

## MAX2253x Evaluation Kit

## Evaluates: MAX22530/MAX22531

### General Description

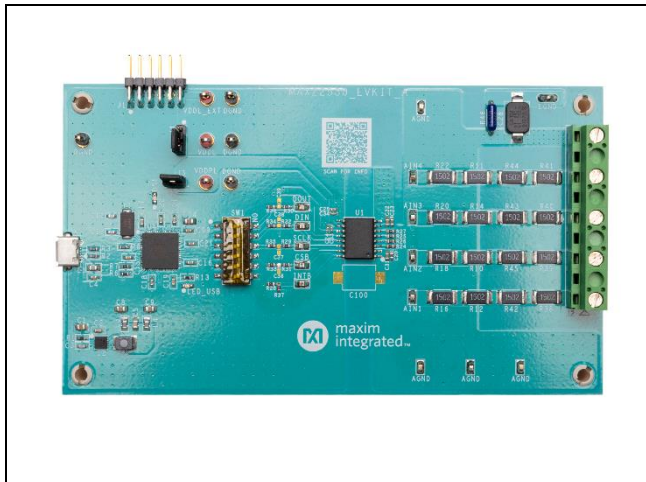
The MAX2253x evaluation kit (EV kit) provides the hardware and software necessary to evaluate the MAX22530 and MAX22531, quad channel isolated ADC with field supply. The graphical user interface (GUI) running on a PC through a USB port communicates to the MAX22530 EV kit and MAX22531 EV kit.

The MAX22530 EV kit comes with the MAX22530AWE+ (16 WSOIC) device installed.

The MAX22531 EV kit comes with the MAX22531AAP+ (20 SSOP) device installed.

Windows® based graphical user interface (GUI) software is available for use with the EV kit and can be downloaded from Maxim's website at [www.maximintegrated.com/products/MAX22530-22532](http://www.maximintegrated.com/products/MAX22530-22532) (under the **Design Resources** tab). Windows 7 or newer Windows operating system is required to use the EV kit software.

### EV Kit Photo (MAX22530EVKIT#)



### Features

- Easy Evaluation of MAX22530/MAX22531
- EV kit is USB Powered, No Field-Side Supply Required
- All Input Accessible
- Windows 7, Windows 8.1, and Windows 10- Compatible Software
- Proven PCB Layout
- Fully Assembled and Tested
- RoHS Compliant

### MAX2253x EV Kit Files

FILE	DESCRIPTION
MAX2253xEVKITSetupV1.0.0.exe	Installs EV kit files onto computer

### MAX2253x EV Kit Files

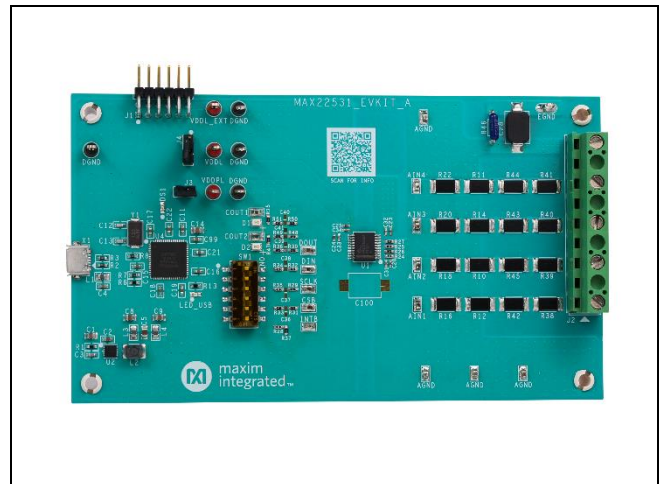
[MAX22530 EV Kit Schematics](#)

[MAX22530 EV Kit PCB Layouts](#)

[MAX22531 EV Kit Schematics](#)

[MAX22531 EV Kit PCB Layouts](#)

### EV Kit Photo (MAX22531EVKIT#)



[Ordering Information](#) appears at end of data sheet.

## Quick Start

### Required Equipment

- MAX2253x EV kit
- Micro-USB cable
- Windows 10, Windows 8.1, and Windows 7 with a spare USB port
- Multimeter
- DC voltage supply (up to 120V, 0.01A, or higher)

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

### Procedure

The EV kit is fully assembled and tested. Follow the steps to install the EV kit software, make required hardware connections, and start 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 desired operation mode. Make sure the PC is connected to the internet throughout the process so that the USB driver can be automatically installed. See [Table 1](#) and [Table 2](#).

1. Visit [www.maximintegrated.com/products/MAX22530-22532](http://www.maximintegrated.com/products/MAX22530-22532) under the **Design Resources** tab to download the latest version of the MAX2253x EV kit software (MAX2253xEVKitSetupVx.xx.ZIP). Save the EV kit software to a temporary folder and uncompress the zip file.
2. Run the MAX2253xEVKitSetupVx.xx.EXE program inside the temporary folder to install the EV kit software and USB driver. The program files are copied to the PC and icons are created in the Windows **Start | Programs | Maxim Integrated** menu. During the software installation, some version of the Windows may show a warning message indicating that this software is from an unknown publisher. This is not an error condition, and it is safe to proceed with the installation. Administrator privileges are required to install the USB device driver.
3. Verify that all jumpers are in default positions ([Table 1](#)).
4. Connect the MAX2253x EV kit to the PC with the Micro-USB cable. Windows automatically recognizes the device and displays a message near the **System Icon** menu indicating that the hardware is ready to use. Note on the EV kit, the on-board 3.3V USB LED supply (green LED) is on, indicating the hardware is powered up.
5. Once the hardware is ready to use, launch the EV kit software by opening its icon from either the **Desktop** or **Start | Programs** menu. The EV kit software appears as shown in the [Figure 1](#).
6. If the software is launched with the EV kit connected, the hardware is detected, and the lower-right status bar indicates **Connected**. If the hardware is connected after the software is launched, from the **Device** menu, click **Search for Hardware** as shown in the [Figure 2](#). Then select a device in the list or use the default device already selected.
7. Connect the positive terminal of the DC supply to pin 1 (IN1) of terminal J2 on the EV kit. Connect the negative terminal of the DC supply to pin 5 (AGND) of terminal J2 on the EV kit.
8. Configure the DC supply output to be 100V and enable the supply output.
9. In the **Configuration** tab of the EV kit software, under **SAMPLE ADC CHANNELS** section, click **ADC1** to observe the attenuated signal level sampled to 1.64V. Any other voltage output selected at DC supply output is attenuated 61 times when observed at ADC1.
10. Under the **BINARY INPUT COMPARATOR** section, change the **COMPARATOR MODE** selection of **CH1** to **Digital Input** mode and click the **UPDATE CHANNELS** button.
11. Observe and verify that the indicator under **COMP OUT** section under **CH1** is green and the **CO\_POS\_1** indicator under the **INTERRUPT STATUS** section is green.
12. If the MAX22531 EV kit hardware is connected, observe and verify that the COUT1 LED (D1) on the EV kit is turned on.
13. In the **ADC Scope** tab, **Graph Length** selection enables plotting of selected number of samples. Click the **Plot Data** with **Plot ADC1** or **Plot FADC1** selection checked from the right side of the window. The channel 1 ADC data samples showing 1.64V are plotted in the left-top section of the GUI under **ADC1**

EV Kit Block Diagram

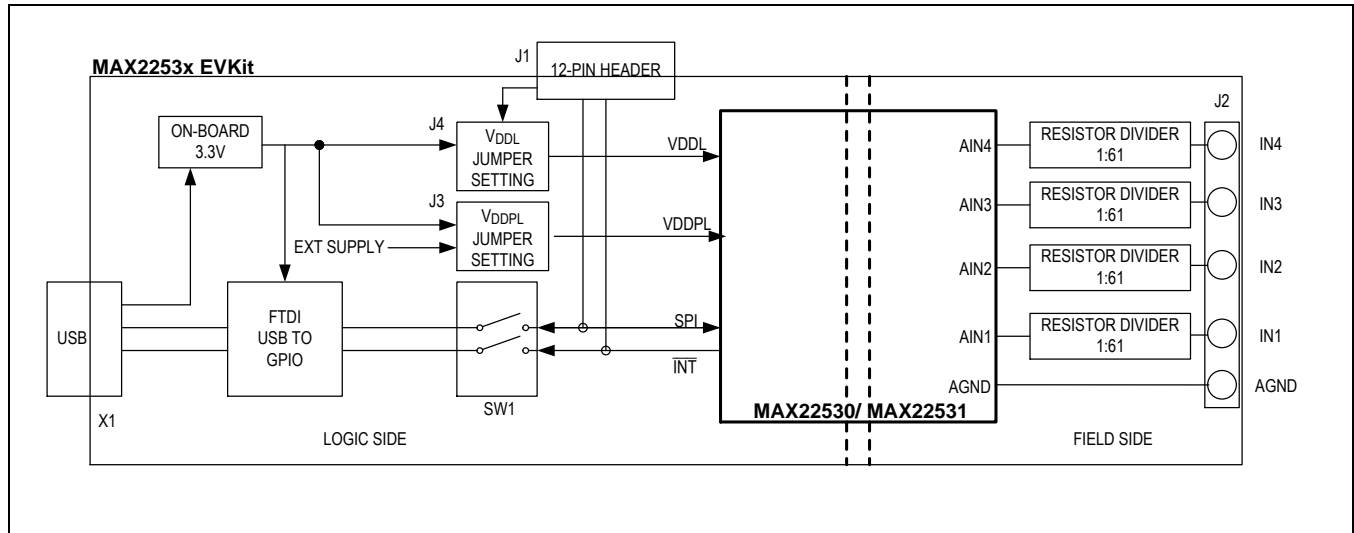


Table 1. MAX2253x EV Kit Shunt Positions and Voltage Supply Settings

HEADER	SHUNT POSITION	FUNCTION
J3	1-2*	Connects the V <sub>DDPL</sub> (logic side isolated DC-DC supply input) supply to the on-board 3.3V supply.
	Not Installed	Disconnects the V <sub>DDPL</sub> from on-board 3.3V. External supply is provided at VDDPL test point.
J4	2-3*	Connects the V <sub>DDL</sub> (logic supply input) supply to the on-board 3.3V supply.
	1-2	Disconnects the V <sub>DDL</sub> from on-board 3.3V. V <sub>DDL</sub> is powered from an external supply provided at VDDL_EXT input of 12-pin header J1 (11) and J1(12).

\*Default options

Table 2. MAX2253x EV Kit J2 Terminal Description

Terminal	POSITION	FUNCTION
J2	1	Isolated ADC Channel 1 input. A 1:61 divider resistor network is present to attenuate the full-scale signal level from 0–110V to 0–1.8V at AIN1 input of MAX2253x.
	2	Isolated ADC Channel 2 input. A 1:61 divider resistor network is present to attenuate the full-scale signal level from 0–110V to 0–1.8V at AIN2 input of MAX2253x.
	3	Isolated ADC Channel 3 input. A 1:61 divider resistor network is present to attenuate the full-scale signal level from 0–110V to 0–1.8V at AIN3 input of MAX2253x.
	4	Isolated ADC Channel 4 input. A 1:61 divider resistor network is present to attenuate the full-scale signal level from 0–110V to 0–1.8V at AIN4 input of MAX2253x.
	5	GND. Field side analog ground.

## Detailed Description of Software

The main window of the EV kit software contains three tabs: **Configuration**, **ADC Scope**, and **Register Settings**. The **Configuration** tab provides the controls to directly configure the MAX22530/MAX22531 features such as comparator modes, upper and lower thresholds, individual channel sampling, device control, fault status reporting, etc., The **ADC Scope** tab plots the ADC readings and filtered ADC readings in the time domain graph. The **Register Settings** tab lists all the registers in the MAX22530/MAX22531 and provides direct read and write access to all the control bits. The MAX2253x EV kit software can work with both the MAX22530EVKIT# and MAX22531EVKIT#. The **Device** menu allows the user to select the device and to connect or disconnect to the hardware by choosing detected serial numbers.

### Configuration Tab

The **Configuration** tab provides an interface for configuring the MAX22530/MAX22531 from a functional perspective. This tab is divided into four sections: **SAMPLE ADC CHANNELS**, **BINARY INPUT COMPARATOR**, **CONTROL**, and **INTERRUPT STATUS**. The **SAMPLE ADC CHANNELS** section contains individual channel single read operation on **ADC1** to **ADC4** and **FADC1** to **FADC4** (filtered ADC) respectively. It also has **ENABLE BURST READ** selection which performs single burst read operation. With the **ENABLE BURST READ** checked, the **BURST** registers **READ ADC** provides sample data of **ADC1** through **ADC4**; and the Status Register is indicated in the **INTERRUPT STATUS** section. With **ENABLE BURST READ** checked, the **BURST READ FADC** provides sample data of **FADC1** through **FADC4** registers and the Status Register is indicated in the **INTERRUPT STATUS** section. The **REFERENCE** value set to 1.8V in the EV kit GUI is the integrated field-side reference output internally generated by the MAX22530 and MAX22531. The **REFERENCE** field input can be changed from 1.75V to 1.85V based on the actual voltage measured at the REF output across C20 or C31 output capacitor to improve the ADC reading accuracy.

The **BINARY INPUT COMPARATOR** section controls the settings to configure the internal digital comparators CO\_1 to CO\_4. The **Comparator Mode** section enables either **Digital Input mode** or **Digital Status mode**. The **FILTER** option with **ON** or **OFF** allows enabling or disabling the internal moving average filter. The EV kit hardware has field-side input divider network of 1k $\Omega$  and 60k $\Omega$ . With a 1:61 resistive divider network at EV kit, the input connected at **J2** terminal can be up to 110V full scale. This divider ratio of 1:61 is the common default setting in the EV kit GUI software. This setting can be changed to the resistive network modified at the inputs of each ADC. The hysteresis points, **UPPER THRESHOLD** and **LOWER THRESHOLD** values of the comparator are selected with respect to the full-scale input which is associated with the **DIVIDER RATIO (1: N)** setting. The resolution of this threshold value is ~27mV while the + and - button changes the threshold value by 0.5V. Once the **UPDATE CHANNELS** button is clicked, the threshold values change to reflect the register value to the nearest digit. Manual typing of the threshold value is also allowed. However, when the **UPDATE CHANNELS** is clicked, the value reflects the register content to the nearest digit as well.

The **CONTROL** section allows the user to configure and control the ADC. The **RESET** control provides options to disable field power (**DISPWR**), perform a hard (full) reset (**RSET**), or perform a soft (register) reset (**SRES**). The **CLEAR** checkboxes provide a clear **POR** option and reset individual channel moving average filters of ADC channel 1 to 4 through **ADC1 Filter** to **ADC4 Filter** checkbox controls. The **ENABLE INTERRUPT** checkboxes and **COUT INTERRUPT ENABLE** checkboxes enable or disable a hardware interrupt on the INT output pin. The **ENABLE** checkboxes enable or disable **SPI CRC** functionality option and the common threshold (**CMN TH**) option. Enabling the common threshold option forces all the internal digital comparators CO\_1 to CO\_4 to take upper and lower threshold values of CO-1 (**CO\_HI\_TH\_1** and **CO\_LO\_TH\_1**). Reading the register values of CO\_2 to CO\_4 will not show these values. Also, CH2 to CH4 threshold will be in disabled and cannot be changed.

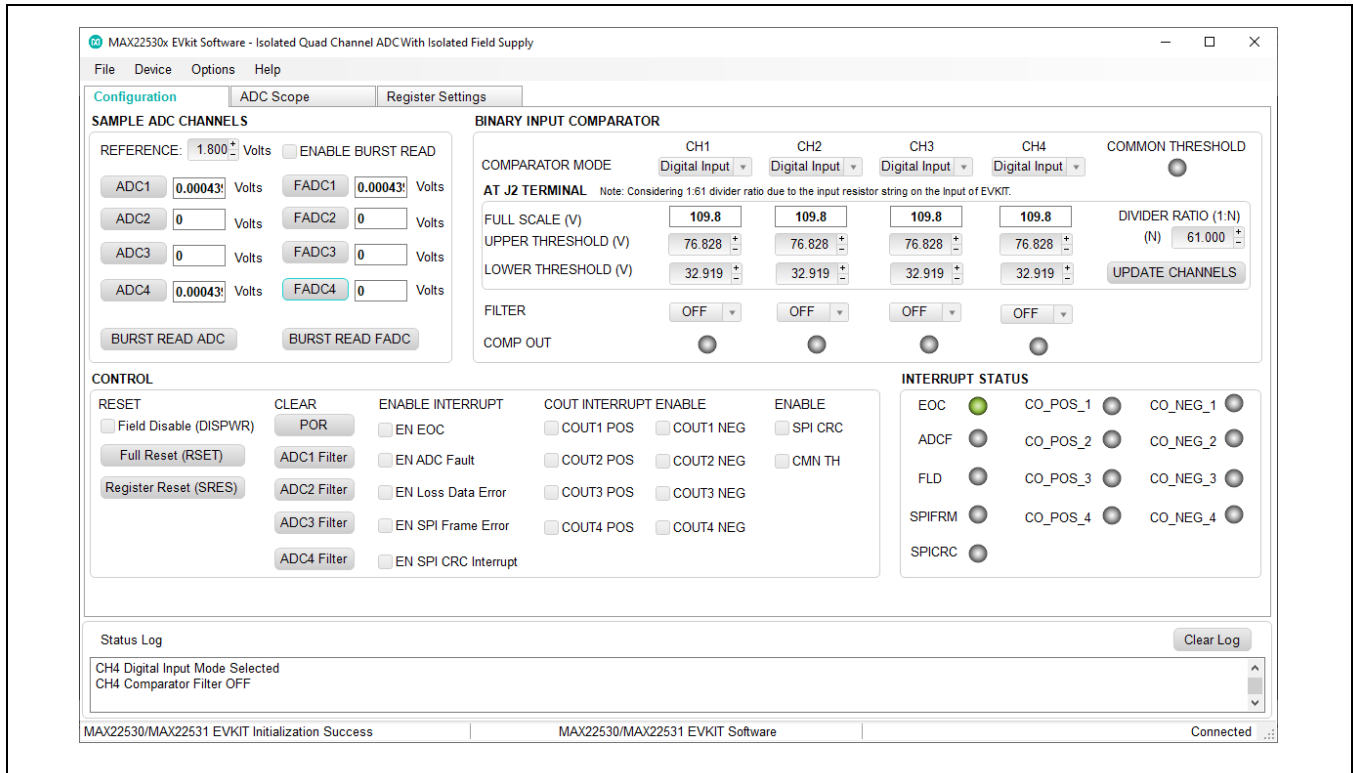


Figure 1. Configuration Tab

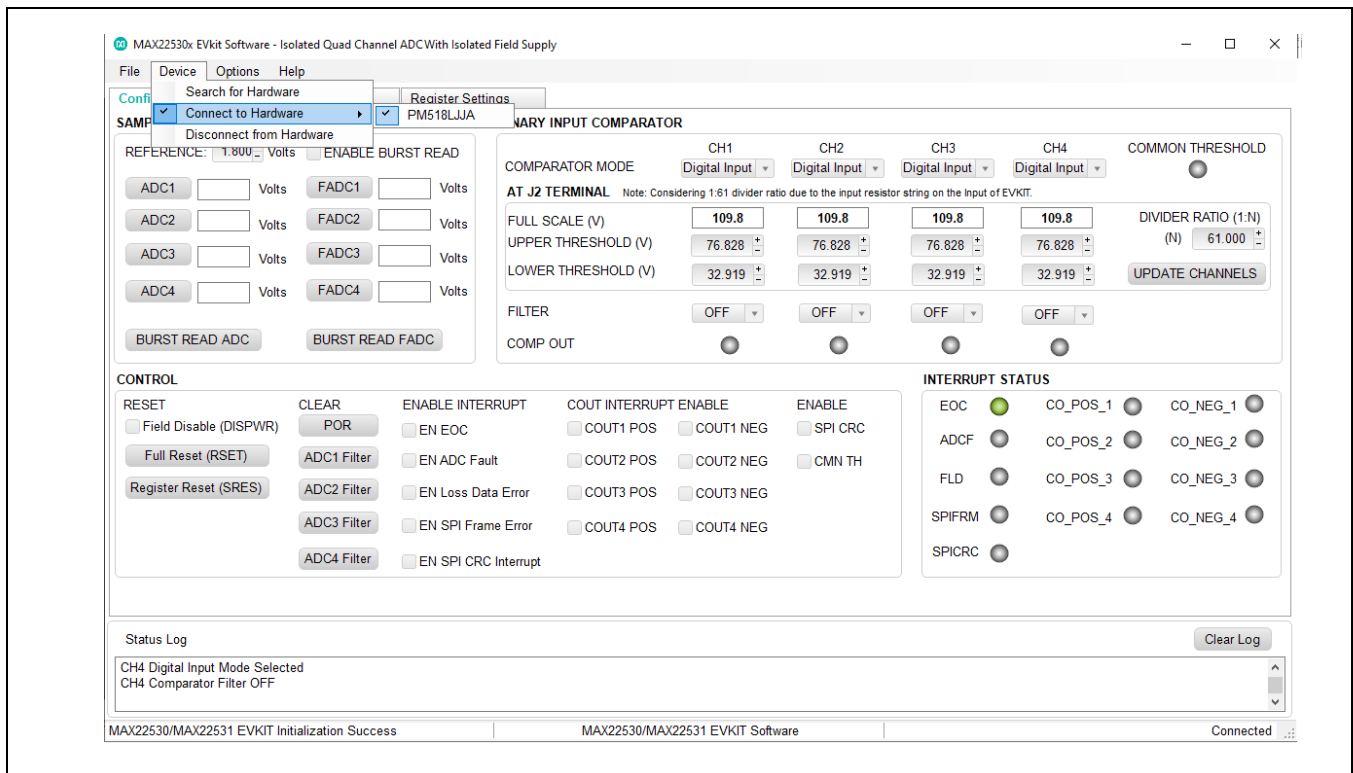


Figure 2. MAX2253x EV Kit Software Startup Window

### ADC Scope Tab

The **ADC Scope** tab displays the ADC readings and filtered ADC readings in the time domain as a number of samples. Individual scope section displays for each channel (ADC1 to ADC4) are provided. In each ADC\_ graph, ADC\_ and/or FADC\_ data plots can be viewed. By clicking the **Plot Data** button, the software reads and plots the number of samples of ADC register and/or the filtered ADC register. It also displays the results based on the selection from the **Graph Length**.



Figure 3. ADC Scope Tab

### Register Settings Tab

The **Register Settings** tab shows all the MAX22530/MAX22531 registers information including the register name, address, value, read or write accessibility, and the register description. The value of the cell can be changed by the user if the register is writable. Clicking the **Write Modified** button after changing the value writes the new contents to the register. Clicking the **Read All** button reads all registers and refreshes the window with register settings.

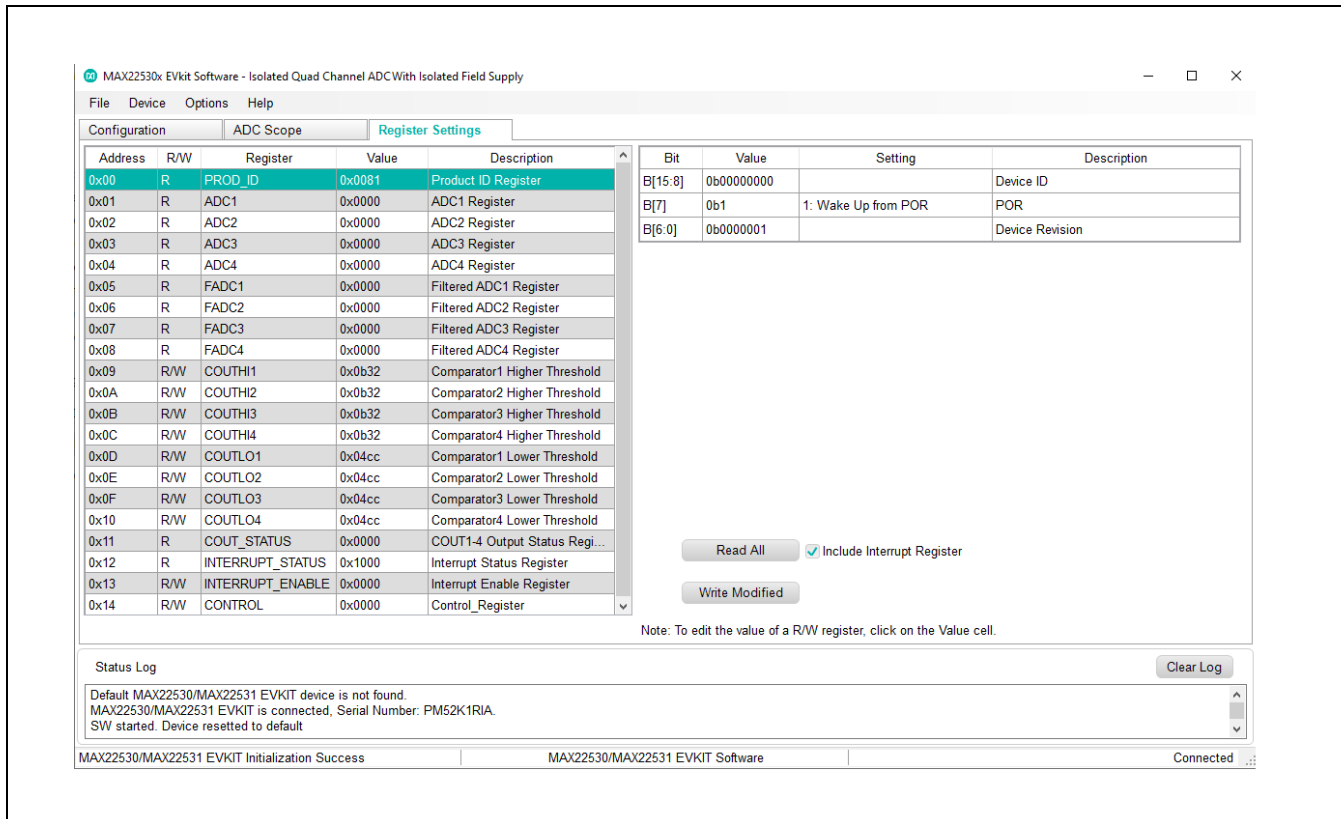


Figure 4. Register Settings Tab

## Detailed Description of Hardware

The MAX22530/MAX22531 EV kit is an easy-to-use solution to evaluate the MAX22530/MAX22531, quad channel isolated ADC for industrial applications. The EV kit hardware comes with a MAX22530/MAX22531 device with an input resistive divider network to support a full-scale voltage up to 110V at the J2 terminal. The logic and field side are isolated on the EV kit PCB as well with the 90pF PCB stitching cap introduced across the two sides for radiated emissions performance with the CISPR32 standards.

The EV kit comes with up to  $\pm 7\text{kV}/42\Omega$  surge protection at field channel inputs to field/analog ground.

### Device Powering Options

With the default jumper settings, the EV kit is powered entirely from the USB supplied power. The 5V USB power is used to generate the on-board regulated 3.3V (3V3\_USB) that powers the EV kit. The VDDL and VDDPL power supply inputs are connected to the on-board supply. Alternatively, external low-voltage supplies can be connected to the VDDL and VDDPL test points with jumper J3 and J4 settings changed as per [Table 1](#).

### SPI Interface

The EV kit software communicates over USB to the SPI interface and supports the full 10MHz clock rate for the MAX22530/MAX22531. If the users wish to interface to their own microcontroller or FPGA, change the contact position of the switch SW1 to OFF position and hardwire the SPI signals and the external supply to the 12-pin header terminal provided by J1. During this condition, the external VDDL supply (VDDL\_EXT) is provided by the user. A separate supply is provided to the VDDPL jumper J3. [Table 3](#) describes the EV kit 12 pin header J1 that is used to connect and operate with an external device. [Table 4](#) shows the position of switch SW1 that enables either internal or external communication for interfacing with the MAX22530/MAX22531.

**Table 3. J1 Connector for Interface with External Communication Device**

TERMINAL J1 INPUT	ASSOCIATED SIGNAL
1	CS
2	INT
3	MOSI/ DIN/ SDI
4	DGND
5	MISO/ DOUT/ SDO
6	DGND
7	SCLK
8	DGND
9	DGND
10	DGND
11	VDDL_EXT
12	VDDL_EXT

**Table 4. Switch Position**

SW1 SLIDE POSITION	SELECTION
ON	On-board FTDI, USB to GPIO signal selected for SPI communication. The Micro-USB cable is connected to the connector slot X1.
OFF	External Communication device selected for SPI communication. The Micro-USB cable is not connected to the connector slot X1. External VDDL and VDDPL supplies applied to the MAX22530/MAX22531.



### ADC Input (AIN) Resistor Divider

An external high voltage needs to be divided down to meet the ADC full-scale range (0 to 1.8V (VREF)) and to compare this input to user-configured comparator lower and upper thresholds. The absolute maximum voltage for the ADC input is -0.3V to +2V and the user must ensure that any external voltage applied to the EV kit does not cause this range to be exceeded at any of the AIN pin of the MAX22530/MAX22531 device. Exceeding this range could permanently damage the IC. The input voltage is connected to terminal block J1 and is attenuated by the network of four 15k $\Omega$  thick film resistors in series with a 1k $\Omega$  resistor providing up to 1.8V at the ADC input when 110VDC is applied to J1. The user should be aware of the hazards associated with higher voltages, which could cause any of the associated test points or circuit traces to have a hazardous potential.

### Ordering Information

PART	TYPE
MAX22530EVKIT#	EV Kit
MAX22531EVKIT#	EV Kit

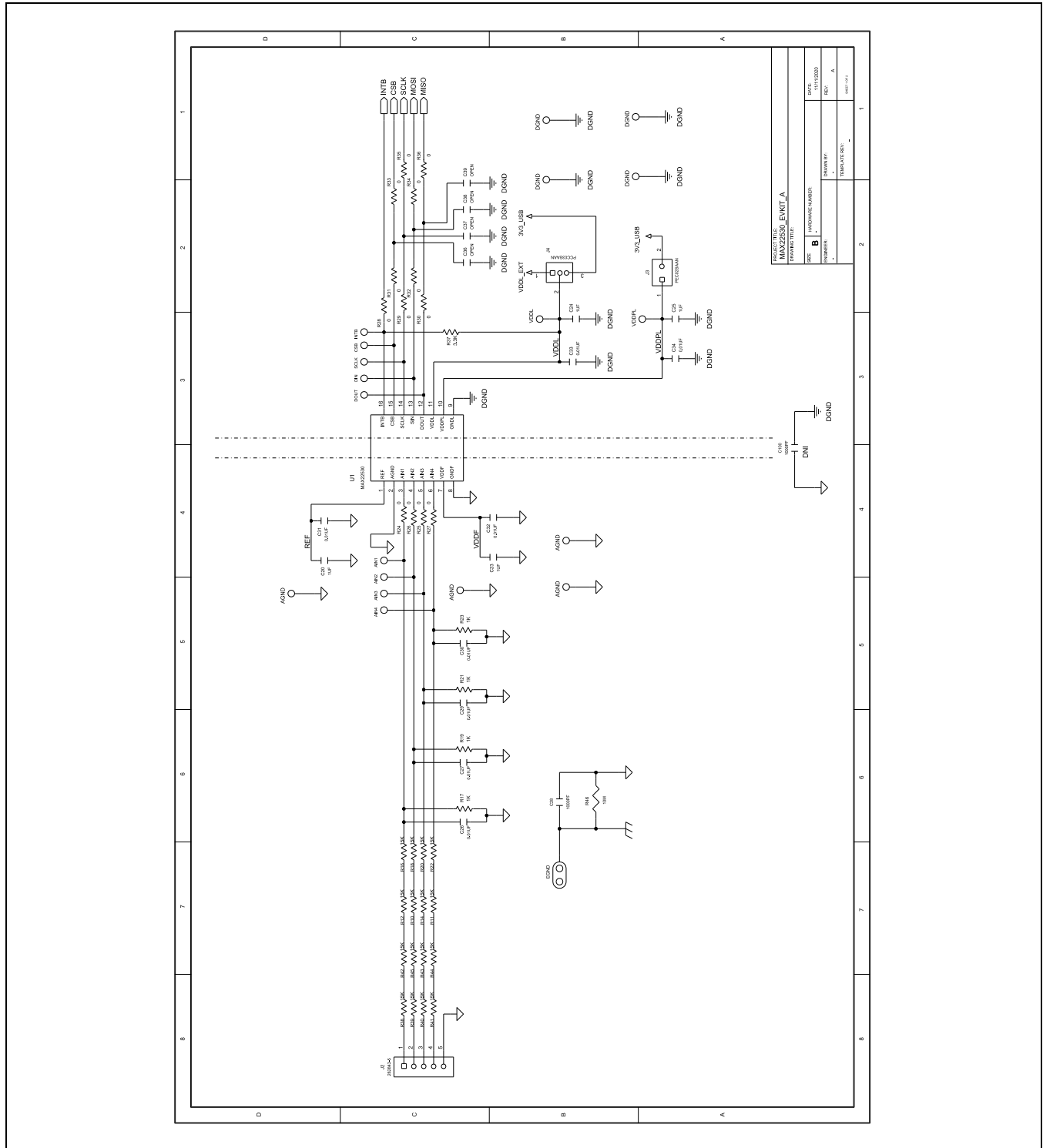
#Denotes RoHS-compliance.

### MAX22530 EV Kit Bill of Materials

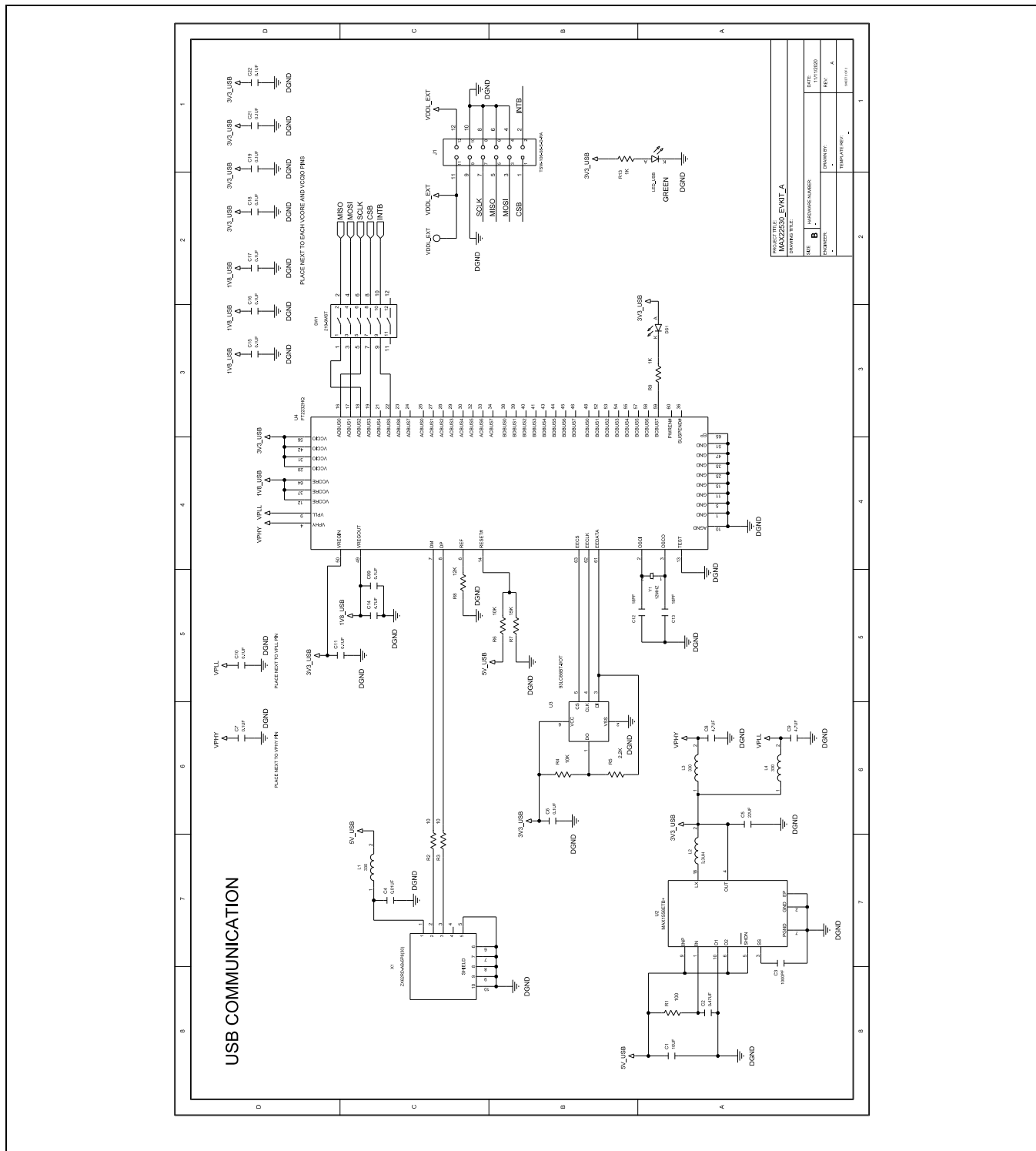
PART	QTY	DESCRIPTION
AIN1-AIN4, CSB, DIN, DOUT, INTB, SCLK, TP1, TP2, TP5, TP6	13	TEST POINT; SMT; PIN LENGTH=0.135IN; PIN WIDTH=0.07IN; PIN HEIGHT=0.06IN; SILVER; PHOSPHOR BRONZE WITH SILVER PLATE CONTACT
C1	1	CAP; SMT (0805); 10UF; 10%; 16V; X7R; CERAMIC
C2	1	CAP; SMT (0603); 0.47UF; 10%; 50V; X7R; CERAMIC
C3	1	CAP; SMT (0603); 1000PF; 5%; 100V; C0G; CERAMIC
C4	1	CAP; SMT (0603); 0.01UF; 10%; 200V; X7R; CERAMIC
C5	1	CAP; SMT (0805); 22UF; 10%; 16V; X5R; CERAMIC
C6, C7, C10, C11, C15-C19, C21, C22, C99	12	CAP; SMT (0603); 0.1UF; 10%; 100V; X7R; CERAMIC
C8, C9, C14	3	CAP; SMT (0805); 4.7UF; 10%; 25V; X7R; CERAMIC
C12, C13	2	CAP; SMT (0603); 18PF; 5%; 50V; C0G; CERAMIC
C20, C23	2	CAP; SMT (0603); 1UF; 10%; 25V; X7R; CERAMIC
C24, C25	2	CAP; SMT (0402); 1UF; 10%; 25V; X6S; CERAMIC
C26, C27, C29-C32	6	CAP; SMT (0603); 0.01UF; 5%; 25V; C0G; CERAMIC
C28	1	CAP; SMT; 1000PF; 20%; 250V; E; CERAMIC
C33, C34	2	CAP; SMT (0402); 0.01UF; 5%; 25V; X7R; CERAMIC
DS1, LED_USB	2	DIODE; LED; STANDARD; YELLOW-GREEN; SMT (0603); PIV=1.9V; IF=0.005A; -55 DEGC TO +85 DEGC
EGND	1	EVKIT PART - MAXIM PAD; TEST POINT; PIN DIA=0.094IN; TOTAL LENGTH=0.350IN; BOARD HOLE=0.040IN; NONE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
J1	1	CONNECTOR; THROUGH HOLE; DOUBLE ROW; RIGHT ANGLE; 12PINS
J2	1	CONNECTOR; FEMALE; THROUGH HOLE; 10.16MM PITCH; SIDE WIRE ENTRY STACKING WITH INTERLOCK; TERMINAL BLOCK; STRAIGHT; 5PINS
J3	1	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS

J4	1	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 3PINS; -65 DEGC TO +125 DEGC
L1, L3, L4	3	INDUCTOR; SMT (0805); FERRITE-BEAD; 330; TOL=+/-25%; 1.5A
L2	1	INDUCTOR; SMT (1812); FERRITE CORE; 3.3UH; TOL=+/-10%; 0.9A
MH1-MH4	4	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
R1	1	RES; SMT (0603); 100; 1%; +/-100PPM/DEGC; 0.1000W
R2, R3	2	RES; SMT (0603); 10; 1%; +/-100PPM/DEGC; 0.1000W
R4, R6	2	RES; SMT (0603); 10K; 1%; +/-100PPM/DEGC; 0.1000W
R5	1	RES; SMT (0603); 2.2K; 1%; +/-100PPM/DEGC; 0.1000W
R7	1	RES; SMT (0603); 15K; 1%; +/-100PPM/DEGC; 0.1000W
R8	1	RES; SMT (0603); 12K; 1%; +/-100PPM/DEGC; 0.1000W
R9, R13	2	RES; SMT (0603); 1K; 1%; +/-100PPM/DEGC; 0.1000W
R10-R12, R14, R16, R18, R20, R22, R38-R45	16	RES; SMT (2512); 15K; 1%; +/-100PPM/DEGC; 1W
R17, R19, R21, R23	4	RES; SMT (0805); 1K; 1%; +/-100PPM/DEGC; 0.5000W
R24-R36	13	RES; SMT (0603); 0; 5%; JUMPER; 0.1000W
R37	1	RES; SMT (0603); 3.3K; 1%; +/-100PPM/DEGC; 0.1000W
R46	1	RESISTOR; THROUGH-HOLE; 10M; 1%; 100PPM; 1/8W; METAL FILM
SW1	1	SWITCH; SPST; SMT; STRAIGHT; 20V; 0.1A; SURFACE MOUNT DIP SWITCH-AUTO PLACEABLE; RINSULATION=1000M OHM
TP3, TP4, TP7, TP8	4	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
U1	1	EVKIT PART -IC; MAX22530; PACKAGE LAND PATTERN DRAWING: 90-0107; WSOIC16; 300MIL; WSOIC16 300MIL
U2	1	IC; CONV; PWM STEP-DOWN DC-DC CONVERTER; TDFN10-EP 3X3
U3	1	IC; EPROM; 4K MICROWIRE SERIAL EEPROM; SOT23-6
U4	1	IC; MMRY; DUAL HIGH SPEED USB TO MULTIPURPOSE UART/FIFO; QFN64-EP
VDDL, VDDL_EXT, VDDPL	3	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SIL;
X1	1	CONNECTOR; MALE; THROUGH HOLE; MICRO-USB CONNECTOR MEETING REQUIREMENTS OF USB 2.0 STANDARD; RIGHT ANGLE; 5PINS
Y1	1	CRYSTAL; SMT ; 18PF; 12MHZ; +/-20PPM; +/-30PPM

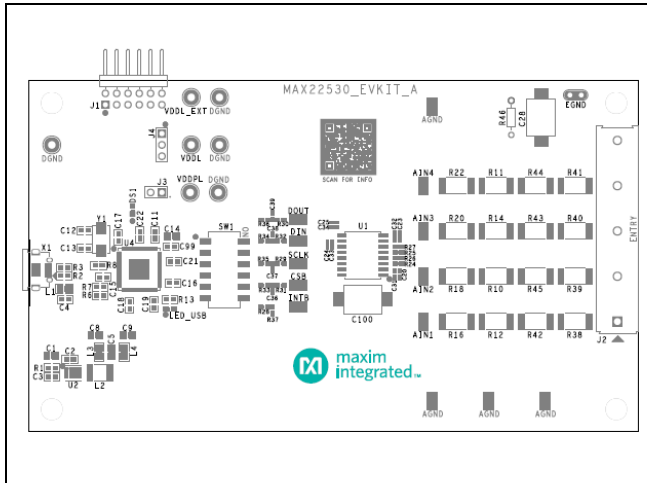
MAX22530 EV Kit Schematics



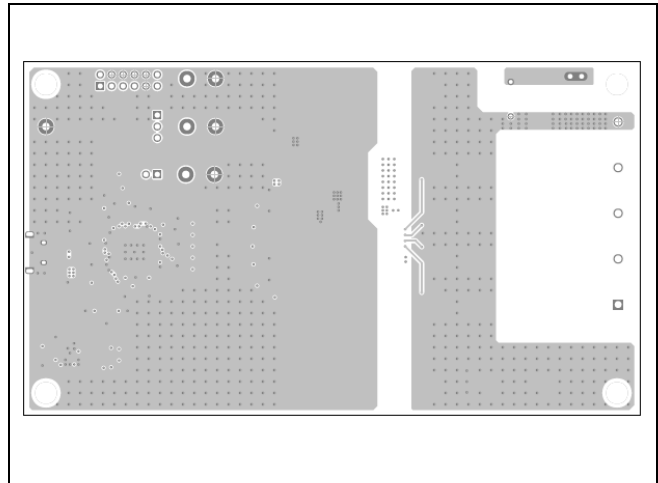
MAX22530 EV Kit Schematics (continued)



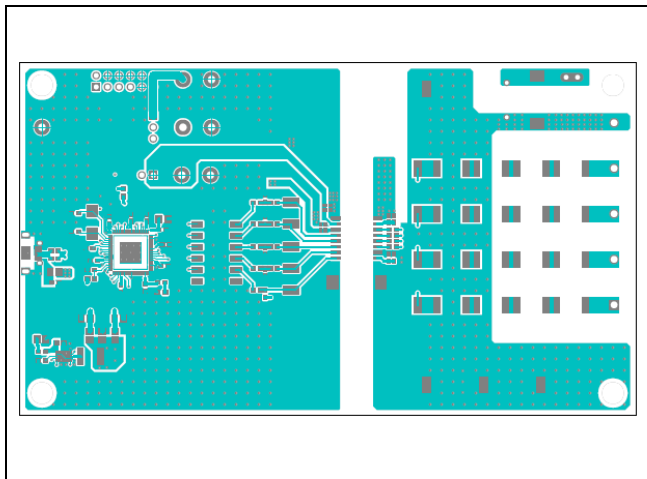
MAX22530 EV Kit PCB Layouts



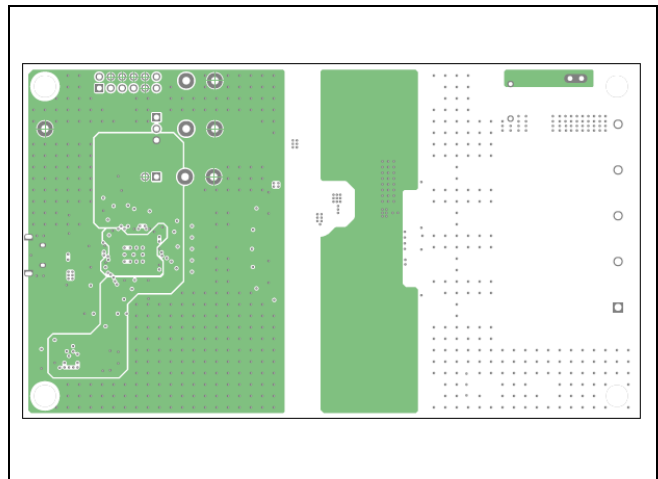
MAX22530 EV Kit Component Placement Guide—Top Silkscreen



MAX22530 EV Kit PCB Layout—Layer 2

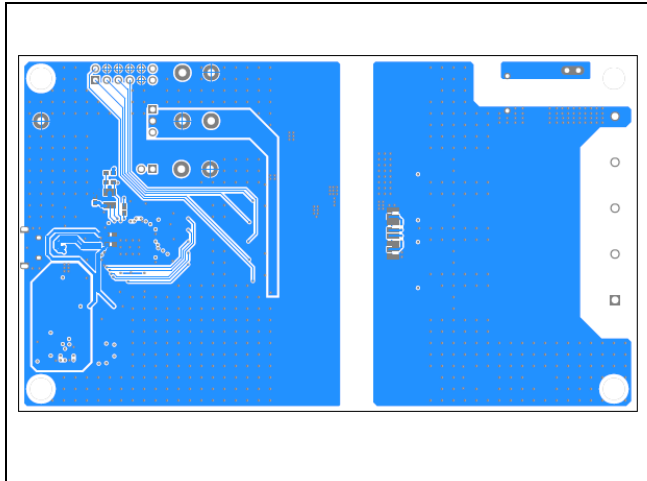


MAX22530 EV Kit PCB Layout—Top

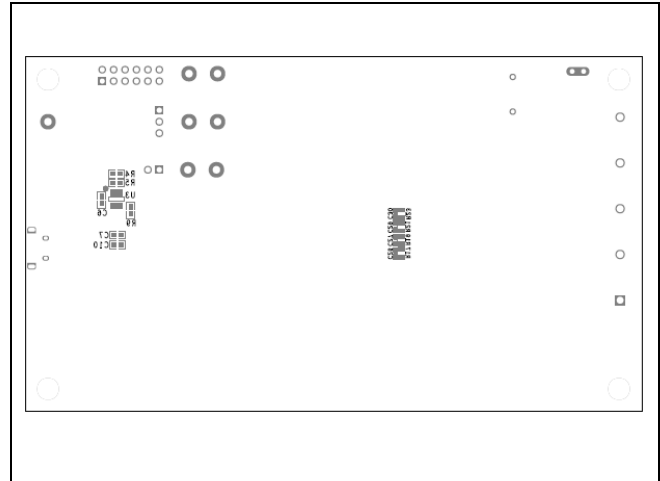


MAX22530 EV Kit PCB Layout—Layer 3

**MAX22530 EV Kit PCB Layouts (continued)**



MAX22530 EV Kit PCB Layout—Bottom



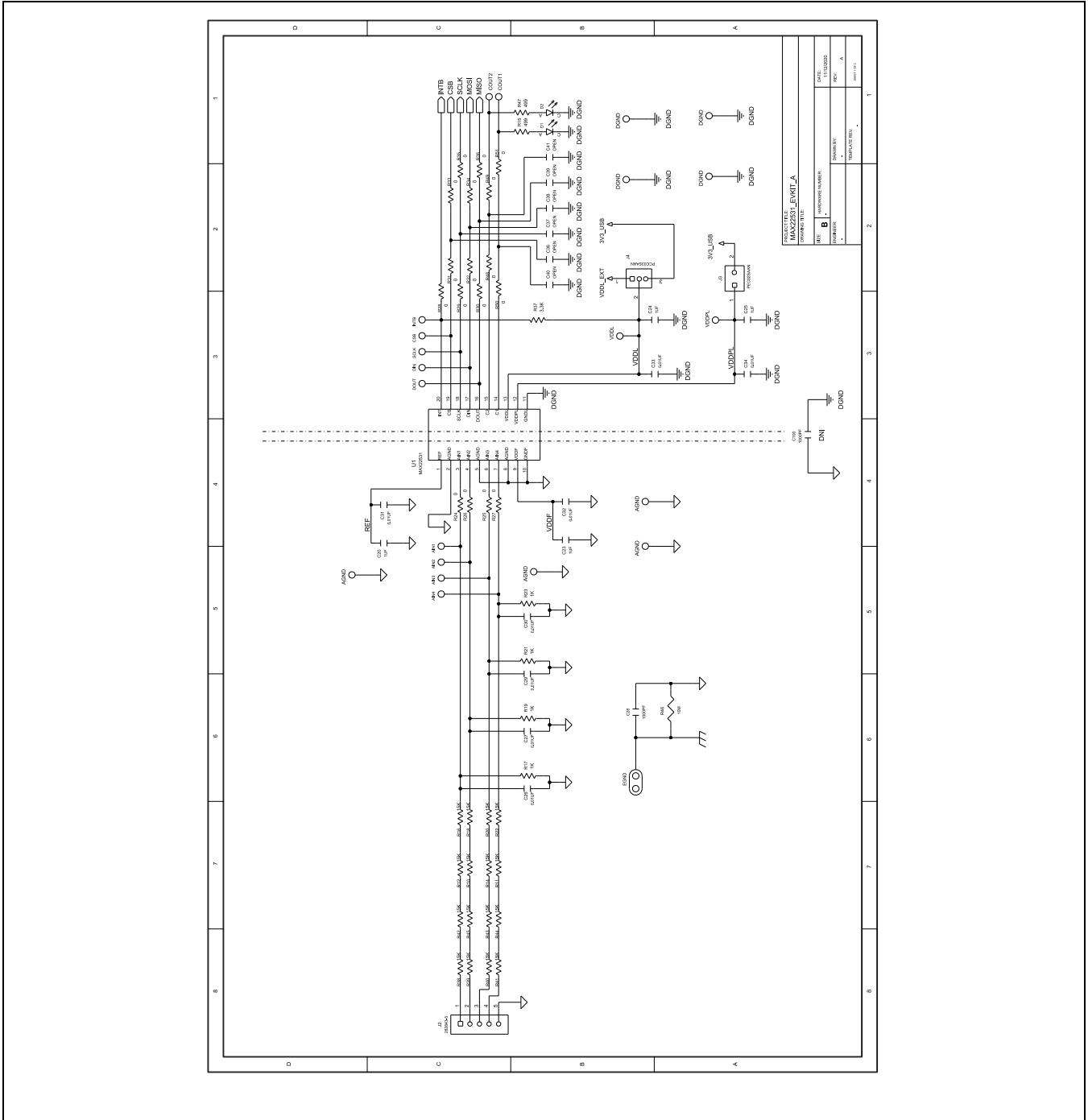
MAX22530 EV Kit Component Placement Guide—Bottom Silkscreen

**MAX22531 EV Kit Bill of Materials**

PART	QTY	DESCRIPTION
AIN1-AIN4, COUT1, COUT2, CSB, DIN, DOUT, INTB, SCLK, TP1, TP2, TP5, TP6	15	TEST POINT; SMT; PIN LENGTH=0.135IN; PIN WIDTH=0.07IN; PIN HEIGHT=0.06IN; SILVER; PHOSPHOR BRONZE WITH SILVER PLATE CONTACT
C1	1	CAP; SMT (0805); 10UF; 10%; 16V; X7R; CERAMIC
C2	1	CAP; SMT (0603); 0.47UF; 10%; 50V; X7R; CERAMIC
C3	1	CAP; SMT (0603); 1000PF; 5%; 100V; C0G; CERAMIC
C4	1	CAP; SMT (0603); 0.01UF; 10%; 200V; X7R; CERAMIC
C5	1	CAP; SMT (0805); 22UF; 10%; 16V; X5R; CERAMIC
C6, C7, C10, C11, C15-C19, C21, C22, C99	12	CAP; SMT (0603); 0.1UF; 10%; 100V; X7R; CERAMIC
C8, C9, C14	3	CAP; SMT (0805); 4.7UF; 10%; 25V; X7R; CERAMIC
C12, C13	2	CAP; SMT (0603); 18PF; 5%; 50V; C0G; CERAMIC
C20, C23-C25	4	CAP; SMT (0402); 1UF; 10%; 25V; X6S; CERAMIC
C26, C27, C29, C30	4	CAP; SMT (0603); 0.01UF; 5%; 25V; C0G; CERAMIC
C28	1	CAP; SMT; 1000PF; 20%; 250V; E; CERAMIC
C31-C34	4	CAP; SMT (0402); 0.01UF; 5%; 25V; X7R; CERAMIC
D1, D2	2	DIODE; LED; GREEN; SMT; VF=1.8V; IF=0.002A
DS1, LED_USB	2	DIODE; LED; STANDARD; YELLOW-GREEN; SMT (0603); PIV=1.9V; IF=0.005A; -55 DEGC TO +85 DEGC
EGND	1	EVKIT PART - MAXIM PAD; TEST POINT; PIN DIA=0.094IN; TOTAL LENGTH=0.350IN; BOARD HOLE=0.040IN; NONE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;

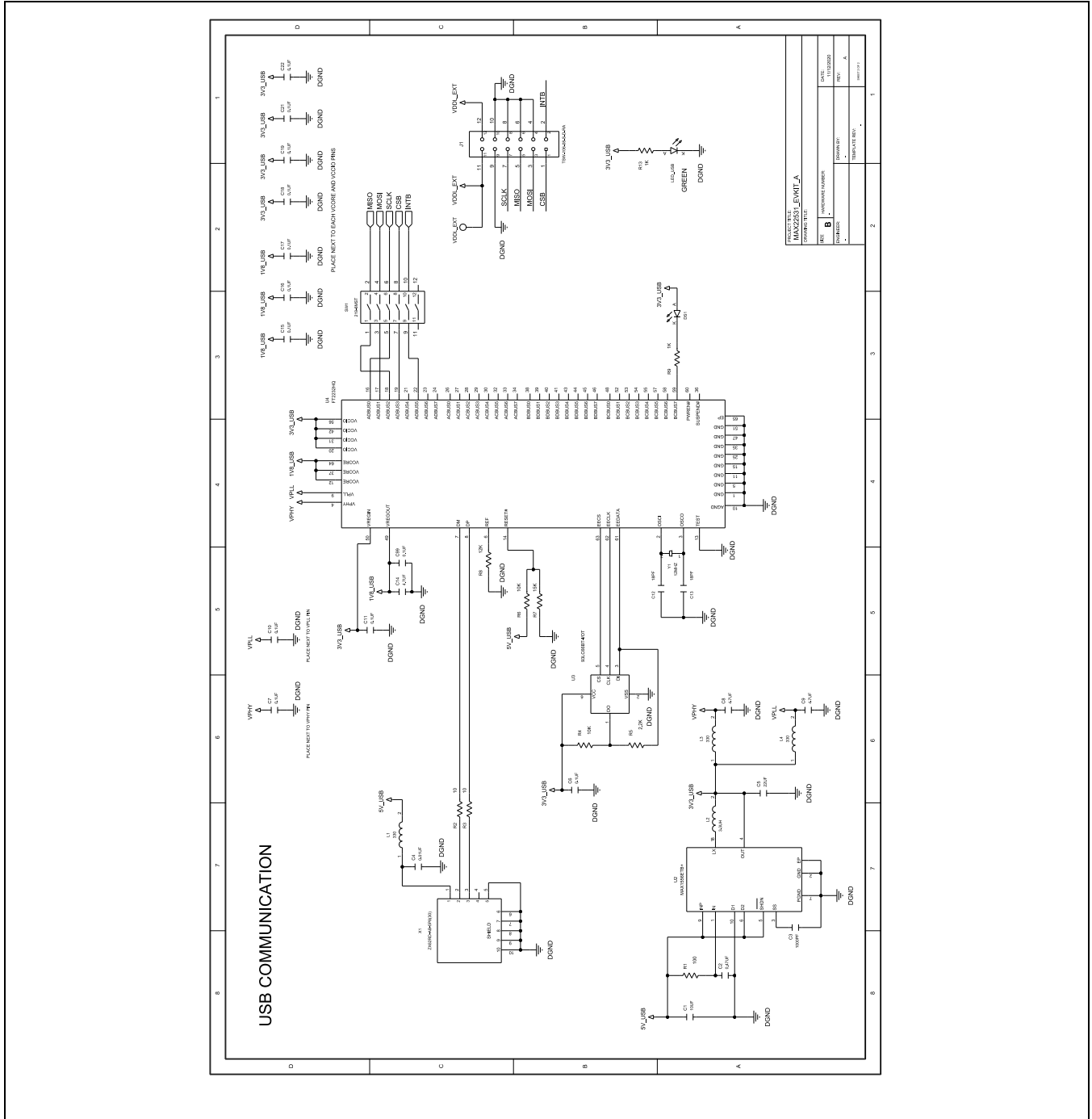
J1	1	CONNECTOR; THROUGH HOLE; DOUBLE ROW; RIGHT ANGLE; 12PINS
J2	1	CONNECTOR; FEMALE; THROUGH HOLE; 10.16MM PITCH; SIDE WIRE ENTRY STACKING WITH INTERLOCK; TERMINAL BLOCK; STRAIGHT; 5PINS
J3	1	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS
J4	1	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 3PINS; -65 DEGC TO +125 DEGC
L1, L3, L4	3	INDUCTOR; SMT (0805); FERRITE-BEAD; 330; TOL=+/-25%; 1.5A
L2	1	INDUCTOR; SMT (1812); FERRITE CORE; 3.3UH; TOL=+/-10%; 0.9A
MH1-MH4	4	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
R1	1	RES; SMT (0603); 100; 1%; +/-100PPM/DEGC; 0.1000W
R2, R3	2	RES; SMT (0603); 10; 1%; +/-100PPM/DEGC; 0.1000W
R4, R6	2	RES; SMT (0603); 10K; 1%; +/-100PPM/DEGC; 0.1000W
R5	1	RES; SMT (0603); 2.2K; 1%; +/-100PPM/DEGC; 0.1000W
R7	1	RES; SMT (0603); 15K; 1%; +/-100PPM/DEGC; 0.1000W
R8	1	RES; SMT (0603); 12K; 1%; +/-100PPM/DEGC; 0.1000W
R9, R13	2	RES; SMT (0603); 1K; 1%; +/-100PPM/DEGC; 0.1000W
R10-R12, R14, R16, R18, R20, R22, R38-R45	16	RES; SMT (2512); 15K; 1%; +/-100PPM/DEGC; 1W
R15, R47	2	RES; SMT (0603); 499; 1%; +/-100PPM/DEGC; 0.1000W
R17, R19, R21, R23	4	RES; SMT (0805); 1K; 1%; +/-100PPM/DEGC; 0.5000W
R24-R36, R48-R51	17	RES; SMT (0603); 0; 5%; JUMPER; 0.1000W
R37	1	RES; SMT (0603); 3.3K; 1%; +/-100PPM/DEGC; 0.1000W
R46	1	RESISTOR; THROUGH-HOLE; 10M; 1%; 100PPM; 1/8W; METAL FILM
SW1	1	SWITCH; SPST; SMT; STRAIGHT; 20V; 0.1A; SURFACE MOUNT DIP SWITCH-AUTO PLACEABLE; RINSULATION=1000M OHM
TP3, TP4, TP7, TP8	4	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
U1	1	EVKIT PART - IC; MAX22531; PACKAGE OUTLINE DRAWING: 21-0056; LAND PATTERN DRAWING: 90-0094; SSOP20
U2	1	IC; CONV; PWM STEP-DOWN DC-DC CONVERTER; TDFN10-EP 3X3
U3	1	IC; EPROM; 4K MICROWIRE SERIAL EEPROM; SOT23-6
U4	1	IC; MMRY; DUAL HIGH SPEED USB TO MULTIPURPOSE UART/FIFO; QFN64-EP
VDDL, VDDL_EXT, VDDPL	3	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SIL;
X1	1	CONNECTOR; MALE; THROUGH HOLE; MICRO-USB CONNECTOR MEETING REQUIREMENTS OF USB 2.0 STANDARD; RIGHT ANGLE; 5PINS
Y1	1	CRYSTAL; SMT ; 18PF; 12MHZ; +/-20PPM; +/-30PPM

MAX22531 EV Kit Schematics

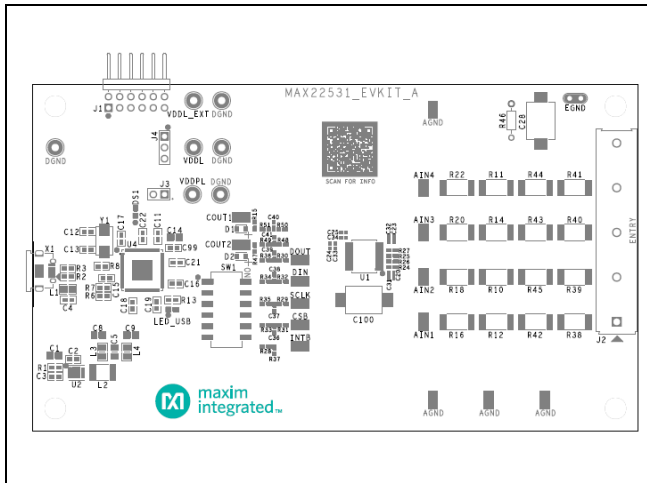




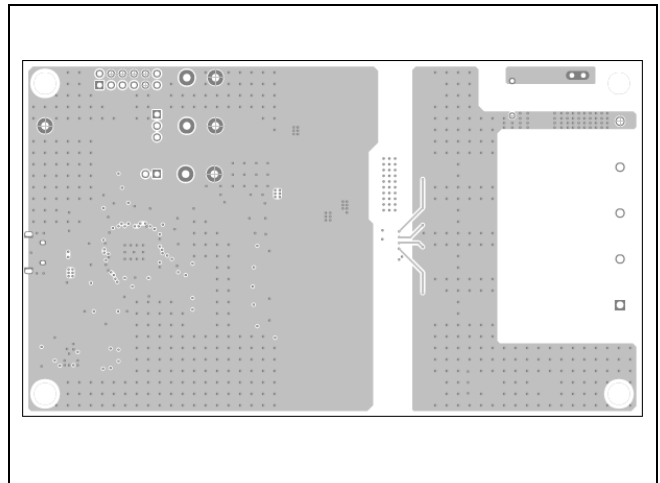
MAX22531 EV Kit Schematics (continued)



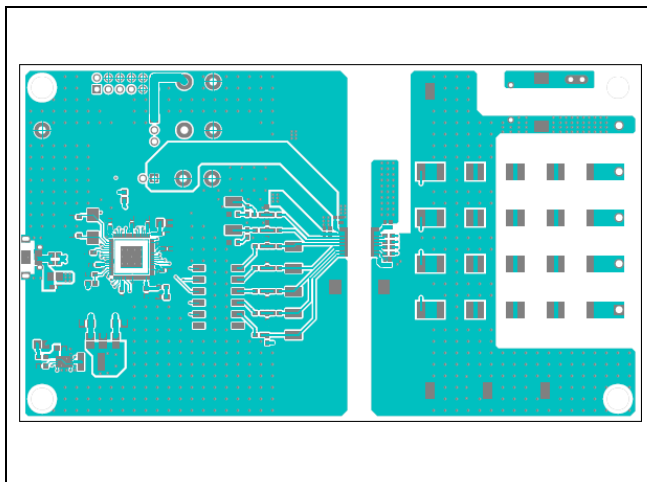
MAX22531 EV Kit PCB Layouts



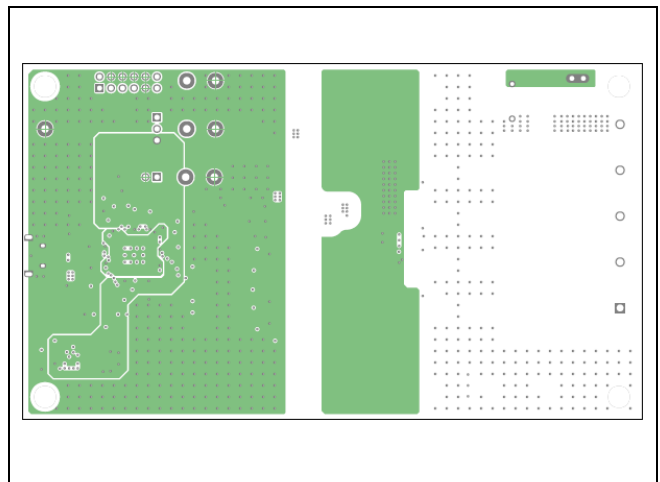
MAX22531 EV Kit Component Placement Guide—Top Silkscreen



MAX22531 EV Kit PCB Layout—Layer 2

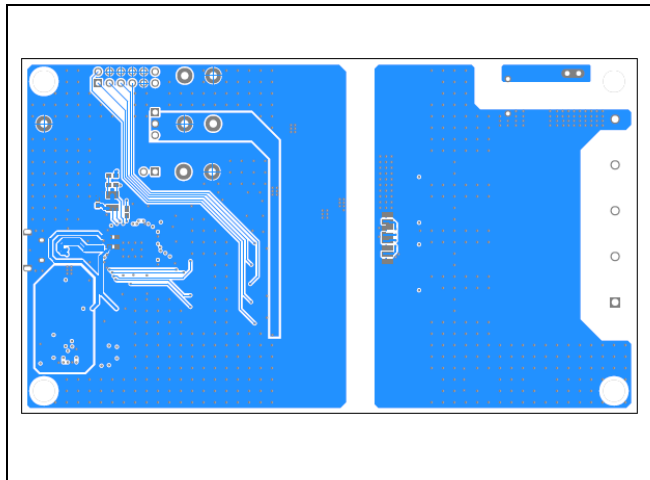


MAX22531 EV Kit PCB Layout—Top

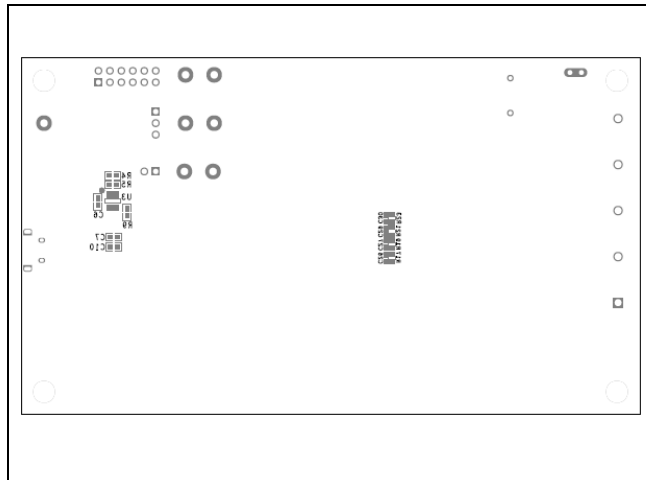


MAX22531 EV Kit PCB Layout—Layer 3

**MAX22531 EV Kit PCB Layouts (continued)**



*MAX22531 EV Kit PCB Layout—Bottom*



*MAX22531 EV Kit Component Placement Guide—Bottom Silkscreen*

**Revision History**

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	2/21	Initial release	—
1	9/21	Updated <i>EV Kit Photo (MAX22530EVKIT#)</i> , <i>EV Kit Photo (MAX22531EVKIT#)</i> and <i>Ordering Information</i>	1, 9