

Evaluation Board User Guide

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Evaluation Board for the AD7124-8— 8-Channel, Low Noise, Low Power, 24-bit S-D ADC with In- Amp and Reference

FEATURES

Full featured evaluation board for the AD7124-8 PC control in conjunction with the system demonstration platform (EVAL-SDP-CB1Z) PC software for control and data analysis (time domain) Standalone capability

ONLINE RESOURCES

Evaluation Kit Contents EVAL-AD7124-8SDZ evaluation board Evaluation software CD for the AD7124-8 Documents Needed AD7124-8 data sheet AD7124-8 user guide Required Software EVAL-AD7124-8SDZ evaluation software

EQUIPMENT NEEDED

EVAL-AD7124-8SDZ evaluation board EVAL-SDP-CB1Z system demonstration platform DC signal source USB cable PC running Windows with USB 2.0 port

GENERAL DESCRIPTION

The EVAL-AD7124-8SDZ evaluation kit features the AD7124-8 24-bit, low power, low noise analog-to-digital converter (ADC).



Figure 1. EVAL-AD7124-8SDZ Block Diagram

A 7 V to 9 V external supply is regulated to 3.3 V to supply the AD7124-8 and support all necessary components. The EVAL-AD7124-8SDZ board connects to the USB port of the PC by connection to the EVAL-SDP-CB1Z motherboard.

The EVAL-AD7124-8SDZ software fully configures the AD7124-8 device register functionality and provides dc time domain analysis in the form of waveform graphs, histograms, and associated noise analysis for ADC performance evaluation.

The EVAL-AD7124-8SDZ is an evaluation board that is designed to allow the user to evaluate the features of the ADC. The user PC software executable controls the AD7124-8 over the USB through the system demonstration platform board (EVAL-SDP-CB1Z).

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REVISION HISTORY

1/15—Revision PrA: Initial Version

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EVAL-AD7124-8SDZ QUICK START GUIDE

To begin using the evaluation board, do the following:

- 1. With the EVAL-SDP-CB1Z board disconnected from the USB port of the PC, install the AD7124-8 evaluation board software from the CD included in the evaluation board kit. The PC must be restarted after the software installation is complete. (For complete software installation instructions, see the Software Installation Procedures section.)
- 2. Connect the EVAL-SDP-CB1Z board to the EVAL-AD7124-8SDZ board.
 - a. Screw the two boards together using the plastic screwwasher set included in the evaluation board kit to ensure that the boards are connected firmly together.

- 3. Apply an external voltage in the range of 7 V to 9 V to the J3 or J5 connecter of the EVAL-AD7124-8SDZ board. This provides the power supply for the board.
- 4. Connect the EVAL-SDP-CB1Z board to the PC using the supplied USB cable. If you are using Windows[®] XP, you may need to search for the EVAL-SDP-CB1Z drivers. Choose to automatically search for the drivers for the EVAL-SDP-CB1Z board if prompted by the operating system.
- 5. Launch the EVAL-AD7124-8SDZ software from the **Analog Devices** subfolder in the **Programs** menu.

EVALUATION BOARD HARDWARE DEVICE DESCRIPTION

The AD7124-8 is a low power, low noise, complete analog front end for high precision measurement applications. It contains a low noise, 24-bit Σ - Δ ADC. It can be configured to have four differential inputs or seven single-ended or pseudo-differential inputs. The on-chip low noise instrumentation amplifier means that signals of small amplitude can be interfaced directly to the ADC. Other on-chip features include a low drift 2.5 V reference, excitation currents, reference buffers, multiple filter options and many diagnostic features.

Complete specifications for the AD7124-8 are provided in the product data sheet and should be consulted in conjunction with

this user guide when using the evaluation board. Full details about the EVAL-SDP-CB1Z are available on the Analog Devices, Inc., website.

HARDWARE LINK OPTIONS

The default link options are listed in Table 1. By default, the board is configured to operate from a wall wart (dc plug) power supply via Connector J5. The supply required for the AD7124-8 comes from the on-board ADP1720 LDOs, which generate their input voltage from J5.

	Default	Description
Link No.	Option	
LK1	А	Connects the AVDD voltage to the power supply sequencer, ADM1185.
		When AVDD equals 3.3 V, LK1 must be in Position A.
		When AVDD equals 1.8 V, LK1 must be in Position B.
LK2	В	Selects the connector for the external 7 V to 9 V power supply.
		In Position A, this link selects the external 7 V to 9 V power supply to come from Connector J3.
		In Position B, this link selects the external 7 V to 9 V power supply to come from Connector J5.
LK3	Inserted	Inserting this link connects REFIN(-) to AVSS.
LK4	2.5 V	Selects the reference source for the ADC.
		In position 2.5V, REFIN1(+) is connected to the external 2.5 V reference (ADR4525).
		In position INT REF, REFIN1(+) is connected to the REFOUT pin of the AD7124-8. The AD7124-8's internal
		reference can be enabled and applied to the AD7124-8 external to the ADC.
LK5	Inserted	This link shorts AIN0 to AIN1. This is useful to perform noise tests on the AD7124-8. The internal bias can
		be enabled on AIN0 or AIN1 so that AIN0 and AIN1 are at an appropriate voltage for the noise test.
LK6	Inserted	Headers J13 and J14 can be used to connect channels AIN4 and AIN5 to external components such as an
		external amplifier. Both links at LK6 should be opened to include the external component on the front-
<u> </u>	Δ.	Cata the veltage applied to the AVDD via
SL2	A	
		(U7) regulator or a 2.5 V supply from the ADP1720 (U4) regulator.
		In Position B, this link sets the voltage applied to the AVDD pin to be supplied from an external voltage
	Δ Δ	With SL2 and SL7 in Position A AV/DD is supplied with 2.2 \/ from ADD1720.2.2 \/ LT2\ regulator
3L3, 3L7	А, А	With SLS and SL7 in Position A, AVDD is supplied with 3.5 V from ADP 1720-5.5 (07) regulator.
	-	with 5L3 and 5L7 in Position B, AVDD is supplied with 1.8 v from the ADP1720 (04) regulator.
SL5	В	With this link in Position A, the IOVDD supply is provided from an external source via Connector J9.
		With this link in Position B, the 3.3 V supply is generated by the ADP1720-3.3 (U10) regulator.
		The evaluation system operates with 3.3 V logic.
AVSS to	R49, R50, R51,	When these links are inserted, AVSS is tied to AGND. When AVSS is set to -1.8 V, these links must be
AGND	R52	removed.

Table 1. Default Link and Solder Link Options

On-Board Connectors

Table 2 provides information about the external connectors on the EVAL-AD7124-8SDZ.

Table 2.	On-Board	Connectors
-		

Connector	Function
J1	A 120-pin connector that mates with the EVAL-SDP-CB1Z (black colored controller board).
J2	Straight PCB Mount SMB/SMA Jack for master clock (not inserted). The EVAL-AD7124-8SDZ has the footprint to include an SMA/SMB connector, if an external clock source is being used to provide the master clock to the ADC.
J3	Bench top power supply voltage input. Apply 7 V to 9 V and GND (0 V) to this connector to power the evaluation board.
J5	Wall wart (dc plug) power supply voltage input. Apply 7 V to 9 V and GND (0 V) to this connector to power the evaluation board.
JG	Analog input connector. Connections to AIN0 to AIN5 are available along with REFIN1(+) connections. This connector can be used to connect an RTD to the AD7124-8.
9	Optional external connector, allowing external bench top or alternative supply for AVDD and IOVDD. When split supplies are used, AVSS is supplied externally via J9.
J11	Analog input connector. Connections to AIN6 to AIN7 are available along with REFIN1(\pm) and analog power supply connections. This connector can be used to connect a loadcell to the AD7124-8.
J12	6-pin connector. Provides an I2C interface to allow the SDP to interface to a digital temperature sensor. This is required if a thermocouple is interfaced to the AD7124-8 using connector A2.
J13	7-pin connector which can be used to connect an external amplifier to channel AIN4/AIN5.
J14	7-pin connector which allows connection to pins AIN4 and AIN5.
A0	Straight PCB Mount SMB/SMA Jack. The footprint for an SMA/SMB connector is included on the evaluation board to provide the signal to analog input AIN4.
A1	Straight PCB Mount SMB/SMA Jack. The footprint for an SMA/SMB connector is included on the evaluation board to provide the signal to analog input AIN5.
A2	Thermocouple connector. This connector is required useful if a thermocouple is being interfaced to the evaluation board.
A5	Straight PCB Mount SMB/SMA Jack. The footprint for an SMA/SMB connector is included on the evaluation board to provide the signal REFIN1(+).
A6	Straight PCB Mount SMB/SMA Jack. The footprint for an SMA/SMB connector is included on the evaluation board to provide the signal REFIN1(-).

POWER SUPPLIES

The evaluation board requires that an external power supply either a bench top supply or a wall wart (dc plug) supply—be applied to J3 or J5 (see Table 3 for more information). Linear regulators generate the required power supply levels from the applied V_{IN} rail. The regulators used are the ADP1720-3.3 (U7) and the ADP1720 (U4), which supply 3.3 V and 1.8 V, respectively, to AVDD of the ADC. The 3.3 V ADP1720 (U10) delivers 3.3 V to the IOVDD pin of the AD7124.4.

When a split power supply is used, the AVSS voltage must be applied from an external source via Connector J9. AVDD and IOVDD can also be provided via Connector J9. However, the 7 V to 9 V supply is still required because the on-board reference (ADR4525) is supplied from this power supply.

Each supply is decoupled at the point where it enters the board and again at the point where it connects to each device (see the schematics shown in Error! Reference source not found. to Error! Reference source not found. to identify decoupling points).

SERIAL INTERFACE

The AD7124-8 evaluation board connects via the SPI to the Blackfin[®] ADSP-BF527 on the EVAL-SDP-CB1Z. There are four primary signals: CS, SCLK, DIN, and DOUT/RDY (all are inputs, except for $DOUT/\overline{RDY}$, which is an output.)

If you wish to operate the EVAL-AD7124-8SDZ in standalone mode, the AD7124-8 serial interface lines can be disconnected from the 120-pin header by removing the 0 Ω links, R9 through R13. The test points can then be used to fly-wire the signals to an alternative digital capture setup.

ANALOG INPUTS

The EVAL-AD7124-8SDZ primary analog inputs can be applied in two ways:

- Using J6 and J11, the green screw in terminal connectors
- Using the A0 and A1 SMB/SMA footprints on the evaluation board which connect to analog inputs AIN4and AIN5.

The EVAL-AD7124-8SDZ software is set up to analyze dc inputs to the ADC.

Power Supply (V _{IN}) Applied To	Voltage Range	Function
5	7 V to 9 V	Bench top supply to the evaluation board. Supplies LDOs that create 3.3 V and 1.8 V rails. It also supplies the ADR4525 external reference. Ensure that LK2 is set to Position A when the external power supply is applied to this connector.
J5	7 V to 9 V	Wall wart (dc plug) supply to the evaluation board. Supplies LDOs that create 3.3 V and 1.8 V rails. It also supplies the ADR4525 external reference. Ensure that LK2 is set to Position B when the external power supply is applied to this connector.

Table 3. Required External Power Supply¹

¹ Only a single supply is required, either J3 or J5. This can be selected using LK2.

REFERENCE OPTIONS

The EVAL-AD7124-8SDZ includes an external 2.5 V reference (the ADR4525) and an internal 2.5 V reference. The default operation is to use the external reference input, which is set to accept the 2.5 V ADR4525 on the evaluation board.

The reference used for a conversion is selected by choosing the reference in the Configx registers associated with Setup 0 to Setup 15.

Switch between using the internal reference and external reference by accessing the AD7124-8 register map via the evaluation software. Figure 2 shows how to select the reference source for Setup 0 to Setup 15. Figure 3 shows the ADC_Control register setting that enables the internal reference.

Set	up 5		S	ietup	6		Set	up 7			
Set	up O	Setup	1	Set	tup 2	Set	up 3	Setu	ıp 4	1	
	Config Na	1_0 ame			0860 Settin	D g		Bit			
	PGA0 REF_S AIN_E	SELO SUFMO	_	1 REFI Buf	N1(+) On	/ REF	IN!	[0:2] REFIN1((+) / RE	FIN1(-)	4
	AIN_E REF_E REF_E	SUFPO SUFMO SUFPO	_	Buf (Buf) Buf (On Off Off			Int Ref AVDD	(+) / 14	.1 11 12 (-)	
	BURN BIPOL	OUTO .ARO		Off Bipo	lar		_	[9:10] [11]	-		Ι

Figure 2. Selecting the Reference Source

ADC_Control	0000	
Name	Setting	Bit
CLK_SEL	Int 614.4 kHz Clk, No	[0:1]
MODE	Continuous Convert	[2:5]
POWER_MODE	Low Power Mode	[6:7]
REF_EN	Int Ref Disable	Ref Disabled
CSB_EN	DOUT pin retur	Paf Enabled
DATA_STATUS	Status bits not	Ker Enabled
CONT_READ	Cts Read Disabled	[11]
DOUT_RDYB_DE	SCLK inactive edge t	[12]

Figure 3. Turning On the Internal 2.5 V Reference

EVALUATION BOARD SETUP PROCEDURES

After following the instructions in the Software Installation Procedures section, set up the evaluation and SDP boards as detailed in this section.

Warning

The evaluation software and drivers must be installed before connecting the evaluation board and EVAL-SDP-CB1Z board to the USB port of the PC to ensure that the evaluation system is correctly recognized when it is connected to the PC.

Configuring the Evaluation and SDP Boards

- 1. Connect the EVAL-SDP-CB1Z board to Connector A or Connector B on the EVAL-AD7176-2SDZ board. Screw the two boards together using the plastic screw-washer set included in the evaluation board kit to ensure that the boards are connected firmly together.
- 2. Connect the power supplies to the EVAL-AD7124-8SDZ board. The EVAL-AD7124-8SDZ board, by default, uses the wall wart (dc plug) supply that accompanies the evaluation kit. Connect this supply to J5 on the EVAL-AD7124-8SDZ board. (For more information about the required connections and available options, refer to the Power Supplies section.)
- 3. Connect the EVAL-SDP-CB1Z board to the PC using the supplied USB cable.

EVALUATION BOARD SOFTWARE SOFTWARE INSTALLATION PROCEDURES

The EVAL-AD7124-8SDZ evaluation kit includes a CD containing software to be installed on your PC before you begin using the evaluation board.

There are two parts to the installation:

- AD7124-8 evaluation board software installation
- EVAL-SDP-CB1Z system demonstration platform board drivers installation

Warning

The evaluation software and drivers must be installed before connecting the evaluation board and EVAL-SDP-CB1Z board to the USB port of the PC to ensure that the evaluation system is correctly recognized when it is connected to the PC.

Installing the AD7124-8 Evaluation Board Software

To install the AD7124-8 evaluation board software,

- With the EVAL-SDP-CB1Z board disconnected from the USB port of the PC, insert the installation CD into the CD-ROM drive.
- Double-click the setup.exe file to begin the evaluation board software installation. The software is installed to the following default location: C:\Program Files\Analog Devices\AD7124-8.
- 3. A dialog box appears asking for permission to allow the program to make changes to your computer. Click **Yes**.



Figure 4. AD7124-8 Evaluation Software Installation: Granting Permission for the Program to Make Changes to Your Computer

4. Select the location to install the software, and then click **Next**. (Figure 5 shows the default locations, which are displayed

when the window opens, but you can select another location by clicking **Browse**.)

# ADxxxx	
Destination Directory Select the primary installation directory.	
All software will be installed in the following location(s). To install software into a different location(e), click the Browse button and select another directory.	
C:\Program Files\Analog Devices\ Browse	
Directory for National Instruments products C:/Program Files/National Instruments/ Browse	
((Back Next)) [a	ncel

Figure 5. AD7124-8 Evaluation Software Installation: Selecting the Location for Software Installation

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5. A license agreement appears. Read the agreement, and then select **I accept the License Agreement** and click **Next**.

License Agreement You must accept the license(s) displayed below to proceed.	
NATIONAL INSTRUMENTS SOFTWARE LICENSE AGREEMENT	
INSTALLATION NOTICE: THIS IS A CONTRACT BEFORE YOU DOWNLOAD THE SOFTWARE AND/OR COMPLETE THE INSTALLATION PROCESS, CAREFULLY READ THIS AGREEMENT. BY DOWNLOADING THE SOFTWARE AND/OR CLICKING THE APPLICABLE BUTTON TO COMPLETE THE INSTALLATION PROCESS, YOU CONSENT TO THE TERMS OF THIS AGREEMENT AND YOU AGREE TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT WISH TO BECOME A PARTY TO THIS AGREEMENT AND BE BOUND BY ALL OF ITS TERMS AND CONDITIONS, CLICK THE APPROPRIATE BUTTON TO CANCEL THE INSTALLATION PROCESS, DO NOT INSTALL OR USE THE SOFTWARE, AND RETURN THE SOFTWARE WITHIN THIRTY (30) DAYS OF RECIPT OF THE SOFTWARE, AND RETURN THE SOFTWARE WITHIN THIRTY ALONG WITH THEIR CONTAINERS) TO THE PLACE YOU OBTAINED THEM. ALL RETURNS SHALL BE SUBJECT TO NIS THEN CURRENT RETURN POLICY.	
· · · · · · · · · · · · · · · · · · ·	
 I accept the License Agreement. 	
I do not accept the License Agreement.	
<]

Figure 6. AD7124-8 Evaluation Software Installation: Accepting the License Agreement

6. A summary of the installation is displayed. Click **Next** to continue.

ADxxxx			
Start Installation Review the following s	ummary before continuing.		
Adding or Changing •ADxxxx Files			
k the Next button to begin insta	llation. Llick the Back button	to change the installation settings.	
	Save File	<pre></pre>	Cancel



7. A dialog box informs you when the installation is complete. Click **Next**.

Inst	llation Complete)				
The inst	aller has finished up	dating your syste	em.			
				<< Back	Next>>	Finish

Figure 8. AD7124-8 Evaluation Software Installation: Indicating When the Installation Is Complete 11035-009

Installing the EVAL-SDP-CB1Z System Demonstration Platform Board Drivers

After the installation of the evaluation software is complete, a welcome window is displayed for the installation of the EVAL-SDP-CB1Z system demonstration platform board drivers.

1. With the EVAL-SDP-CB1Z board still disconnected from the USB port of the PC, make sure that all other applications are closed, and then click **Next**.



Beginning the Drivers Installation

2. Select the location to install the drivers, and then click Next.



Figure 10. EVAL-SDP-CB1Z Drivers Setup: Selecting the Location for Drivers Installation 3. Click **Install** to confirm that you would like to install the drivers.



4. To complete the drivers installation, click **Finish**, which closes the installation wizard.



Figure 12. EVAL-SDP-CB1Z Drivers Setup: Completing the Drivers Setup Wizard

5. Before using the evaluation board, you must restart the computer.



Restarting the Computer

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SETTING UP THE SYSTEM FOR DATA CAPTURE

After completing the steps in the Software Installation Procedures and Evaluation Board Hardware sections, set up the system for data capture as follows:

- 1. Allow the Found New Hardware Wizard to run after the EVAL-SDP-CB1Z board is plugged into your PC. (If you are using Windows XP, you may need to search for the EVAL-SDP-CB1Z drivers. Choose to automatically search for the drivers for the EVAL-SDP-CB1Z board if prompted by the operating system.)
- 2. Check that the board is connecting to the PC correctly using the **Device Manager** of the PC.
 - a. Access the **Device Manager** as follows:
 - i. Right-click My Computer and then click Manage.
 - A dialog box appears asking for permission to allow the program to make changes to your computer. Click Yes.
 - iii. The Computer Management box appears. Click Device Manager from the list of System Tools (see Figure 14).
 - b. The EVAL-SDP-CB1Z board should appear under **ADI Development Tools**. This indicates that the driver software is installed and that the board is connecting to the PC correctly.

🎥 Computer Management	
File Action View Help	
🧇 🤿 🙍 💼 🖉 👘	
Computer Management (Local System Tools Carl Task Scheduler Elevent Viewer Started Folders Carl Users and Groups @ Reliability and Performe @ Device Manager Storage Disk Management Services and Applications	Key Day Series Key Day

Figure 14. Device Manager: Checking That the Board Is Connected to the PC Correctly

Launching the Software

After completing the steps in the Setting Up the System for Data Capture section, launch the AD7124-8 software as follows:

- From the Start menu, select Programs > Analog Devices > AD7124-8 > AD7124-8 Evaluation Board Software. The main window of the software then displays.
- 2. If the AD7124-8 evaluation system is not connected to the USB port via the EVAL-SDP-CB1Z when the software is launched, a connectivity error displays (see Figure 15). Connect the evaluation board to the USB port of the PC, wait a few seconds, click **Rescan**, and then follow the onscreen instructions.

Hardware Select	\mathbf{X}
No matching system found. Press Rescan to retry or C abort.	Cancel to
Previous Next	
Rescan Select C	Cancel

Figure 15. Connectivity Error Alert

When the software starts running, it searches for hardware connected to the PC. A dialog box indicates when the generic SDP attached to the PC is detected, and then the main window appears (see Figure 16).

SOFTWARE OPERATION

Overview of the Main Window

The main window of the software (see Figure 16) contains three tabs: Configure, Waveform and Histogram. Above the tabs, there are buttons that are used in all three tabs.

The **Configure** tab allows the user to setup the ADC, reset the ADC and read the diagnostics.

The **Waveform** tab graphs the conversions gathered and processes the data, calculating the p-p noise, rms noise and resolution.

The **Histogram** tab generates a histogram using the gathered samples and processes the data, calculating the p-p noise, rms noise and resolution.

Start Sampling Button

Clicking **Start Sampling**, located near the top right hand corner of the main window (see Figure 16), starts ADC sampling; results are reported in the graphs of the **Waveform** and **Histogram** sections. The software captures a specified number of samples, the sample size being set via the **Samples** box. The software can also continuously convert if the **Capture Defined Sample Set** is set to **Continuous**.

Delete Data/Clear Graphs

Clicking **Delete Data/Clear Graphs** clears the waveform graph and histogram and clears any conversion data gathered.

File

This allows you to write the current set of data to a file for later use, log data as it is gathered, and exit the program.

Help

This details the revision of the software.

Exiting the Software

To exit the software, click the red X at the top right hand corner of the main window. The software can also be exited using **File**.

Configure

ADC Setup Button

Clicking **ADC Setup** opens the **AD7124-8 Register Interface** window.

ADC Reset Button

Clicking **ADC Reset** resets the AD7124-8 so the registers are at their default (power-on reset) values.

Check Diagnostics Button

Clicking **Check Diagnostics** displays the current settings of the error bits in the Error register.

External Reference

This box displays the value of the external reference. It defaults to 2.5V since the AD4525 is a 2.5V reference. If a reference of a different value is used, update this box so that the software can correctly calculate the noise and resolution.

CRC Error Indicator

When the CRC is enabled, the software generates the CRC word for every write operation and checks the CRC value returned with any conversions or register values read. If a CRC error is detected in the communications between the software and the AD7124-8, the CRC Error LED becomes visible at the bottom of the window and is lit. The CRC functionality on the AD7124-8 is disabled by default.



Figure 16. Main Window

Noise Test—Quick Start Demonstration

To perform a noise test using the AD7124-8 evaluation board, LK5 should be inserted so that AIN0 and AIN1 are connected together.

- 1. Click **ADC Setup** to open the **AD7124-8 Register Interface** window. The AD7124-8 should be configured as follows:
 - a. In the ADC_Control register, select the full power mode.
 - b. Provide a bias voltage to the analog input by enabling the VBIAS0 in the IO_Control_2 register.
 - c. In the Channel 0 register, AIN0 is connected to the positive input, AIN1 is connected to the negative input of the ADC for this channel, and Setup 0 is selected. Therefore, the AIN0 to AIN1 conversion is mapped using the Setup 0 configuration.
 - d. Setup 0 is configured with the following register settings:
 - i. In the Config_0 register, the external reference is selected as the reference source for the ADC conversion.

- ii. In the Filter_0 register, FS0 is set to 2047 and the sinc4 filter is selected. This sets the output data rate to 9.38 sps.
- iii. In the Offset_0 register, the default offset register value is selected.
- iv. In the Gain_0 register, the factory trimmed gain error value is selected.
- 2. Figure 17 shows the contents of the **AD7124-8 Register Interface** and the state of the AD7124-8 registers. Click **OK** to return to the main window. Figure 18 shows an example of the main window after running a noise test.
- 3. Set the number of samples to be collected in each batch in the **Samples** box, which is located just to the left of **Start Sampling**, near the top right hand corner of the main window.
- 4. Click **Start Sampling** to acquire samples from the ADC.

7124-8 Register Interface	
D7124-8	
C and IO Control Setup and Channel Configuration Errors	Load Save OK Cancel
Status × 00	IO_Control_1 000000
Name Setting Bit	Name Setting Bit
CH_ACTIVE Channel 0 [0:3]	I_OUT0_CH AINO [0:3]
STEP_FLAG No Error [5]	IOUT1 Off [8:10]
ERROR_FLAG No Error [6] PDYB Copy Ready [7]	IOUT0 Off [11:13] PDSW Open [15]
Korb Conv. Keady [7]	GPIO_CTRL1 P1 Disabled [17]
	GPIO_CTRL2 P2 Disabled [18] GPIO_DAT1 P1 Low [21]
ID × 12	GPIO_DAT2 P2 Low [22]
Name Setting Bit	
Software release 1 1 [4:7]	
	IO_Control_2 0001
Data 8001E2	Name Setting Bit
Name Setting Bit	VBIASI Disabled [1]
Conversion 8389090 [0:23]	VBIAS2 Disabled [2]
	VBIASS Disabled [3] VBIAS4 Disabled [4]
ADU_Control × 0080	VBIASS Disabled [5]
CLK SEL Internal, Output Off [[0:1]	VBIAS7 Disabled [7]
MODE Continuous Convert [2:5]	VBIAS8 Disabled [8]
POWER_MODE Full Power [6:7] REF EN Int Ref Off [8]	VBIAS9 Disabled [9] VBIAS10 Disabled [10]
CSB_EN DOUT high on SCLK ([9]	VBIAS11 Disabled [11]
CONT_READ Disabled [11]	VBIASI2 Disabled [12] VBIASI3 Disabled [13]
DOUT_RDYB_DEL 10 ns Delay [12]	VBIAS14 Disabled [14] VBIAS15 Disabled [15]
	,n, <u>, , , , , , , , , , , , , , , , , </u>
7124-8 Register Interface	
T124-8 Register Interface D7124-8 IC and IO Control Setup and Channel Configuration Errors Ch 15	Load Save OK Cancel
7124-8 Register Interface AD7124-8 C and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 13 Ch 14	Load Save OK Cancel Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4
AD7124-8 Register Interface	Load Save OK Cancel Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Config_0 0860
7124-8 Register Interface AD7124-8 C and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4	Load Save OK Cancel
7124-8 Register Interface AD7124-8 IC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 ICh 1 Ch 2 Ch 3 Ch 4	Load Save OK Cancel
7124-8 Register Interface D7124-8 IC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel 0 8001 Name Settion Bit	Load Save OK Cancel
7124-8 Register Interface D7124-8 IC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel_0 8001 Name Setting Bit AINM [[0:4]]	Load Save OK Cancel
C and IO Control Setup and Channel Configuration Errors Ch 15 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel_0 -8001 Bit AIN1 [D:4] AIN0 AIN1 [D:4] Ch 2 Ch 2 Ch 3	Load Save OK Cancel
C and IO Control Setup and Channel Configuration Errors C and IO Control Setup and Channel Configuration Errors C h 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel_0 8001 Bit AIN0 [5:9] AIMP0 AIN0 [5:9] Setup0 [12:14] ENABLE0 Enabled [15] Setup0 [15]	Load Save OK Cancel
7124-8 Register Interface AD7124-8 AC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 2 Ch 3 Ch 0 Ch 1 Ch 1 Ch 2 Ch 0 Ch 1 Channel_0 9001 Name Setting AINI [0:4] AINO [5:9] SETUP0 Setup 0 Envalued [15]	Load Save OK Cancel
7124-8 Register Interface AD7124-8 AC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 5 Ch 6 Ch 0 Ch 1 Ch 0 Ch 1 Ch 1 Ch 2 Setting Bit AINN [0:4] AIN0 [5:9] SETUP0 Setup 0 ENABLE0 Enabled	Load Save OK Cancel
7124-8 Register Interface D71224-8 C and IO Control Setup and Channel Configuration Errors C h 15 C h 10 C h 10 C h 11 C h 12 C h 13 C h 14 C h 15 C h 10 C h 1 C h 15 C h 10 C h 11 C h 12 C h 13 C h 14 C h 3 C h 1 C h 1	Load Save OK Cancel
7124-8 Register Interface AD7124-8 AC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 5 Ch 6 Ch 0 Ch 1 Ch 0 Ch 1 Channel_0 9001 Name Setup 0 AINI [0:4] AIN0 [5:9] SETUP0 Setup 0 Enabled [15]	Load Save OK Cancel
7124-8 Register Interface AD7124-8 DC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 5 Ch 6 Ch 0 Ch 1 Ch 0 Ch 1 Ch 0 Ch 1 Ch 0 Ch 1 Ch 0 Setup Och 1 Ch 2 Ch 0 Setup Name Setup AIN0 [5:9] SETUP0 Setup 0 Setup 0 [12:14] ENABLEO Enabled	Load Save OK Cancel Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Config_0 0860 Name Setting Bit POA0 1 ETIN1(+/-) [3:4] AIN_BUFP0 Buf Off [7] AIN_BUFP0 Buf Off [7] BUFN0 Buf Off [7] BUFN0 Buf Off [9:10] BIPOLAR0 Bipolar [11] Filter_0 0607FF Name Setting Bit Filter_0 0607FF Name Setting Bit Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Setup 3 Setup 3 Setup 4 Setup 4 Set
7124-8 Register Interface AD7124-8 bc and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 2 Ch 3 Ch 0 Ch 1 Ch 0 Setung Bit AIN0 AIN0 [5:9] SETUP0 Setup 0 ENABLE0 Enabled	Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 4 Config_0 0860 Name Setup 9 Setup 4 Config_0 0860 Name Setup 9 Setup 4 Peaa 1 [0:2] AIN_BUFP0 Buf On [5] AIN_BUFP0 Buf On [6] REF_BUFP0 Buf Off [7] BURNOUTO Off [9:10] Bipolar [11] [11] Filter_0 0607FF Name Seting Bit Stingle_CYCLE0 Off [16] [17] [17] Bipolar [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11] [11]
7124-8 Register Interface AD7124-8 bc and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 5 Ch 6 Ch 0 Ch 1 Ch 0 Ch 1 Ch 0 Setup Name Setup Setup 0 [12:14] ENABLEO Enabled	Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 4 Config_0 0860 Name Setup 0 New 9 Off 0860 Name PGA0 1 [0:2] AIN_BUFMO Buf On AIN_BUFMO Buf Off [7] Band Off [8] BURNOUTO Off [9:10] Bipolar [11] Filter_0 0607FF Seting Bit Name Seting Bit [11] Filter_0 0607FF [16] [17] Burnouto Sinouto Sinouto [16] StinduE_CYCLE0 Off [16] [17] REJ60_0 Off [16] [17] [17]
7124-8 Register Interface D71224-8 DC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel_0 8001 Name Setting Bit AINM [0:4] AINO AINO [5:9] SETUP0 Setup 0 [12:14] ENABLE0 Enabled [15]	Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 0 Setup 1 Setup 2 Setup 3 Setup 1 Setup 2 Setup 3 Setup 4 Config_0 0860 Name Setup 1 Version Setup 0 Setup 1 Setup 1 Setup 1 Setup 2 Setup 3 Setup 4 Setup 1 Setup 0 OB60 Name Setup 1 Filter_0 0607FF Name Setup 1 Setup 1 Setup 1 Filter_0 0607FF Setup 1 Setup 2 Setup 1 Setup 1 Stands_crvcLeo Off [16] Setup 1 Setup 1 Setup 2
7124-8 Register Interface AD7124-8 SC and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel_0 8001 Name Setting Bit AINM AINI [0:4] AINM [0:4] AINM [0:4] SETUP0 Setup 0 [12:14] ENABLE0 Enabled [15]	Config_0 O860 Bit Vertex Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 0 Setup 1 Setup 3 Setup 4 Config_0 0860 Bit PGA0 REFIN1(+/-) [3:4] AIN_BUFMO Buf Onf [6] BURNOUTO Off [7] BURNOUTO Off [9:10] BIOLARO Bipolar [11] Fiber_0 0607FF Bit F005T_FILTERO 25 sps [17] RE300_0 Off [20] FUTERO Sinod [21]
7124-8 Register Interface AD7124-8 DC and IO Control Setup and Channel Configuration Errors (Ch 15 Ch 10 Ch 10 Ch 11 Ch 2 Ch 3 Ch 6 Ch 7 Ch 0 Ch 1 Ch 10 Ch 1 Ch 10 Ch 1 Ch 2 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 10 Ch 2 Ch 2 Ch 3 Ch 4 Channel_0 Setting Bit AIN0 (5:9) SETUP0 Setup 0 [12:14] ENABLE0 Enabled [15]	Load Save OK Cancel Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Config_0 0860 Name Setion Bit PGA0 1 Circle 01 Name Setion Bit PGA0 1 Circle 01 Name Setion Bit PGA0 1 Circle 01 Name Setion Bit Setup 0 GetOFF Name Setion Bit Single_CrCLE0 Off 161 Single_CrCLE0 Off
7124-8 Register Interface AD7124-8 DC and IO Control Setup and Channel Configuration Errors (Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel_0 98001 Name Setting Bit AINNO AINO [5:9] SETUPO Setup 0 [12:14] ENABLE0 Enabled [15]	Load Save OK Cancel Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 0 Setup 1 Setup 2 Setup 3 Ornfig_0 0860 Bit PGA0 1 [0:2] AIN_BUFMO Buf On [6] REF_SEL0 REFINI(+/-) [3:4] AIN_BUFMO Buf Off [6] BURNOUTO Off [9:10] BIPOLARO Bipolar [11] Filter_0 0607FF Bit Name Seting Bit Offset_0 800000 [17:19] RE160_0 Off [20] FILTERO Sine4 [21:23]
7124-8 Register Interface AD7124-8 bc and IO Control Setup and Channel Configuration Errors Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel_0 8001 Bit AIN0 [5:3] SETUPO SetUp 0 [12:14] ENABLE0 Enabled [15]	Config_0 0860 Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 0 Setup 1 Setup 3 Setup 4 Onfig_0 0860 Bit POA0 1 10:21 AIN_BUFMO Buf On 66 Name Setup 0 10:21 BURNOUTO Off 11:1 Filter_0 0607FF Bit Name Seting Bit Strong Citi 11 11 Filter_0 0607FF Bit Offset_0 800000 12:23 FiltEr80 Sine4 12:23
7124-8 Register Interface AD7124-8 bC and IO Control Setup and Channel Configuration Errors (Ch 15 Ch 10 Ch 11 Ch 12 Ch 13 Ch 14 Ch 5 Ch 6 Ch 7 Ch 8 Ch 9 Ch 0 Ch 1 Ch 2 Ch 3 Ch 4 Channel 0 8001 Name Setting Bit AINMO AINI [0:4] ENABLE0 Enabled [15]	Load Save OK Cancel Setup 5 Setup 6 Setup 7 Setup 0 Setup 1 Setup 2 Setup 3 Setup 4 Config_0 0860 Name Setting Bit POA0 1 61 AIN_BUFP0 Buf Off [3] BUFN0 Buf Off [3] BUFN0 Buf Off [3] BUFN0 Buf Off [3] BURNOUTO Off BEF_BUFP0 Buf Off [3] BURNOUTO Off BIPOLARO BIPOIAR Filter_0 0607FF Name Setting Bit SINGLE_CYCLE0 Off [16] POST_FILTER0 25 sps 17:19 FilterSo Sine4 [21:23] Offset_0 800000 Name Setting Bit Offset_0 800000 State 388608 [0:23] Gain_0 554E74 Name Setting Bit

Figure 17. Configuration for Noise Test



Figure 18. Example of the Main Window After Running a Noise Test

Reading Samples from the ADC

The evaluation board is set up to use the external 2.5 V onboard reference (ADR4525). To read samples from the ADC,

- 1. The value in the **Vref** box is set to 2.5 V by default to use the external 2.5 V on-board reference (ADR4525). If a different reference is used, such as the 2.5 V internal reference, set the value in the **Vref** box accordingly. (The analysis results are based on the value set in this box.)
- 2. Select the number of samples to analyze in the **Samples** box. (Note that when performing a continuous capture, this number is limited to 65,536 samples.)
- 3. When **Sampling** is set to **Capture**, a batch of samples is read when **Start Sampling** is clicked, with the batch size being set by the value in the **Samples** box. When **Sampling** is set to **Continuous**, the software performs a continuous capture from the ADC when **Start Sampling** is clicked.

UG-XXX

- 4. Click **Stop** to stop streaming data.
- 5. Use the navigation tools within each graph to control the cursor, zooming, and panning.
- 6. If desired, save the current captured data for later analysis (see the WaveformError! Reference source not found. and the Histogram section).

Waveform

The waveforms resulting from the gathered samples are shown in the tab. The waveform graph shows each successive sample of the ADC output (input referred). The indicators beside this graph show the channels being converted. Navigation tools are provided to allow you to control the cursor, zooming, and panning. The conversions can be displayed as codes or as volts.

Parameters such as peak-to-peak noise and rms noise are displayed below the graph in the **Analysis** section for the current batch of samples. If several analog input channels are enabled, each enabled channel can be selected and the conversions on that channel analysed using **Analysis Channel**.

The conversion data can be saved in a text file using **File** at the top of the window. To save the data into an Excel file. right-click on the waveform graph and select **Export Data** from the drop-down menu that appears. A **Save** dialog box is displayed, prompting you to save the data to an appropriate folder location.



Figure 19. Waveform Analysis

Histogram

This tab shows the histogram analysis. The indicators beside this graph show the channels being converted. Navigation tools are provided to allow you to control the cursor, zooming, and panning. The conversions can be displayed as codes or as volts.

Parameters such as peak-to-peak noise and rms noise are displayed to the right of the graph in the **Analysis Results** section for the current batch of samples.

The conversion data can be saved in a text file using **File** at the top of the window. To save the data into an Excel file. right-click on the histogram graph and select **Export Data** from the drop-down menu that appears. A **Save** dialog box is displayed, prompting you to save the data to an appropriate folder location.



EVALUATION BOARD SCHEMATICS AND ARTWORK



Figure 21. Schematic

Figure 22. Schematic – Power Supply







Figure 23. Schematic – Regulators

Evaluation Board User Guide



Figure 24. Schematic - SDP



Figure 25. Top Printed Circuit Board (PCB) Silkscreen



Figure 26. Layer 1 Component Side



Figure 27. Layer 2 Ground Plane



Figure 28. Layer 3 Power/Ground Plane



Figure 29. Layer 4 Component Side

EVAL-AD7124-8SDZ BILL OF MATERIALS

Table 4.

Name	Value	Tolerance	PCB Decal	PART DESC	MFG	Part Number	STOCK CODE
A0			SMA	Straight PCB Mount SMB Jack, keep hole clear of solder	Тусо	1-1337482-0	Do Not Insert
A1			SMA	Straight PCB Mount SMB Jack, keep hole clear of solder	Тусо	1-1337482-0	Do Not Insert
A2			THERMOCO	Miniature Thermocouple Connector	Omega	PCC-SMP-U-50	Do Not Insert
A5			SMA	Straight PCB Mount SMB Jack, keep hole clear of solder	Тусо	1-1337482-0	Do Not Insert
A6			SMA	Straight PCB Mount SMB Jack, keep hole clear of solder	Тусо	1-1337482-0	Do Not Insert
C1	4.7uF	±10%	C0603	Capacitor ceramic, 6.3V, X5R, 0603	Murata	GRM188R60J4 75K	FEC 173-5527
C2	0.1uF	±10%	C0603	Capacitor ceramic, 50V, X7R, 0603	Murata	GRM188R71H 104K	FEC 882-0023
C3	4.7uF	±10%	C0603	Capacitor ceramic, 10V, X5R, 0603	Kemet	C0603C475K8 PACTU	FEC 157-2625
C4	1uF	±10%	C0805	CAPACITOR, 0805, 1UF, 50V, X7R	MURATA	GRM21BR71H 105KA12L	FEC 173-5541
C5	DNI	TBD	C0402	Ceramic Capacitor, not inserted, 0402	n/a	n/a	Do Not Insert
C6	1uF	±10%	C0805	CAPACITOR, 0805, 1UF, 50V, X7R	MURATA	GRM21BR71H 105KA12L	FEC 173-5541
C7	DNI	TBD	C0402	Ceramic Capacitor, not inserted, 0402	n/a	n/a	Do Not Insert
C8	DNI	TBD	C0402	Ceramic Capacitor, not inserted, 0402	n/a	n/a	Do Not Insert
С9	DNI	TBD	C0402	Ceramic Capacitor, not inserted, 0402	n/a	n/a	Do Not Insert
C10	0.01uF	TBD	C0402	Ceramic Capacitor, 50V, NPO, 0603	Phycomp	2238 586 15636	FEC 722-236
C11	0.01uF	TBD	C0402	Ceramic Capacitor, 50V, NPO, 0603	Phycomp	2238 586 15636	FEC 722-236
C12	0.01uF	TBD	C0402	Ceramic Capacitor, 50V, NPO, 0603	Phycomp	2238 586 15636	FEC 722-236
C13	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C14	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C15	1uF	±10%	C0603	Capacitor, 6.3V	Murata	GRM188R70J1 05KA01D	FEC 184-5765
C16	DNI	TBD	C0402	Ceramic Capacitor, not inserted, 0402	n/a	n/a	Do Not Insert
C17	4.7uF	±10%	C0603	Capacitor ceramic, 6.3V, X5R, 0603	Murata	GRM188R60J4 75K	FEC 173-5527
C18	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C19	0.01uF	TBD	C0402	Ceramic Capacitor, 25V, NPO, 0603	n/a	n/a	Do Not Insert
C20	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C21	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742

C22	0.1uF	±10%	C0402	Capacitor ceramic, 50V, X7R, 0603	Murata	GRM188R71H 104K	FEC 882-0023
C23	0.1uF	TBD	C0402	Ceramic Capacitor, 50V, NPO, 0603	n/a	n/a	Do Not Insert
C24	0.01uF	TBD	C0402	Capacitor ceramic, 50V, X7R, 0603	Phycomp	2238 586 15636	FEC 722-236
C25	0.1uF	TBD	C0402	Capacitor ceramic, 50V, X7R, 0603	Murata	GRM188R71H	FFC 882-0023
C26	0.1.1E	TRD	C0402	Capacitor ceramic, 50V, X7R,	Murata	GRM188R71H	EEC 882-0023
C20	0.1uF	TRD	C0402	Ceramic Capacitor, 50V, NPO, 0603	Phycomp	2238 586 15636	FEC 722-236
C28	0.01uE	TBD	C0402	Ceramic Capacitor, 50V, NPO,	Phycomp	2238 586	FEC 722-236
C29	4.7uF	±10%	C0603	Capacitor ceramic, 6.3V, X5R, 0603	Murata	GRM188R60J4 75K	FEC 173-5527
C30	4.7uF	±10%	C0603	Capacitor ceramic, 6.3V, X5R, 0603	Murata	GRM188R60J4 75K	FEC 173-5527
C31	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C32	10uF	TBD	1210	Capacitor ceramic, 50V, X5R, 1210	Murata	GRM32ER61H 106K	FEC 184-5764
C33	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C34	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C35	10uF	TBD	1210	Capacitor ceramic, 50V, X5R, 1210	Murata	GRM32ER61H 106K	FEC 184-5764
C36	0.1uF	±10%	C0402	Capacitor ceramic, 50V, X7R, 0603	Murata	GRM188R71H 104K	FEC 882-0023
C37	1uF	±10%	C0603	Capacitor, 0603, 6.3V	Murata	GRM188R70J1 05KA01D	FEC 184-5765
C38	0.1uF	±10%	C0603	Capacitor ceramic, 50V, X7R, 0603	Murata	GRM188R71H 104K	FEC 882-0023
C39	10uF	TBD	1210	Capacitor ceramic, 50V, X5R, 1210	Murata	GRM32ER61H 106K	FEC 184-5764
C43	4.7uF	±10%	C0603	Capacitor ceramic, 6.3V, X5R, 0603	Murata	GRM188R60J4 75K	FEC 173-5527
C44	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C45	4.7uF	±10%	C0603	Capacitor ceramic, 10V, X5R, 0603	Kemet	C0603C475K8 PACTU	FEC 157-2625
C46	4.7uF	±10%	C0603	Capacitor ceramic, 10V, X5R, 0603	Kemet	C0603C475K8 PACTU	FEC 157-2625
C47	4.7uF	±10%	C0603	Capacitor ceramic, 6.3V, X5R, 0603	Murata	GRM188R60J4 75K	FEC 173-5527
C48	10uF	TBD	1210	Capacitor ceramic, 50V, X5R, 1210	Murata	GRM32ER61H 106K	FEC 184-5764
C49	10uF	TBD	1210	Capacitor ceramic, 50V, X5R, 1210	Murata	GRM32ER61H 106K	FEC 184-5764
C50	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C51	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C52	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742
C53	0.1uF	±10%	C0402	Capacitor ceramic, 16V, X7R, 0402	Murata	GRM155R71C 104K	FEC 881-9742

C54	0.1uF	±10%	C0603	Capacitor ceramic, 50V, X7R, 0603	Murata	GRM188R71H 104K	FEC 882-0023
C55	0.1uF	±10%	C0603	Capacitor ceramic, 50V, X7R, 0603	Murata	GRM188R71H 104K	FEC 882-0023
C59	0.01uF	TBD	C0402	Ceramic Capacitor, 25V, NPO, 0603	n/a	n/a	Do Not Insert
20	RED		LED- 0603HSML- C191	Red LED, high intensity	Avago Tech	HSMC-C191	EEC 855-8528
D2	GREE		LED-0603	LED, SMD Green	OSRAM	LGQ971	Digikey 475- 1409-1-ND
D5	BZT52		SOD-123	DIODE, ZENER, 0.5W, 5.1V	Vishay	BZT52B5V1-V- GS08	FEC 161-7767
D6	RED		LED- 0603HSML- C191	Red LED, high intensity (>90mCd), 0603	Avago Tech.	HSMC-C191	FEC 855-4528
GND			TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
GND1			TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
GND2			TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
GND3			TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
GND4			TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
GND5			TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
GND6			TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
J1			CON- 120/FX8- 120S-SV	120-way connector, 0.6mm pitch	Hirose	FX8-120S- SV(21)	FEC 132-4660
J2			SMB	Straight PCB Mount SMB Jack, keep hole clear of solder	Тусо	1-1337482-0	Do Not Insert
J3			CON\POWE R3(3_81PITC H)	Socket terminal block, pitch 3.81mm	Phoenix Contact	MC 1.5/3-G- 3.81	FEC 370-4737
J4			CON\POWE R3(3_81PITC H)	Screw terminal block, pitch 3.81mm	Phoenix Contact	1727023	Do Not Insert
J5			CON\BARRE L_SMD_2M M_KLDX- SMT2-0202- A	DC Power Connectors 2mm SMT POWER JACK	KYCON	KLDX-SMT2- 0202-A	MOUSER 806- KLDX- SMT20202A
J6			CON\POWE R8(3_81PITC H)	8-Pin Terminal header, pitch 3.81mm, vertical	Phoenix Contact	MC 1,5/ 8-G- 3,81	FEC 370-4774
J7	1x4- pin		CON\POWE R4(3_81PITC H)	Connector, pitch 3.81mm, right angle	Phoenix Contact	MC 1,5/ 4-G- 3,81 & 180- 3594	Do Not Insert
8L			CON\POWE R8(3_81PITC H)	8-Pin Terminal header, pitch 3.81mm, vertical	Phoenix Contact	1727078	Do Not Insert
9	1x4- pin		CON\POWE R4(3_81PITC H)	Screw terminal block, pitch 3.81mm	Phoenix Contact	1727036	FEC 370-4592

			CON\POWE R8(3_81PITC	8-Pin Terminal header, pitch	Phoenix		
J10			H)	3.81mm, vertical	Contact	1727078	Do Not Insert
				8-Pin Torminal header pitch	Phoonix	MC 15/8-C-	
J11			H)	3.81mm, vertical	Contact	3,81	FEC 370-4774
			SIP-6P-	PCB Pads, 6-Way Solder Slot for		ADT7320-CJC-	ADT7320-CJC-
J12	6-Way		P1.9MM	ADI PCB	Aragorn	PCB	РСВ
113				7 WAY SSW 2.54mm Vert.	Samtas	SSW-107-01-T-	FEC 190 2479
112			JIF-7F	SUCKEL	Samtec	5 TI W-107-05-	FEC 100-3476
J14			SIP-7P	7 Way Sip 2.54mm TH Header	Samtec	G-S	FEC 166-8499
			HEADER06-				
J15			SKT-RA				Do not insert
13	1000r		805	Ferrite bead, 0.3ohm@DC,	TYCO	BMB2A1000L	FFC 110-3/121
	10001		005	3 Pin (3x1) 0.1" Header &	1100	M20-9990346	FEC 102-2249 &
LK1			LINK-3P	Shorting Block in A	Harwin	& M7566-05	150-411
				3 Pin (3x1) 0.1" Header &		M20-9990346	FEC 102-2249 &
LK2			LINK-3P	Shorting Block in A	Harwin	& M7566-05	150-411
ТКЗ			SIP-2P	2 Pin (0.1" Pitch) Header & Shorting Shunt	Harwin	M20-9990246	FEC 102-2247 & 150-411
LIIG			511 21			11120 3330210	FEC 1022244 &
			JUMPER_2_I	4 Pin (2X2) 0.1" Header &		M20-9983646	150-411 (36 Pin
LK4			NVTEXT	Shorting Block	Harwin	& M7566-05	Strip)
1.K5			SIP-2P	2 Pin (0.1" Pitch) Header & Shorting Shunt	Harwin	M20-9990246	FEC 102-2247 & 150-411
LIIG			511 21			11120 3330210	FEC 1022244 &
				4 Pin (2X2) 0.1" Header &		M20-9983646	150-411 (36 Pin
LK6			JUMPER_2	Shorting Block	Harwin	& M7566-05	Strip)
мстк			TESTPOINT-	Test point, not inserted, keep	n/a	n/a	Do Not Insert
MICEN			JMALL		17.0	SI2304DDS-	Do Not insert
Q1			SOT23	MOSFET Transistor	Vishay Siliconix	T1-GE3	FEC 185-8939
					ON		
02			SOT23	TRANSISTOR NPN SOT-23	SEMICONDUCT	MMBT3904LT	FFC 145-9100
Q2 D1			P0602	Posistor pot inserted 0602	n/2	n/2	Do Not Incort
	DINI		10003	Resistor, not inserted, 0005	11/ d	MC 0.063W	Do Not Insert
R2	100K	0.01	R0603	SMD Resistor	Multicomp	0603 1% 100K	FEC 933-0402
						MC 0.063W	
R3	100K	0.01	R0603	SMD Resistor	Multicomp	0603 1% 100K	FEC 933-0402
R4	100K	0.01	B0603	SMD Resistor	Multicomp	MC 0.063W	FEC 933-0402
	TOOK	0.01	10005		Mutteomp	CRCW040210	1 LC 933-0402
R5	10K	0.01	R0402	Resistor, 1%, 0402	Phycomp	KOFKEAHP	FEC 173-8864
						CRCW040210	
R6	10K	0.01	R0402	Resistor, 1%, 0402	Phycomp	KOFKEAHP	FEC 173-8864
R7	100K	0.01	B0603	SMD Resistor	Multicomp	MC 0.063W	FFC 933-0402
10/	10010	0.01	110005		Marticomp	CRCW040210	1 20 933 0 102
R8	10K	0.01	R0402	Resistor, 1%, 0402	Phycomp	KOFKEAHP	FEC 173-8864
			D0.422			CRCW0402000	
K9	OR	0.01	R0402	Kesistor, 0402	Vishay	0Z0ED	FEC 146-9661
R10	OR	0.01	R0402	Resistor, 0402	Vishav	0Z0ED	FEC 146-9661
						CRCW0402000	
R11	OR	0.01	R0402	Resistor, 0402	Vishay	0Z0ED	FEC 146-9661

1	1	1	I	I		CPCW0402000	
R12	OR	0.01	R0402	Resistor, 0402	Vishay	0Z0ED	FEC 146-9661
R13	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R14	30K	0.01	R0402	Resistor, 0402, 1%, 30K	Multicomp	MC 0.0625W 0402 1% 30K	FEC 135-8082
R15	10K2	0.01	R0402	SMD Resistor	Multicomp	MC 0.0625W 0402 1% 10K2	FEC 180-3137
R16	69K8	0.01	R0402	Resistor, 0402, 1%, 69K8	Multicomp	MC 0.0625W 0402 1% 69K8	FEC 180-3735
R17	10K2	0.01	R0402	SMD Resistor	Multicomp	MC 0.0625W 0402 1% 10K2	FEC 180-3137
R18	10K2	0.01	R0402	SMD Resistor	Multicomp	MC 0.0625W 0402 1% 10K2	FEC 180-3137
R19	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R20	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R21	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R22	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R23	86K6	0.01	R0402	RESISTOR, 0402, 1%, 86K6	MULTICOMP	MC 0.0625W 0402 1% 86K6	FEC 180-3744
R24	10K2	0.01	R0402	SMD Resistor Resistor, 0402	Multicomp	MC 0.0625W 0402 1% 10K2	FEC 180-3137
R25	15K	0.01	R0402	RESISTOR, 0402, 1%, 15k	MULTICOMP	MC 0.0625W 0402 1% 15k	FEC 1358073
R26	1K	1%	R0402	Resistor, 0603	Multicomp	MC 0.063W 0603 1% 1K	FEC 933-0380
R27	1K	1%	R0402	Resistor, 0603	Multicomp	MC 0.063W 0603 1% 1K	FEC 933-0380
R28	1950r- 1990r		TO-92- MODIFIED	Thermistor	Infineon	Q62705-K110	Philips (Arrow) KTY81/110
R29	1K	1%	R0402	Resistor, 0603	Multicomp	MC 0.063W 0603 1% 1K	FEC 933-0380
R30	1K	1%	R0402	Resistor, 0603	Multicomp	MC 0.063W 0603 1% 1K	FEC 933-0380
R31	DNI		R0402	Resistor, not inserted, 0402	n/a	n/a	Do Not Insert
R32	1K	1%	R0402	Resistor, 0603	Multicomp	MC 0.063W 0603 1% 1K	FEC 933-0380
R33	OR	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739
R34	OR	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739
R35	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R36	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R37	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R38	OR	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R39	OR	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739
R40	1K	1%	R0603	Resistor, 0603	Multicomp	MC 0.063W 0603 1% 1K	FEC 933-0380

R42	10K	0.05	R0402	Resistor, Thick Film, 10Kohm, 62.5mW, 5%	Yageo	RC0402JR- 1310KL	FEC 179-9316
R43	10K	0.05	R0402	Resistor, Thick Film, 10Kohm, 62.5mW, 5%	Yageo	RC0402JR- 1310KL	FEC 179-9316
R44	10K	0.05	R0402	Resistor, Thick Film, 10Kohm, 62.5mW, 5%	Yageo	RC0402JR- 1310KL	FEC 179-9316
R45	10K	0.05	R0402	Resistor, Thick Film, 10Kohm, 62.5mW, 5%	Yageo	RC0402JR- 1310KI	FEC 179-9316
R47	OR	0.01	R0603	Besistor 0603	Vishay Draloric	CRCW0603000	FFC 146-9739
R48	100K	0.01	R0603	SMD Resistor	Multicomp	MC 0.063W	FEC 933-0402
R/Q	OR	0.05	1206	Besistor 1206	Multicomp	MC 0.125W	FEC 033-607/
R50		0.05	1200	Peristor 1206	Multicomp	MC 0.125W	FEC 022 6074
N30		0.05	1200	Resistor, 1200	Multiserrer	MC 0.125W	FEC 933-0974
R5 I	UR	0.05	1206	Resistor, 1206	Multicomp	1206 0R MC 0 125W	FEC 933-6974
R52	OR	0.05	1206	Resistor, 1206	Multicomp	1206 OR	FEC 933-6974
R53	27K	0.01	R0402	Resistor, 0402, 27K	Multicomp	MC 0.0625W 0402 1% 27K	FEC 135-8081
R54	4K53	0.01	R0402	Resistor, Thick Film, 4.53Kohm, 63mW, 1%	Vishay Dale	CRCW04024K 53FKED	FEC 115-1244
R55	61R9	0.01	R0402	Resistor, 0402, 1%, 61R9	Multicomp	MC 0.0625W 0402 1% 61R9	FEC 180-2915
R56	57K6	0.01	R0402	Resistor, 0402, 57K6	Multicomp	MC 0.0625W 0402 1% 57K6	FEC 185-1295
R57	15K	0.01	R0402	Resistor, 0402, 1%, 15K	Multicomp	MC 0.0625W 0402 1% 15K	FEC 135-8073
R58	0R	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R59	0R	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R60	2K4	0.01	R0603	Resistor, Thick Film, 2.4K, 0603, 100mW, 1%	Yageo	RC0603FR- 072K4L	FEC 179-9329
R61	0R	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R62	0R	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R70	0R	0.01	R0402	Resistor, 0402	Vishay	CRCW0402000 0Z0ED	FEC 146-9661
R71	10K	0.01	R0402	Resistor, 1%, 0402	Phycomp	CRCW040210 K0FKEAHP	FEC 173-8864
R81	0R	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739
R82	OR	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739
R83	OR	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739
R84	0R	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739
R87	OR	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739
R88	DNI		R0402	Resistor, 0603, not inserted	n/a	n/a	Do Not Insert
R89	0R	0.01	R0603	Resistor, 0603	Vishay Draloric	CRCW0603000 0Z0EA	FEC 146-9739

R90	DNI	R0402	Resistor, 0402	n/a	n/a	Do Not Insert
REF+		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
REF-		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
REFOUT		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S1		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S1'		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S2		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S2'		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S3		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S3'		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S4		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S4'		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S5		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S5'		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S6		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S6'		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S7		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S7'		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S8		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
S8'		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
SL2		0603-2WAY- BRIDGE	2-way Solder Link (Use 0r 0603 Resistor)	n/a	Insert in Link Position "A"	FEC 933-1662
SL3		0603-2WAY- BRIDGE	2-way Solder Link (Use 0r 0603 Resistor)	n/a	Insert in Link Position "A"	FEC 933-1662
SL5		0603-2WAY- BRIDGE	2-way Solder Link (Use 0r 0603 Resistor)	n/a	Insert in Link Position "B"	FEC 933-1662
SL7		0603-2WAY- BRIDGE	2-way Solder Link (Use 0r 0603 Resistor)	n/a	Insert in Link Position "A"	FEC 933-1662
STAR3		Componen Tlink	Ground Link	n/a	n/a	n/a
TDIN		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
TDIN1		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
TDOUT		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert
TDOUT 1		TESTPOINT- SMALL	Test point, not inserted, keep hole clear of solder	n/a	n/a	Do Not Insert

тасти	TESTPO	INT- Test point, not inserted, kee	ep	n/a	Do Not Insert
	TESTPO	INT- Test point, not inserted, kee	ep	n/a	Do Not Insert
TSYNC	TESTPO	INT- Test point, not inserted, kee	ep n/a	n/a	Do Not Insert
TSYNC1	TESTPO SMALL	INT- Test point, not inserted, kee hole clear of solder	ep n/a	n/a	Do Not Insert
T\CS	TESTPO SMALL	INT- Test point, not inserted, kee hole clear of solder	ep n/a	n/a	Do Not Insert
T\CS1	TESTPO SMALL	INT- Test point, not inserted, kee hole clear of solder	ep n/a	n/a	Do Not Insert
U1	MSO8	32K I2C Serial EEPROM	Microchip	24LC32A-I/MS	FEC133-1330
U2	SO8NB_ -2	RD8 Linear Regulator 5V, 20V, 500mA, Ultralow Noise, CM	Analog OS Devices	ADP7104ARD Z-5.0	ADP7104ARDZ- 5.0
U3	MSO10	Quad Voltage Monitor and Sequencer	Analog Devices	ADM1185ARM Z-1	ADM1185ARMZ -1
U4	MSO8	50 mA, High Voltage, Micropower Linear Regulat ADJ	or - Analog Devices	ADP1720ARM Z-R7	ADP1720ARMZ- R7
U5	LFCSP-3	4 Channel, Low Power, Low 2 Noise, Sigma Delta ADC	Analog Devices	AD7124- 8BCPZ	AD7124-8BCPZ
U6	SO8NB	2.5V low noise Reference	Analog Devices	ADR4525BRZ	ADR4525BRZ
U7	MSO8	50 mA, High Voltage, Micropower Linear Regulat 3.3V	or – Analog Devices	ADP1720ARM Z-3.3-R7	ADP1720ARMZ- 3.3-R7
U10	MSO8	50 mA, High Voltage, Micropower Linear Regulat 3.3V	or - Analog Devices	ADP1720ARM Z-3.3-R7	ADP1720ARMZ- 3.3-R7
V1	R1206	1206 Place Holder	n/a	n/a	Do Not Insert
V2	R1206	1206 Place Holder	n/a	n/a	Do Not Insert
V3	R1206	1206 Place Holder	n/a	n/a	Do Not Insert
V4	R1206	1206 Place Holder	n/a	n/a	Do Not Insert

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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