Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

One Technology Way • P.O. Box 9106 • Norwood, MA 02062-9106, U.S.A. • Tel: 781.329.4700 • Fax: 781.461.3113 • www.analog.com

Evaluation Board for a Quad-Channel, 16-Bit, Serial Input, 4 mA to 20 mA, Voltage Output DAC with Dynamic Power Control and HART Connectivity

FEATURES

Full-featured evaluation board for the AD5755, AD5755-1, AD5757, and
Link options
PC control in conjunction with Analog Devices, Inc., system demonstration platform (SDP)
PC software for control

GENERAL DESCRIPTION

The EVAL-AD575xSDZ is a full-featured evaluation board that is designed to allow the user to easily evaluate all features of the AD5755, AD5755-1, or AD5757, quad channel, 16-bit current source and voltage output DAC with dynamic power control and HART connectivity. The board can be controlled by two means: via the on-board connector (J11) or via the SDP connector (J9). The SDP board allows the evaluation board to be controlled through the USB port of a Windows® XP® (SP2 or later) or Windows Vista® (32-bit or 64-bit) or Windows 7 (32-bt or 64-bit) based PC using the EVAL-AD575xSDZ evaluation software.

DEVICE DESCRIPTION

The AD5755 is a quad, voltage and current output DAC that operates with a power supply range from −26.4 V to +33 V. On-chip dynamic power control minimizes package power dissipation in current mode. This is achieved by regulating the voltage on the output driver from 7.4 V to 29.5 V.

The part uses a versatile 3-wire serial interface that operates at clock rates up to 30 MHz and is compatible with standard SPI, QSPI™, MICROWIRE™, DSP, and microcontroller interface standards. The interface also features optional CRC-8 packet error checking, as well as a watchdog timer that monitors activity on the interface.

The AD5757 is a current output-only version of the AD5755 and is HART compatible. The AD5755-1 is identical to the AD5755 except the $-V_{SENSE\_x}$ functionality has been removed and, instead, the device is HART compatible. For both the AD5757 and AD5755-1, each channel has a corresponding CHART pin so that HART signals can be coupled onto the current output.

EVALUATION BOARD CONNECTION DIAGRAM

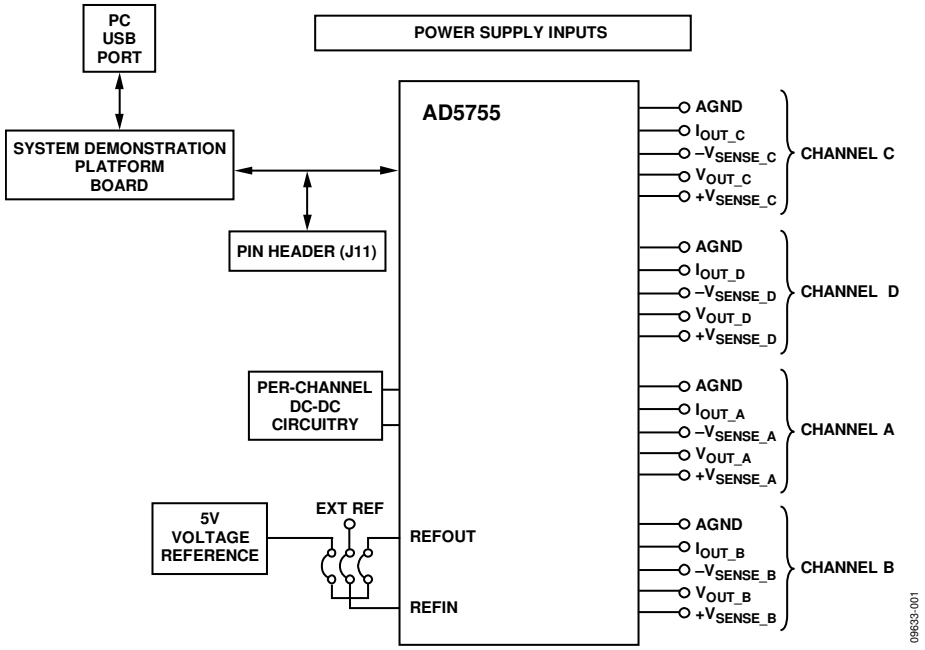


Figure 1.

TABLE OF CONTENTS

REVISION HISTORY

4/13—Rev. A to Rev. B

Changes to Table 1 ... 3

6/11—Rev. 0 to Rev. A

Added AD5755 and AD5757 ... Universal
Changes to Table 2 ... 3
Added Table 5 and Table 6; Renumbered Sequentially; Changes to Table 6, and Changes to Patchwork Section ... 4
Changes to Bill of Materials Section and Related Links Section ... 15

5/11—Revision 0: Initial Version

EVALUATION BOARD HARDWARE

POWER SUPPLIES

The following power supplies are required.

Table 1. Power Supply Connections

Connector	Nominal	Comment
AV_{DD}	15 V	Positive analog supply voltage. 10.8 V to 33 V range. (Green LED D2 lights up when power is supplied to AV_{DD}.)
AV_{SS}	−15 V/ +0 V	Negative analog supply voltage. +10.8 V to −26.4 V range, or 0 V for the AD5757 or AD5755-1 in unipolar supply mode.
AV_{CC}	5 V	DC-to-dc supply voltage. 4.5 V to 5.5 V range. The AV_{CC} input supplies all four on-board dc-to-dc blocks and may draw as much as 0.8 A peak current per channel, depending on the configuration (see the device data sheet for more information).
DV_{DD}	3.3 V	Supplied from the SDP connector. 2.7 V to 5.5 V range.
REFIN	5 V	See Table 3 for selecting the reference source: the AD575x internal reference, the on-board ADR02 reference, or externally provided via the REFIN input.

Both analog AGND and PGND inputs are provided on the board. The PGND input is for the ground of the dc-to-dc converter circuitry, and a ground connection for the AV_{CC} supply should be made at this point. The AGND and PGND planes are connected at one location on the evaluation board.

The AGND and DGND planes are connected at one location close to the AD5755, AD5755-1, or AD5757 device. Each supply is decoupled to the relevant ground plane with 10 µF and 0.1 µF capacitors. Each device supply pin is also decoupled with a 10 µF and 0.1 µF capacitor pair to the relevant ground plane.

LINK OPTIONS

The link options on the evaluation board should be set for the required operating setup before using the board. The functions of the link options are described in Table 3.

Default Link Option Setup

The default link options are listed in Table 2.

Table 2. Default Link Options

Link No.	AD5755 Link Setup	AD5755-1 Link Setup	AD5757 Link Setup
LK0	Removed	Removed	Removed
LK1	Removed	Removed	Removed
LK2	Inserted	Inserted	Inserted
LK3	Inserted	Inserted	Inserted
LK4	Inserted	Inserted	Removed
LK5	Inserted	Removed	Removed
LK6	Inserted	Inserted	Removed
LK7	Inserted	Removed	Removed
LK8	Inserted	Inserted	Removed
LK9	Inserted	Removed	Removed
LK10	Inserted	Inserted	Removed
LK11	Inserted	Removed	Removed
LK12	Removed	Removed	Removed
LK13	Removed	Removed	Removed
LK14	Removed	Removed	Removed
LK15	Removed	Removed	Removed

Table 3. Link Options

Link No.	Device	Description
LK0, LK1, LK2	All Models	These links select the voltage reference source (only one of these should be inserted at any one time). LK0 selects the internal voltage reference of the AD575x as the voltage reference source. LK1 selects an external voltage reference source that can be applied at Connector J7. LK2 selects the on-board ADR02 as the voltage reference source. The ADR02 is supplied by the AV_{DD} supply and operates under the same input voltage range as the AV_{DD} input of the AD575x, that is 9 V to 33 V.
LK3	All Models	Powers the on-board ADR02 5 V reference by connecting the AV_{DD} supply to the ADR02 supply pin.
LK4, LK6 LK10, LK8,	AD5755, AD5755-1	These links connect the $+V_{SENSE}$ input to V_{OUT} for Channel A, Channel B, Channel C, and Channel D, respectively. When this link is inserted, the $+V_{SENSE}$ input is connected directly to the V_{OUTx} pin. When this link is removed, the $+V_{SENSE}$ input is left floating and should be connected to the high-side of the load resistance external to the evaluation board.
LK5, LK7 LK9, LK11,	AD5755	These links connect the $+V_{SENSE}$ input to V_{OUT} for Channel A, Channel B, Channel C, and Channel D, respectively. When this link is inserted, the $+V_{SENSE}$ input is connected directly to the V_{OUT} pin. When this link is removed, the $+V_{SENSE}$ input is left floating and should be connected to the high-side of the load resistance external to the evaluation board.
LK12, LK13, LK14, LK15	All Models	These links allow connection of an external V_{BOOST} supply. (Remove Resistors R43, R44, R17, and R20 to use this feature.) When inserted, these connect the V_{BOOST} pin of Channel A, Channel B, Channel C, and Channel D, respectively, to the AV_{DD} supply. When removed, the V_{BOOST} supplies are controlled by the dc-to-dc converter circuitry.

Connector J11 Pin Descriptions

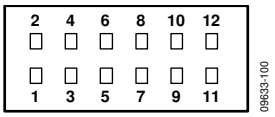


Figure 2. Connector J11 Pin Configuration

Table 4. Connector J11 Pin Descriptions[1]

Pin No.	Description
1	DV_{DD}
2	DGND
3	$\overline{SYNC}$
4	SCLK
5	SDIN
6	SDO (output)
7	$\overline{LDAC}$
8	CLEAR
9	POC (AD5755 and AD5755-1)
10	$\overline{RESET}$
11	$\overline{FAULT}$ (output)
12	ALERT (output)

[1] The SDP board must be disconnected when using the J11 connector.

OUTPUT CONNECTORS

There are five connectors per channel on the EVAL-AD575xSDZ PCB. The output connectors are used as outlined in Table 5, Table 6, and Table 7.

Table 5. On-Board Connectors for AD5755

Connector	Function
GND	There is a per-channel connection to AGND.
A1, B1, C1, D1	I_{OUT} output for Channel A, Channel B, Channel C, and Channel D, respectively.
A2, B2, C2, D2	$-V_{SENSE}$ input for Channel A, Channel B, Channel C, and Channel D, respectively.
A3, B3, C3, D3	V_{OUT} output for Channel A, Channel B, Channel C, and Channel D, respectively.
A4, B4, C4, D4	$+V_{SENSE}$ input for Channel A, Channel B, Channel C, and Channel D, respectively.

Table 6. On-Board Connectors for AD5757

Connector	Function
GND	There is a per-channel connection to AGND.
A1, B1, C1, D1	I_{OUT} output for Channel A, Channel B, Channel C, and Channel D, respectively.
A2, B2, C2, D2	CHART input for Channel A, Channel B, Channel C, and Channel D, respectively. HART signals should be capacitively coupled onto these pins as described in the AD5757 data sheet.
A4, B3, C3, D4	Connection to the IGATEx pin
A3, B4, C4, D3	Not used.

Table 7. On-Board Connectors for AD5755-1

Connector	Function
GND	There is a per-channel connection to AGND.
A1, B1, C1, D1	I_{OUT} output for Channel A, Channel B, Channel C, and Channel D, respectively.
A2, B2, C2, D2	CHART input for Channel A, Channel B, Channel C, and Channel D, respectively. HART signals should be capacitively coupled onto these pins as described in the AD5755-1 data sheet.
A3, B3, C3, D3	V_{OUT} output for Channel A, Channel B, Channel C, and Channel D, respectively.
A4, B4, C4, D4	$+V_{SENSE}$ input for Channel A, Channel B, Channel C, and Channel D, respectively.

DC-TO-DC BOOST

Each channel has a dc-to-dc boost converter. This consists of a Schottky diode, inductor, and a low ESR, high voltage capacitor. A low-pass RC filter is also included on a per-channel basis.

Table 8. DC-to-DC Circuitry

Symbol	Component	Value	Manufacturer
L_{DCDC}	XAL4040-103	10 µH	Coilcraft
C_{DCDC}	GRM32ER71H475KA88L	4.7 µF	Murata
D_{DCDC}	PMEG3010BEA	0.38 V_F	NXP
R_{FILTER}	N/A	10 Ω	N/A
C_{FILTER}	N/A	0.1 µF	N/A

The L_{DCDC} 10 µH inductor provides the best performance at the 410 kHz switching frequency. Consult the AD5755, AD5755-1, AD5757, or data sheet for more information on the dc-to-dc converter circuitry.

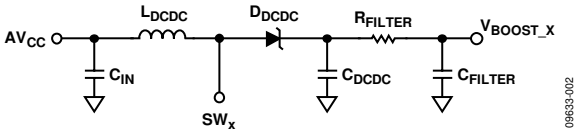


Figure 3. DC-to-DC Converter Circuitry

PATCHWORK

Patchwork is included on the EVAL-AD575xSDZ near the output connectors. This is connected in rows with one row connected to AGND per channel and one row connected to I_{OUT} per channel. All other rows are left floating.

When evaluating the EVAL-AD5757SDZ, the patchwork gives access to the drain, gate and source of a discreet PMOS transistor which can be used to evaluate the Igate functionality.

SYSTEM DEMONSTRATION PLATFORM (SDP)

The EVAL-AD575xSDZ board can connect to the SDP board via the J9 connector. The SDP is a hardware and software platform that provides a means to communicate from the PC to supported Analog Devices products and systems that require digital control and/or readback.The SDP has a Blackfin® (BF527) at its core. This has on-chip USB 2.0 capabilities as well as many external interface ports, such as SPI, SPORT, I^2C, and a 16-bit parallel interface. See Figure 20 for connections made to the SDP board.

EVALUATION BOARD SOFTWARE

SOFTWARE INSTALLATION

The EVAL-AD575xSDZ evaluation kit includes self-installing software on a CD. The software is compatible with Windows XP (SP2) and Windows Vista (32-bit or 64-bit), and Windows 7 (32-bit or 64-bit). If the setup file does not run automatically, you can run **setup.exe** from the CD.

Install the evaluation software before connecting the evaluation board and SDP board to the USB port of the PC to ensure that the evaluation system is correctly recognized when connected to the PC.

1. After installation from the CD is complete, power up the EVAL-AD575xSDZ as described in the Power Supplies section.
2. Next, connect the SDP board to the EVAL-AD575xSDZ and then to the USB port of your PC using the supplied cable.
3. When the evaluation system is detected, proceed through any dialog boxes that appear. This finishes the installation.

SOFTWARE OPERATION

To launch the software, complete the following steps:

1. From the **Start** menu, select **Analog Devices –AD5755 AD5757 AD5755-1**, and then select **AD5755 AD5757 AD5755-1 Evaluation Software.** The main window of the software opens (see Figure 5).
2. If the evaluation system is not connected to the USB port when the software is launched, a connectivity error is displayed (see Figure 4). Simply connect the evaluation board to the USB port of the PC, wait a number of seconds, and click **Rescan.** Follow the instructions.

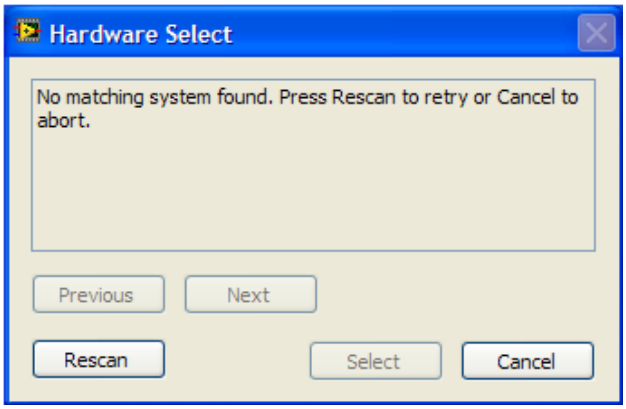


Figure 4. Connectivity Error Alert

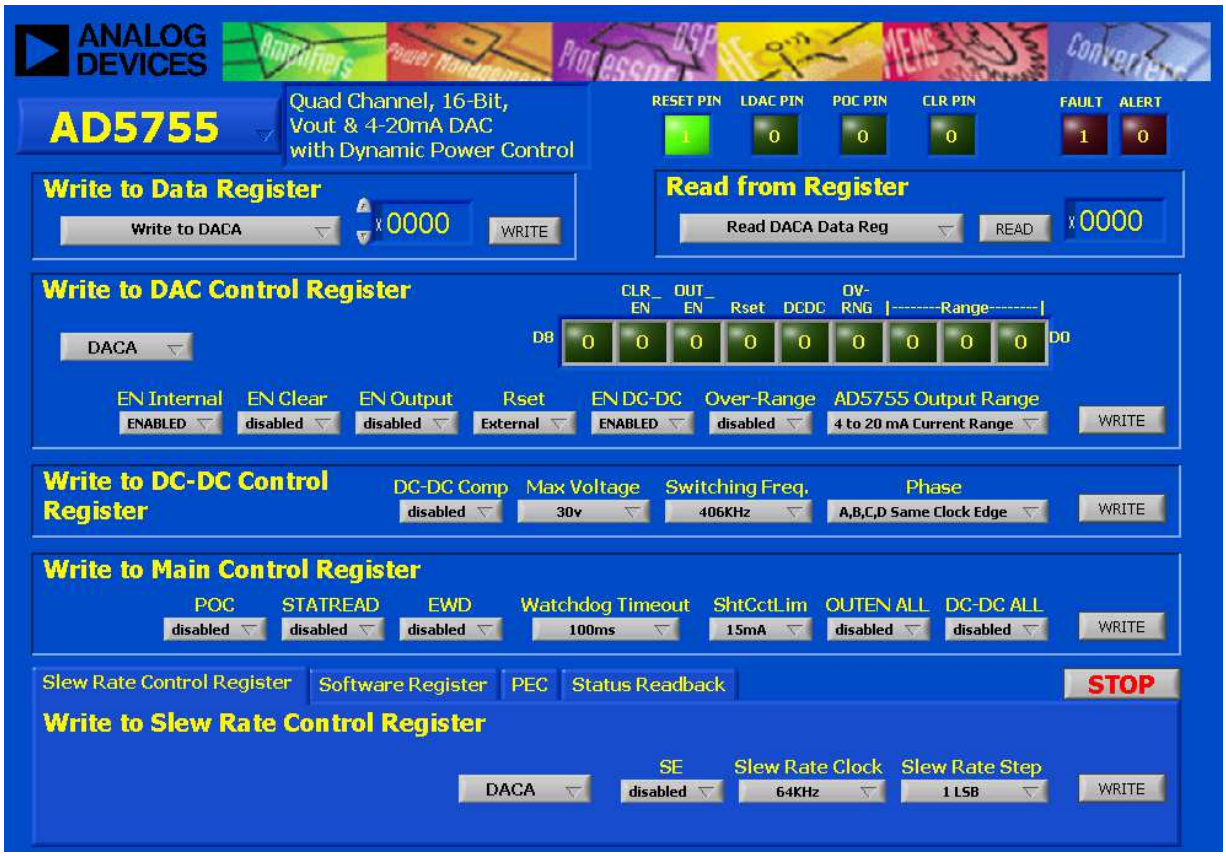


Figure 5. Main Window

SELECTING THE DEVICE

Figure 6. Device Selection

In the top left corner of the main window, select the main device on the board, either AD5755, AD5755-1, orAD5757, from the drop-down list (see Figure 6) to adjust the available controls accordingly.

ENABLING THE OUTPUT CORRECTLY

To correctly write to and set up the part from a power-on condition, use the following sequence.

1. Perform a hardware or software reset after initial power-on.
2. The dc-to-dc converter supply block must be configured. Set the dc-to-dc switching frequency, maximum output voltage allowed, and the phase that the four dc-to-dc channels clock at.
3. Configure the DAC control register on a per channel basis. The output range is selected, and the dc-to-dc converter block is enabled (DC_DC bit). Other control bits can be configured at this point. Set the INT_ENABLE bit; however, the output enable bit (OUTEN) should not be set.
4. Write the required code to the DAC data register. This implements a full DAC calibration internally. Allow at least 200 µs before Step 5 for reduced output glitch.
5. Write to the DAC control register again to enable the output (set the OUTEN bit).

A flowchart of this sequence is shown in Figure 7.

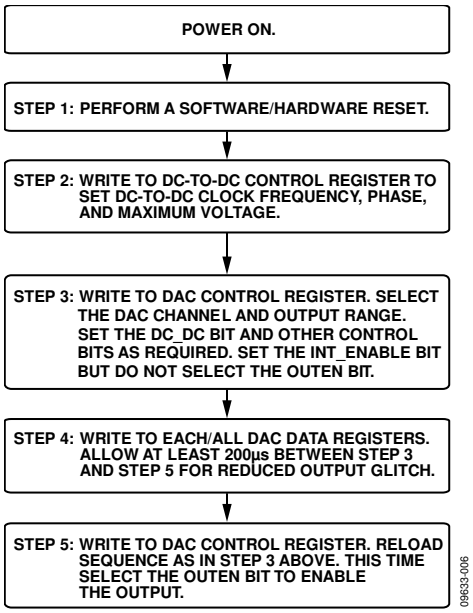


Figure 7. Programming Sequence for Enabling the Output Correctly

CHANGING AND REPROGRAMMING THE RANGE

When changing between ranges, the same sequence as described in the Enabling the Output Correctly section should be used. It is recommended to set the range to its zero point (can be midscale or zero scale) prior to disabling the output. Because the dc-to-dc converter switching frequency, maximum voltage, and phase have already been selected, there is no need to reprogram these. A flowchart of this sequence is shown in Figure 8.

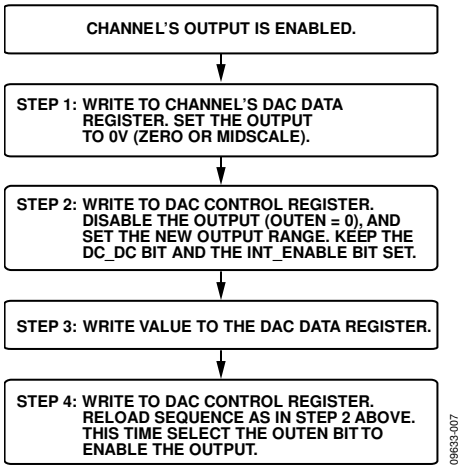


Figure 8. Steps for Changing the Output Range

CLEAR COMMAND

To clear an output, each relevant channel must have its clear code set in the relevant data register (default of 0x0000) and be enabled for clear operation via the DAC control registers. After these are set, assert the CLEAR pin to clear the selected channels.

CONTROL OF DIGITAL PINS

The $\overline{\text{RESET}}$, $\overline{\text{LDAC}}$, POC, and ALERT pins can all be controlled by clicking the relevant boxes shown in Figure 9. The **FAULT** and **ALERT** boxes display the status of the ALERT and $\overline{\text{FAULT}}$ pins. The $\overline{\text{FAULT}}$ and ALERT pins of the device are polled by the evaluation software every ~100 ms. The $\overline{\text{FAULT}}$ pin is also connected to the reference LED, D1, on the evaluations board, and ALERT is connected to the orange LED, D14.

WRITING TO DATA REGISTERS

This function allows you to write to all the data registers. Select the register to write to from the pull-down menu, enter the 16-bit data-word to be written (in hexadecimal) and click **WRITE** to load data to the register. Note that the gain and offset registers do not update until the DAC has been written to.

READING FROM REGISTERS

This function allows you to read from all the data registers, control registers, and the status register. Select the register to read from the pull-down menu and click **READ**. The 16 bits of LSB data appear in the number box in hexadecimal format.

WRITING TO THE DAC CONTROL REGISTERS

This function allows you to write to and configure the DAC control register for a selected channel. Select the required DAC channel to be configured from the pull-down menu. After configuring the settings you require, click **WRITE** to write to the device. The LSB data written to the selected channel's DAC control register is shown in the register display at the top right of Figure 12.

Table 9. DAC Control Register Functions

Option	Description
EN Internal	Powers up internal amplifiers. This should be done when enabling the output.
EN Clear	Selects if the channel clears when the CLEAR pin is activated.
EN Output	Enables/disables the selected output channel.
Rset	Selects whether internal or external sense resistor is used when using a current range.
EN DC-DC	Powers up/down the dc-to-dc converter on a selected channel. To correctly power down the dc-to-dc converter, **EN Output** and **EN Internal** must also be disabled.
Over-Range	Enables/disables 20% overrange. This is available on V_{OUT} ranges only.
Output Range	Selects the output range for the specified channel.

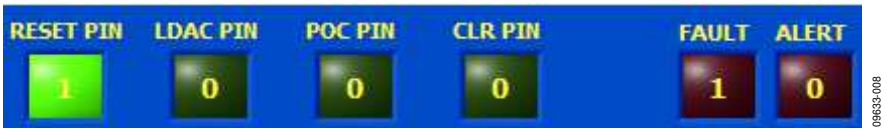


Figure 9. Digital Pin Controls and Indicators in the Evaluation Software

Figure 10. Write to Data Register in the Evaluation Software

Figure 11. Read from Register in the Evaluation Software

Figure 12. Write to the DAC Control Registers in the Evaluation Software

WRITING TO THE DC-TO-DC CONTROL REGISTER

This function allows you to write to and configure the dc-to-dc control register. Select the required clamp voltage, switching frequency, and phase from the pull-down menu and click **WRITE** to write the selected data to the device. On the evaluation board, the dc-to-dc converter perform best at a 410 kHz switching frequency (see the DC-to-DC Boost section). See the appropriate data sheet for information on the DC-DC Comp bit. If selecting an external compensation resistor, this can be placed at R12, R13, R14, and R15.

WRITING TO THE MAIN CONTROL REGISTER

This function allows you to write to and configure the main control register. After configuring the settings you require, click **WRITE** to write to the device.

WRITING TO THE SLEW RATE CONTROL REGISTER

The slew rate control register can be accessed from the tab at the bottom of the evaluation software window (see Figure 15). The slew rate control functions (**Slew Rate Clock** and **Slew Rate Step**) allow you to configure the slew rate on a per-channel basis. After configuring the setting you require, click **WRITE** to write to the device.

Table 10. Slew Rate Register Functions

Option	Description
SE	Enable/disable the slew rate control feature.
Slew Rate Clock	Set the slew clock rate.
Slew Rate Step	Set the step size when slewing.

Figure 13. Write to the DC-to-DC Control Register in the Evaluation Software

Figure 14. Write to the Main Control Register in the Evaluation Software

Table 11. Main Control Register Functions

Option	Description
POC	Determines the state of the V_{OUT} channel when the voltage output channel is disabled during normal operation. Disabled: disabled V_{OUT} channels goes to the function set by the POC pin. Enabled: disabled V_{OUT} channels goes to the opposite function of the POC pin.
STATREAD	Enable/disable status readback during a write (see the Status Readback section for details about using this feature).
EWD	Enable/disable the watchdog timer (see the Writing to the Main Control Register section for details about using this feature).
Watchdog Timeout	Select timeout period for watchdog timer (using 100 ms or 200 ms with the evaluation software recommended).
ShtCctLim	Selects short-circuit current limit on the V_{OUT} channels.
OUTEN ALL	Enables the output on all four DACs simultaneously. Do not use **OUTEN ALL** when enabling channels via the DAC control registers.
DC-DC ALL	When set, powers up the dc-to-dc converter on all four channels simultaneously. To power down the dc-to-dc converters, all channels outputs must first be disabled. Do not use the **DC-DC ALL** option when enabling the dc-to-dc converters via the DAC control registers.

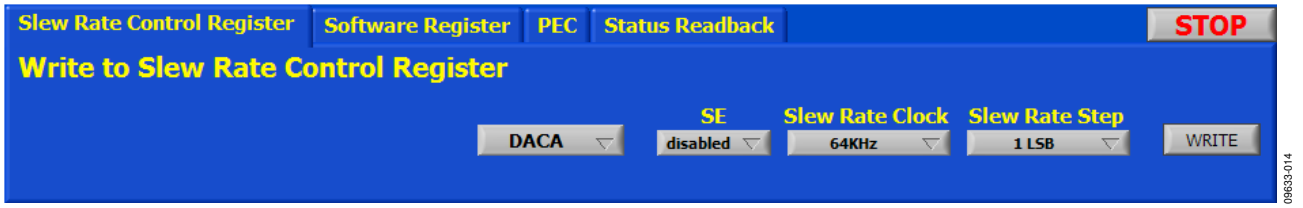


Figure 15. Write to the Slew Rate Control Register and Other Functions in the Evaluation Software

SOFTWARE REGISTER

Click the **Software Register** tab shown in Figure 15 to access this feature. From this tab, you can set the user toggle bit that is contained in the status register and perform a software reset.

This tab contains a feature for using the watchdog timer. By entering a value for **Delay (ms),** the evaluation software attempts to send the SPI code required to the software register (0x195) in approximately the time specified. Note that, because the latency of the USB connection is not strictly defined, this time delay is only a rough estimate but can be far exceeded. It is recommended to use the 100 ms or 200 ms watchdog timeouts when using this feature.

This tab also contains the option to latch the ALERT pin display in the evaluation software. See the Control of Digital Pins section for more information on the ALERT pin.

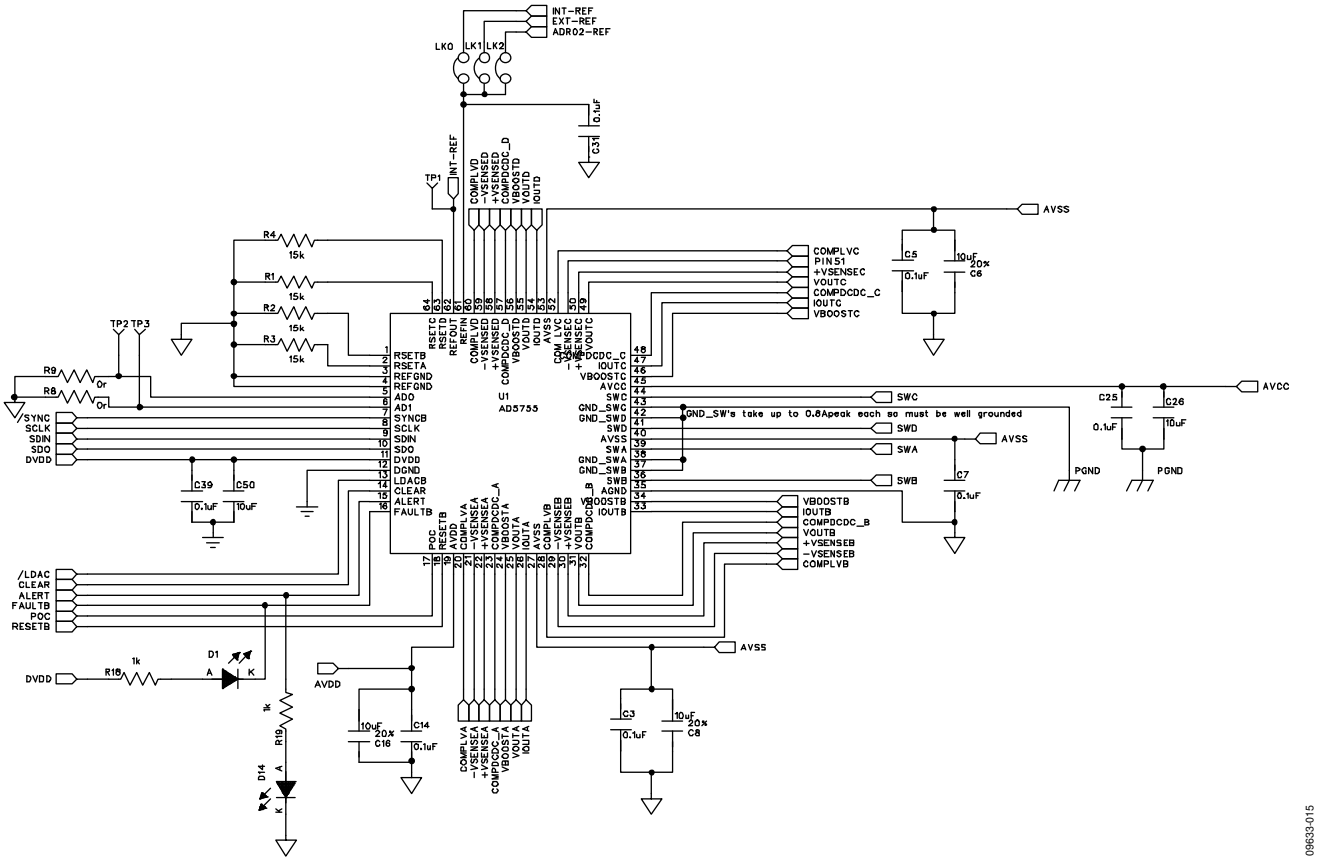
PEC

Click the **PEC** tab shown in Figure 15 to access this feature. Click the **Use PEC** button to enable the automatic PEC feature of the device: an 8-bit PEC code is appended to the end of every write sequence and is read at the end of every read sequence. The data and PEC written are displayed in this tab; if a PEC error occurs, the $\overline{\text{FAULT}}$ pin lights up. During a read operation, the data received from the device and the PEC code received are displayed in this tab.

STATUS READBACK

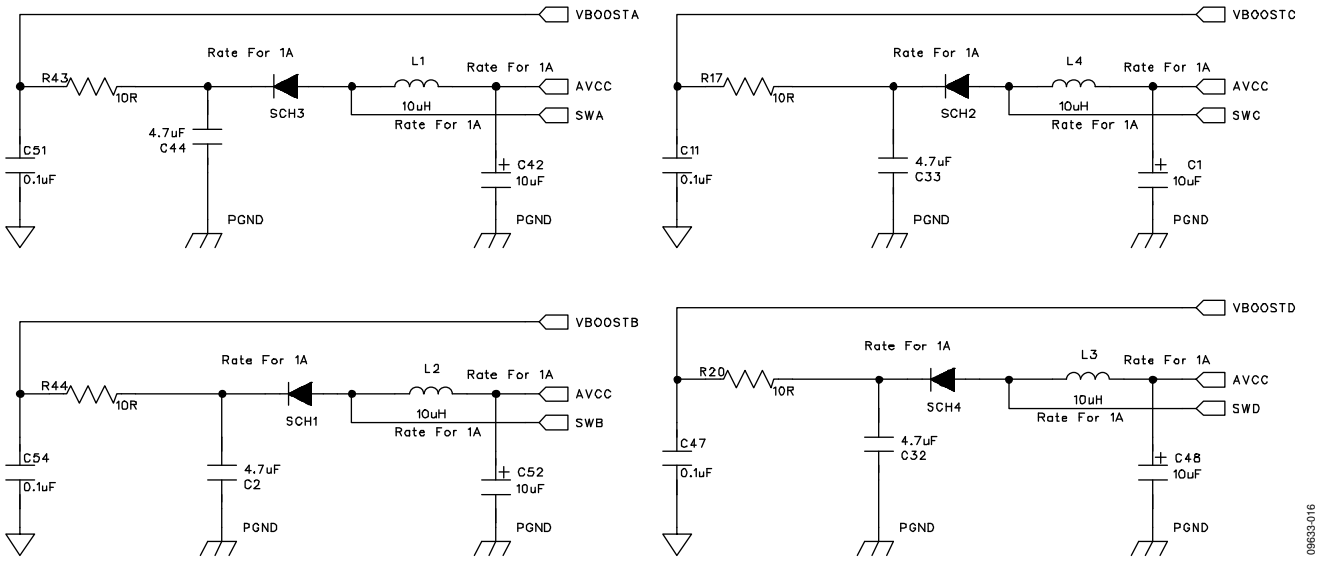
When **STATREAD** is enabled (see Figure 14), the status register is displayed in the **Status Readback** tab shown in Figure 15. Note that the status register readback on a write operation reports any errors present immediately before the current write command.

EVALUATION BOARD SCHEMATICS AND ARTWORK



09633-015

Figure 16. Main Device Circuitry



09633-016

Figure 17. DC-to-DC Circuitry

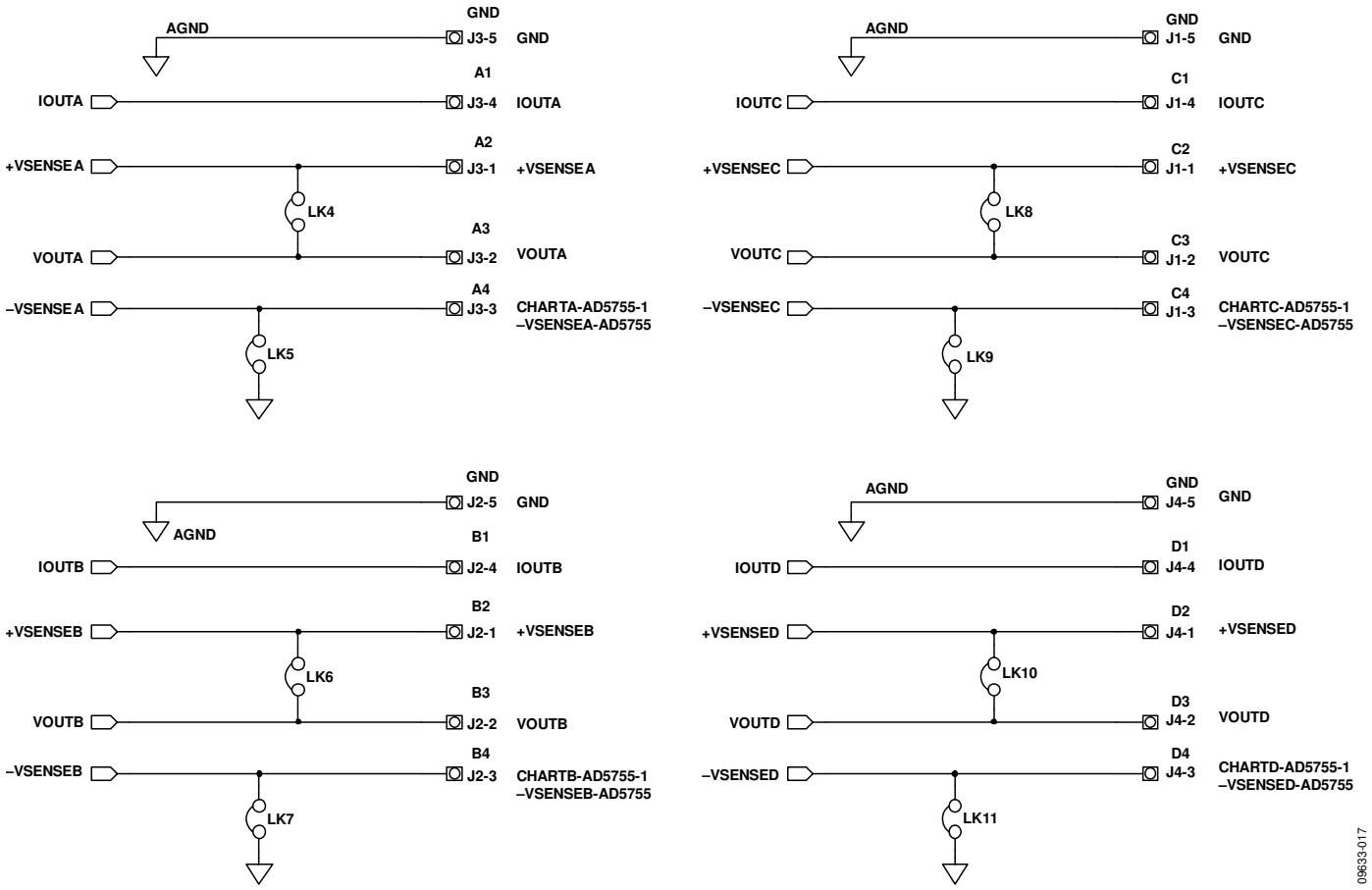


Figure 18. Output (Terminal Blocks) Circuitry

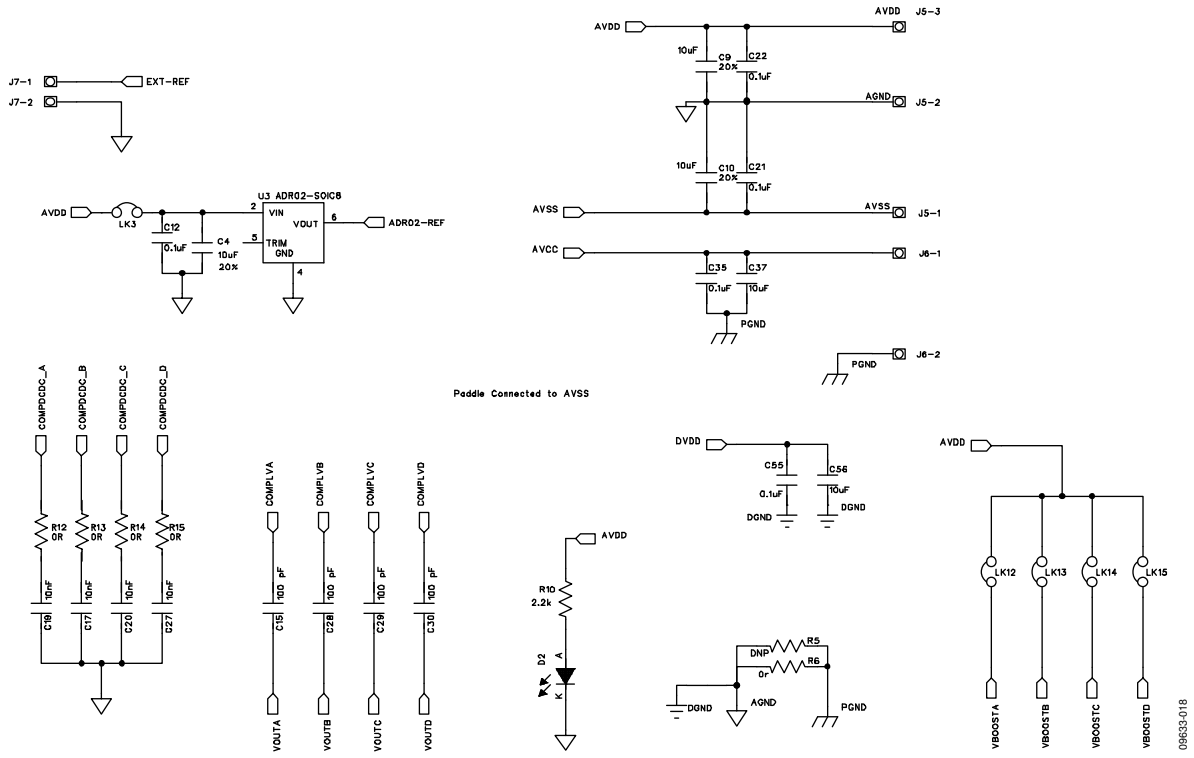


Figure 19. Supply Connections and Circuitry

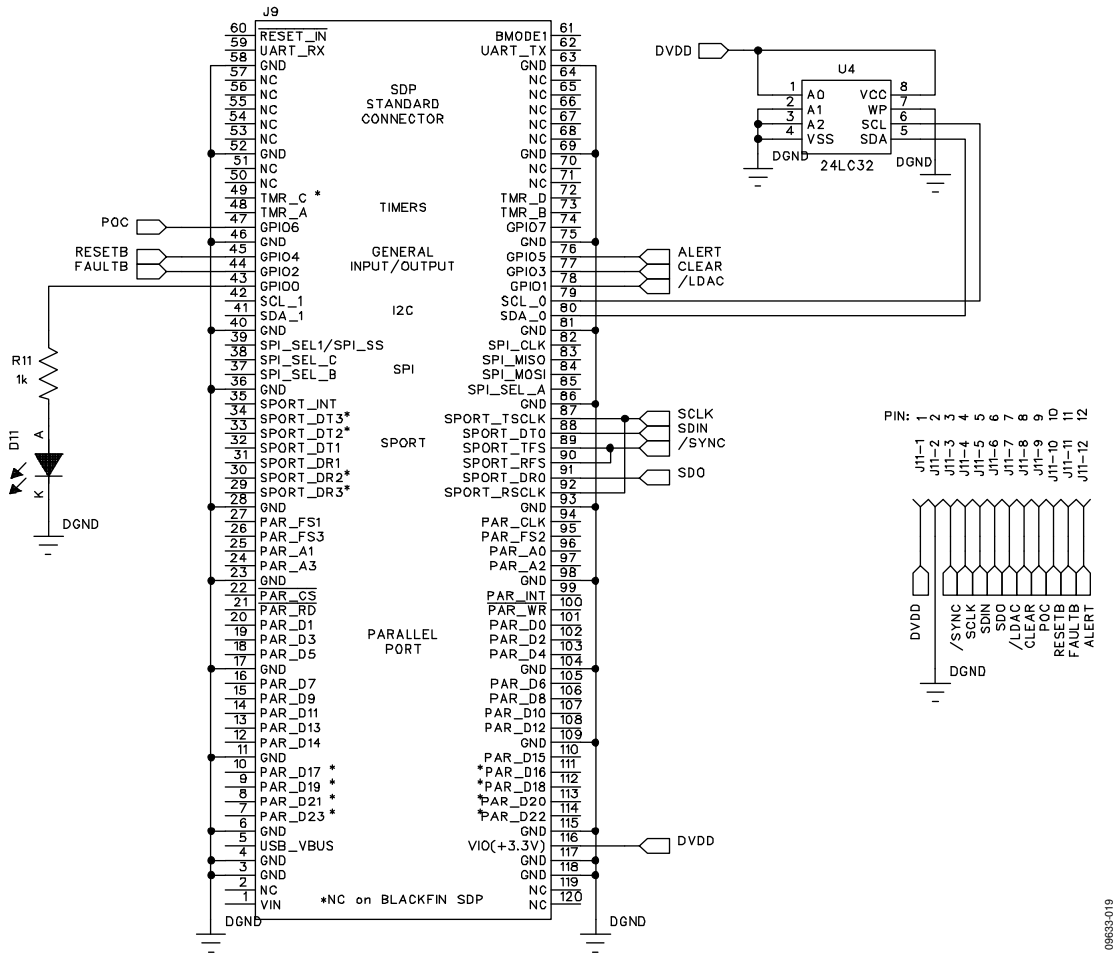


Figure 20. SDP Board Connector

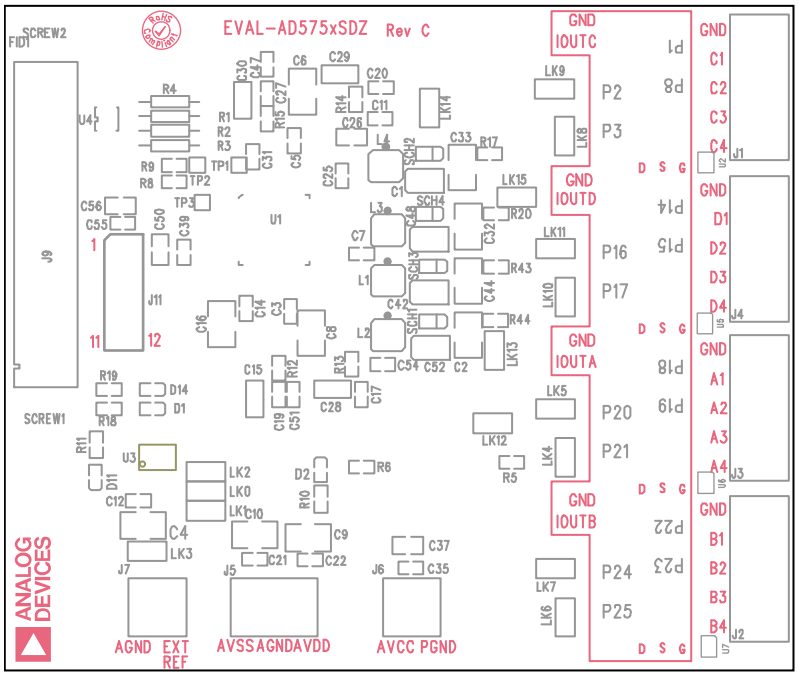


Figure 21. Component Placement

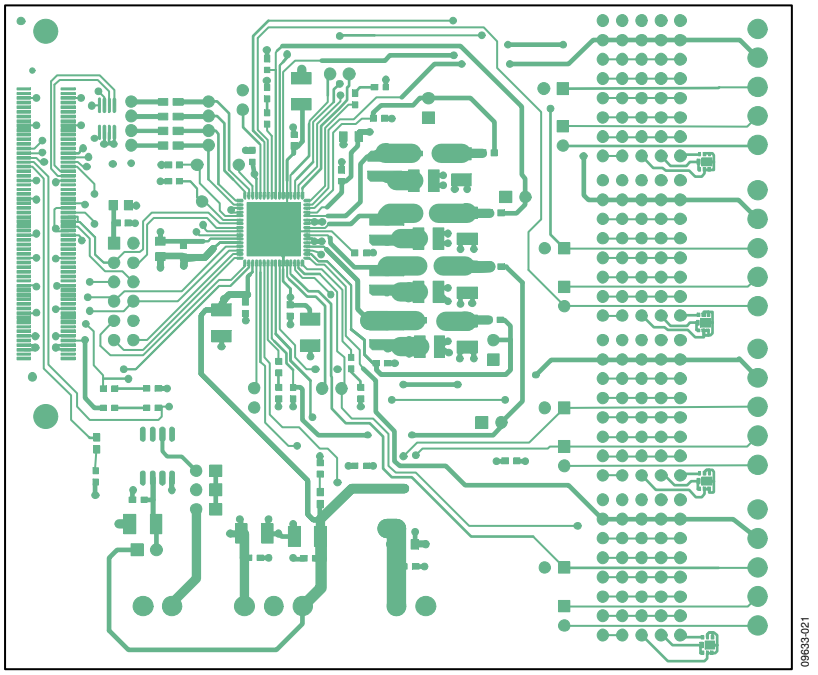


Figure 22. Top PCB Layer

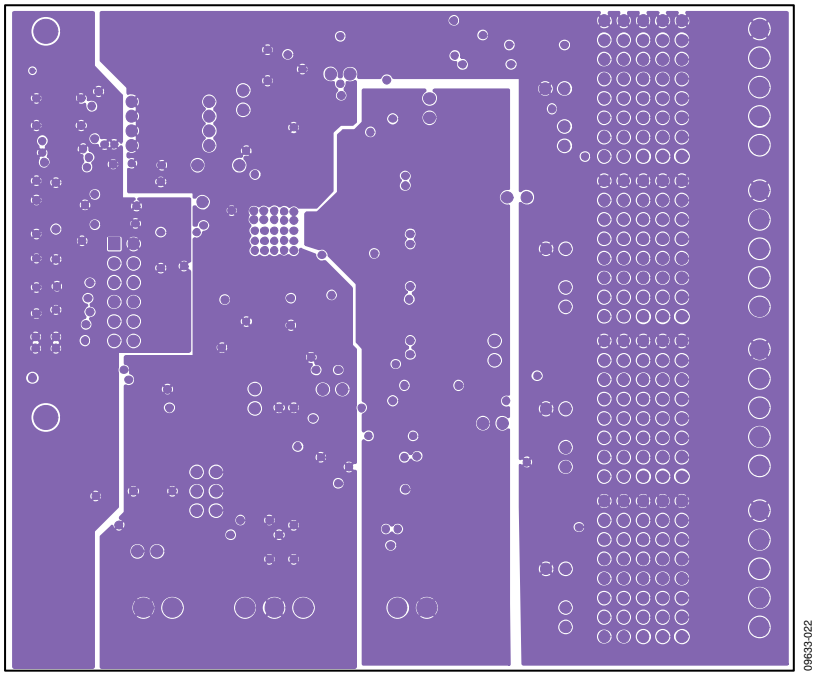


Figure 23. Inner First PCB Layer

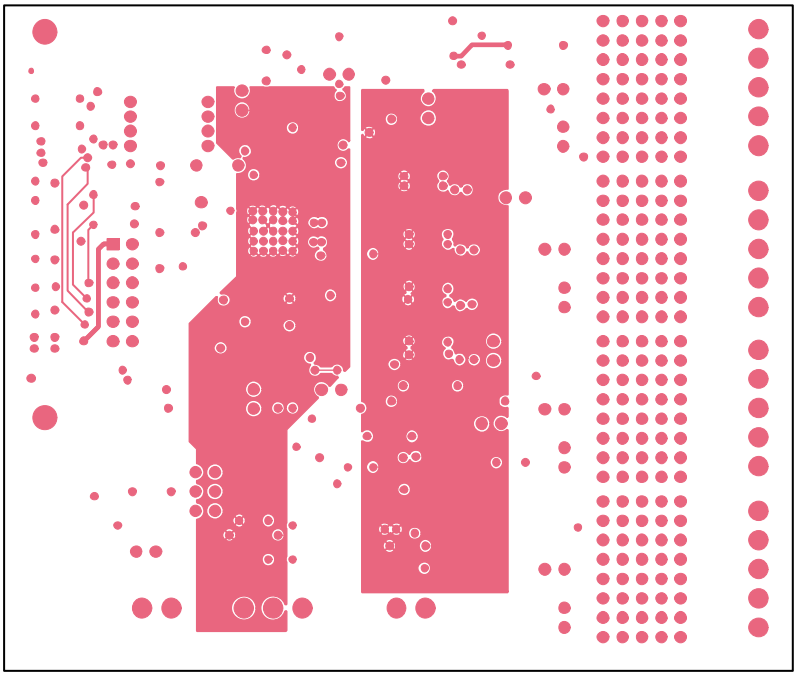


Figure 24. Inner Second PCB Layer

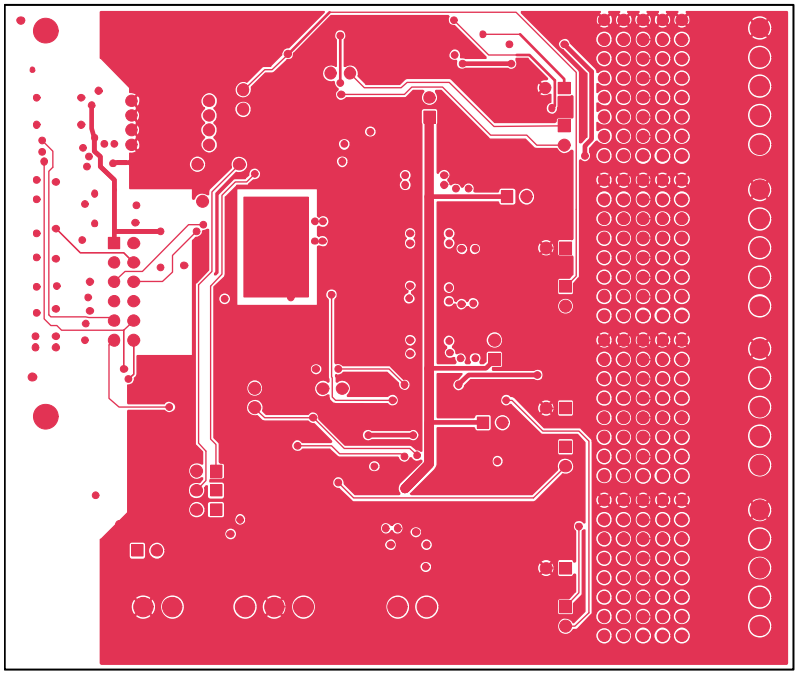


Figure 25. Bottom PCB Layer

ORDERING INFORMATION

BILL OF MATERIALS

Table 12.

Qty	Reference Designator	Part Description	Part Number	Stock Code
4	C1, C42, C48, C52	10 µF, 10 V, SMD tantalum capacitor, Case A	TCJA106M010R0300	FEC 1135234
4	C2, C32, C33, C44	4.7 µF, 50 V, X7R ceramic capacitor, 1210	GRM32ER71H475KA88L	FEC 1404215
5	C4, C6, C8, C10, C16	10 µF, 50 V, X5R ceramic capacitor, 1210	UMK325BJ106MM-T	FEC 1683595
17	C3, C5, C7, C9, C11, C12, C14, C21, C22, C25, C31, C35, C39, C47, C51, C54, C55	0.1 µF, 50 V, X7R ceramic capacitor, 0603	C0603C104K5RAC	FEC 1288255
4	C15, C28 to C30	100 pF, 100 V, C0G ceramic capacitor, radial	B37979G1101J	FEC 1200381
4	C17, C19, C20, C27	10 nF, 50 V, X7R ceramic capacitor, 0603	B37931K5103K60	FEC 753622
4	C26, C37, C50, C56	10 µF, 16 V, X5R ceramic capacitor, 0805	GRM21BR61C106KE15L	FEC 1762635
1	D1	Red, SMD LED, 0603	SML-D12U8WT86	FEC 1685094
3	D2, D11, D14	Green, SMD LED, 0603	SML-512MWT86R	FEC 1685076
4	J1 to J4	5-pin terminal block (3.81 mm pitch)	3704609	FEC 3704609
1	J5	3-pin terminal block (3.81 mm pitch)	1727023	FEC 3704580
2	J6, J7	2-pin terminal block (3.81 mm pitch)	1727010	FEC 3704579
1	J9	120-way connector, 0.6 mm pitch	FX8-120S-SV(21)	FEC 1324660
1	J11	12-pin (2 × 6) 0.1" pitch header	M20-9980646	FEC 1022238
4	L1 to L4	Inductor	XAL4040-103	Coilcraft XAL4040-103
16	LK0 to L15	2-pin (0.1" pitch) header and jumper socket	M20-9990246	FEC 1022247 and FEC 150411
4	R1, R2, R3, R4	15 kΩ, low drift, SMD resistor, 0805	PCF0805-13-15K-B-T1	FEC 1108896
1	R5	0 Ω, SMD resistor, 0603	CRCW06030000Z0EA	DNP
7	R6, R8, R9, R12, R13, R14, R15	0 Ω, SMD resistor, 0603	CRCW06030000Z0EA	FEC 1469739
1	R10	2.2 kΩ, SMD resistor, 0603	CRCW06032K20JNEA	FEC 1652868
3	R11, R18, R19	1 kΩ, SMD resistor, 0603	CRCW06031K00JNEA	FEC 1652851
4	R17, R20, R43, R44	10 Ω, SMD resistor, 0603	CRCW060310R0FKEA	FEC 1469751
4	SCH1 to SCH4	1 A, 30 V, Schottky diode, SOD323	PMEG3010BEA	FEC 8737991
3	TP1 to TP3	Test point		DNP
1	U1	Quad 16-bit DAC with dynamic power control	AD5755-1	AD5755-1ACPZ
1	U3	5 V precision reference, 8-lead SOIC	ADR02BRZ	ADR02BRZ
1	U4	32 kB I²C serial EEPROM, 8-lead MSOP	24LC32A-I/MS	FEC 1331330
4	U2, U5, U6, U7	MOSFET P-channel, 30 V. Only populate on EVAL-AD5757 boards	NTLJS4149PTAG	N/A

RELATED LINKS

Resource	Description
AD5755	Product Page, Quad Channel, 16-Bit, Serial Input, 4 mA to 20 mA and Voltage Output DAC, Dynamic Power Control
AD5757	Product Page, Quad Channel, 16-Bit, Serial Input, 4 mA to 20 mA Output DAC, Dynamic Power Control, HART Connectivity
AD5755-1	Product Page, Quad Channel, 16-Bit, Serial Input, 4 mA to 20 mA and Voltage Output DAC, Dynamic Power Control, HART Connectivity
ADR02	Product Page, Ultracompact, Precision 5.0 V Voltage Reference

NOTES

ESD Caution

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.

UG09633-0-4/13(B)

www.analog.com