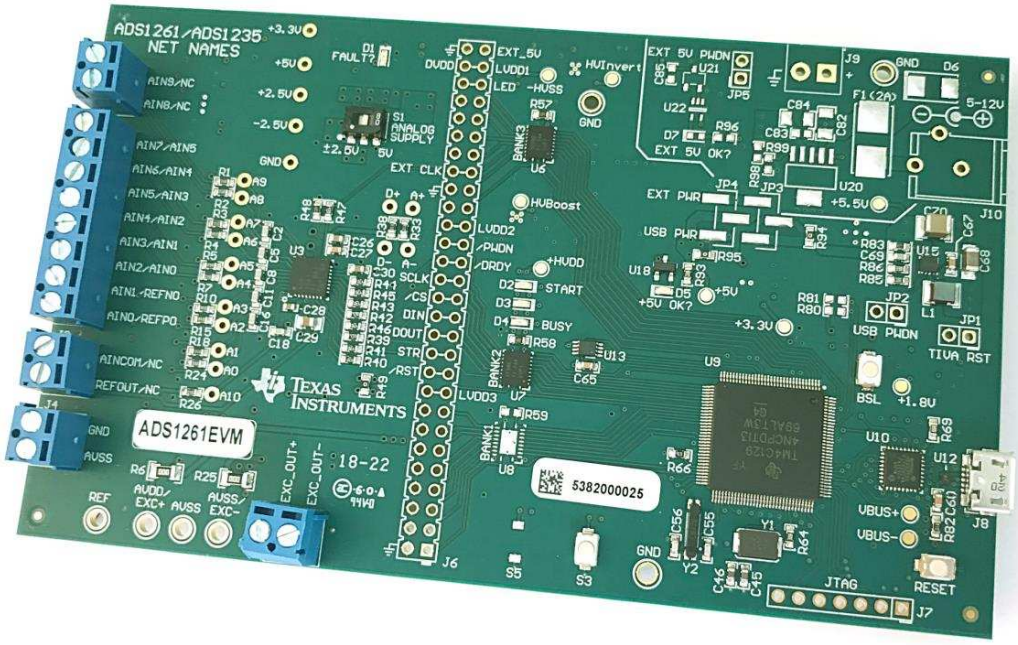
ADS1261 and ADS1235 Evaluation Module



ADS1261, ADS1235 Evaluation Module (ADS1261EVM Shown)

The ADS1261EVM and ADS1235EVM are evaluation module kits providing hardware and software support for evaluation of the ADS1261, or ADS1235, delta-sigma analog-to-digital converter (ADC). The kit utilizes the TM4C1294NCPDT processor to communicate with the ADC via SPI and provide communication with a PC over a USB interface. The EVM kit also includes a USB micro cable and a downloadable software application that runs on a PC, allowing for register manipulation and data collection from the ADC.

This document includes a detailed description of the hardware (HW), software setup and use, bill of materials, and schematic for the EVM.

Throughout this document, the term *EVM* is synonymous with ADS1261EVM and ADS1235EVM, demonstration kit, and evaluation module. The term *GUI* is synonymous with *Delta-Sigma ADC EvaluaTIon Software*, core application, and EVM software. The use of *Tiva*™ is synonymous with the TM4C1294NCPDT microcontroller.

Table 1. Related Documentation

Device	Literature Number
ADS1261	SBAS760
ADS1235	SBAS824

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1 EVM Overview

1.1 Description

This user guide describes the operation and use of the ADS1261 and ADS1235 evaluation module. The EVM platform is intended for evaluating the ADS1261 or ADS1235 performance and functionality.

1.2 Requirements

1.2.1 Software Requirements

PC with Microsoft® Windows® 7 or higher operating system.

1.2.2 Hardware Requirements

PC with available USB 2.0 or greater connection.

1.2.2.1 Power Supply

USB powered.

1.3 Software Reference

For the core software documentation, see the *Delta-Sigma ADC EvaluaTIon Software User Manual* or navigate to the *File -> About* option from within the GUI, then click on the *Software user guide* icon.

1.4 Supported Functionality

1.4.1 Hardware Functionality

The EVM features the following hardware capabilities:

- Onboard 5-V unipolar and ±2.5-V bipolar AVDD and AVSS supplies
- Onboard 3.3-V DVDD supply
- Digital header for external processor or controller configuration
- Analog header and configurable input circuitry for direct sensor connections
- Fault LED for STATUS or CRC error notification
- Place holder for optional REF62xx external reference source

1.4.2 Software Functionality

The EVM features the following software functions:

- Device conversion control
- Device software reset
- Device power down
- Register read and write
- Conversion result readback
- Self offset and system input calibration
- Readback of STATUS and CRC data bytes(for error detection)

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2 Quick Start

This section provides a guide to quickly begin using the EVM.

2.1 Default Jumper and Switch Configuration

The EVM is configured with the settings listed in Table 2 and illustrated in Figure 1.

Table 2. Default Settings

Jumper	Position	Function
JP1	(Not Installed)	Use onboard processor
JP2	(Not Installed)	USB-derived supplies ON
JP3	(Not Installed)	DVDD from USB power (1-2 connection via R94)
JP4	(Not Installed)	AVDD from USB power (1-2 connection via R95)
JP5	(Not Installed)	N/A
Jumper	**Position**	**Function**
S1	Right	Unipolar analog supply (AVDD = 5 V, AVSS = 0 V)

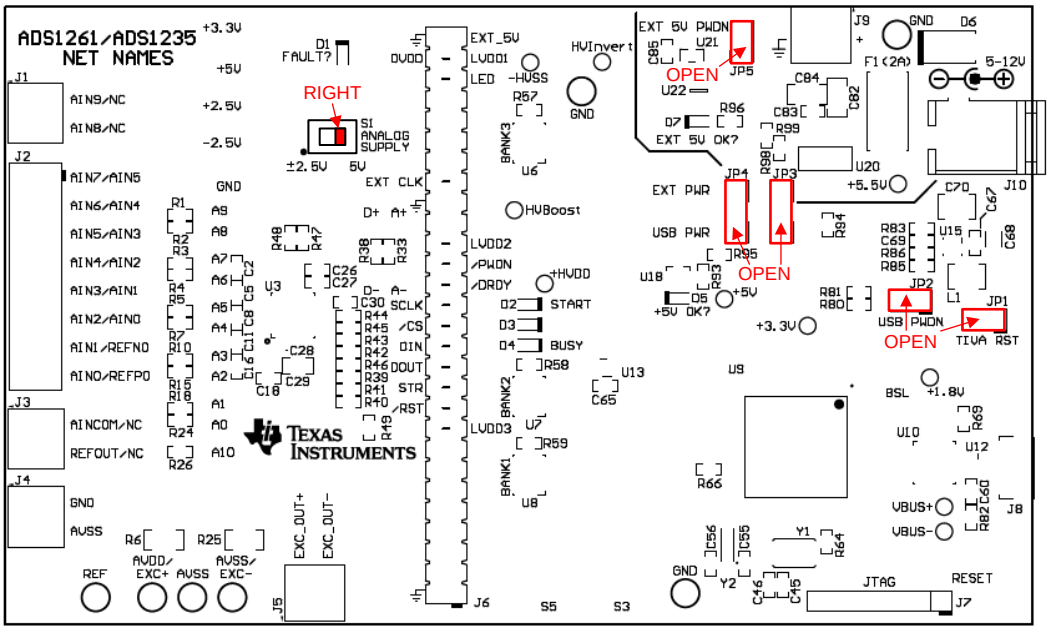


Figure 1. Default Configurations for ADS1261 and ADS1235 EVM

2.2 Powering the EVM

The EVM is powered through the USB interface with the PC. Follow the installation and connection procedure in Section 2.3 before connecting the EVM to the PC. Sections Section 2.2.1 and Section 2.2.2 provide additional details about the analog and digital power supply configurations of the ADC.

2.2.1 Analog Supply Configuration of the ADC

The ADS1261 (or ADS1235) analog supply requires a 5-V source connected between the AVDD and AVSS pins. The EVM provides onboard 5-V, 2.5-V and –2.5-V supply rails to allow for both unipolar and bipolar supply polarities, respectively. The analog supply polarity can be selected by S1.

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NOTE: When switching S1, the ADC may experience a temporary brown-out which causes the device configurations to be reset to the default power on configurations. TI recommends disconnecting the USB cable from the EVM, toggling the switch, and then reconnecting the USB cable to avoid any communication issues with the PC software.

R33 may be used to measure the AVDD supply current, either by determining the voltage drop across this resistor or by removing the resistor and connecting a dc current meter between the "A+" and "A–" test points.

2.2.2 Digital Supply Configuration of the ADC

The ADS1261 (or ADS1235) digital supply requires a 2.7- to 5.25-V source connected between DVDD and DGND. The EVM provides a (typical) 3.3-V onboard supply for the digital supply of the ADC.

R38 may be used to measure the DVDD supply current, either by determining the voltage drop across this resistor or by removing the resistor and connecting a dc current meter between the "D+" and "D–" test points.

2.3 Software Installation and Hardware Connection Procedure

Follow the steps below to use the EVM for the first time:

1. Download all required software from http://www.ti.com/tool/ads1261evm (for the ADS1261EVM) or http://www.ti.com/tool/ads1235evm (for the ADS1235EVM).
2. Install the GUI software (*DELTASIGMAEVAL-GUI*) on the PC.
3. Install the device package software on the PC. (*ADS1261EVM-DVCPKG* for the ADS1261EVM, or *ADS1235EVM-DVCPKG* for the ADS1235EVM.)
4. Ensure all jumpers and switches are configured in the default configuration per Table 2 and Figure 1.
5. Connect the EVM to the PC using the provided USB cable.
6. If prompted, install any required drivers.
7. Start the GUI application on your PC. The GUI should automatically detect the connected EVM.

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3 Hardware Reference

3.1 Jumper and Switch Configuration Reference

Table 3 provides all jumper and switch configuration settings for the EVM.

Table 3. Jumper and Switch Options

Jumper	Position	Description
JP1	Operation of EVM with external digital signals	
	Installed (ON)	Hold Tiva processor (U9) in reset and disable level shifters to allow external digital signals
	Uninstalled (OFF)	Normal operation with onboard Tiva processor (default)
JP2	Power down USB power supplies	
	Installed (ON)	USB-derived power supplies disabled and powered down
	Uninstalled (OFF)	USB-derived power supplies enabled and ON (default)
JP3	Digital supply source	
	1–2 shorted	Digital supply (U19) powered from USB power (default using R94 as the short)
	2–3 shorted	Digital supply (U19) powered from external supply source
	Open	No digital system power provided
JP4	5-V supply source	
	Installed (ON)	5-V supply powered from USB (default using R95 as the short)
	Uninstalled (OFF)	No analog supply powering AVDD
JP5	EXT_5V supply power down	
	Installed (ON)	External supply regulator (U18-not installed) disabled
	Uninstalled (OFF)	External supply regulator (U18-not installed) enabled (default)
Switch	**Position**	**Description**
S1 (1)	AVDD and AVSS supply polarity switch	
	Right (pin connections: 5–6, 2–3)	Unipolar supply (AVDD = 5 V, AVSS = GND) (default)
	Left (pin connections: 5–4, 2–1)	Bipolar supply (AVDD = 2.5 V, AVSS = –2.5 V)
S2	Tiva reset (U1 $\overline{\text{RST}}$) button	
	Closed (depressed)	Tiva held in reset, level shifters (U6, U7, and U8) tri-stated
	Open (normally)	Normal operation (default)
S3	Reset FAULT button	
	Closed (depressed)	Clears FAULT LED indicator and writes 0x00 to the STATUS register of the ADC
	Open (normally)	Normal operation (default)
S4	BSL button for *Device Firmware Update* (DFU) mode	
	Closed (depressed on RESET)	Total Tiva FLASH erasure (on reset Tiva enumerates as a DFU device)
	Open (normally)	Normal operation (default)

(1) Switch is DPDT. Pin 1 is identified with a dot on the PCB silkscreen.

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3.2 Header, Connector, and Test Point Reference

This section provides the connection information and details for all of the connectors and test points utilized on the EVM.

3.2.1 Analog Input Terminal Blocks

Analog input to the EVM can be connected at the terminal blocks located on the left side of the board (see Figure 2) to provide external analog signal input to the EVM for evaluation purposes. The functions for these terminal blocks are listed in Table 4. At no time should a voltage be applied that exceeds the absolute maximum ratings for the input of the ADS1261 or ADS1235.

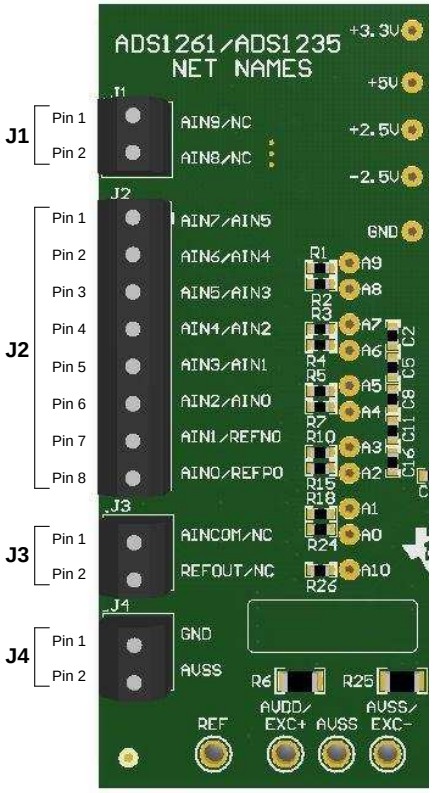


Figure 2. Input Terminal Blocks (ADS1261EVM Shown)

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Table 4. Analog Input Terminal Blocks, J1–J4

Pin	Function	Test Point	ADS1261 Input Pin	ADS1235 Input Pin
	J1 (ADS1261EVM only)[1]			
1	Analog input[2]	A9	AIN9	–
2	Analog input[2]	A8	AIN8	–
	J2			
1	Analog input[2]	A7	AIN7	AIN5
2	Analog input[2]	A6	AIN6	AIN4
3	Analog input[2]	A5	AIN5	AIN3
4	Analog input[2]	A4	AIN4	AIN2
5	Analog input[2]	A3	AIN3	AIN1
6	Analog input[2]	A2	AIN2	AIN0
7	Analog input[2]	A1	AIN1	REFN0
8	Analog input[2]	A0	AIN0	REFP0
	J3(ADS1261EVM only)[1]			
1	Analog input[2]	A10	AINCOM	–
2	Reference output	–	REFOUT	–
	J4			
1	GND	–	DGND	DGND
2	AVSS[3]	–	AVSS	AVSS

(1) J1 and J3 are not populated on the ADS1235EVM.
(2) Analog inputs are pinned out to terminal blocks through RC filters. Refer to Figure 14 for additional connection details.
(3) The AVSS voltage is set by the S1 switch position.

3.2.2 External Clock

By default, a clock is supplied by the internal oscillator of the ADC when the CLKIN pin is pulled low. However, the EVM also provides the capability to connect an external clock directly to the ADC using the J6 connector (see Figure 16). When connecting to J6, a direct connection can be made between pins 42 (CLKIN) and 40 (GND). A typical clock source of 7.3728 MHz (or 10.24 MHz for 40 kSPS mode, on the ADS1261) will track with all timing shown in the respective product datasheet (refer to Table 1).

NOTE: The CLKIN pin connects to the Tiva microcontroller. The microcontroller holds the CLKIN pin low in order to enable the internal oscillator of the ADC. Before connecting an external clock, disable the GPIO output on this pin by sending the "HOLDCLOCK 0" command, described in Table 7.

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3.2.3 Digital Interface Header

Table 5 lists the functions and pin numbers for all signals used on the J6 digital interface header.

The J6 header allows for the connection to a logic analyzer or when the EVM is used in a stand-alone configuration for connections to an external microprocessor or microcontroller. If controlling the ADS1261 with an external processor, power down the onboard TM4C1294NCPDT by placing a jumper on JP1. This configuration can be accomplished by soldering a wire between the JP1 terminals or by installing a 2-pin, 0.1-in spaced header that has the pins shorted with a shorting block (see Table 3).

Table 5. Digital Interface, J6

Function	ADC Side		Processor Side	
	Signal Name	Pin Number[1]	Pin Number[2]	Signal Name , Tiva Connection[3]
External voltage input	GND	56	55	EXT_5V
Bank3 level-shifter voltage	DVDD	54	53	LVDD1
GPIO for ADC	FAULT_LED	52	51	PD7
	EXT_CLK	42	41	PD3 (Unused)
Bank2 level-shifter voltage	DVDD	36	35	LVDD2
ADC GPIO	ADC_nPWDN	34	33	PA0
SPI0	ADC_nDRDY	32	31	PA1
	ADC_SCLK	30	29	PA2 (SSI0CLK)
	ADC_nCS	28	27	PA3
	ADC_MOSI (DIN)	26	25	PA4 (SSI0XDAT0)
	ADC_MISO (DOUT)	24	23	PA5 (SSI0XDAT1)
ADC GPIOs	ADC_START	22	21	PA6
	ADC_nRESET	20	19	PA7
Bank1 level-shifter voltage	DVDD	18	17	LVDD3 (Unused)

(1) Even-numbered pins not included in this list are connected to GND.
(2) Odd-numbered pins not included are connected to the Tiva microcontroller (after passing through level shifters) but the functionality is not used for this EVM. For connection details, see Figure 16.
(3) Signals connected to the Tiva microcontroller are named according to their respective processor pin connections. For connection details, see Figure 16.

3.2.4 Test Points

The test points listed in Table 6 may be used to probe onboard voltage supplies and signals.

Table 6. Useful Test Points

Function	Signal Name	Restrictions
ADC side		
Analog input (ADS1261EVM: AIN9)	A9	Probe only
Analog input (ADS1261EVM: AIN8)	A8	Probe only
Analog input (ADS1261EVM: AIN7, ADS1235EVM: AIN5)	A7	Probe only
Analog input (ADS1261EVM: AIN6, ADS1235EVM: AIN4)	A6	Probe only
Analog input (ADS1261EVM: AIN5, ADS1235EVM: AIN3)	A5	Probe only
Analog input (ADS1261EVM: AIN4, ADS1235EVM: AIN2)	A4	Probe only
Analog input (ADS1261EVM: AIN3, ADS1235EVM: AIN1)	A3	Probe only
Analog input (ADS1261EVM: AIN2, ADS1235EVM: AIN0)	A2	Probe only
Analog input (ADS1261EVM: AIN1, ADS1235EVM: REFN0)	A1	Probe only
Analog input (ADS1261EVM: AIN0, ADS1235EVM, REFP0)	A0	Probe only
Analog input (ADS1261EVM: AINCOM)	A10	Probe only

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Table 6. Useful Test Points (continued)

Function	Signal Name	Restrictions
External bridge supply (EXC+ positive supply)	AVDD/EXC+	Remove R6 before connecting to an external supply, and consider the input common mode voltage of the ADC when setting EXC+ voltage
External bridge supply (AVSS "ground" reference)	AVDD	For external supply ground reference only. Do not apply a voltage to this test point.
External bridge supply (EXC– negative supply)	AVSS/EXC–	Remove R25 before connecting to external supply, and consider the common mode voltage of the ADC when setting EXC– voltage
REF62xx, U2 supply	U2–1 (REF)	Remove R27 before connecting to external supply. External supply source must be referenced to AVSS. Do not violate absolute maximum ratings of U2.
AVDD current measurement (source)	AVDD (A+)	Probe only
AVDD current measurement (sink)	U3–4 (A–)	Probe only
DVDD current measurement (source)	DVDD (D+)	Probe only
DVDD current measurement (sink)	U3–17 (D–)	Probe only
5-V supply	+5V	Probe only
3.3-V supply	+3.3V	Probe only
2.5-V supply	+2.5V	Probe only
Ground	GND	Probe only
–2.5-V supply	–2.5V	Probe only
Processor Side		
USB "VBUS" supply (source)	USB_VBUS (VBUS+)	Probe only
USB "VBUS" supply (sink)	USB_VBUSP (VBUS–)	Probe only
5.5-V, U15 output	USB_BOOST (+5.5V)	Probe only
1.8-V, U17 output	+1.8V	Probe only
5.0-V, U16 output	+5V	Probe only
Ground	GND	Probe only
3.3-V, U19 output	+3.3V	Probe only
Step-up dc/dc converter, U23 (not populated) output	HVBoost	Probe only
High-voltage linear regulator, U24 (not populated) output	+HVDD	Probe only
Inverting dc/dc converter, U25 (not populated) output	HVInvert	Probe only
Negative high-voltage linear regulator, U26 (not populated) output	–HVSS	Probe only

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4 Software Details

4.1 Installing the Software

4.1.1 Delta-Sigma ADC EvaluaTIon Software

Download the *Delta-Sigma ADC EvaluaTIon Software* installer from the DELTASIGMAEVAL-GUI page and save to a known folder. Run the installer and follow the on-screen prompts. Note that future software versions may show slightly different screens.

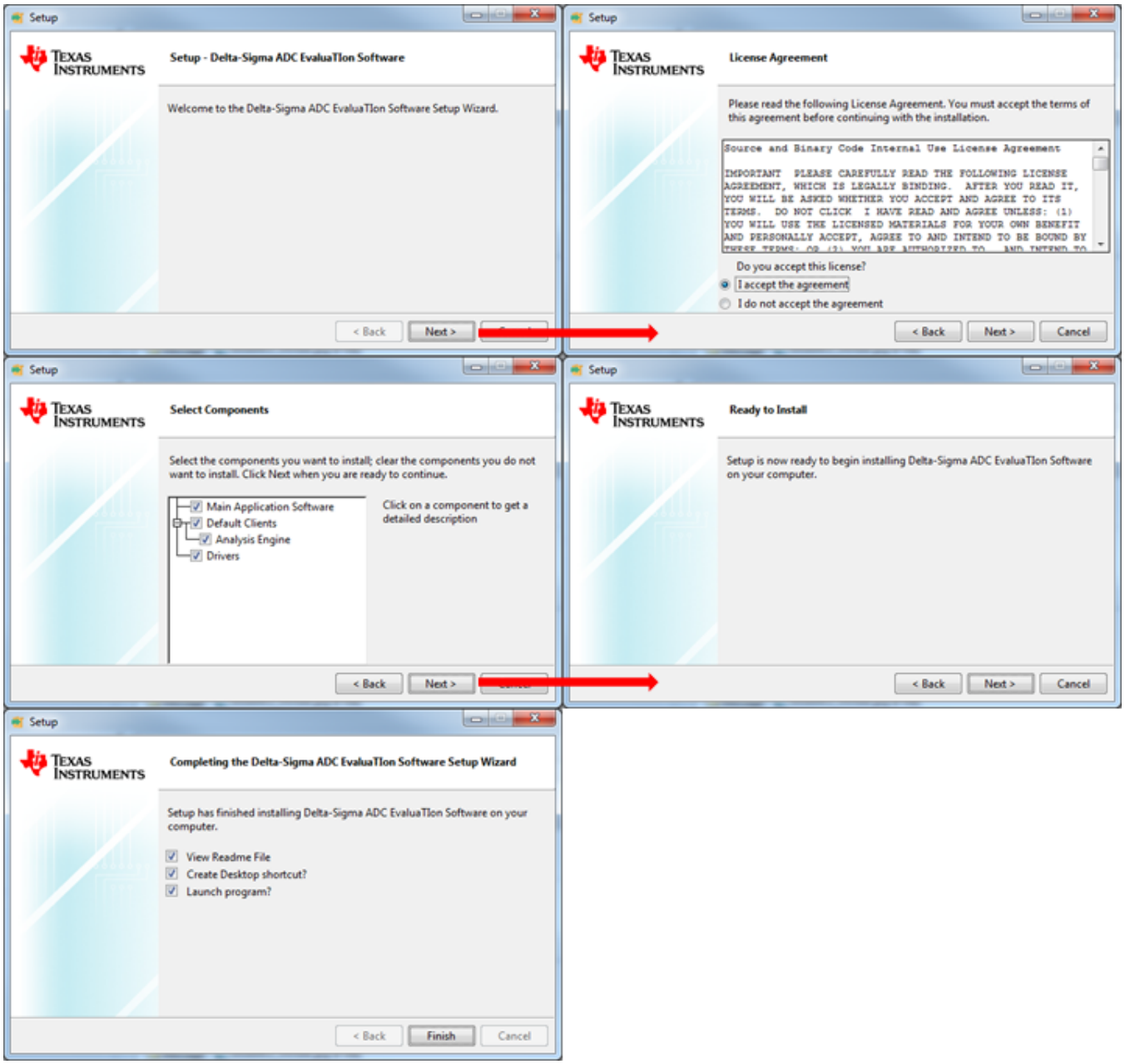


Figure 3. Delta-Sigma Evaluation Engine Installation Instructions

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4.1.2 ADS1261 and ADS1235 EVM Device Package

Download the *ADS1261 Device Package* installer from the ADS1261EVM tool page for the ADS1261EVM (or the *ADS1235 Device Package* installer from the ADS1235EVM tool page for the ADS1235EVM) and save it to a known folder. Run the appropriate device package installer and follow the on-screen prompts. Note that future software versions may show slightly different screens.

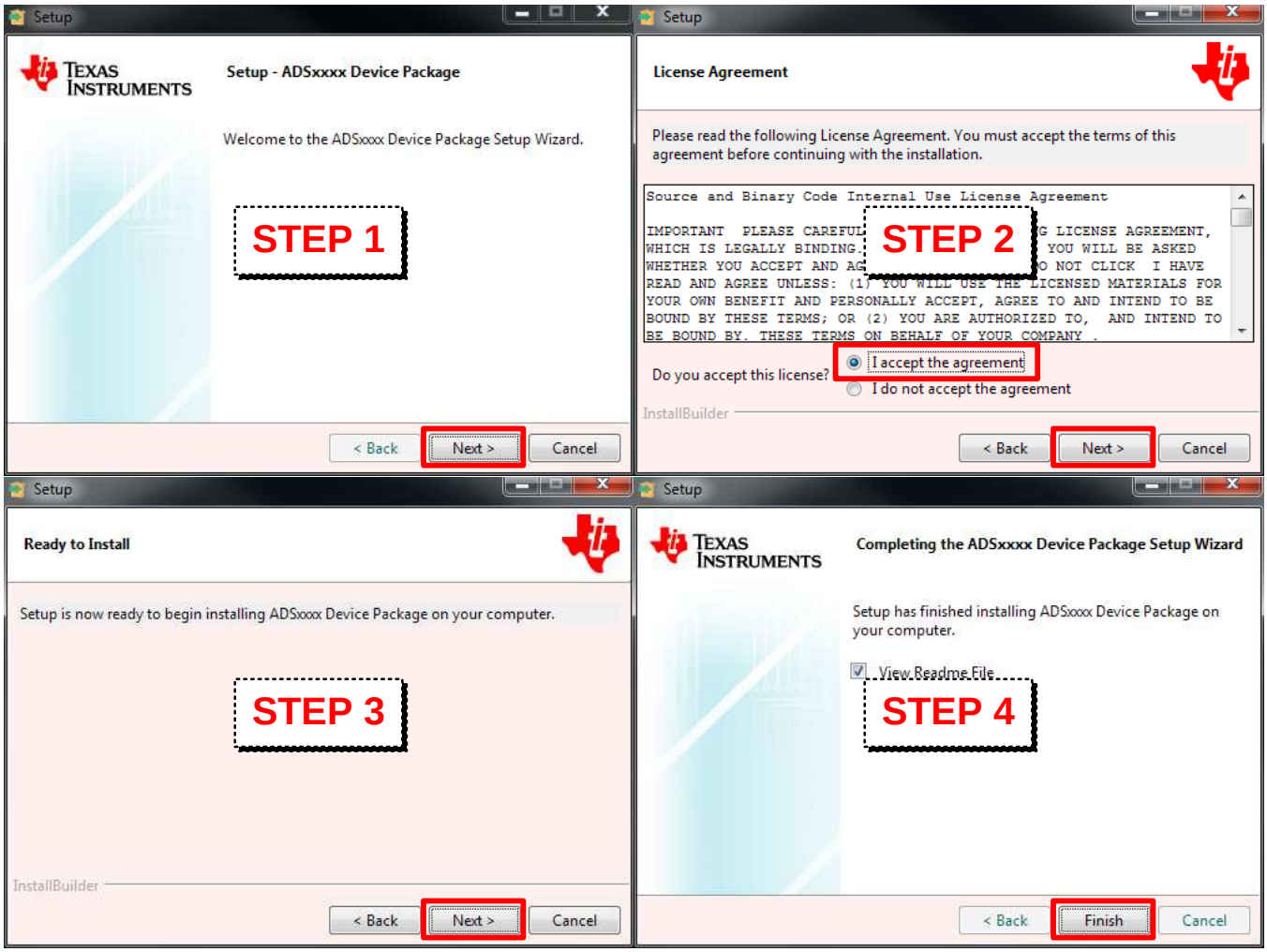


Figure 4. Device Package Installation Instructions

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4.2 Connecting to the EVM Hardware

After the *Delta-Sigma ADC EvaluaTIon Software* and the *ADS1261 Device Package* (or *ADS1235 Device Package*) are installed, connect the hardware with the provided USB micro cable, and start the *Delta-Sigma ADC EvaluaTIon Software*. The GUI automatically detects the connected hardware and displays the device register map under the *Device* tab, as shown in Figure 5 and Figure 6.

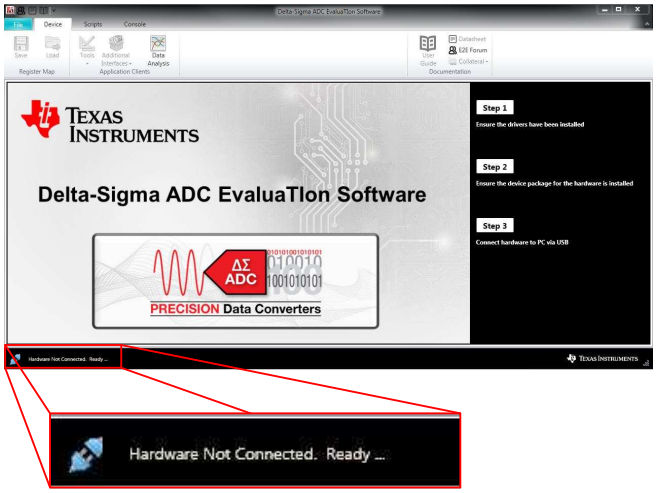


Figure 5. GUI View Before Connecting EVM Hardware

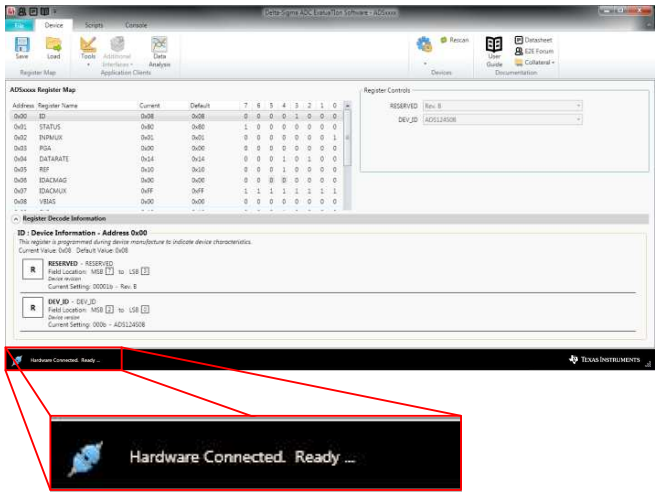


Figure 6. GUI View After Connecting EVM Hardware

4.3 Using the Software With the EVM

The *Delta-Sigma ADC EvaluaTIon Software User Manual* provides an overview of the GUI, an explanation of how to modify device register settings, how to collect and analyze data, and control device operations with scripts. For a list of commands that are supported on the ADS1261 and ADS1235 EVM, see the *ADS1261 and ADS1235 EVM Commands* section.

4.3.1 ADS1261 and ADS1235 EVM Commands

A list of all the EVM commands are given in Table 7. These commands are available for use within the *Scripts* and *Console* tabs of the Delta-Sigma ADC EvaluaTIon software. All of these commands are implemented in the Tiva firmware; however, many of these commands only trigger SPI commands to the ADC, as defined in the device data sheet.

In general, most device commands that communicate with the ADC via SPI will require the /PWDN pin to be set high, prior to issuing the command. When the /PWDN pin is low, the device is in hardware power-down mode and all device functions are disabled (only the internal LDO remains powered). Returning the /PWDN pin high resumes normal ADC operations and preserves the registers settings.

The ADC may also be placed into a software power-down mode by setting the PWDN bit high, in the MODE3 register. In this mode the internal LDO, internal reference, and serial interface remain enabled. SPI commands can be sent while the device is in software power-down mode; however, these actions may or may not take effect in this mode.

Note that some of the commands shown in Table 7 may wake the ADC prior to taking effect, particularly for EVM commands that are utilized by the GUI. Refer to the "Wakes Device?" column in Table 7 to determine if a command implements this behavior.

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Table 7. Firmware Commands

Command	Command Arguments	Description	Wakes Device?
GUI Commands			
ID		Returns EVM ID string: "<DEVICE> <DATE> <TIME>", where "<DEVICE>" is either "ADS1261" or "ADS1235", and "<DATE> <TIME>" indicates when the EVM firmware was complied.	N
COMMANDLIST		Returns a list of all commands supported by the EVM firmware.	N
COLLECT	<# Samples>	Collects a number of ADC samples equal to "<# Samples>", where "<# Samples>" is an unsigned integer. During this operation, all other commands will be ignored and the BUSY LED will blink until all samples have been collected.	Y(1)
READSINGLE	<ADDRESS>	This command is used by the GUI. It provides the same function as RREG, but wakes the device from power down and returns to previous power-down mode after completion.	Y(1)
WRITESINGLE	<ADDRESS> <DATA>	This command is used by the GUI. It provides the same function as WREG, but wakes the device from power down and returns to previous power-down mode after completion.	Y(1)
REGMAP		This command is used by the GUI to read the values of all device registers.	Y(1)
ADC SPI Commands			
NOP		Issues the NOP device command to the ADC (via SPI).	N
RESET		Issues the RESET device command to the ADC (via SPI).	N(2)
START		Sets the START pin low and issues the START device command to the ADC (via SPI).	N
STOP		Sets the START pin low and issues the STOP device command to the ADC (via SPI).	N
RDATA		Starts a single conversion, waits for /DRDY to go low, and prints the conversion result to the console.	N
SYOCAL		Issues the system-offset calibration device command to the ADC (via SPI).	N
SYGCAL		Issues the system-gain calibration device command to the ADC (via SPI).	N
SFOCAL		Issues the self-offset calibration device command to the ADC (via SPI).	N
RREG	<ADDRESS>	Issues a read register device command to the ADC (via SPI), where "<ADDRESS>" is the starting register address in hexadecimal (without the "0x" prefix or "h" postfix).	N
WREG	<ADDRESS> <DATA>	Issues a write register device command to the ADC (via SPI), where "<ADDRESS>" is the starting register address in hex, and "<DATA>" is the value to write to the register in hex (without the "0x" prefix or "h" postfix).	N
LOCK		Sends the lock register device command to the ADC (via SPI). While in this mode, all write register commands will be ignored until the device is unlocked.	N
UNLOCK		Sends the unlock register device command to the ADC (via SPI). This command unlocks the device register to allow write commands to take effect.	N
Hardware Control Commands			
HOLDCLOCK	<"0" or "1">	This command controls the Tiva pin connected to the ADC's "CLKIN" pin to hold it low (to use the ADC's internal oscillator) or to release control of CLKIN and allow for external clocks to be applied to J6. • "HOLDCLOCK 1" enables the TIVA's GPIO output and pulls CLKIN low. • "HOLDCLOCK 0" disables the GPIO output and reconfigures the TIVA GPIO pin to a high-impedance input. See Section 3.2.2 for additional hardware information.	N
HOLDPWDN	<"0" or "1">	This command controls the state of the /PWDN GPIO pin. An argument of "1" sets the /PWDN pin high, while a "0" argument sets the /PWDN pin low.	(3)
HWRESET		This command toggles the /RESET GPIO pin.	N(2)
HOLDSTART	<"0" or "1">	This command controls the state of the START GPIO pin. An argument of "1" sets the START pin high, while a "0" argument sets the START pin low.	N
Additional Firmware Commands			
CLEAR		Clears the software fault flag, writes "0x00" to the STATS register (to clear the CRC_ERR and RESET bits), and turns off the FAULT LED. NOTE: Pressing S3 will perform the same action as the CLEAR command.	N
STATUS		Reads the STATUS register (to check for any new fault conditions) and prints (to the console) a description of each fault type that has occurred since last clearing the software fault flag (with S3 or the CLEAR command).	N
CRC	<LENGTH> <DATA1> <DATA2> <DATA3> <DATA4>	Computes the CRC-n of the data bytes given in "<DATA1>" through "<DATA4>", where "<LENGTH>" is the number of bytes to be used in the CRC-n calculation. If the number of data bytes provided is greater than "<LENGTH>", the extra data bytes will be ignored.	N
DONTCARE	<VALUE>	Sets the "Don't care" byte value that is used for all SPI commands that include a "Don't care" byte. Changing the value of this byte has the effect of modifying the resulting CRC byte that is used with CRC- mode.	N

(1) Returns device to previous state after completion.
(2) Resetting will wake the device from software-power down mode.
(3) Setting the /PDWN pin high exits hardware power-down mode; however, the previous software power-down mode remains unchanged.

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Table 7. Firmware Commands (continued)

Command	Command Arguments	Description	Wakes Device?
SPISEND	<LENGTH> <BYTE1> <BYTE2> ... <BYTE N>	Sends a user-specified SPI command sequence to the ADC. /CS remains low until all bytes have been sent. After issuing this command the firmware will read the STATUS register to check for an CRC errors. This command allows for testing of the CRC command validation of the ADC, for example, since it allows the user to provide invalid CRC bytes with the various SPI commands.	N

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5 EVM Bill of Materials, PCB Layouts, and Schematics

5.1 Bill of Materials

The bill of materials (BOM) quantities are shown for the ADS1261EVM. For BOM differences between the ADS1261EVM and ADS1235EVM, such as components not populated or substituted on the ADS1235EVM, a footnote is shown next to the affected component designator in Table 8 to indicate the difference.

NOTE: EVM populated parts may be substituted with alternate components with similar characteristics. All components (listed or substituted)are compliant with the *European Union Restriction on Use of Hazardous Substances* (RoHS) directive. For more information about TI's position on RoHS compliance, see http://www.ti.com/support-quality/quality-reliability.html.

Table 8. EVM Bill of Materials

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
!PCB1	1		Printed Circuit Board		PA044	Any
C1, C3, C4, C6, C7, C9, C10, C12, C15, C17	10	1000pF	CAP, CERM, 1000 pF, 50 V, ±10%, C0G/NP0, 0603	0603	06035A102KAT2A	AVX
C2, C5, C8, C11, C16, C18	6	0.01uF	CAP, CERM, 0.01 uF, 25 V, ±5%, C0G/NP0, 0603	0603	CL10C103JA8NNNC	Samsung Electro-Mechanics
C13, C35, C36	3	2.2uF	CAP, CERM, 2.2 uF, 10 V, ±10%, X7R, 0603	0603	LMK107B7225KA-T	Taiyo Yuden
C14	1	220pF	CAP, CERM, 220 pF, 50 V, ±5%, C0G/NP0, 0603	0603	06035A221JAT2A	AVX
C22, C24, C25, C27, C31, C37, C38, C39, C40, C43, C44, C48, C49, C50, C51, C52, C53, C54, C59, C60, C61, C62, C63, C65, C67, C72, C78	27	0.1uF	CAP, CERM, 0.1 uF,50 V, ±5%, X7R, 0603	0603	C0603C104J5RACTU	Kemet
C28	1	4700pF	CAP, CERM, 4700 pF, 100 V, ±5%, C0G/NP0, 0603	0603	C0603C472J1GAC7867	Kemet
C29	1	10uF	CAP, CERM, 10 uF, 10 V, ±10%, X7R, 0805	0805	CL21B106KPQNFNE	Samsung Electro-Mechanics
C32, C34	2	4.7uF	CAP, CERM, 4.7 uF, 25 V, ±10%, X7R, 0805	0805	C2012X7R1E475K125AB	TDK
C23, C26, C30, C33, C58, C74, C75, C76, C79, C80	10	1uF	CAP, CERM, 1 uF, 50 V, ±10%, X7R, 0603	0603	UMK107AB7105KA-T	Taiyo Yuden
C45, C46	2	12pF	CAP, CERM, 12 pF, 50 V, ±5%, C0G/NP0, 0603	0603	C0603C120J5GACTU	Kemet
C47, C57	2	2.2uF	CAP, CERM, 2.2 uF, 35 V, ±10%, X5R, 0603	0603	GRM188R6YA225KA12D	Murata
C55, C56	2	6.8pF	CAP, CERM, 6.8 pF, 50 V, ±4%, C0G/NP0, 0603	0603	06035A6R8CAT2A	AVX
C68	1	4.7uF	CAP, CERM, 4.7 uF, 50 V, ±10%, X7R, 1206	1206	UMK316AB7475KL-T	Taiyo Yuden
C69	1	100pF	CAP, CERM, 100 pF, 50 V, ±5%, C0G/NP0, 0603	0603	C0603C101J5GACTU	Kemet
C70	1	22uF	CAP, CERM, 22 uF, 16 V, ±10%, X7R, 1210	1210	GRM32ER71C226KE18L	Murata
C71	1	10uF	CAP, CERM, 10 uF, 35 V, ±10%, X7R, 1206	1206	GMK316AB7106KL	Taiyo Yuden
C73	1	47uF	CAP, CERM, 47 uF, 10 V, ±20%, X5R, 1206	1206	LMK316BJ476ML-T	Taiyo Yuden
C77, C81	2	1000pF	CAP, CERM, 1000 pF, 100 V, ±5%, X7R, 0603	0603	06031C102JAT2A	AVX
D1	1	Orange	LED, Orange, SMD	LED_0603	LTST-C191KFKT	Lite-On

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Table 8. EVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
D2, D3, D5	3	Green	LED, Green, SMD	LED_0603	LTST-C191TGKT	Lite-On
D4	1	Red	LED, Red, SMD	LED_0603	LTST-C191KRKT	Lite-On
H1, H2, H3, H4	4		Bumpon, Cylindrical, 0.312 X 0.200, Black	Black Bumpon	SJ61A1	3M
J1(1), J3(1), J4, J5	4		Terminal Block, 3.5mm Pitch, 2x1, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology
J2	1		Terminal Block, 3.5mm, 8-Pos, TH	Terminal Block, 3.5mm, 8-Pos, TH	ED555/8DS	On-Shore Technology
J8	1		Connector, Receptacle, Micro-USB Type B, R/A, Bottom Mount SMT	7.5x2.45x5mm	473460001	Molex
L1	1	1uH	Inductor, Wirewound, Ferrite, 1 uH, 2.05 A, 0.054 ohm, SMD	1210	LQH32PH1R0NN0L	Murata
R1, R2, R3, R4, R5, R7, R10, R15, R18, R24, R26, R63, R72, R74	14	100	RES, 100, 1%, 0.1 W, 0603	0603	RC0603FR-07100RL	Yageo America
R6, R25	2	0	RES, 0, 5%, 0.25 W, 1206	1206	RC1206JR-070RL	
R9, R12, R14, R17, R19, R23, R49, R52, R65, R87, R90, R94, R95	13	0	RES, 0, 5%, 0.1 W, 0603	0603	RC0603JR-070RL	Yageo America
R21, R22, R34, R35, R36, R37, R48, R57, R58, R84	10	100k	RES, 100 k, 1%, 0.1 W, 0603	0603	RC0603FR-07100KL	Yageo America
R33, R38, R82	3	0.1	RES, 0.1, 1%, 0.1 W, 0603	0603	ERJ-L03KF10CV	Panasonic
R39, R40, R41, R42, R43, R44, R45, R46, R47	9	47	RES, 47, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060347R0JNEA	Vishay-Dale
R50	1	1.69k	RES, 1.69 k, 1%, 0.1 W, 0603	0603	RC0603FR-071K69L	Yageo America
R53	1	604k	RES, 604 k, 0.5%, 0.1 W, 0603	0603	RT0603DRE07604KL	Yageo America
R54	1	549k	RES, 549 k, 1%, 0.1 W, 0603	0603	RC0603FR-07549KL	Yageo America
R55	1	511k	RES, 511 k, 0.5%, 0.1 W, 0603	0603	RT0603DRE07511KL	Yageo America
R56	1	536k	RES, 536 k, 1%, 0.1 W, 0603	0603	RC0603FR-07536KL	Yageo America
R60, R67, R70, R71, R73	5	10.0k	RES, 10.0 k, 5%, 0.1 W, 0603	0603	RC0603JR-0710KL	Yageo America
R61	1	1.0Meg	RES, 1.0 M, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031M00JNEA	Vishay-Dale
R62	1	51	RES, 51, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060351R0JNEA	Vishay-Dale
R64	1	2.00k	RES, 2.00 k, 1%, 0.1 W, 0603	0603	RC0603FR-072KL	Yageo America
R66	1	4.87k	RES, 4.87 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06034K87FKEA	Vishay-Dale
R68, R77, R93	3	1.00k	RES, 1.00 k, 5%, 0.1 W, 0603	0603	RC0603JR-071KL	Yageo America
R69	1	8.06k	RES, 8.06 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06038K06FKEA	Vishay-Dale
R78, R79	2	2.94k	RES, 2.94 k, 1%, 0.1 W, 0603	0603	RC0603FR-072K94L	Yageo America
R83	1	768k	RES, 768 k, 1%, 0.1 W, 0603	0603	RC0603FR-07768KL	Yageo America
R85	1	20.0k	RES, 20.0 k, 1%, 0.1 W, 0603	0603	RC0603FR-0720KL	Yageo America
R86	1	215k	RES, 215 k, 1%, 0.1 W, 0603	0603	RC0603FR-07215KL	Yageo America
S1	1		SLIDE SWITCH DPDT .1A, SMT	SWITCH, 5.4x2.5x3.9mm	CAS-220TA	Copal Electronics

(1) Component is not populated on the ADS1235EVM.

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Table 8. EVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
S2, S3, S4	3		Switch, Tactile, SPST-NO, 0.05A, 12V, SMT	Switch, 4.4x2x2.9 mm	TL1015AF160QG	E-Switch
U1	1		Dual, 5A, High-Speed Low-Side Power MOSFET Driver, D0008A (SOIC-8)	D0008A	UCC27524DR	Texas Instruments
U3 (2)	1		6- and 11-Channel, 40-kSPS, 24-Bit, Delta-Sigma ADC with PGA and Voltage Reference, RHB0032E (VQFN-32)	RHB0032E	ADS1261IRHBR	Texas Instruments
U4	1			DCK0005A	SN74LVC1G06DCKT	Texas Instruments
U5	1		Low-Noise Positive- and Negative-Output Charge Pump With Integrated LDO, DSS0012B (WSON-12)	DSS0012B	LM27762DSSR	Texas Instruments
U6, U7	2		8-Bit Bidirectional Voltage-Level Shifter For Open-Drain And Push-Pull Application, RGY0020A (VQFN-20)	RGY0020A	TXS0108ERGYR	Texas Instruments
U9	1		Tiva C Series Microcontroller, 1024 KB Flash, 256 KB SRAM, 12 Bit, 20 Channels, -40 to 85 degC, 128-Pin TQFP (PDT), Green (RoHS & no Sb/Br), Tape and Reel	PDT0128A	TM4C1294NCPDTI3R	Texas Instruments
U10	1		Highly Integrated Full Featured Hi-Speed USB 2.0 ULPI Transceiver, QFN-32	5x5 QFN-32	USB3320C-EZK	Microchip
U11	1		High-Speed USB 2.0 (480 Mbps) 1:2 Multiplexer / Demultiplexer Switch with Single Enable, 6 ohm RON, 2.5 to 3.3V, -40 to 85 degC, 10-Pin UQFN (RSE), Green (RoHS & no Sb/Br)	RSE0010A	TS3USB221ERSER	Texas Instruments
U12	1		USB ESD Solution with Power Clamp, 4 Channels, -40 to +85 degC, 6-pin SON (DRY), Green (RoHS & no Sb/Br)	DRY0006A	TPD4S012DRYR	Texas Instruments
U13	1		Triple Inverter Buffer/Driver with Open-Drain Output, DCU0008A, SMALL T&R	DCU0008A	SN74LVC3G06DCUT	Texas Instruments
U15	1		3.5MHz, 1.5A, 92% Efficient Boost Converter with Adjustable Input Current Limit, DSG0008A (WSON-8)	DSG0008A	TPS61252DSGR	Texas Instruments
U16	1		36-V, 1-A, 4.17-uVRMS, RF LDO Voltage Regulator, RGW0020A (VQFN-20)	RGW0020A	TPS7A4700RGWR	Texas Instruments
U17	1		Single Output High PSRR LDO, 150 mA, Fixed 1.8 V Output, 2.5 to 6.5 V Input, with Low IQ, 5-pin SC70 (DCK), -40 to 85 degC, Green (RoHS & no Sb/Br)	DCK0005A	TPS71718DCKR	Texas Instruments
U18	1		Voltage Supervisor with Active-Low, Open Drain Reset, 1 Supply Monitored, -40 to 125 degC, 3-pin SOT-23 (DBZ), Green (RoHS & no Sb/Br)	DBZ0003A	TLV803MDBZR	Texas Instruments
U19	1		Single Output LDO, 1A, Adj. (1.2 to 5.0V), Reverse Current Protection, DRV0006A (WSON-6)	DRV0006A	TPS73733DRVR	Texas Instruments
Y1	1		Crystal, 25 MHz, 18 pF, SMD	ABM3	ABM3-25.000MHZ-D2Y-T	Abracon Corporation
Y2	1		CRYSTAL, 32.768KHz, 7PF, SMD	1.5x1.4x6.7mm	SSPT7F-7PF20-R	Seiko Instruments
C19	0	22uF	CAP, CERM, 22 uF, 10 V, ±10%, X7R, 1206	1206	LMK316AB7226KL-TR	Taiyo Yuden
C20	0	2.2uF	CAP, CERM, 2.2 uF, 10 V, ±10%, X7R, 0603	0603	GRM188R71A225KE15D	Murata
C21	0	1uF	CAP, CERM, 1 uF, 50 V, ±10%, X7R, 0603	0603	UMK107AB7105KA-T	Taiyo Yuden
C41, C42, C64, C66, C83, C92, C94, C102, C105	0	0.1uF	CAP, CERM, 0.1 uF, 25 V, ±5%, X7R, 0603	0603	06033C104JAT2A	AVX
C82, C84, C86, C89, C90, C91, C96, C100, C101	0	10uF	CAP, CERM, 10 uF, 35 V, ±10%, X7R, 1206	1206	GMK316AB7106KL	Taiyo Yuden

(2) For the ADS1235EVM, U3 is replaced with the ADS1235IRHBR.

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Table 8. EVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
C85, C88, C93, C97, C103	0	0.01uF	CAP, CERM, 0.01 uF, 25 V, ±10%, X7R, 0603	0603	GRM188R71E103KA01D	Murata
C87	0	1uF	CAP, CERM, 1 uF, 25 V, ±10%, X7R, 0603	0603	GRM188R71E105KA12D	Murata
C98	0	4700pF	CAP, CERM, 4700 pF, 100 V, ±10%, X7R, 0603	0603	06031C472KAT2A	AVX
C99	0	10pF	CAP, CERM, 10 pF, 50 V, ±5%, C0G/NP0, 0603	0603	06035A100JAT2A	AVX
D6	0	12V	Diode, TVS, Uni, 12 V, 19.9 Vc, SMB	SMB	SMBJ12A-13-F	Diodes Inc.
D7	0	Green	LED, Green, SMD	LED_0603	LTST-C191TGKT	Lite-On
D8	0	20V	Diode, Schottky, 20 V, 1 A, SOD-123F	SOD-123F	PMEG2010AEH,115	Nexperia
D9	0	20V	Diode, Schottky, 20 V, 1.1 A, DO-219AB	DO-219AB	SL02-GS08	Vishay-Semiconductor
F1	0		Fuse, 2 A, 125VAC/VDC, SMD	SMD, 2-Leads, Body 9.73x5.03mm	0154002.DRT	Littelfuse
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
H5	0		CABLE USB-A TO MICRO USB-B 1M	Used in PnP output and some BOM reports	102-1092-BL-00100	CNC Tech
J6	0		Header, 2.54 mm, 28x2, Gold, TH	Header, 2.54 mm, 28x2, TH	TSW-128-07-S-D	Samtec
J7	0		Header, 100mil, 7x1, Gold, TH	7x1 Header	TSW-107-07-G-S	Samtec
J9	0		Terminal Block, 3.5mm Pitch, 2x1, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology
J10	0		Connector, DC Jack 2.1X5.5 mm, TH	POWER JACK, 14.4x11x9mm	PJ-102A	CUI Inc.
JP1, JP2, JP5	0		Header, 100mil, 2x1, Gold, TH	2x1 Header	TSW-102-07-G-S	Samtec
JP3, JP4	0		Header, 100mil, 3x1, Gold, SMT	Samtec_TSM-103-01-X-SV	TSM-103-01-L-SV	Samtec
L2	0	3.3uH	Inductor, Shielded Drum Core, Ferrite, 3.3 uH, 1.5 A, 0.033 ohm, SMD	CDPH4D19F	CDPH4D19FNP-3R3MC	Sumida
L3	0	10uH	Inductor, Shielded Drum Core, Ferrite, 10 uH, 1.2 A, 0.124 ohm, SMD	CDRH5D18	CDRH5D18NP-100NC	Sumida
R8, R59	0	100k	RES, 100 k, 1%, 0.1 W, 0603	0603	RC0603FR-07100KL	Yageo America
R11, R16	0	0	RES, 0, 5%, 0.1 W, 0603	0603	ERJ-3GEY0R00V	Panasonic
R13, R20, R76	0	100	RES, 100, 1%, 0.1 W, 0603	0603	RC0603FR-07100RL	Yageo America
R27, R28, R29, R31, R32, R51	0	0	RES, 0, 5%, 0.1 W, 0603	0603	RC0603JR-070RL	Yageo America
R30	0	0.005	RES, 0.005, 1%, 0.25 W, 1206	1206	WSL12065L000FEA	Vishay-Dale
R75, R80, R81, R97, R109	0	10.0k	RES, 10.0 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060310K0FKEA	Vishay-Dale
R88, R89, R91, R92	0	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0603		CRCW06030000Z0EA	Vishay-Dale
R96	0	1.00k	RES, 1.00 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031K00FKEA	Vishay-Dale
R98	0	9.31k	RES, 9.31 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06039K31FKEA	Vishay-Dale
R99	0	3.01k	RES, 3.01 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06033K01FKEA	Vishay-Dale
R100	0	158k	RES, 158 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603158KFKEA	Vishay-Dale
R101	0	453k	RES, 453 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603453KFKEA	Vishay-Dale
R102	0	15.0k	RES, 15.0 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060315K0FKEA	Vishay-Dale
R103	0	51.1k	RES, 51.1 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060351K1FKEA	Vishay-Dale

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Table 8. EVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
R104	0	49.9k	RES, 49.9 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060349K9FKEA	Vishay-Dale
R105	0	1.30Meg	RES, 1.30 M, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06031M30FKEA	Vishay-Dale
R106	0	100k	RES, 100 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603100KFKEA	Vishay-Dale
R107	0	93.1k	RES, 93.1 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060393K1FKEA	Vishay-Dale
R108	0	121k	RES, 121 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603121KFKEA	Vishay-Dale
R110	0	10.0	RES, 10.0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060310R0FKEA	Vishay-Dale
S5	0		Switch, Tactile, SPST-NO, 0.05A, 12V, SMT	Switch, 4.4x2x2.9 mm	TL1015AF160QG	E-Switch
TP7, TP10, TP12, TP15, TP32, TP33, TP34	0		Terminal, Turret, TH, Double	Keystone1573-2	1573-2	Keystone
U2	0		High-Precision Voltage Reference with Integrated High-Bandwidth Buffer, DGK0008A (VSSOP-8)	DGK0008A	REF6225IDGKR	Texas Instruments
U8	0		8-Bit Bidirectional Voltage-Level Shifter For Open-Drain And Push-Pull Application, RGY0020A (VQFN-20)	RGY0020A	TXS0108ERGYR	Texas Instruments
U14	0		256K I2C™ CMOS Serial EEPROM, TSSOP-8	TSSOP-8	24AA256-I/ST	Microchip
U20	0		Single Output Fast Transient Response LDO, 1.5 A, Adjustable 1.21 to 20 V Output, 2.1 to 20 V Input, 6-pin SOT-223 (DCQ), -40 to 125 degC, Green (RoHS & no Sb/Br)	DCQ0006A	TL1963ADCQR	Texas Instruments
U21	0		3-Pin Supply Voltage Supervisors for Automotive, DBV0003A (SOT-23-3)	DBV0003A	TPS3809I50QDBVRQ1	Texas Instruments
U22	0		Single Inverter Buffer/Driver With Open-Drain Output, DCK0005A, SMALL T&R	DCK0005A	SN74LVC1G06DCKT	Texas Instruments
U23	0		Step-Up DC-DC Converter with Forced PWM Mode, 2.3 to 6 V, -40 to 105 degC, 8-pin SOP (PW8), Green (RoHS & no Sb/Br)	PW0008A	TPS61085TPWR	Texas Instruments
U24	0		Single Output High PSRR LDO, 150 mA, Adjustable 1.2 to 33 V Output, 3 to 36 V Input, with Ultra-Low Noise, 8-pin MSOP (DGN), -40 to 125 degC, Green (RoHS & no Sb/Br)	DGN0008D	TPS7A4901DGNR	Texas Instruments
U25	0		Inverting Buck-Boost Adjustable Converter with 2.7 to 5.5 V Input and -15 to -2 V Output, -40 to 85 degC, 10-Pin SON (DRC), Green (RoHS & no Sb/Br)	DRC0010J	TPS63700DRCR	Texas Instruments
U26	0		Single Output High PSRR LDO, 200 mA, Adjustable -1.18 to -33 V Output, -3 to -36 V Input, with Ultra-Low Noise, 8-pin MSOP (DGN), -40 to 125 degC, Green (RoHS & no Sb/Br)	DGN0008D	TPS7A3001DGNR	Texas Instruments

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5.2 PCB Layouts

Figure 7 through Figure 12 illustrate the PCB layout. The same PCB layout is used for both the ADS1261EVM and ADS1235EVM.

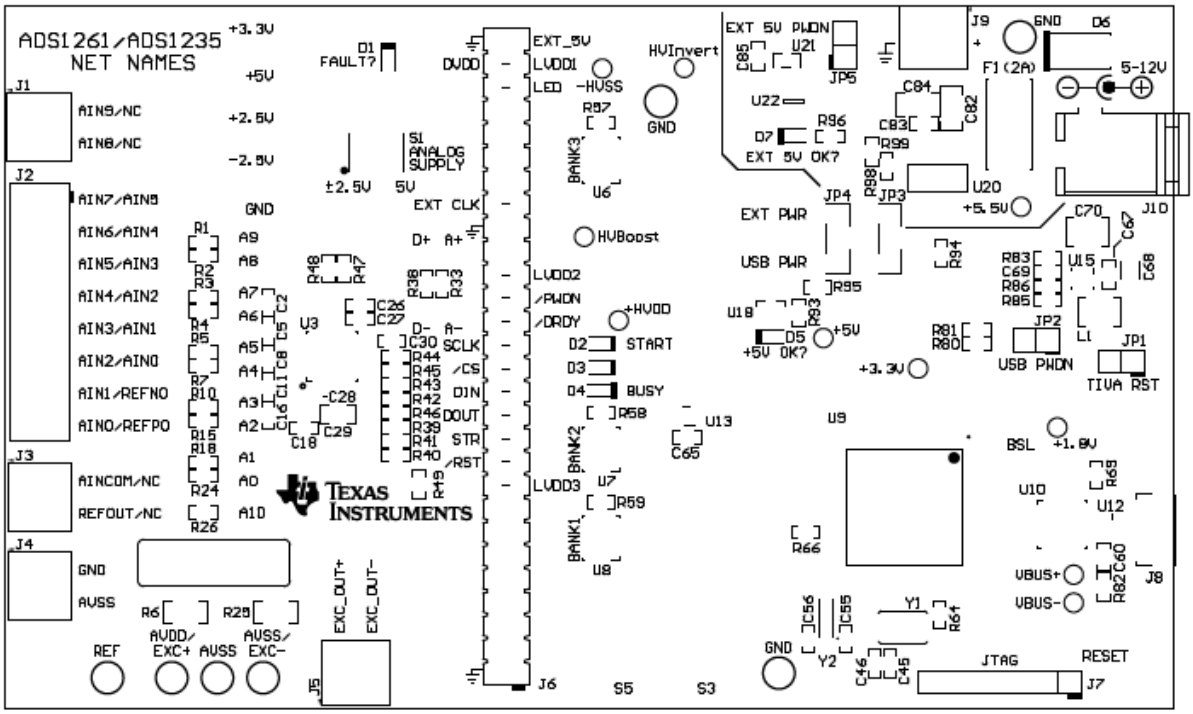


Figure 7. Top Silkscreen

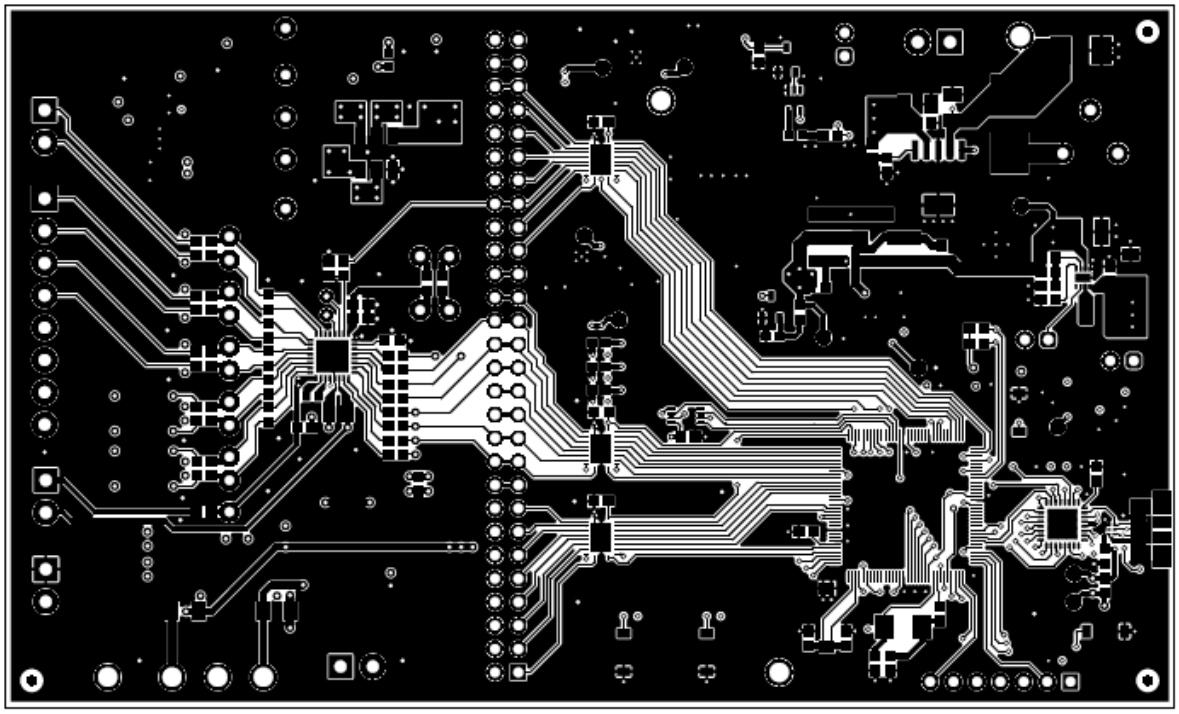


Figure 8. Top Layer (Positive)

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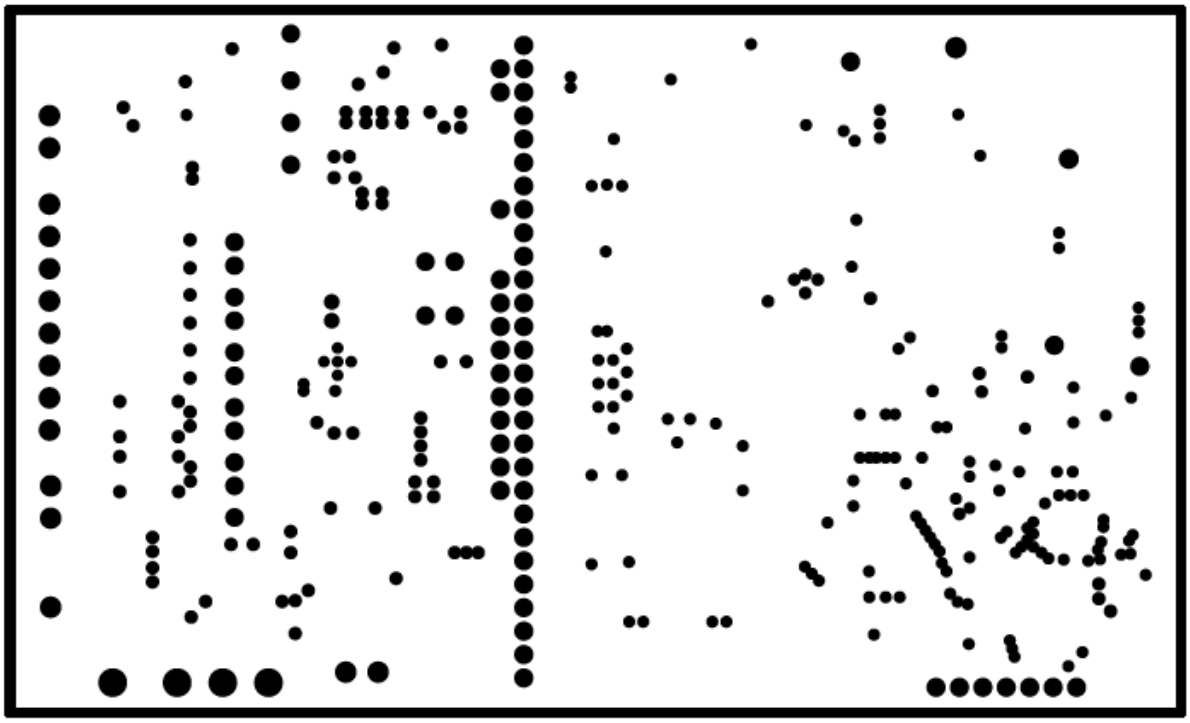


Figure 9. Ground Layer (Negative)

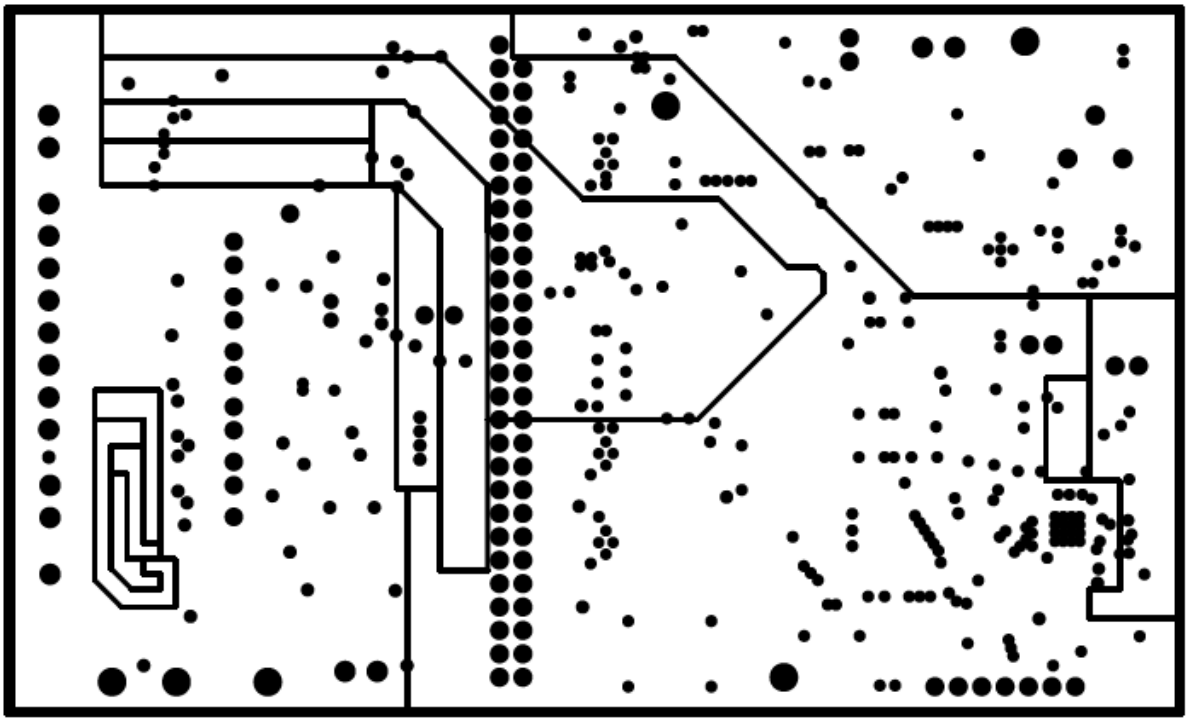


Figure 10. Power Layer (Negative)

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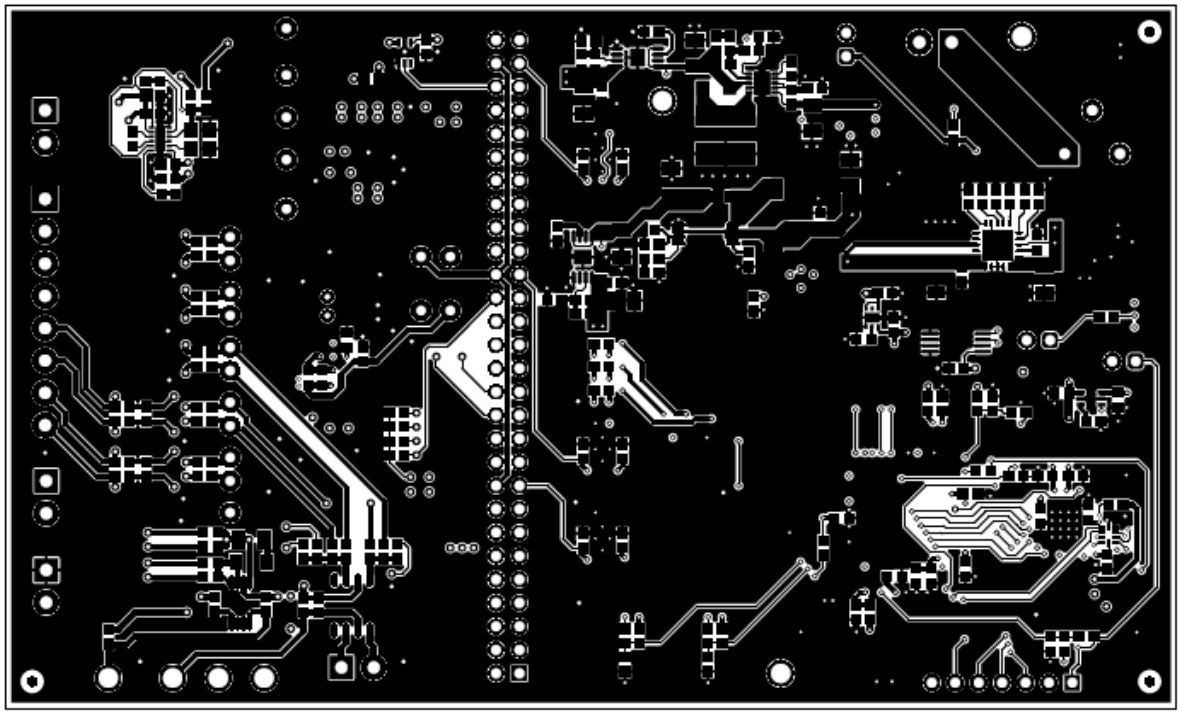


Figure 11. Bottom Layer (Positive)

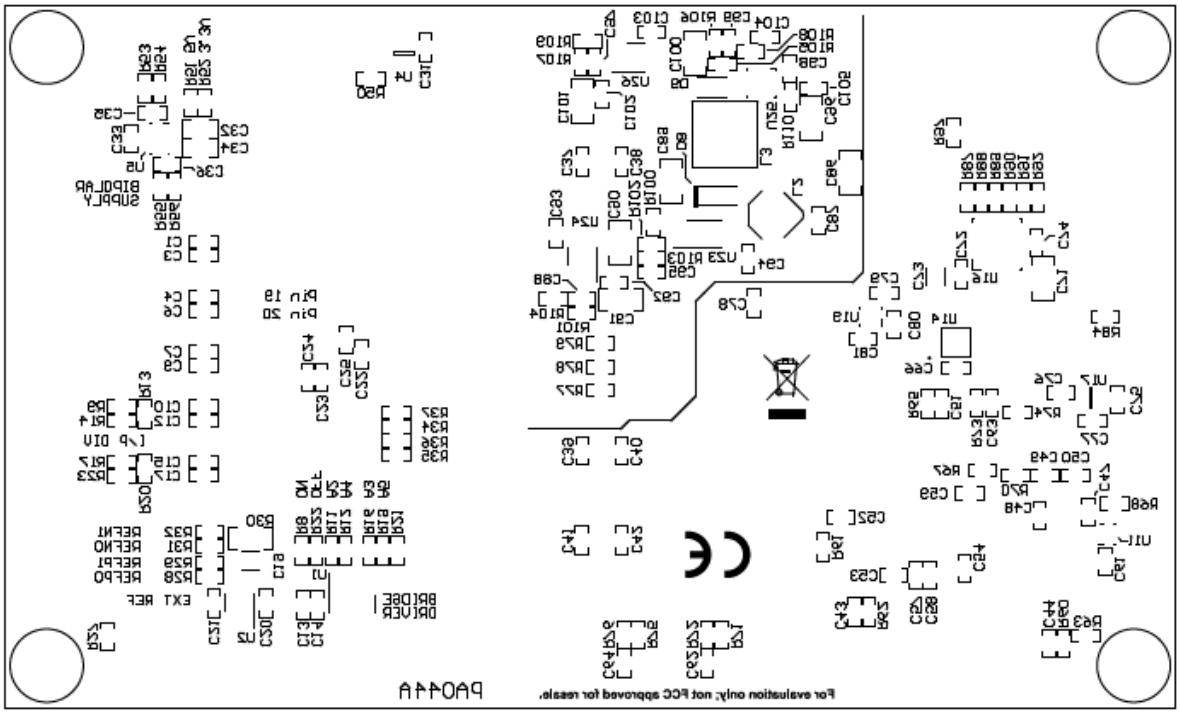


Figure 12. Bottom Silkscreen

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5.3 Schematic

Figure 13 through Figure 20 show the schematics for the ADS1261EVM and ADS1235EVM. The schematic drawings show the ADS1261EVM populated components, as listed in Table 8.

Schematic Block Diagram

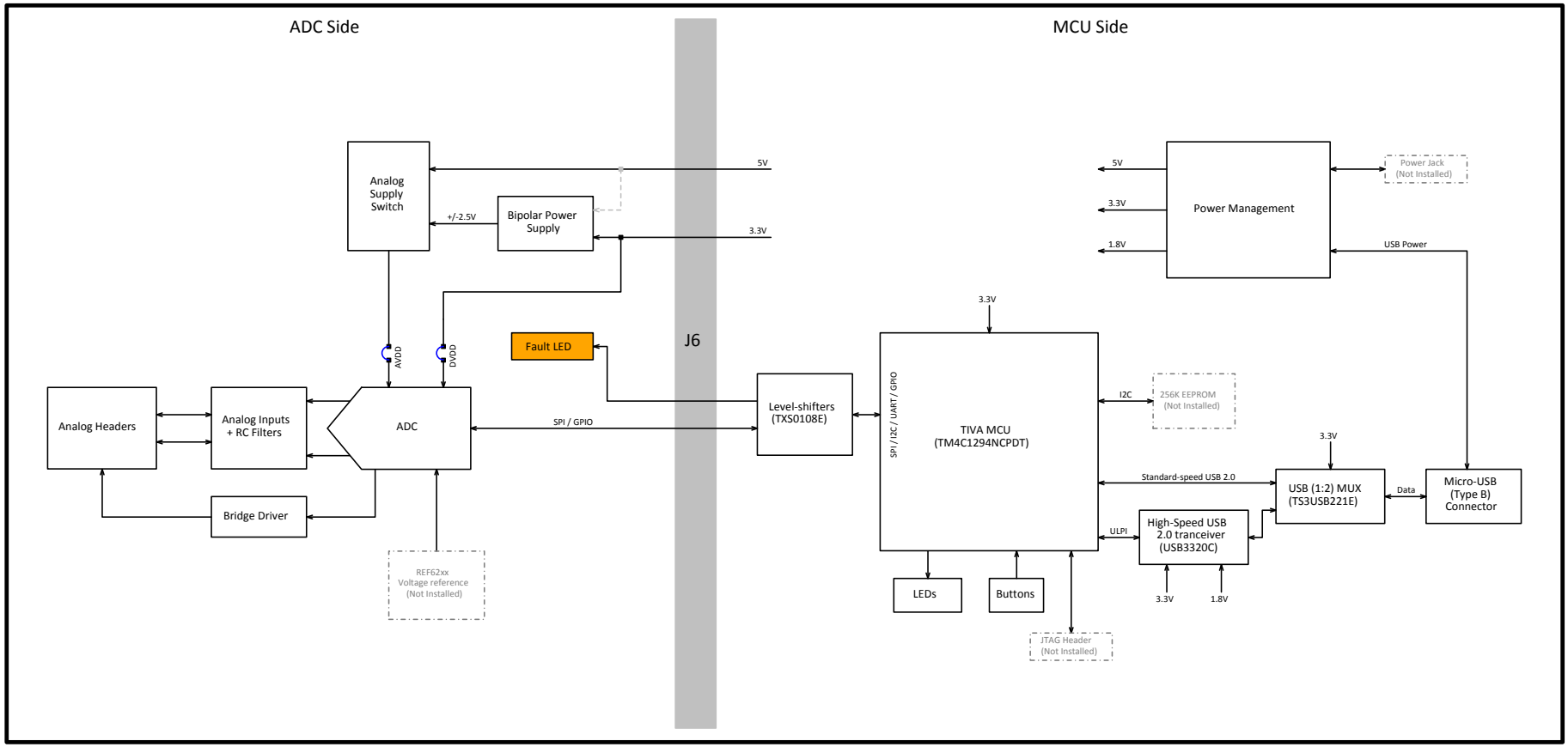


Figure 13. ADS1261EVM Block Diagram Schematic

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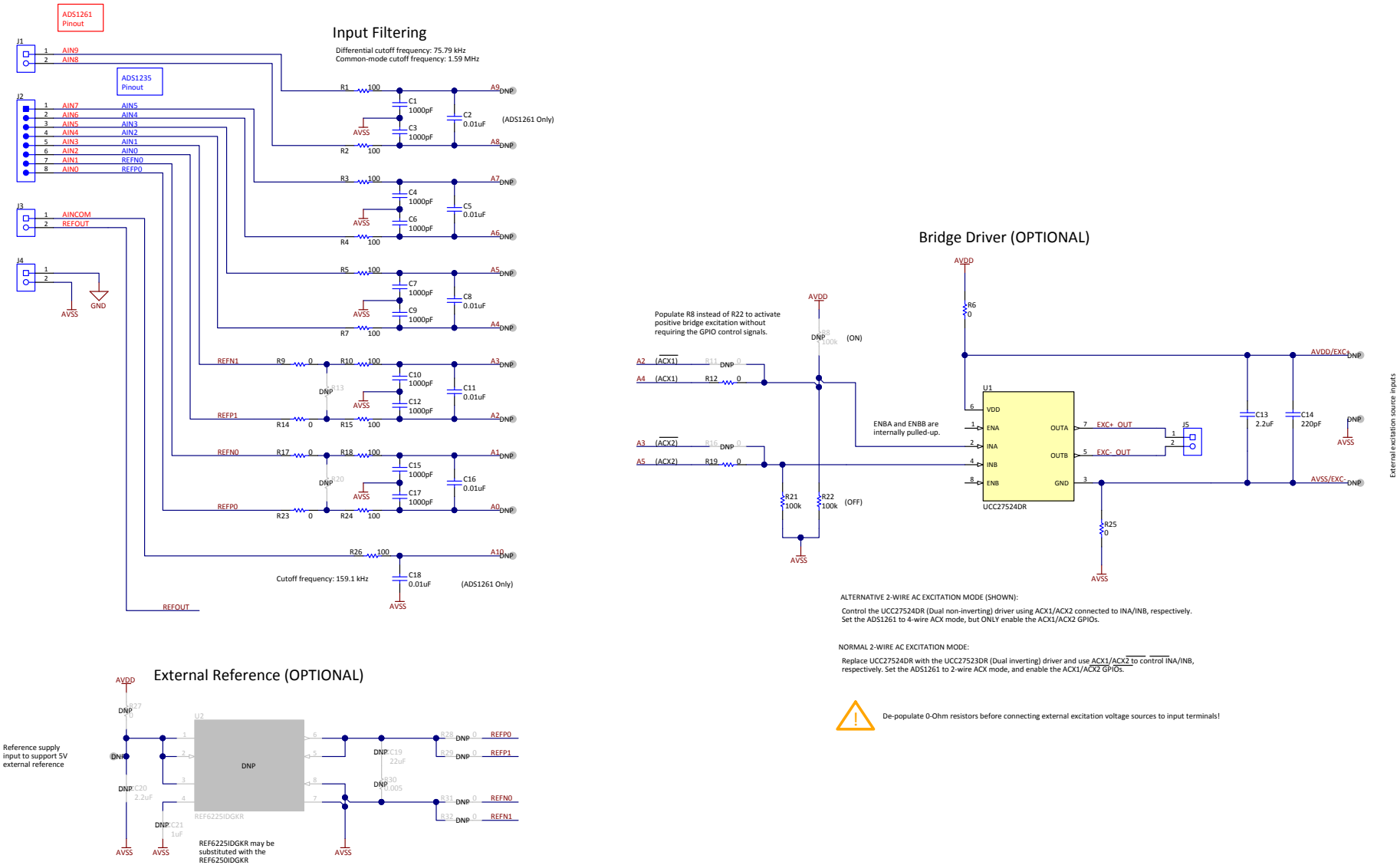


Figure 14. ADS1261EVM Analog Inputs Schematic

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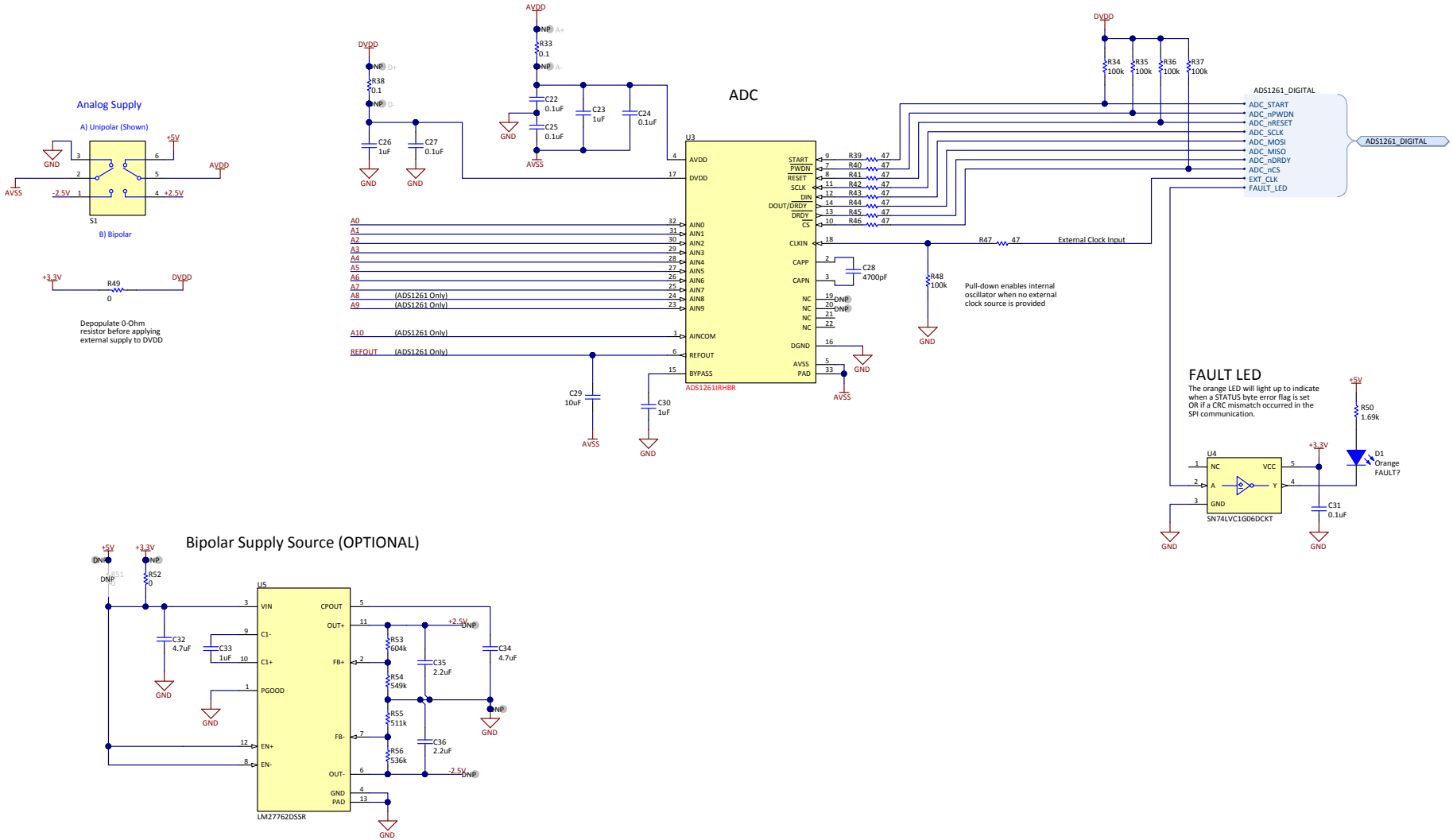


Figure 15. ADS1261EVM ADC Main Schematic

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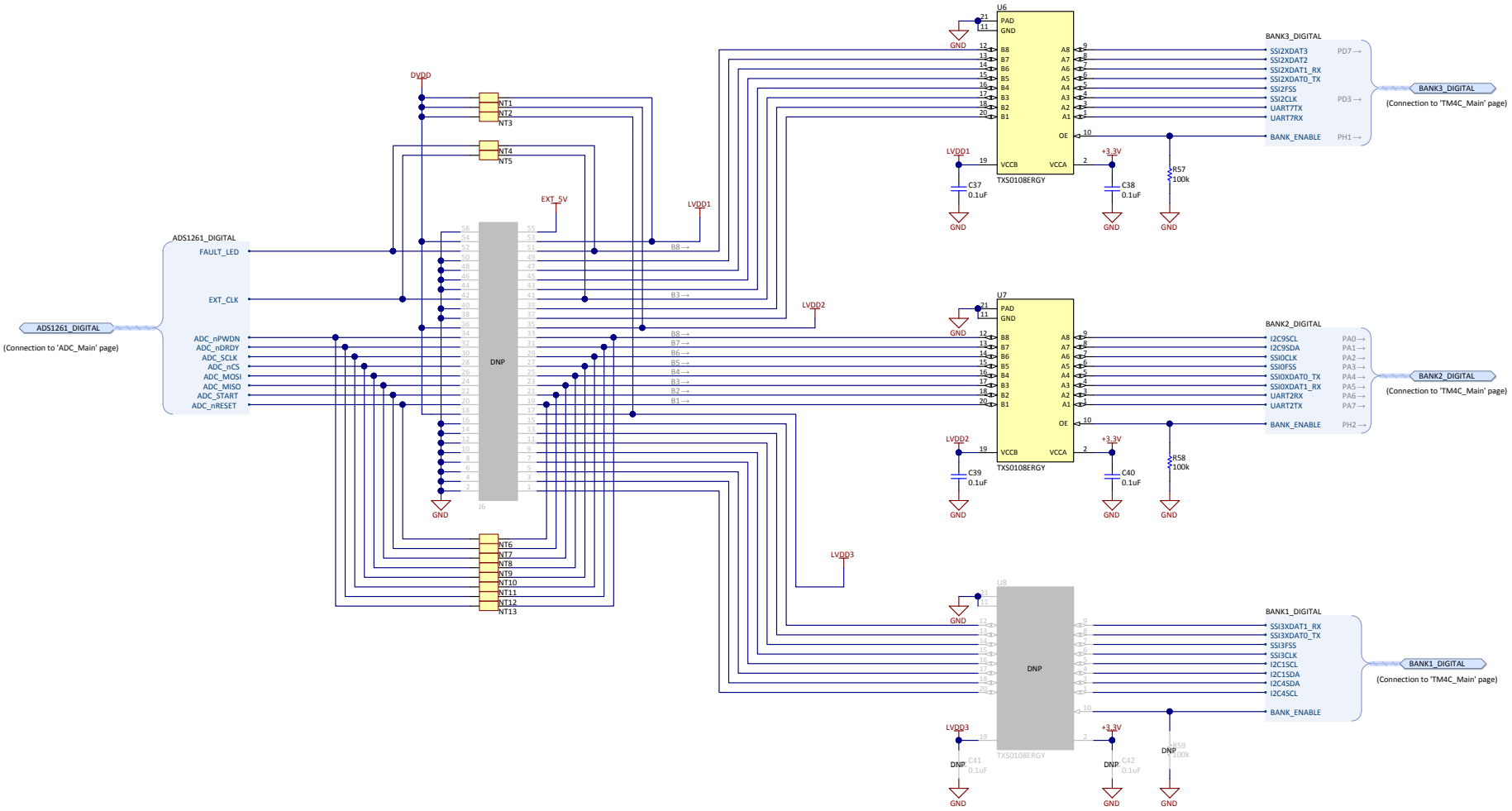


Figure 16. ADS1261EVM Digital Header Schematic

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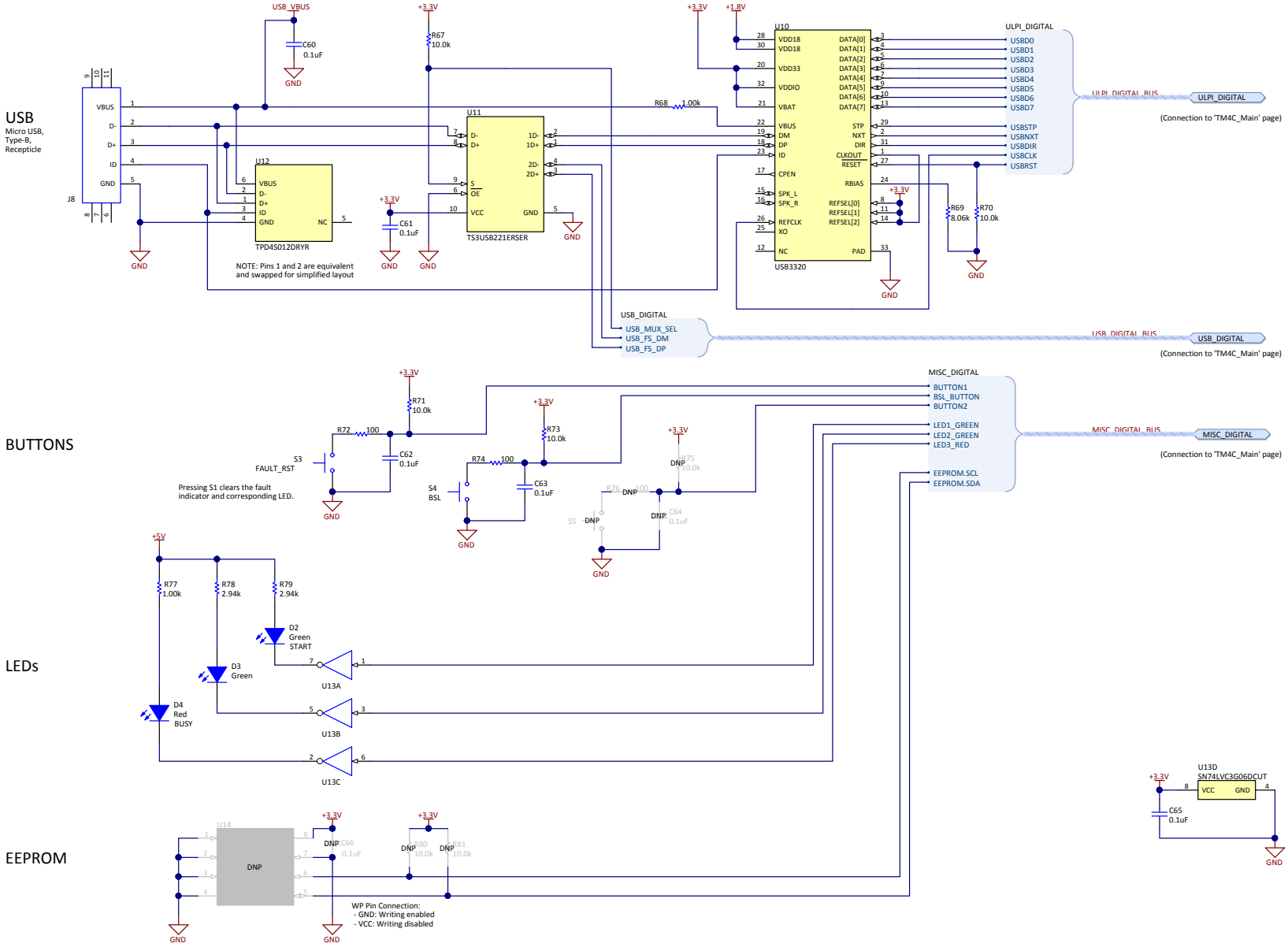


Figure 17. ADS1261EVM USB and Peripherals Schematic

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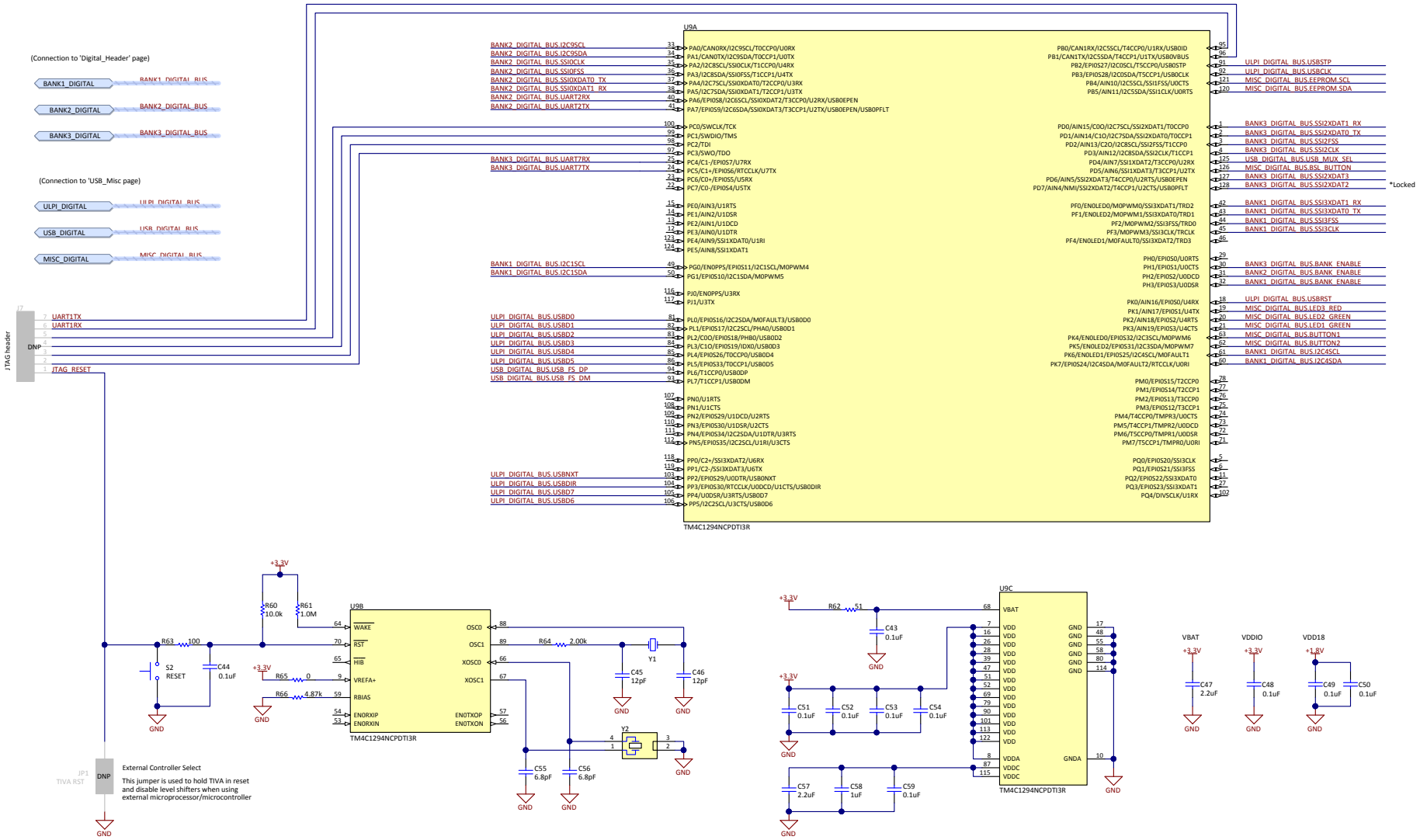
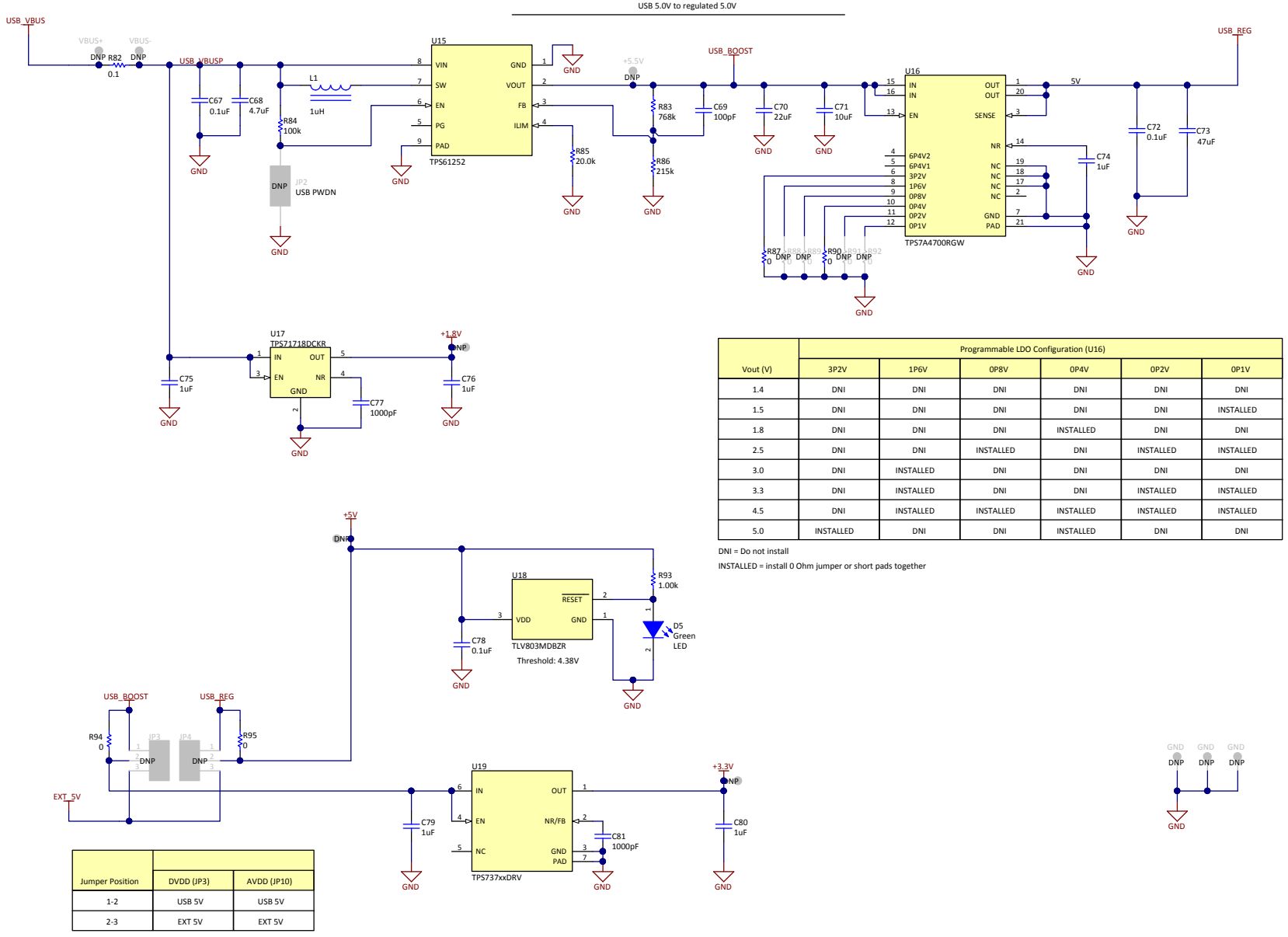


Figure 18. ADS1261EVM Processor Main Schematic

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Vout (V)	Programmable LDO Configuration (U16)					
	3P2V	1P6V	0P8V	0P4V	0P2V	0P1V
1.4	DNI	DNI	DNI	DNI	DNI	DNI
1.5	DNI	DNI	DNI	DNI	DNI	INSTALLED
1.8	DNI	DNI	DNI	INSTALLED	DNI	DNI
2.5	DNI	DNI	INSTALLED	DNI	INSTALLED	INSTALLED
3.0	DNI	INSTALLED	DNI	DNI	DNI	DNI
3.3	DNI	INSTALLED	DNI	DNI	INSTALLED	INSTALLED
4.5	DNI	INSTALLED	INSTALLED	INSTALLED	INSTALLED	INSTALLED
5.0	INSTALLED	DNI	DNI	INSTALLED	DNI	DNI

DNI = Do not install

INSTALLED = install 0 Ohm jumper or short pads together

Jumper Position		
	DVDD (JP3)	AVDD (JP10)
1-2	USB 5V	USB 5V
2-3	EXT 5V	EXT 5V

Figure 19. ADS1261EVM USB Power Schematic

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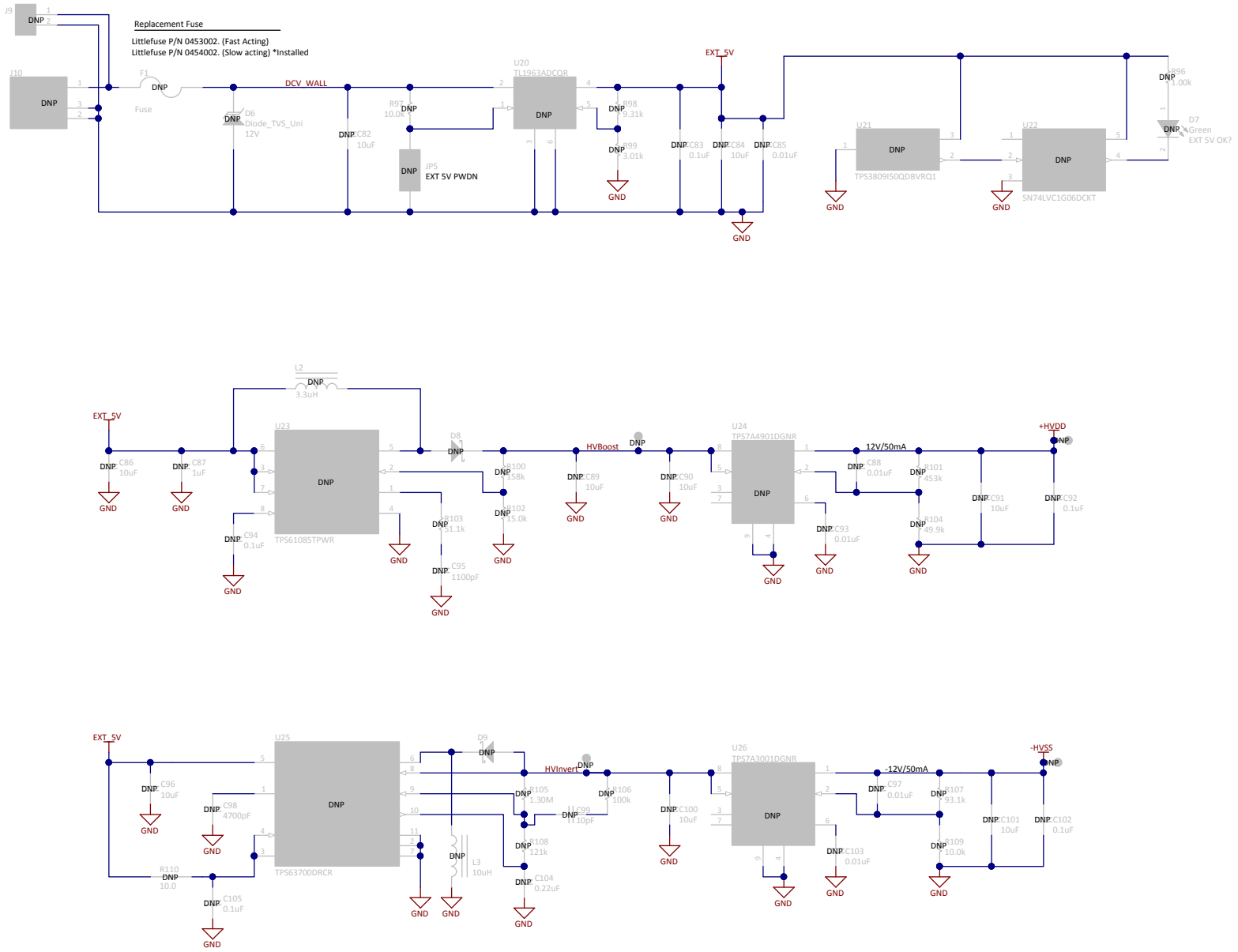


Figure 20. ADS1261EVM External Power Schematic

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Revision History

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

Changes from Original (March 2018) to A Revision **Page**

- Changed general overview of EVM for clarity 1
- Changed *Hardware Functionality* section 3
- Changed last bullet in *Software Functionality* section 3
- Added note to *Analog Supply Configuration of the ADC* section 5
- Changed *onboard digital supply* to *onboard supply* in *Digital Supply Configuration of the ADC* section 5
- Added first step and changed software names in steps 2 and 3 in *Software Installation and Hardware Connection Procedure* section 5
- Changed 2.55 V to 2.5 V in left position description of switch S1 6
- Added (default) to open position description of switches S2, S3, and S4 6
- Changed *FAULT indicator* to *FAULT LED indicator* in closed position description of switch S3 6
- Added *(ADS1261EVM Shown)* to title of *Input Terminal Blocks (ADS1261EVM Shown)* figure 7
- Added AVSS footnote to *Analog Input Terminal Blocks, J1–J4* table 8
- Changed *Digital Interface Header* section 9
- Added REF62xx to *U2–1 (REF)* row in *Useful Test Points* tabke 10
- Added *EVM Hardware* to title of *GUI View Before Connecting EVM Hardware* figure 13
- Added *Hardware* to title of *GUI View After Connecting EVM Hardware* figure 13
- Changed first sentence of *ADS1261 and ADS1235 EVM Commands* section 13
- Changed *Firmware Commands* table title and contents 14
- Deleted overview text from *EVM Bill of Materials, PCB Layouts, and Schematics* section 16
- Added overview text to *Bill of Materials* section, changed note 16
- Changed *Schematic* section text 24

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      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.

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

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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

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2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
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.

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