ultra-Small Adjustable Supervisory Circuit With Active-High Open-Drain Output, DRY0006A (USON-6)	DRY0006A	TPS3897ADRYR	Texas Instruments		
U11	1		Optical Jack Transmitter OTJ-8	OTJ8	FCR684208T	Cliff Electronic Components		
U12	1		4-Bit Dual-Supply Bus Transceiver With Configurable Voltage-Level Shifting and 3-State Outputs, RSV0016A (UQFN-16)	RSV0016A	SN74AVC4T774RSVR	Texas Instruments		Texas Instruments
U13	1		Fiber Optic Receiver Digital Audio, Optical 16Mbps - approx. 2.7V - 5.5V 10mA	CONN_FIBER_OPTIC	FCR684208R	Cliff		
U14	1		216kHz 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		
U15, U16, U18	3		Single 2-Line to 1-Line Data Selector/Multiplexer, DCT0008A, LARGE T&R	DCT0008A	SN74LVC2G157DCTR	Texas Instruments	SN74LVC2G157DCUT	Texas Instruments
U17	1		Single Schmitt-Trigger Inverter, DCK0005A (SOT-SC70-5)	DCK0005A	SN74LVC1G14DCKR	Texas Instruments	SN74LVC1G14DCKT	Texas Instruments
U19	1		Single 2-Line to 1-Line Data Selector/Multiplexer, DCU0008A, LARGE T&R	DCU0008A	SN74LVC2G157DCUR	Texas Instruments	SN74LVC2G157DCUT	Texas Instruments
U20	1		Low-Voltage 8-Bit I2C and SMBus I/O Expander, 1.65 to 5.5V, -40 to 85 degC, 16-pin QFN (RGT), Green (RoHS & no Sb/Br)	RGT0016A	TCA6408ARGTR	Texas Instruments		
U21	1		Single Output Fast Transient Response LDO, 1A, Fixed 3.3V Output, 2.7 to 10V Input, with Low IQ, 8-pin SOIC (D), -40 to 125 degC, Green (RoHS & no Sb/Br)	D0008A	TPS76833QDR	Texas Instruments		
Y1	1		Crystal Oscillator 24MHz ±50ppm HCMOS 3.3V SMD 2x1.6mm	SMD_2MM0_1MM6	ASA-24.000MHZ-L-T	Abracon		

Table 3-1. Bill of Materials (continued)

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number	Alternate Manufacturer
Y2	1		Crystal, 24.576MHz, 10pF, SMD	2.5x0.5x2.0mm	ABM10-24.576MHZ-E20-T	Abracon Corporation		

4 Additional Information

4.1 Trademarks

PurePath™ is a trademark of Texas Instruments.
All trademarks are the property of their respective owners.

5 Revision History

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

Changes from Revision A (December 2024) to Revision B (February 2026) Page

- Initial public release..... 1
-

Changes from Revision * (November 2024) to Revision A (December 2024) Page

- Changed document status from public to Selective Disclosure.....0
-

STANDARD TERMS FOR EVALUATION MODULES

1. *Delivery:* TI delivers TI evaluation boards, kits, or modules, including any accompanying demonstration software, components, and/or documentation which may be provided together or separately (collectively, an "EVM" or "EVMs") to the User ("User") in accordance with the terms set forth herein. User's acceptance of the EVM is expressly subject to the following terms.
 - 1.1 EVMs are intended solely for product or software developers for use in a research and development setting to facilitate feasibility evaluation, experimentation, or scientific analysis of TI semiconductors products. EVMs have no direct function and are not finished products. EVMs shall not be directly or indirectly assembled as a part or subassembly in any finished product. For clarification, any software or software tools provided with the EVM ("Software") shall not be subject to the terms and conditions set forth herein but rather shall be subject to the applicable terms that accompany such Software
 - 1.2 EVMs are not intended for consumer or household use. EVMs may not be sold, sublicensed, leased, rented, loaned, assigned, or otherwise distributed for commercial purposes by Users, in whole or in part, or used in any finished product or production system.
2. *Limited Warranty and Related Remedies/Disclaimers:*
 - 2.1 These terms do not apply to Software. The warranty, if any, for Software is covered in the applicable Software License Agreement.
 - 2.2 TI warrants that the TI EVM will conform to TI's published specifications for ninety (90) days after the date TI delivers such EVM to User. Notwithstanding the foregoing, TI shall not be liable for a nonconforming EVM if (a) the nonconformity was caused by neglect, misuse or mistreatment by an entity other than TI, including improper installation or testing, or for any EVMs that have been altered or modified in any way by an entity other than TI, (b) the nonconformity resulted from User's design, specifications or instructions for such EVMs or improper system design, or (c) User has not paid on time. Testing and other quality control techniques are used to the extent TI deems necessary. TI does not test all parameters of each EVM. User's claims against TI under this Section 2 are void if User fails to notify TI of any apparent defects in the EVMs within ten (10) business days after delivery, or of any hidden defects with ten (10) business days after the defect has been detected.
 - 2.3 TI's sole liability shall be at its option to repair or replace EVMs that fail to conform to the warranty set forth above, or credit User's account for such EVM. TI's liability under this warranty shall be limited to EVMs that are returned during the warranty period to the address designated by TI and that are determined by TI not to conform to such warranty. If TI elects to repair or replace such EVM, TI shall have a reasonable time to repair such EVM or provide replacements. Repaired EVMs shall be warranted for the remainder of the original warranty period. Replaced EVMs shall be warranted for a new full ninety (90) day warranty period.

WARNING

Evaluation Kits are intended solely for use by technically qualified, professional electronics experts who are familiar with the dangers and application risks associated with handling electrical mechanical components, systems, and subsystems.

User shall operate the Evaluation Kit within TI's recommended guidelines and any applicable legal or environmental requirements as well as reasonable and customary safeguards. Failure to set up and/or operate the Evaluation Kit within TI's recommended guidelines may result in personal injury or death or property damage. Proper set up entails following TI's instructions for electrical ratings of interface circuits such as input, output and electrical loads.

NOTE:

EXPOSURE TO ELECTROSTATIC DISCHARGE (ESD) MAY CAUSE DEGRADATION OR FAILURE OF THE EVALUATION KIT; TI RECOMMENDS STORAGE OF THE EVALUATION KIT IN A PROTECTIVE ESD BAG.

3 Regulatory Notices:

3.1 United States

3.1.1 Notice applicable to EVMs not FCC-Approved:

FCC NOTICE: This kit is designed to allow product developers to evaluate electronic components, circuitry, or software associated with the kit to determine whether to incorporate such items in a finished product and software developers to write software applications for use with the end product. This kit is not a finished product and when assembled may not be resold or otherwise marketed unless all required FCC equipment authorizations are first obtained. Operation is subject to the condition that this product not cause harmful interference to licensed radio stations and that this product accept harmful interference. Unless the assembled kit is designed to operate under part 15, part 18 or part 95 of this chapter, the operator of the kit must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter.

3.1.2 For EVMs annotated as FCC – FEDERAL COMMUNICATIONS COMMISSION Part 15 Compliant:

CAUTION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement for Class A EVM devices

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Interference Statement for Class B EVM devices

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

3.2 Canada

3.2.1 For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210 or RSS-247

Concerning EVMs Including Radio Transmitters:

This device complies with Industry Canada license-exempt RSSs. Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Concernant les EVMs avec appareils radio:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Concerning EVMs Including Detachable Antennas:

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Concernant les EVMs avec antennes détachables

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

3.3 Japan

3.3.1 *Notice for EVMs delivered in Japan:* Please see http://www.tij.co.jp/lstds/ti_ja/general/eStore/notice_01.page 日本国内に輸入される評価用キット、ボードについては、次のところをご覧ください。

<https://www.ti.com/ja-jp/legal/notice-for-evaluation-kits-delivered-in-japan.html>

3.3.2 *Notice for Users of EVMs Considered "Radio Frequency Products" in Japan:* EVMs entering Japan may not be certified by TI as conforming to Technical Regulations of Radio Law of Japan.

If User uses EVMs in Japan, not certified to Technical Regulations of Radio Law of Japan, User is required to follow the instructions set forth by Radio Law of Japan, which includes, but is not limited to, the instructions below with respect to EVMs (which for the avoidance of doubt are stated strictly for convenience and should be verified by User):

1. Use EVMs in a shielded room or any other test facility as defined in the notification #173 issued by Ministry of Internal Affairs and Communications on March 28, 2006, based on Sub-section 1.1 of Article 6 of the Ministry's Rule for Enforcement of Radio Law of Japan,
2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

【無線電波を送信する製品の開発キットをお使いになる際の注意事項】 開発キットの中には技術基準適合証明を受けていないものがあります。技術適合証明を受けていないものご使用に際しては、電波法遵守のため、以下のいずれかの措置を取っていただく必要がありますのでご注意ください。

1. 電波法施行規則第6条第1項第1号に基づく平成18年3月28日総務省告示第173号で定められた電波暗室等の試験設備でご使用いただく。
2. 実験局の免許を取得後ご使用いただく。
3. 技術基準適合証明を取得後ご使用いただく。

なお、本製品は、上記の「ご使用にあたっての注意」を譲渡先、移転先に通知しない限り、譲渡、移転できないものとします。

上記を遵守頂けない場合は、電波法の罰則が適用される可能性があることをご留意ください。日本テキサス・イ

ンスツルメンツ株式会社

東京都新宿区西新宿 6 丁目 2 4 番 1 号

西新宿三井ビル

3.3.3 *Notice for EVMs for Power Line Communication:* Please see http://www.tij.co.jp/lstds/ti_ja/general/eStore/notice_02.page

電力線搬送波通信についての開発キットをお使いになる際の注意事項については、次のところをご覧ください。 <https://www.ti.com/ja-jp/legal/notice-for-evaluation-kits-for-power-line-communication.html>

3.4 European Union

3.4.1 *For EVMs subject to EU Directive 2014/30/EU (Electromagnetic Compatibility Directive):*

This is a class A product intended for use in environments other than domestic environments that are connected to a low-voltage power-supply network that supplies buildings used for domestic purposes. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

-
- 4 *EVM Use Restrictions and Warnings:*
 - 4.1 EVMS ARE NOT FOR USE IN FUNCTIONAL SAFETY AND/OR SAFETY CRITICAL EVALUATIONS, INCLUDING BUT NOT LIMITED TO EVALUATIONS OF LIFE SUPPORT APPLICATIONS.
 - 4.2 User must read and apply the user guide and other available documentation provided by TI regarding the EVM prior to handling or using the EVM, including without limitation any warning or restriction notices. The notices contain important safety information related to, for example, temperatures and voltages.
 - 4.3 *Safety-Related Warnings and Restrictions:*
 - 4.3.1 User shall operate the EVM within TI's recommended specifications and environmental considerations stated in the user guide, other available documentation provided by TI, and any other applicable requirements and employ reasonable and customary safeguards. Exceeding the specified performance ratings and specifications (including but not limited to input and output voltage, current, power, and environmental ranges) for the EVM may cause personal injury or death, or property damage. If there are questions concerning performance ratings and specifications, User should contact a TI field representative prior to connecting interface electronics including input power and intended loads. Any loads applied outside of the specified output range may also result in unintended and/or inaccurate operation and/or possible permanent damage to the EVM and/or interface electronics. Please consult the EVM user guide prior to connecting any load to the EVM output. If there is uncertainty as to the load specification, please contact a TI field representative. During normal operation, even with the inputs and outputs kept within the specified allowable ranges, some circuit components may have elevated case temperatures. These components include but are not limited to linear regulators, switching transistors, pass transistors, current sense resistors, and heat sinks, which can be identified using the information in the associated documentation. When working with the EVM, please be aware that the EVM may become very warm.
 - 4.3.2 EVMs are intended solely for use by technically qualified, professional electronics experts who are familiar with the dangers and application risks associated with handling electrical mechanical components, systems, and subsystems. User assumes all responsibility and liability for proper and safe handling and use of the EVM by User or its employees, affiliates, contractors or designees. User assumes all responsibility and liability to ensure that any interfaces (electronic and/or mechanical) between the EVM and any human body are designed with suitable isolation and means to safely limit accessible leakage currents to minimize the risk of electrical shock hazard. User assumes all responsibility and liability for any improper or unsafe handling or use of the EVM by User or its employees, affiliates, contractors or designees.
 - 4.4 User assumes all responsibility and liability to determine whether the EVM is subject to any applicable international, federal, state, or local laws and regulations related to User's handling and use of the EVM and, if applicable, User assumes all responsibility and liability for compliance in all respects with such laws and regulations. User assumes all responsibility and liability for proper disposal and recycling of the EVM consistent with all applicable international, federal, state, and local requirements.
 5. *Accuracy of Information:* To the extent TI provides information on the availability and function of EVMs, TI attempts to be as accurate as possible. However, TI does not warrant the accuracy of EVM descriptions, EVM availability or other information on its websites as accurate, complete, reliable, current, or error-free.
 6. *Disclaimers:*
 - 6.1 EXCEPT AS SET FORTH ABOVE, EVMS AND ANY MATERIALS PROVIDED WITH THE EVM (INCLUDING, BUT NOT LIMITED TO, REFERENCE DESIGNS AND THE DESIGN OF THE EVM ITSELF) ARE PROVIDED "AS IS" AND "WITH ALL FAULTS." TI DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, REGARDING SUCH ITEMS, INCLUDING BUT NOT LIMITED TO ANY EPIDEMIC FAILURE WARRANTY OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADE SECRETS OR OTHER INTELLECTUAL PROPERTY RIGHTS.
 - 6.2 EXCEPT FOR THE LIMITED RIGHT TO USE THE EVM SET FORTH HEREIN, NOTHING IN THESE TERMS SHALL BE CONSTRUED AS GRANTING OR CONFERRING ANY RIGHTS BY LICENSE, PATENT, OR ANY OTHER INDUSTRIAL OR INTELLECTUAL PROPERTY RIGHT OF TI, ITS SUPPLIERS/LICENSORS OR ANY OTHER THIRD PARTY, TO USE THE EVM IN ANY FINISHED END-USER OR READY-TO-USE FINAL PRODUCT, OR FOR ANY INVENTION, DISCOVERY OR IMPROVEMENT, REGARDLESS OF WHEN MADE, CONCEIVED OR ACQUIRED.
 7. *USER'S INDEMNITY OBLIGATIONS AND REPRESENTATIONS.* USER WILL DEFEND, INDEMNIFY AND HOLD TI, ITS LICENSORS AND THEIR REPRESENTATIVES HARMLESS FROM AND AGAINST ANY AND ALL CLAIMS, DAMAGES, LOSSES, EXPENSES, COSTS AND LIABILITIES (COLLECTIVELY, "CLAIMS") ARISING OUT OF OR IN CONNECTION WITH ANY HANDLING OR USE OF THE EVM THAT IS NOT IN ACCORDANCE WITH THESE TERMS. THIS OBLIGATION SHALL APPLY WHETHER CLAIMS ARISE UNDER STATUTE, REGULATION, OR THE LAW OF TORT, CONTRACT OR ANY OTHER LEGAL THEORY, AND EVEN IF THE EVM FAILS TO PERFORM AS DESCRIBED OR EXPECTED.

8. *Limitations on Damages and Liability:*

8.1 *General Limitations.* IN NO EVENT SHALL TI BE LIABLE FOR ANY SPECIAL, COLLATERAL, INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES IN CONNECTION WITH OR ARISING OUT OF THESE TERMS OR THE USE OF THE EVMS , REGARDLESS OF WHETHER TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. EXCLUDED DAMAGES INCLUDE, BUT ARE NOT LIMITED TO, COST OF REMOVAL OR REINSTALLATION, ANCILLARY COSTS TO THE PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, RETESTING, OUTSIDE COMPUTER TIME, LABOR COSTS, LOSS OF GOODWILL, LOSS OF PROFITS, LOSS OF SAVINGS, LOSS OF USE, LOSS OF DATA, OR BUSINESS INTERRUPTION. NO CLAIM, SUIT OR ACTION SHALL BE BROUGHT AGAINST TI MORE THAN TWELVE (12) MONTHS AFTER THE EVENT THAT GAVE RISE TO THE CAUSE OF ACTION HAS OCCURRED.

8.2 *Specific Limitations.* IN NO EVENT SHALL TI'S AGGREGATE LIABILITY FROM ANY USE OF AN EVM PROVIDED HEREUNDER, INCLUDING FROM ANY WARRANTY, INDEMNITY OR OTHER OBLIGATION ARISING OUT OF OR IN CONNECTION WITH THESE TERMS, , EXCEED THE TOTAL AMOUNT PAID TO TI BY USER FOR THE PARTICULAR EVM(S) AT ISSUE DURING THE PRIOR TWELVE (12) MONTHS WITH RESPECT TO WHICH LOSSES OR DAMAGES ARE CLAIMED. THE EXISTENCE OF MORE THAN ONE CLAIM SHALL NOT ENLARGE OR EXTEND THIS LIMIT.

9. *Return Policy.* Except as otherwise provided, TI does not offer any refunds, returns, or exchanges. Furthermore, no return of EVM(s) will be accepted if the package has been opened and no return of the EVM(s) will be accepted if they are damaged or otherwise not in a resalable condition. If User feels it has been incorrectly charged for the EVM(s) it ordered or that delivery violates the applicable order, User should contact TI. All refunds will be made in full within thirty (30) working days from the return of the components(s), excluding any postage or packaging costs.

10. *Governing Law:* These terms and conditions shall be governed by and interpreted in accordance with the laws of the State of Texas, without reference to conflict-of-laws principles. User agrees that non-exclusive jurisdiction for any dispute arising out of or relating to these terms and conditions lies within courts located in the State of Texas and consents to venue in Dallas County, Texas. Notwithstanding the foregoing, any judgment may be enforced in any United States or foreign court, and TI may seek injunctive relief in any United States or foreign court.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2023, Texas Instruments Incorporated

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you fully indemnify TI and its representatives against any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#), [TI's General Quality Guidelines](#), or other applicable terms available either on [ti.com](#) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products. Unless TI explicitly designates a product as custom or customer-specified, TI products are standard, catalog, general purpose devices.

TI objects to and rejects any additional or different terms you may propose.

Copyright © 2026, Texas Instruments Incorporated

Last updated 10/2025