Click here to ask an associate for production status of specific part numbers.

Evaluates: MAX98397

MAX98397 Evaluation System

General Description

The MAX98397 evaluation system (EV system) is a fully assembled and tested system that evaluates the MAX98397 Class-D audio amplifier. The EV system consists of the MAX98397 Development board (DEV board), Audio Interface board III (AUDINT3), and a USB cable.

It is recommended that the DEV board be evaluated with the AUDINT3 board, as an EV system.

The MAX98397 supports standard I²S, left-justified, and TDM digital audio interfaces.

The AUDINT3 board provides a USB-to-PCM interface in addition to a 1.8V VDD supply needed to evaluate the DEV board. The MAX98397 DEV board requires two additional supply inputs, 3V to 28V (PVDD) and 3V to 5.5V (VBAT) when evaluating using the AUDINT3 board. Figure 1 details the DEV board.

Features

- 3V to 28V Dual Supply Operation
- USB Audio Streaming (EV System)
- I²S, Left-Justified, or TDM Input
- Fully Assembled and Tested

EV System Contents

- MAX98397 Development Board
- Audio Interface Board III
- Micro-USB Cable

***Ordering Information* appears at end of data sheet.**

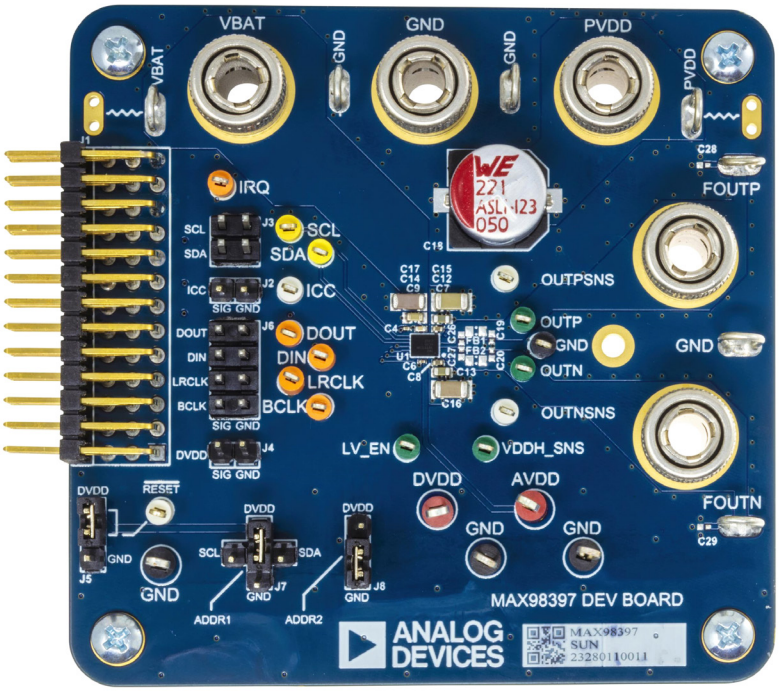


Figure 1. MAX98397 EV Kit Photo

Windows is a registered trademark and registered service mark of Microsoft Corporation.
Windows Media is a registered trademark and registered service mark of Microsoft Corporation.
iTunes is a registered trademark of Apple Inc.

319-101030; Rev 0; 10/23

Quick Start

Note: In the following sections, software-related items are identified by bolding. Text in **bold** refers to items directly from the evaluation software. Text in **bold and underlined** refers to items from the Windows operating system.

Required Equipment

- MAX98397 EV System
  - MAX98397 Development Board (DEV Board)
  - Audio Interface Board III (AUDINT3 Board)
  - Micro-USB Cable
- DC Power Supplies (2.8V to 28V, 9A and 3V to 5.5V, 1A)
- 4Ω to 8Ω Speaker
- PC with Windows 7 or Windows 10 with available USB port
- USB Audio Source (e.g. Windows Media Player® or iTunes®)

Required Software

MAX98397 Evaluation Software (Installer: MAX98397EVSwSetupVxx.exe)

Reference Material

- MAX98397 IC data sheet

Procedure

The EV kit is fully assembled and tested. Follow the steps to install the EV kit software, make the required hardware connections, and start the operation of the kit. The EV kit software can be run without hardware attached. Note that after communication is established, the IC must still be configured correctly for the desired operation mode. Make sure the PC is connected to the internet throughout the process so that the USB driver can be automatically installed.

Table 1. MAX98397 Evaluation Software Folder

ITEM	DESCRIPTION
MAX98397.exe	MAX98397 Evaluation software
Uninstaller.exe	Software uninstaller
USBDriver/FTDI	USB driver installer and help file
USBDriver/Device Manager	Shortcut to the computer's device manager

Software Install:

1) Visit https://www.analog.com/en/products/max98397.html#product-tools to download the latest version of the MAX98397 evaluation software, MAX98397EVSwSetupVxx.zip. Save the software to a temporary folder and unpack the zip file.
2) Install the EV kit software on the computer by running the **MAX98397EvSwSetupX.X.X.exe** program inside the temporary folder. This copies the program files and creates an icon in the Windows **Start** menu. The software requires the .NET Framework 4.5 or later. If connected to the internet, Windows automatically updates the .NET Framework as needed.
3) The EV kit software launches automatically after installation, and it can be launched by clicking on its icon in the Windows **Start** menu.

AUDINT3 Board Setup:

1) Connect the MAX98397 DEV board (3-row J1 connector) to the AUDINT3 board (3-row J1 connector). To avoid damage, it is important to make sure the connectors of the two boards are properly aligned. The bottom row of both J1 connectors should be lined up so the standoffs on the corners of the AUDINT3 and DEV board are level.
2) With the audio source disabled, connect the Micro-USB cable from your computer to the USB port (J2) on the AUDINT3 board. The AUDINT3 board provides the BCLK and LRCLK signals as well as the power for DVDD and AVDD, sourcing 1.8V to the DEV board through the J1 connector.
3) The multi-color LED D1 initially flashes blue, and then changes to slow flashing magenta when the computer successfully registers the AUDINT3 as a USB audio playback device.

DEV Board Setup:

1) Set the ENABLE jumper, J5, to DVDD.
2) Load the default config file through the MAX98397 evaluation software (**File→Load Register Settings→Pre-Installed Configuration Files**).
3) Connect the speaker. Connect the speaker leads across the FOUTP and FOUTN binding posts.
4) With the DC supplies not powered, connect the 3V to 28V power supply across the PVDD and GND binding posts and the 3V to 5.5V power supply across the VBAT and GND binding posts.

USB Audio Playback Test:

1) Enable the PVDD supply voltage (24V is typical) and VBAT supply voltage (5V is typical).
2) Open the Windows **Sound** dialog and select the **Playback** tab. A **Speakers** item as seen in Figure 2 should be listed as an available playback device.
3) Verify that the **Speakers** item is set as the default device. Once this is done, the AUDINT3 board outputs PCM data to the DIN pin on the DEV board.
4) Adjust the audio source volume to a low level.
5) Enable the audio source and verify that audio is heard through the connected speaker. Adjust the audio source volume as needed.
6) Quick Start for USB Audio Playback is now complete.
7) For details on how to connect in a standalone mode to audio test equipment, such as Audio Precision, see the Detailed Description of Hardware section.

Figure 2. Playback Device

Detailed Description of Software

The MAX98397 evaluation software is designed to be used only with the MAX98397 EV system. The software provides an intuitive graphical user interface (GUI) for programming the MAX98397 device and includes a handful of features that are intended to aid evaluation.

The MAX98397 evaluation software main window (Figure 3) is composed of four main sections: a **menu bar**, a **communication toolbar**, **tabbed pages**, and a **status bar**. The **menu bar** provides additional features to aid evaluation, the **toolbar** provides basic functionality for communicating with the device, and the **status bar** provides information about hardware connectivity and communication status. The **tabbed pages** make up the bulk of the GUI and provide the controls for programming the MAX98397 device registers.

The **Block Diagram** tab provides access to all device registers using dialog windows, which contain GUI controls for configuring the device. The dialog windows are opened by clicking on the blocks in the block diagram. The **Control Registers** tab provides access to the valid registers in the range from 0x2000 through 0x210F as well as to the revision ID register, 0x22FF.

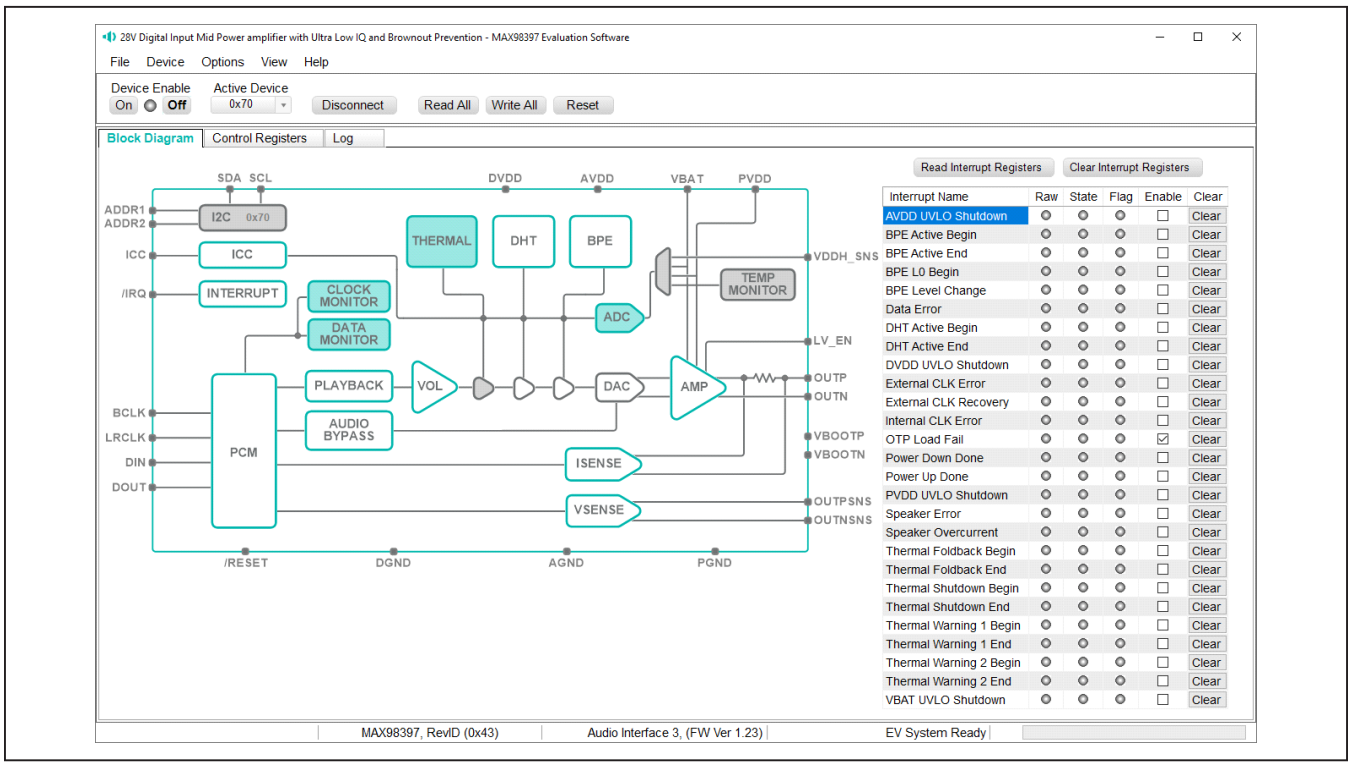


Figure 3. MAX98397 Evaluation Software—Main Window

The MAX98397 evaluation software is compatible with Windows 7 and Windows 10 and can be downloaded from **https://www.analog.com/en/products/max98397.html#product-tools**. Refer to the *MAX98397* IC data sheet for device register information.

Communication Tool Bar

The toolbar consists of six buttons and a drop-down combo box. These controls are always accessible, regardless of the active tabbed page. The toolbar shown in Figure 4 and Table 2 provides details about each control.

Connect Sequence

When the evaluation software starts for the first time, the program attempts to automatically connect to the EV system. It first attempts to connect to the USB Control (USB1) interface on the AUDINT3 board. Once that connection is established, it searches for all the I²C addresses associated with the MAX98397 device and populates all detected device addresses in the **Active Device** drop-down list. During this sequence, the text on the **Connect To** button automatically changes from **USB** to **Device to Disconnect** and the status bar also is updated to reflect the current state of the hardware connection.

Once the EV system is fully connected, the button displays **Disconnect**, and when pushed, it disconnects the software from the hardware. The software can also be disconnected from the hardware by selecting **Options | Disconnect** from the menu bar.

The method to re-establish is to manually push the **Connect to** button until it displays **Disconnect**, which signifies that the EV system is fully connected.

Figure 4. Communication Tool Bar

Table 2. Tool Bar Controls

CONTROL	FUNCTION
On	Press to set the Global Enable bit (EN). This enables the device.
Off	Press to clear the Global Enable bit (EN). This disables the device. **Note:** The software can communicate with a disabled device, being that its I²C interface remains active.
Active Device	Provides a list of detected I²C addresses. The displayed address is the active device.
Connect/Disconnect	See the **Hardware Connection** section for additional details.
USB	Press to connect to the USB Control (USB1) interface on the AUDINT1 board.
Connect	Detected addresses are shown in the **Active Device** drop-down list.
Disconnect	Press to disconnect from the USB Control (USB1) interface.
Read All	Press to initiate a read of all device registers. The **Control Registers** and **Block Diagram** tabs are updated to reflect the read data.
Write All	Press to initiate a write to all device registers, using the settings shown on the **Control Registers** tab.
Reset	Press to reset device registers to their Power-On-Reset (POR) state.

Status Bar

The **Status** bar is divided into three sections. From left to right, the device part number and revision ID, AUDINT3's firmware version, and the EV system status.

Status Panel

The **Status** panel (not to be confused with the **Status** bar) displays the STATUS values of the device's status registers. This data is read from the **Live Status** registers (0x2001 through 0x200E).

A text string is displayed in the **Interrupt Name** column and an image is displayed in the **RAW and STATE** column to indicate the setting of the associated Raw and State bits. When the image is visible, it indicates that the associated state bit has been set.

Block Diagram Tab

The evaluation software uses an interactive block diagram to facilitate the programming of the MAX98397 device. The block diagram also provides a visual representation of the device's functions and current configuration.

There are two types of blocks in the block diagram and they are identified by the cursor image. The cursor changes to a hand when over a block that has an associated dialog window. If the cursor does not change (i.e., remains an arrow) then that block does not have an associated dialog window. Clicking on a dialog block opens a dialog window, containing the controls for that functional block.

The color of a diagram block changes, depending on the enabled state of the device function(s) associated with that block. A disabled block is grey and an enabled block is teal. Figure 5 shows the **Block Diagram** with the MAX98397 configured for DAI (USB audio) input and speaker output.

Dialog Windows

Dialog windows are associated with specific blocks in the block diagram and they contain the controls for configuring the registers associated with that functional block. A dialog window is opened by clicking on a dialog block. Figure 6 shows the typical GUI controls that are found on a dialog window.

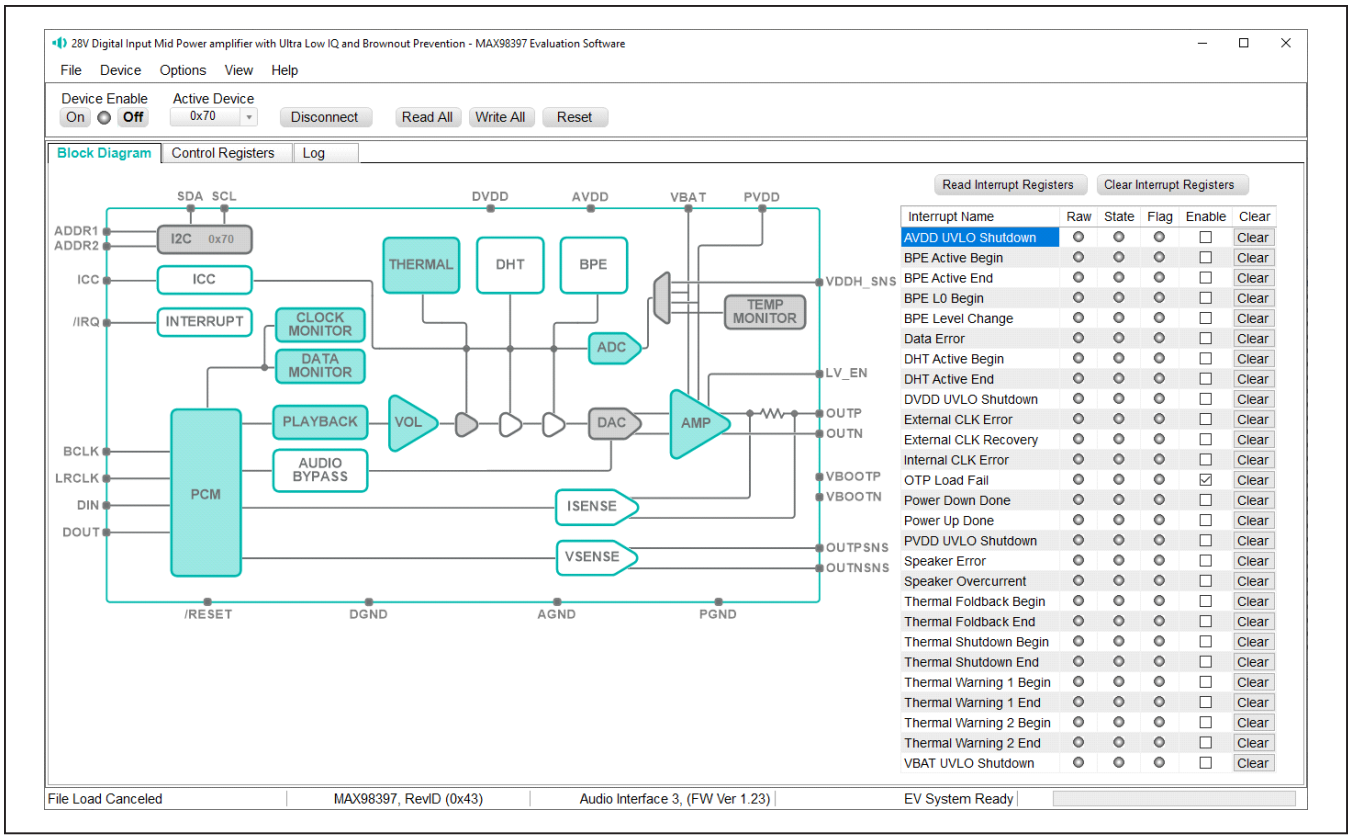


Figure 5. MAX98397 Block Diagram—USB Audio Input to Speaker Output

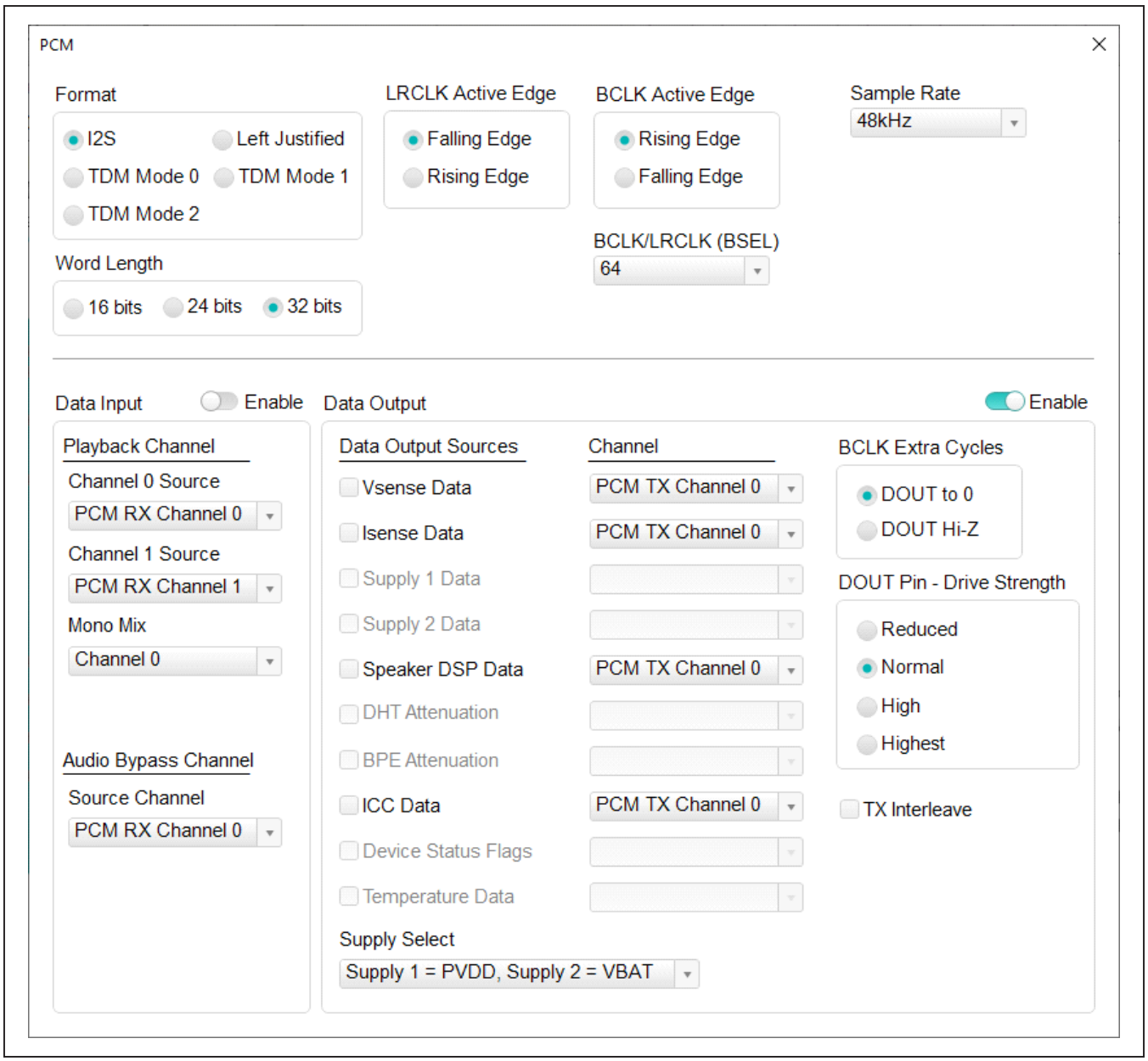


Figure 6. Typical GUI Controls

Control Registers Tab

The **Control Registers** tab provides two methods for configuring the device. As an example, Figure 7 shows the elements of the DAI registers.

The first configuration method involves clicking on the register's bit labels. A greyed-out bit label indicates that the bit is currently set low. A bold bit label indicates that the bit is currently set high. Clicking on a bit toggles its state and results in a write to that register. This action also updates the value displayed in the register's **Edit Box**, located to the left of the bit labels.

The second configuration method involves entering a hexadecimal value in the register's **Edit** box and then pressing the **Enter** key. The software automatically configures the device register once the **Enter** key is pressed. The state of the bit labels also are updated to reflect the value shown in the **Edit** box.

Note: Trying to write to a read-only bit, by clicking/toggling its label or entering a hex value in its **Edit** box, updates the GUI, but it does not affect the bit's value in the device. All read-only bits are updated to reflect their current value in the device by performing a read-all operation.

All changes made on this tab are reflected on the **Block Diagram** tab and any open dialog windows.

Menu Bar

All menu bar items are described in Table 3. Additional information for some menu items is provided in the following sections.

File I/O

The software's save and load features are accessed from the **File** menu. The **Save** feature saves the data currently displayed on the **Control Registers** tab.

A configuration file's main purpose is to capture the current state of the MAX98397's registers, as displayed on the **Register** tab. This feature makes it easy to program a device to a saved/known state and allows for the sharing of configuration files between users. To facilitate usage, use descriptive file names when saving configuration files.

The save and load features are functional even when the hardware is not connected. This allows configuration files to be created and opened when hardware is not available. Since the configuration file is automatically generated by the software, it is not meant to be manually formatted, and doing so may cause file-loading issues. To open a configuration file for viewing purposes, use a plain text editor.

Select File | Save Settings Ctrl + S to create a configuration file. The register address and its data are saved as tab-delimited values and the file is saved with a .98397 extension.

Register Address	Register Name	Hex	[7]	[6]	[5]	[4]	[3]	[2]	[1]	[0]
0x2000	Software Reset	0x00								RST
0x2001	Interrupt Raw 1	0x00	THERMSHDN_...	THERMSHDN_...	THERMWARN1...	THERMWARN1...	THERMFB_BG...	THERMFB_EN...	OTP_FAIL_RAW	SPK_OVC_RAW
0x2002	Interrupt Raw 2	0x00	THERMWARN2...	THERMWARN2...	INT_SPKMON_...	INT_CLK_ERR...		CLK_RECOVE...	CLK_ERR_RAW	DMON_ERR_R...
0x2003	Interrupt Raw 3	0x00	AVDD_UVLO_...	DVDD_UVLO_...	PWRUP_DON...	PWRDN_DON...	PVDD_UVLO_...	VBAT_UVLO_S...	DHT_ACTIVE_...	DHT_ACTIVE_...
0x2004	Interrupt Raw 4	0x00					BPE_L0_RAW	BPE_LEVEL_R...	BPE_ACTIVE_...	BPE_ACTIVE_...
0x2006	Interrupt State 1	0x00	THERMSHDN_...	THERMSHDN_...	THERMWARN1...	THERMWARN1...	THERMFB_BG...	THERMFB_EN...	OTP_FAIL_STA...	SPK_OVC_ST...
0x2007	Interrupt State 2	0x00	THERMWARN2...	THERMWARN2...	INT_SPKMON_...	INT_CLK_ERR...		CLK_RECOVE...	CLK_ERR_ST...	DMON_ERR_S...
0x2008	Interrupt State 3	0x00	AVDD_UVLO_...	DVDD_UVLO_...	PWRUP_DON...	PWRDN_DON...	PVDD_UVLO_...	VBAT_UVLO_S...	DHT_ACTIVE_...	DHT_ACTIVE_...
0x2009	Interrupt State 4	0x00					BPE_L0_STATE	BPE_LEVEL_S...	BPE_ACTIVE_...	BPE_ACTIVE_...
0x200B	Interrupt Flag 1	0x00	THERMSHDN_...	THERMSHDN_...	THERMWARN1...	THERMWARN1...	THERMFB_BG...	THERMFB_EN...	OTP_FAIL_FLAG	SPK_OVC_FLAG
0x200C	Interrupt Flag 2	0x00	THERMWARN2...	THERMWARN2...	INT_SPKMON_...	INT_CLK_ERR...		CLK_RECOVE...	CLK_ERR_FLAG	DMON_ERR_F...
0x200D	Interrupt Flag 3	0x00	AVDD_UVLO_F...	DVDD_UVLO_...	PWRUP_DON...	PWRDN_DON...	PVDD_UVLO_...	VBAT_UVLO_S...	DHT_ACTIVE_...	DHT_ACTIVE_...
0x200E	Interrupt Flag 4	0x00					BPE_L0_FLAG	BPE_LEVEL_F...	BPE_ACTIVE_...	BPE_ACTIVE_...

Figure 7. Control Registers Tab

Table 3. Menu Bar Items

MENU ITEM	DESCRIPTION
File	
Load Register Settings	Loads a configuration file (as saved by the **Save Settings** option).
Save Control Register Settings	Saves a configuration file containing the current device settings.
Exit	Closes the MAX98397 software.
Device	
Connect	Select to have the software automatically connect to the evaluation system.
Disconnect	Disconnects the PC from the evaluation system.
Reset	Resets registers 0x2000 through 0x210F to their Power-On-Reset states.
Read All	Performs a read from all registers and updates the GUI.
Write All	Performs a write to all writeable registers, using the values shown on the **Control Registers** tab, and then updates the GUI.
Read REV ID	Reads the device's revision ID register and updates the status bar.
Options	
Interface Selection	Selects the I^2C hardware interface.
Configuration Mode F4	Opens a dialog that allows multiple MAX98397 devices to be selected for configuration through the software. **Note:** This feature is not yet supported.
Demo Mode	Puts the software in demo mode.
Help	
View Help F1	Provides details on where to find help.
About	Provides information about the MAX98397 evaluation software.

USB Audio Input

To use the USB streaming feature of the AUDINT3 board, ensure that the AUDINT3 board is connected to the DEV board, then connect the USB cable from your computer to the USB connector J2 on the AUDINT3 board. Configure the desired audio signal inputs using the **Audio Controls** panel of the AUDINT3 interface software (Figure 8) accessed from the MAX98397 GUI under **Options**. As described earlier, a computer can be used to supply audio inputs over a USB interface in several selectable formats, found under the **DAI Mode** drop-down menu. The AUDINT3 board can also generate test signal tones of various types, frequencies, and amplitudes as shown in Figure 9.

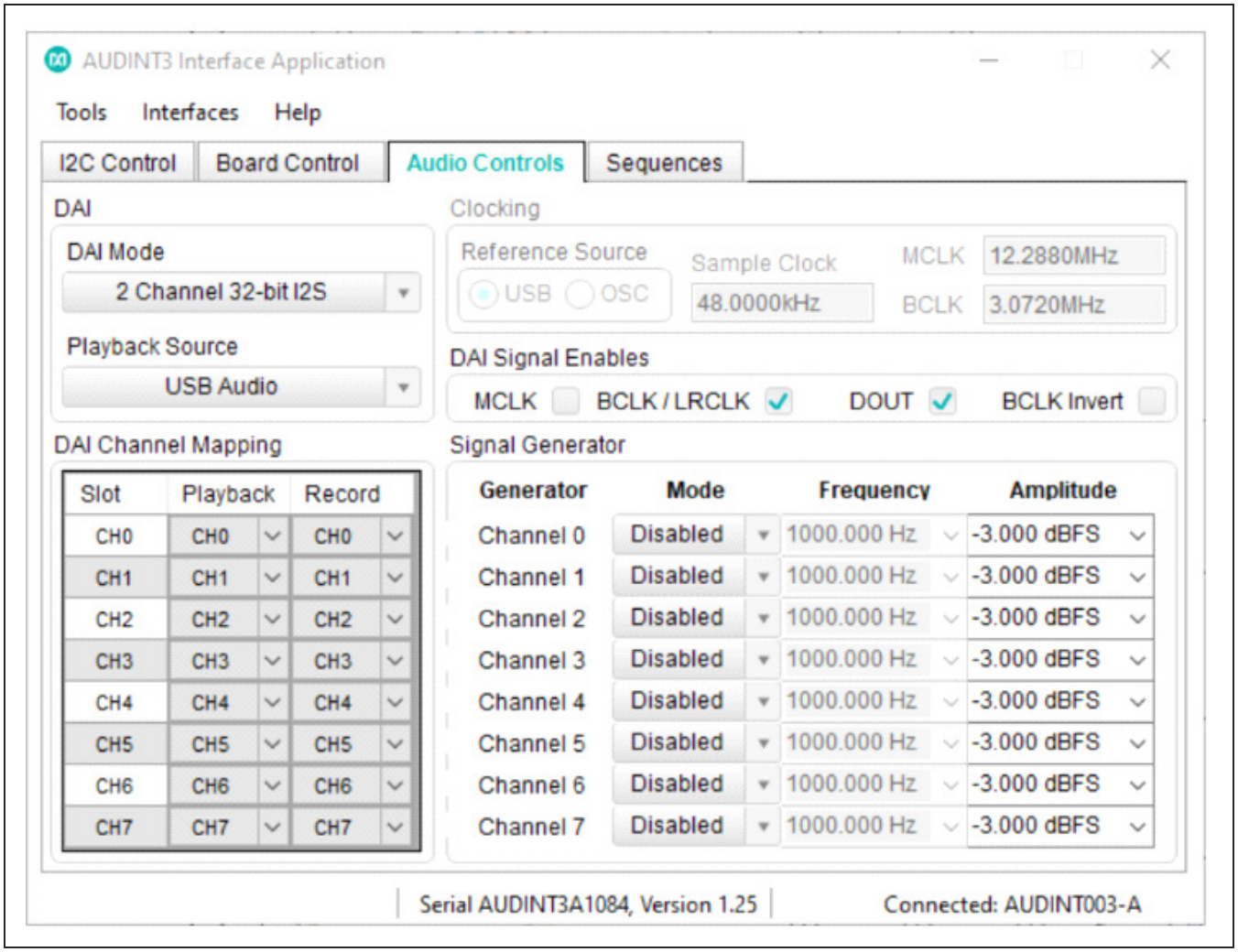


Figure 8. AUDINT3 Configured for Computer Audio Input Over USB

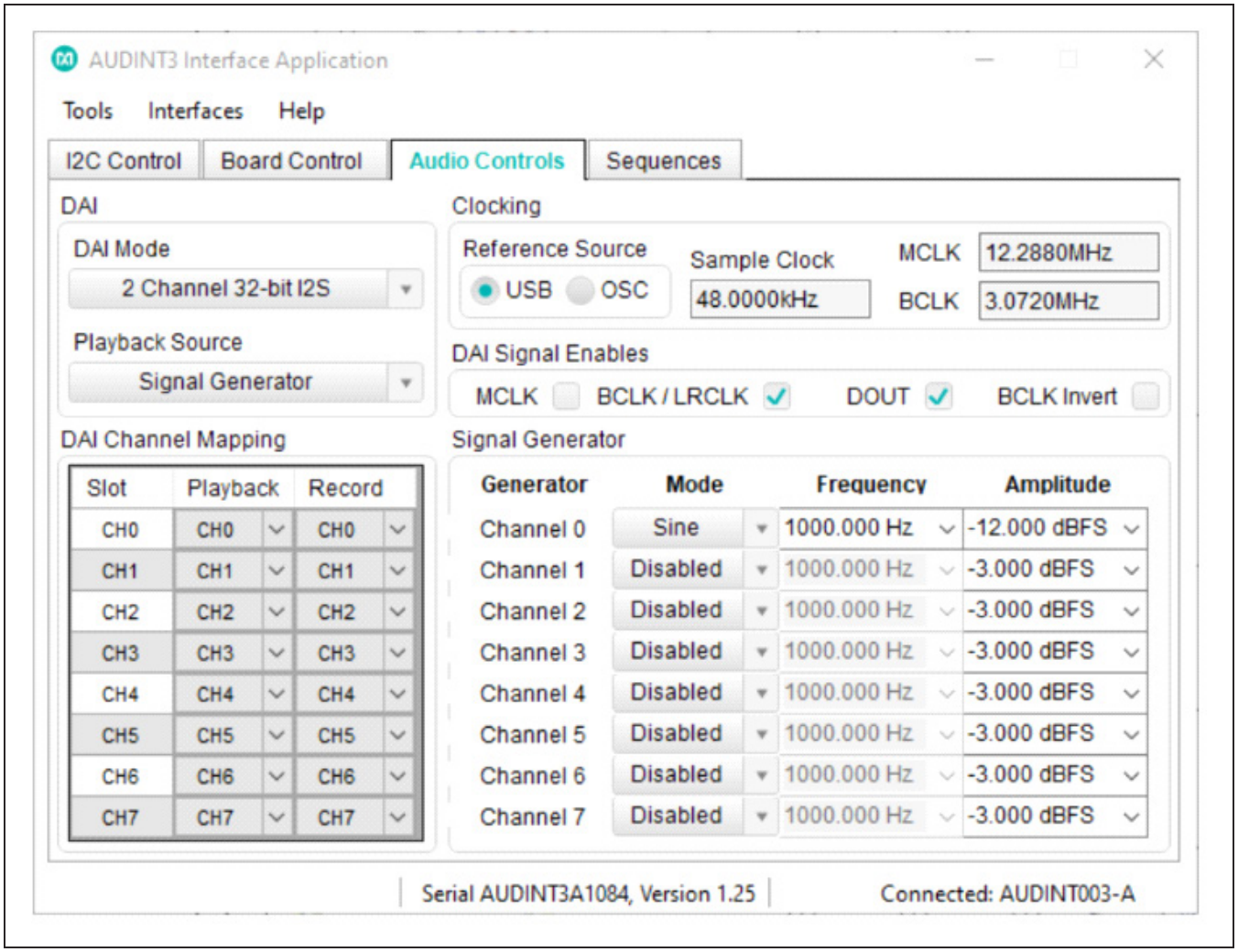


Figure 9. AUDINT3 Configured for a -12dBFS 1kHz Sine Input Using an Internal Signal Generator

Detailed Description of Hardware

The MAX98397 EV system is designed to allow for a thorough evaluation of the MAX98397 digital input Class-D audio amplifier IC. The EV system includes the MAX98397 development board (DEV board), the Audio Interface Board III (AUDINT3), and a Micro-USB cable.

To simplify evaluation, the MAX98397 DEV board can be used together with the AUDINT3 and two external power supplies for PVDD and VBAT. The AUDINT3 supplies 1.8V for DVDD and AVDD, and a plug-and-play USB-to-I2S interface, allowing any computer to become a 48kHz digital audio source. The AUDINT3 board provides a fast and easy-to-use method for exercising the main capabilities of the device with no additional audio equipment.

The AUDINT3 board automatically senses the MAX98397 DEV board and configures its LDO regulators to power the MAX98397 DEV board's DVDD and AVDD pins through the J1 connector. The USB-to-PCM converter accepts a USB audio stream from a USB-connected computer and converts it to an I2S stream, allowing for USB audio playback through the MAX98397 device. The AUDINT3 board should not be used to deliver audio input when directly driving the DEV board's PCM interface with external audio test equipment. The Digital Audio Interface (DAI) pins on the DEV board and AUDINT3 digital audio outputs are connected through the J1 header, creating a signal conflict. Disable all DAI signals using the AUDINT3 software if using external audio stimuli. However, the AUDINT3 can still provide DVDD and AVDD if an external power supply is not available.

Table 4. Power Supplies

POWER SUPPLY	RANGE (V)
DVDD	1.71 to 1.89
AVDD	1.71 to 1.89
VBAT	3 to 5.5
PVDD	3 to 28

For maximum flexibility, the MAX98397 DEV board can also be evaluated as a standalone board, with three external power supplies PVDD, VBAT, and DVDD/AVDD, which are connected by default, and the digital audio signal is driven directly by specialized audio test equipment (Audio Precision, etc.)

Power Supplies

When evaluated as a standalone board, the MAX98397 DEV board requires three external power supplies: PVDD, which is the supply voltage for the main Class-D power stage at higher signal levels, VBAT, which is the supply voltage for the main Class-D at lower signal levels, and DVDD/AVDD, which supplies low-level system power to the IC.

The voltage applied to DVDD determines the logic level of the EN pin when J6 is in the ENABLE position. The power supplies and their ranges are listed in Table 4. The external supply voltages can be connected at the respective supply test points and/or binding posts.

The AUDINT3 board, when properly connected to the DEV board, senses, and automatically provides 1.8V to DVDD and AVDD of the MAX98397 DEV board through jumper J1 while active USB power is supplied. Note that with the AUDINT3 board connected, DVDD and AVDD are automatically provided, but external PVDD and VBAT are still required.

Jumper Selection

Shutdown Mode

The DEV board includes header J5 for device enable. The MAX98397 device features a hardware shutdown mode that is activated by setting the J5 shunt in the DISABLE position. This is the lowest power state, where all device registers are returned to their PoR values and the I2C control interface is disabled. To exit the hardware shutdown mode, place the J5 shunt in the ENABLE position, and initialize the device. See Table 5 for reference.

Table 5. Jumper Configuration

HEADER	SHUNT POSITION	DESCRIPTION
J5	EN to DVDD	Normal Operation
	EN to GND	Shutdown

DAI Headers

The DAI headers provide access to the MAX98397s I²S bus: BCLK, LRCLK, and DATA. This DAI header facilitates evaluation with audio equipment I/O. See Table 6 for the pin-out of the DAI headers. Figure 10 shows a close-up image of the MAX98397 DAT interface header (J6) to be used if connecting external DAI inputs, such as those provided by Audio Precision or other audio test equipment.

Table 6. DAI Headers (J6)

SIGNAL	PIN	PIN	SIGNAL
DOUT	1	2	GND
DIN	3	4	GND
LRCLK	5	6	GND
BCLK	7	8	GND

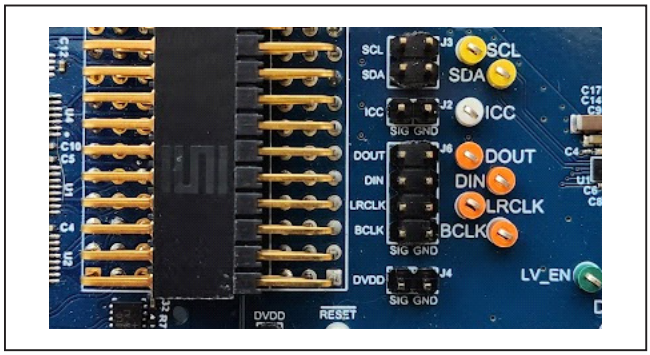


Figure 10. MAX98397 DAI Interface Headers

Speaker Output

The MAX98397 audio output is routed to the OUTP and OUTN connections on the DEV board. The DEV board is, by default, assembled to allow the MAX98397 output to connect directly to a speaker load without the need for filtering.

EMI Filter

When long speaker cables are used with the MAX98397 output (exceeding ≈12in (30 cm)), a ferrite bead plus a capacitor filter can be installed to prevent excessive EMI radiation. Although it is best to choose filter components based on EMI test results, the combination of 100pF capacitors (C7, C9) and ferrite beads (FB1, FB2) generally works well. Before adding the filters to the design, first, remove the small PCB traces shorting the pads of FB1 and FB2 (see the MAX98397 EV System Development Board Schematic and the MAX98397 EV System Development Board PCB Layout Diagrams).

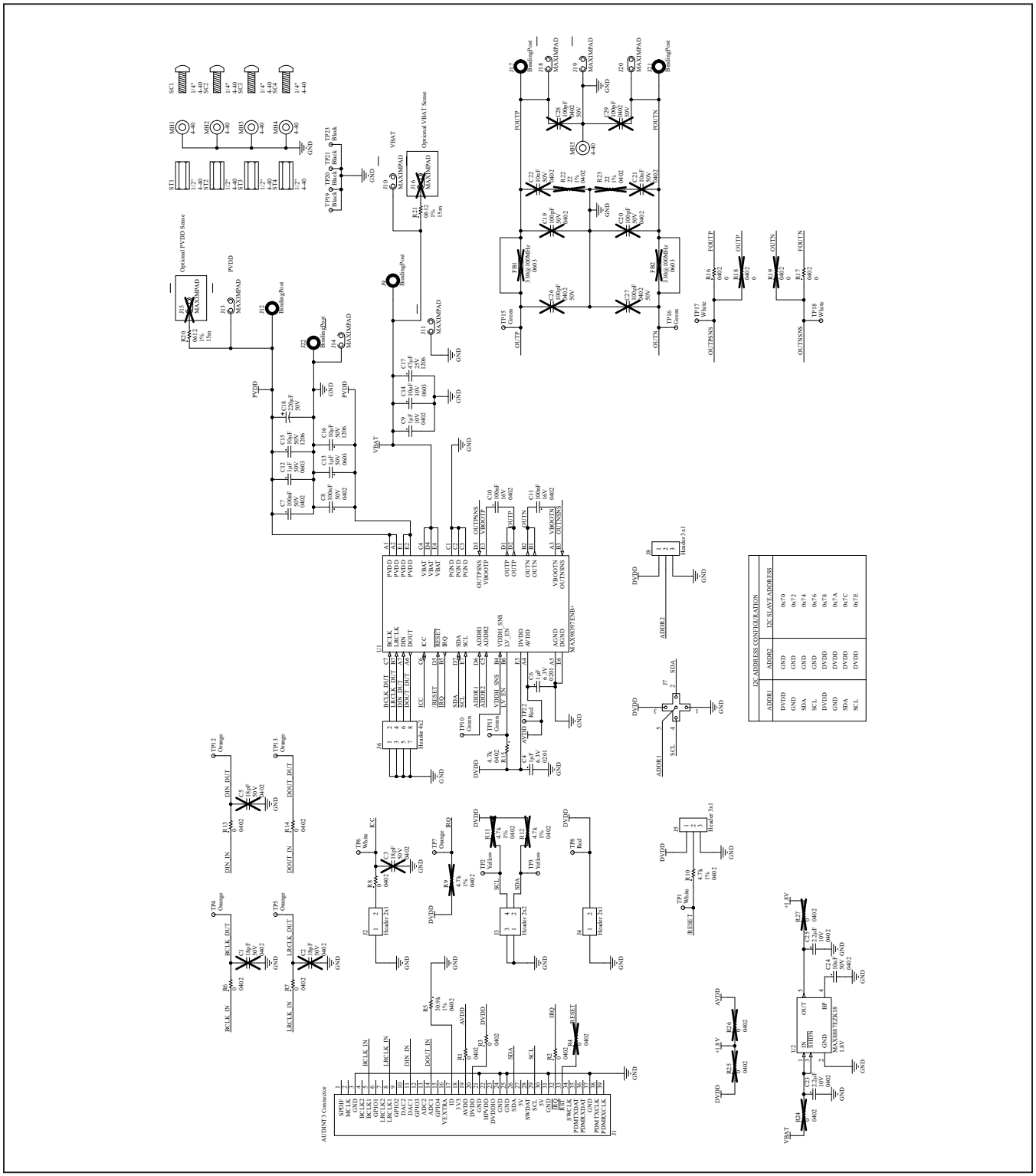
Ordering Information

PART	TYPE
MAX98397EVSYS#	Evaluation System

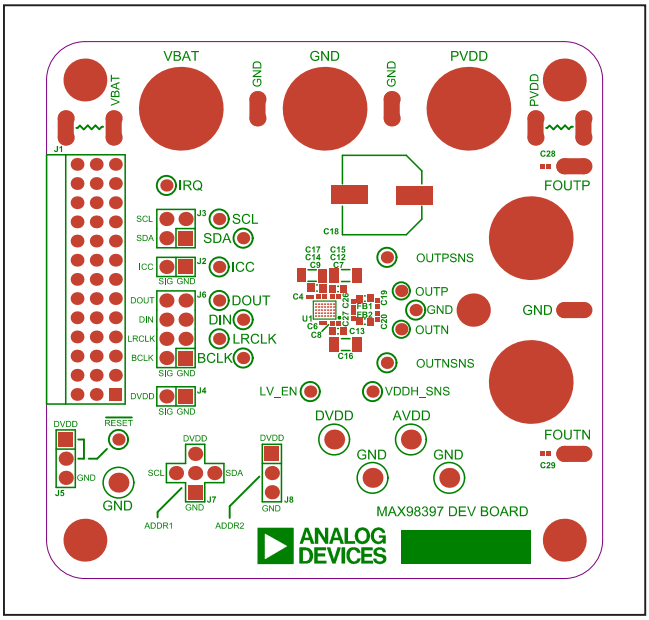
MAX98397 EV System Development Board Bill of Materials

DESIGNATOR	DIELECTRIC	DigiKey	MANUFACTURER	MANUFACTURER PN	MOUSER	PACKAGE	POWER	QUANTITY	TOLERANCE	VALUE	VOLTAGE	DESCRIPTION
C4, C6	X5R	490-7229-1-ND	Murata	GRM033R60J105MEA2D	81-GRM033R60J105ME2D	0201		2	20%	1µF	6.3V	Capacitor / Ceramic / 1µF / 6.3V / 20% / X5R / 0201
C7, C8	X7R	490-10700-1-ND	Murata	GRM155R71H104KE14D	81-GRM155R71H104KE4D	0402		2	10%	100nF	50V	Cap / 100nF / 50V / 10% / X7R / 0402
C9	X5R	490-14577-1-ND	Murata	GRM153R61A105ME95D	81-GRM153R61A105ME5D	0402		1	20%	1µF	10V	Cap / 1µF / 10V / 20% / X5R / 0402
C10, C11	X7R	490-4759-1-ND	Murata	GCM155R71C104KA55D	81-GCM155R71C104KA5D	0402		2	10%	100nF	16V	Cap / 100nF / 16V / 10% / X7R / 0402
C12, C13	X5R	587-2400-1-ND	Taiyo Yuden	UMK107BJ105KA-T	963-UMK107BJ105KA-T	0603		2	10%	1µF	50V	Cap / 1µF / 50V / 10% / X5R / 0603
C14	X5R	490-10474-1-ND	Murata	GRM188R61A106KE69D	81-GRM188R61A106KE9D	0603		1	10%	10µF	10V	Cap / 10µF / 10V / 10% / X5R / 0603
C15, C16	X5R	587-5960-1-ND	Taiyo Yuden	UMK316BBJ106KL-T	963-UMK316BBJ106KL-T	1206		2	10%	10µF	50V	Cap / 10µF / 50V / 10% / X5R / 1206
C17	X5R	GRM31CR61E476ME44K-ND	Murata	GRM31CR61E476ME44K	81-GRM31CR61E476ME4K	1206		1	20%	47µF	25V	Cap / 47µF / 25V / 20% / X5R / 1206
C18	Electrolytic	493-9426-1-ND	Nichicon	UCW1H221MNL1GS	647-UCW1H221MNL1GS	10 x 10		1	20%	220µF	50V	Cap / 220µF / 50V / 20% / Electrolytic / 10mm x 10mm
C23, C25	X5R	587-6016-1-ND	Taiyo Yuden	LMK105BJ225KV-F	963-LMK105BJ225KV-F	0402		2	10%	2.2µF	10V	Cap / 2.2µF / 10V / 10% / X5R / 0402
C24	X7R	490-4762-1-ND	Murata	GCM155R71H103KA55D	81-GCM155R71H103KA5D	0402		1	10%	10nF	50V	Cap / 10nF / 50V / 10% / X7R / 0402
J1			Samtec	TSW-113-08-G-T-RA				1				Updated EVkit Daughter Card Header
J2, J4		SAM1029-02-ND	Samtec	TSW-102-07-G-S	200-TSW10207GS			2				Header, 2x1 Position, 0.1" Pitch
J3		SAM1028-02-ND	Samtec	TSW-102-07-G-D	200-TSW10207GD			1				Header, 2x2 Position, 0.1" Pitch
J5, J8		SAM1029-03-ND	Samtec	TSW-103-07-G-S	200-TSW10307GS			2				Header, 3x1 Position, 0.1" Pitch
J6		SAM1028-04-ND	Samtec	TSW-104-07-G-D	200-TSW10407GD			1				Header, 4x2 Position, 0.1" Pitch
J7		WM24204-ND	Molex	22-28-4055	538-22-28-4055			1				Header / 0.1" Pitch / Unshrouded / 5-pin / Breakaway / Cross Pattern
J9, J12, J17, J21, J22		J587-ND	Johnson	111-2223-001				5				Binding Post
J10, J11, J13, J14, J18, J19, J20		2328-20TCW-ND		20TCW				7				Wire Loop / 20AWG / Tinned Copper / 25mm Length
R1, R2, R3, R6, R7, R8, R13, R14, R16, R17		311-0.0LRCT-ND	Yageo	RC0402FR-070RL	603-RC0402FR-070RL	0402	1/16W	10	1%	0		Resistor / 0O / 1% / 1/16W / 0402
R5		YAG3110CT-ND	Yageo	RC0402FR-0730K9L	603-RC0402FR-0730K9L	0402	1/16W	1	1%	30.9k		Resistor / 30.9kO / 1% / 1/16W / 0402
R10, R15		311-4.7KLRCT-ND	Yageo	RC0402FR-074K7L	603-RC0402FR-074K7L	0402	1/16W	2	1%	4.7k		Resistor / 4.7kO / 1% / 1/16W / 0402
R20, R21		RHM1226CT-ND	Rohm	LTR18EZPFSR015	755-LTR18EZPFSR015	0612	1W	2	1%	15m		Resistor / 15mO / 1% / 1W / 0612
SC1, SC2, SC3, SC4			McMaster-Carr	91772A106				4				Screw / 4-40 x 1/4" / Phillips / Pan Head
ST1, ST2, ST3, ST4			McMaster-Carr	91780A164				4				Standoff / 4-40 x 1/2" / Female-Female / 1/4" Hex
TP1, TP6, TP17, TP18		5002K-ND	Keystone Electronics	5002	534-5002			4				Test Point / Miniature / White
TP2, TP3		5004K-ND	Keystone Electronics	5004	534-5004			2				Test Point / Miniature / Yellow
TP4, TP5, TP7, TP12, TP13		5003K-ND	Keystone Electronics	5003	534-5003			5				Test Point / Miniature / Orange
TP8, TP22		5010K-ND	Keystone Electronics	5010	534-5010			2				Test Point / Multi-Purpose / Red
TP10, TP11, TP15, TP16		5116K-ND	Keystone Electronics	5116	534-5116			4				Test Point / Miniature / Green
TP19, TP20, TP21		5011K-ND	Keystone Electronics	5011	534-5011			3				Test Point / Multi-Purpose / Black
TP23		5001K-ND	Keystone Electronics	5001	534-5001			1				Test Point / Miniature / Black
U1			Maxim	MAX98397ENB+		WLP35		1				28V Digital Input Class DG Amplifier with Ultra Low IQ and Brownout Prevention
U2		MAX8887EZK18+TCT-ND	Maxim	MAX8887EZK18+	700-MAX8887EZK18T	SOT23-5		1			1.8V	Low-Dropout, 300mA Linear Regulators in SOT23 - 1.8V

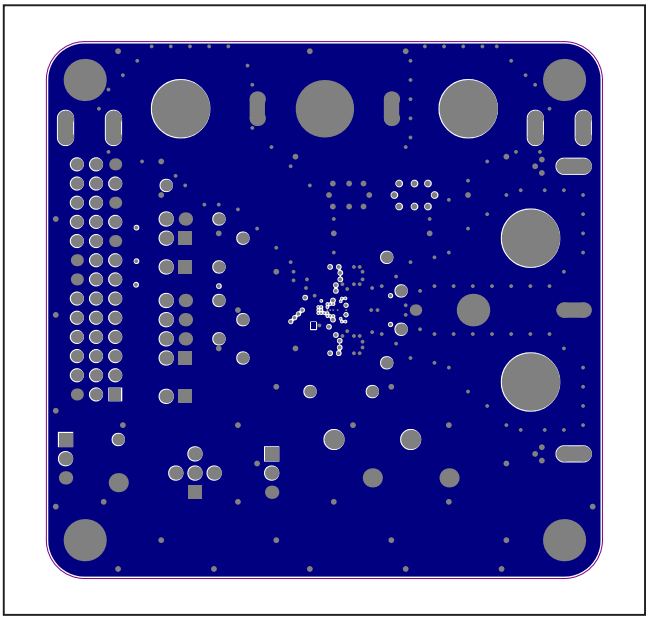
MAX98397 EV System Development Board Schematic



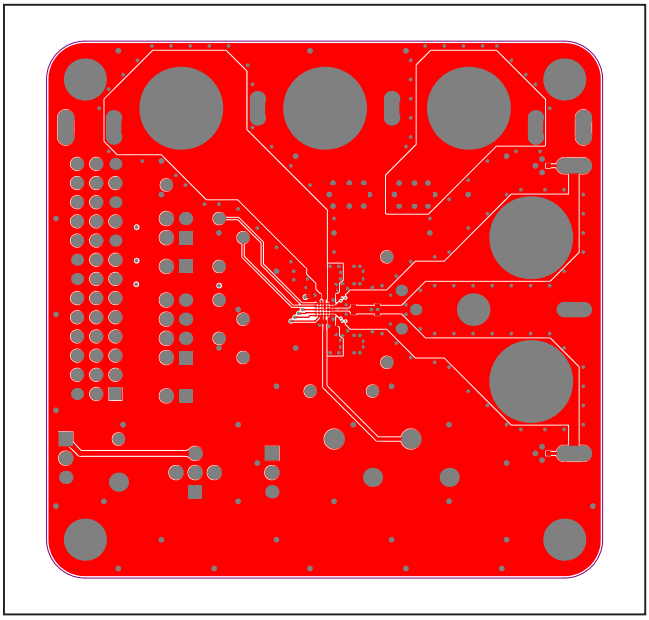
MAX98397 EV System Development Board PCB Layout Diagrams



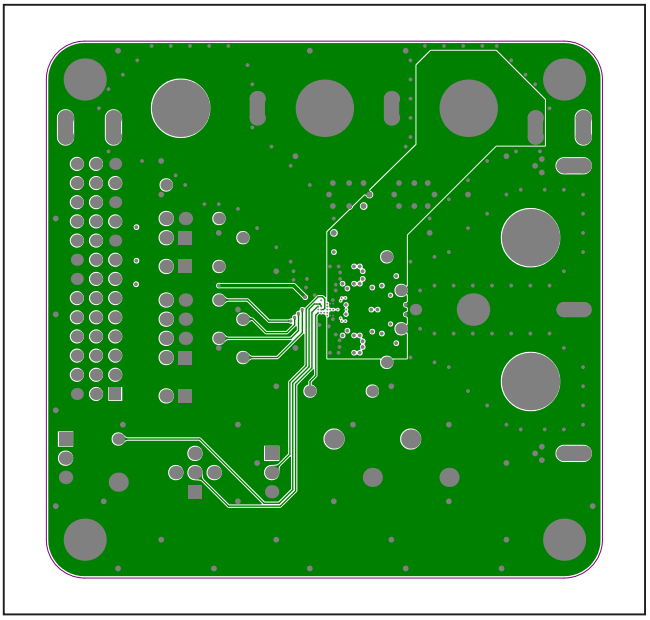
MAX98397 EV System Component Placement Guide—Top Silkscreen



MAX98397 EV System PCB Layout—GND L2

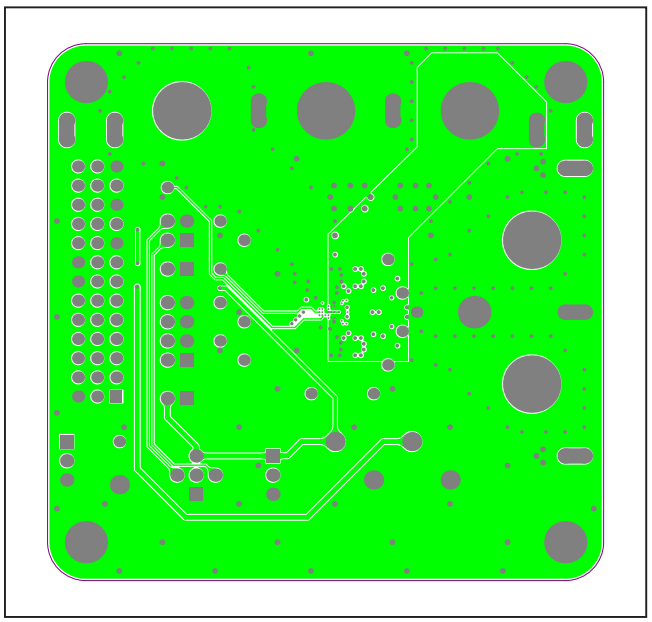


MAX98397 EV System PCB Layout—Top Layer

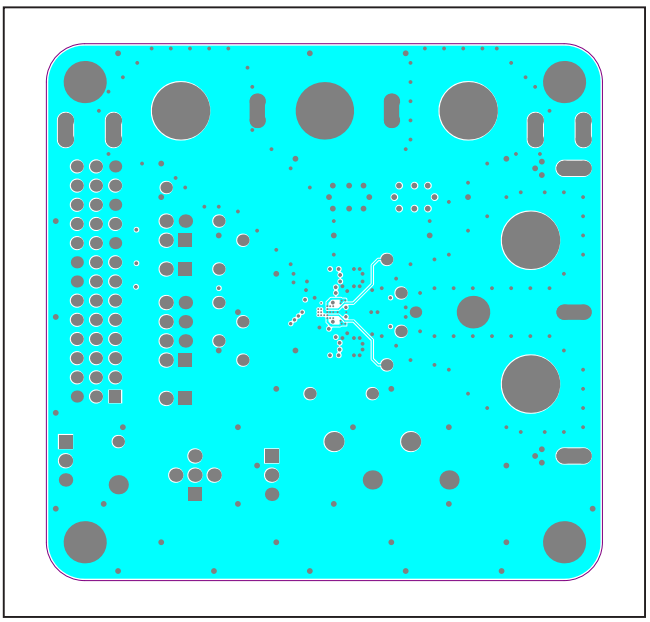


MAX98397 EV System PCB Layout—Signal L3

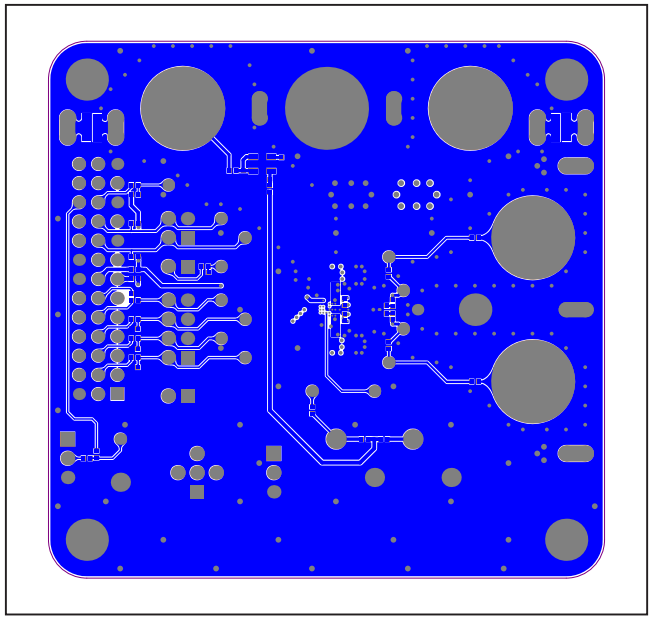
MAX98397 EV System Development Board PCB Layout Diagrams (continued)



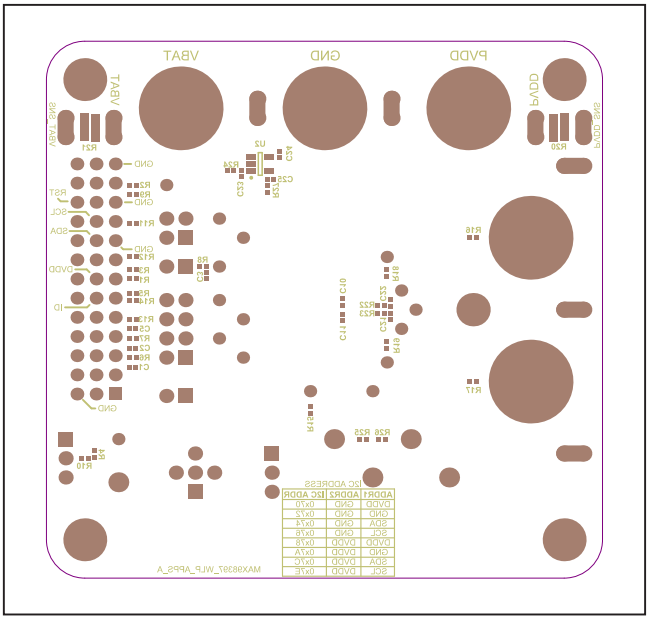
MAX98397 EV System PCB Layout—Power L4



MAX98397 EV System PCB Layout—Bottom Layer



MAX98397 EV System PCB Layout—GND L5



MAX98397 EV System Component Placement Guide—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	10/23	Initial release	—