Click here to ask about the production status of specific part numbers.

MAX20342 Evaluation Kit

Evaluates: MAX20342

General Description

The MAX20342 evaluation kit (EV kit) is a fully assembled and tested PCB that evaluates the MAX20342 USB Type-C® charger detector with integrated overvoltage protection. The EV kit features a Pmod™ connector, allowing the USB2PMB2 adapter board to provide I²C interface.

The EV kit features an on-board LDO to generate a supply voltage from the USB +5V. The on-board LDO output is configurable for 4.2V, 3.3V, or 2.3V to power the IC.

The EV kit software controls the USB2PMB2 adapter board over the USB, which generates I²C commands. The EV kit ships with jumpers installed and supply voltages set to typical operating values.

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

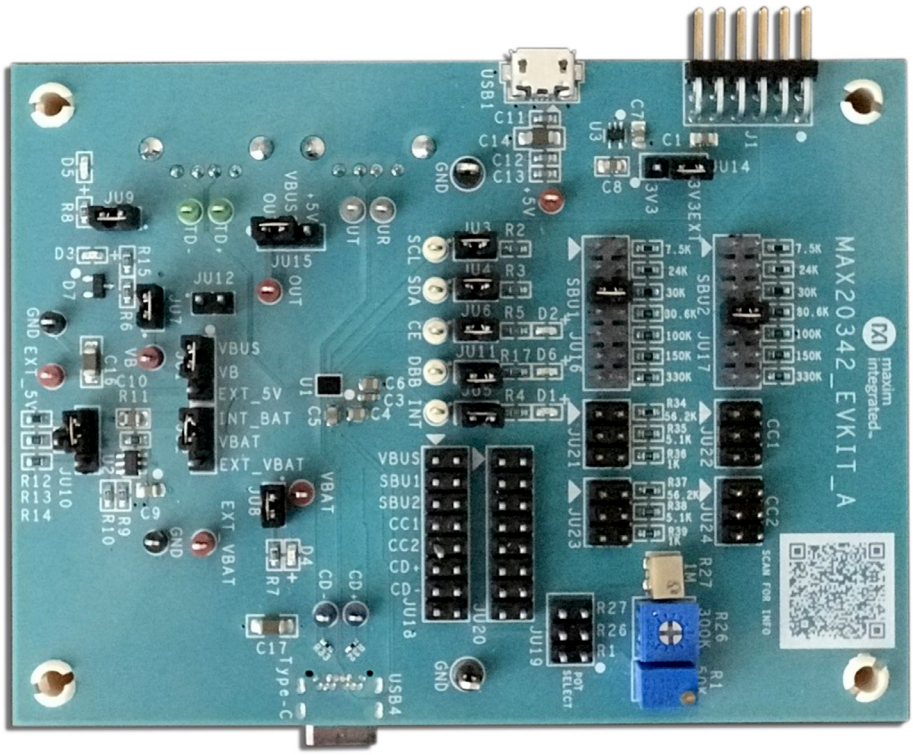
Features

- USB-Powered Operation
- USB Type-C Receptable Connector
- Proven High-Speed USB PCB Layout
- Pmod I²C Interface
- Flexible Configuration
- On-Board Regulator and USB Connectors for Device Multiplexing
- Windows® 8/10-Compatible GUI Software
- Fully Assembled and Tested

Evaluation Kit Contents

- MAX20342 EV Kit
- USB2PMB2 Adapter Board
- Two USB A to Micro-B Cables
- USB Type-C Cable

MAX20342 EV Kit Photo



USB Type-C® is a registered trademark of USB Implementers Forum.
Windows is a registered trademark and registered service mark of Microsoft Corporation.
Pmod is a trademark of Digilent Inc.

maxim integrated™

MAX20342 EV Kit Files

FILE	DESCRIPTION
MAX20342EVKit.exe	PC GUI Program

Quick Start

Required Equipment

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

- MAX20342 EV Kit
- USB2PMB2 Adapter Board
- Two USB A to Micro-B Cables
- USB Type-C Cable
- Windows PC with USB Ports

Procedure

The EV kit is fully assembled and tested. Follow the steps below to verify board operation. **Caution: Do not turn on the power supply until all connections are completed.**

1) Visit **https://www.maximintegrated.com** to download the latest version of the EV kit software, **MAX20342EVKitSetupVxxx.ZIP** located on the MAX20342 EV kit web page. Download the EV kit software to a temporary folder and unzip the ZIP file.
2) Install the EV kit software on your computer by running the **MAX20342EVKitSetupVxxx.EXE** program inside the temporary folder.
3) Verify that all jumpers are in their default positions, as shown in Table 1.
4) Connect the USB2PMB2 adapter board to J1 Pmod connector on the EV Kit.
5) Connect a USB A-to-micro-B cable between the PC and the X1 port on the USB2PMB2. USB driver should be installed automatically.
6) Connect the USB A-to-micro-B cable between the PC and the USB1 port on the EV kit.
7) Start the MAX20342 EV Kit tool. The EV kit software main window appears, as shown in Figure 1.
8) If connection is successfully established, the status bar the bottom displays **Connected**.
9) The EV kit is now ready for additional evaluations.

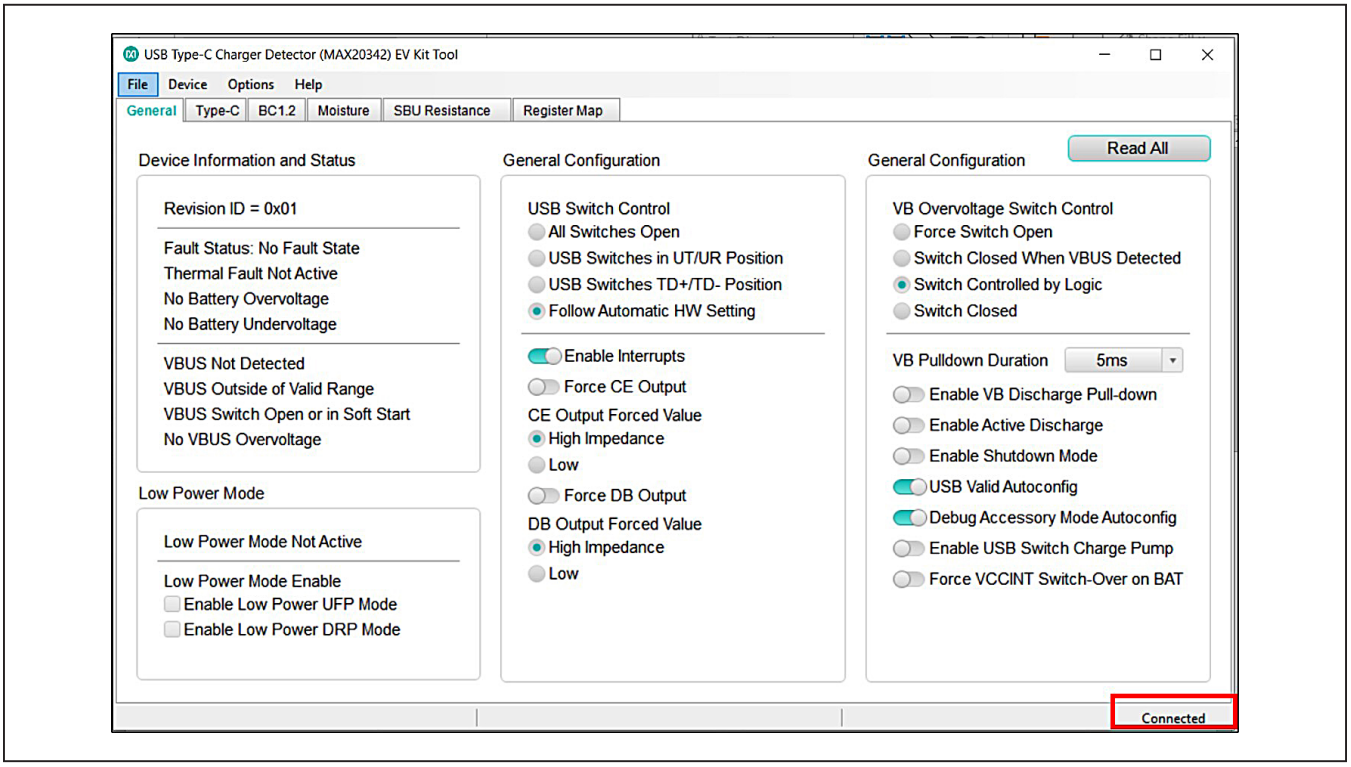


Figure 1. The Status of the GUI Shows Connected Ready for Further Evaluation

Detailed Description of Software

Software Startup

Upon starting the program, the EV kit software automatically searches for the USB interface circuit and then for the IC device addresses. The EV kit enters the normal operating mode when the connection is established and addresses are found. If the USB connection is not detected, the status bar displays **Not Connected**. If the USB connection is detected, but the MAX20342 is not found, the status bar displays **MAX20342 Not Found**.

The **Read All** button reads all the registers visible on the current tab page. All statuses are polled continuously. The polling feature can be disabled in the **Options** section of the menu bar by selecting **Disable Polling**.

ToolStrip Menu Bar

The Toolstrip menu bar (Figure 2) is located at the top of the GUI window. This bar comprises **File**, **Device**, **Options**, and **Help** menus whose functions are detailed in the following sections.

File Menu

The **File** Menu contains the option to exit out of the GUI program.

Device Menu

The **Device** menu provides the ability to connect or disconnect the EV kit to the GUI. If a board is disconnected while the GUI is open, the GUI displays **Not Connected** in the lower right corner. If the device is then plugged back in, the bottom right corner of the GUI displays **Connected**. The **I2C Read/Write** in the **Device** menu allows the user to read from or write to a selected register with a specified slave address.

Options Menu

The **Options** menu provides additional setting to access more features offered by the GUI. Read the registers manually instead of getting automatically frequent register updates from the IC by using the **Disable polling** option.

Help Menu

The **Help** menu contains the **About** option, which displays the GUI splash screen, indicating which GUI version is being used.

Tab Controls

The MAX20342 EV kit software GUI provides a convenient way to test the features of the MAX20342. Each tab contains controls relevant to various blocks of the device. Changing these interactive controls triggers a write operation to the MAX20342 to update the register contents.

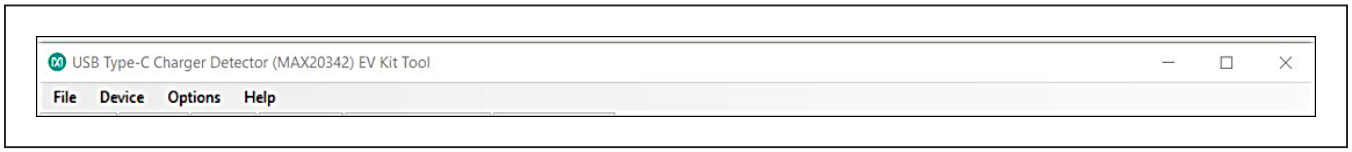


Figure 2. The ToolStrip Menu Items

General Tab

The **General** tab (Figure 3) provides all important information and options to set up the MAX20342 general configurations. The **Device Information and Status** panel provides detection of VBAT and VBUS. **USB Switch Control** and **VB Switch Control** can be found in the middle and right panels. Configuring low power modes can be accomplished through settings in the **Low Power Mode** panel.

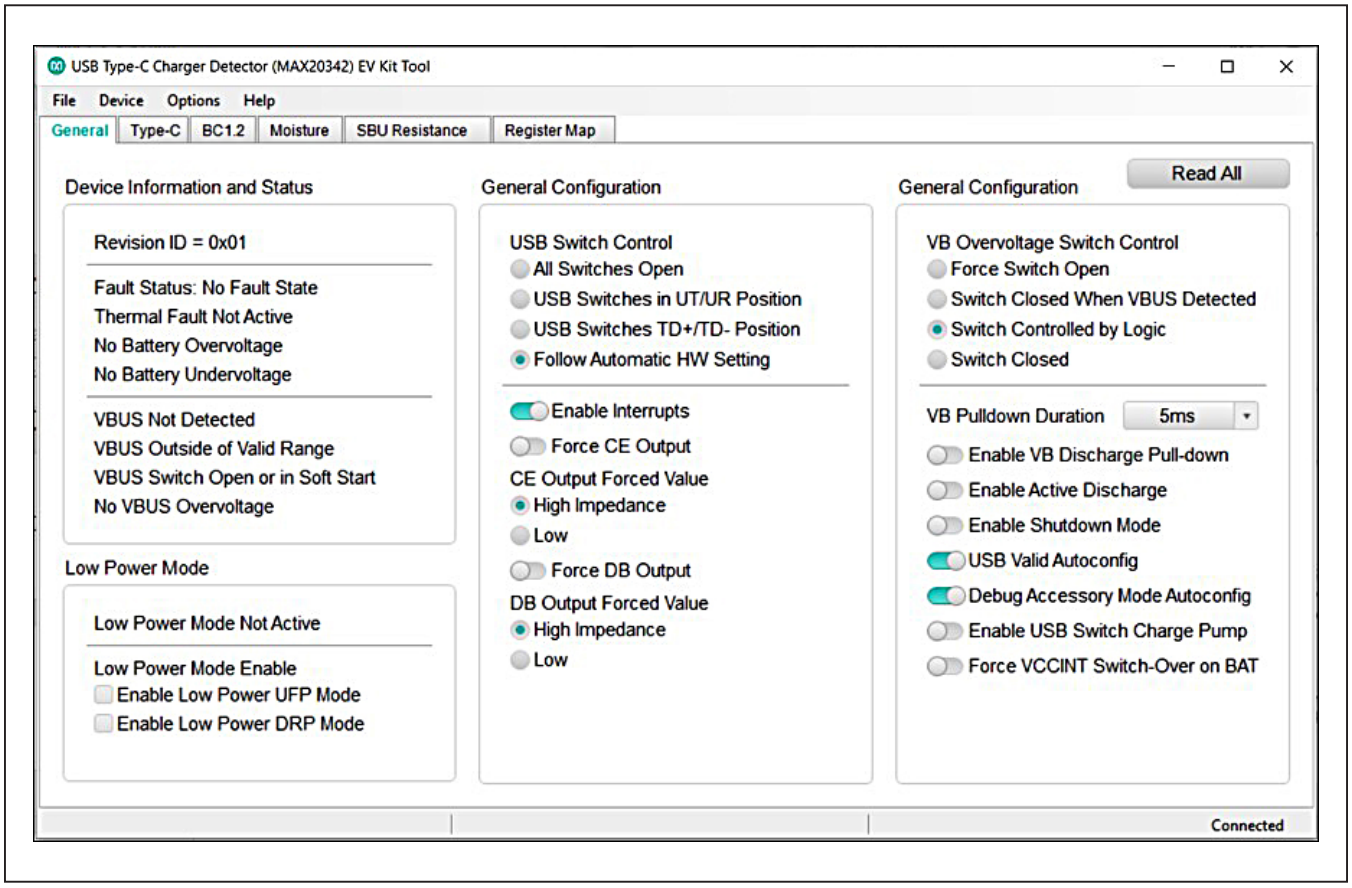


Figure 3. General Tab

Type-C Tab

The **Type-C** tab (Figure 4) configures the USB Type-C detection and displays detection status. Several Type-C modes control can be configured through the T**ype-C Detection Configuration** panel. The user can also select options for VCONN configuration and other settings in this tab.

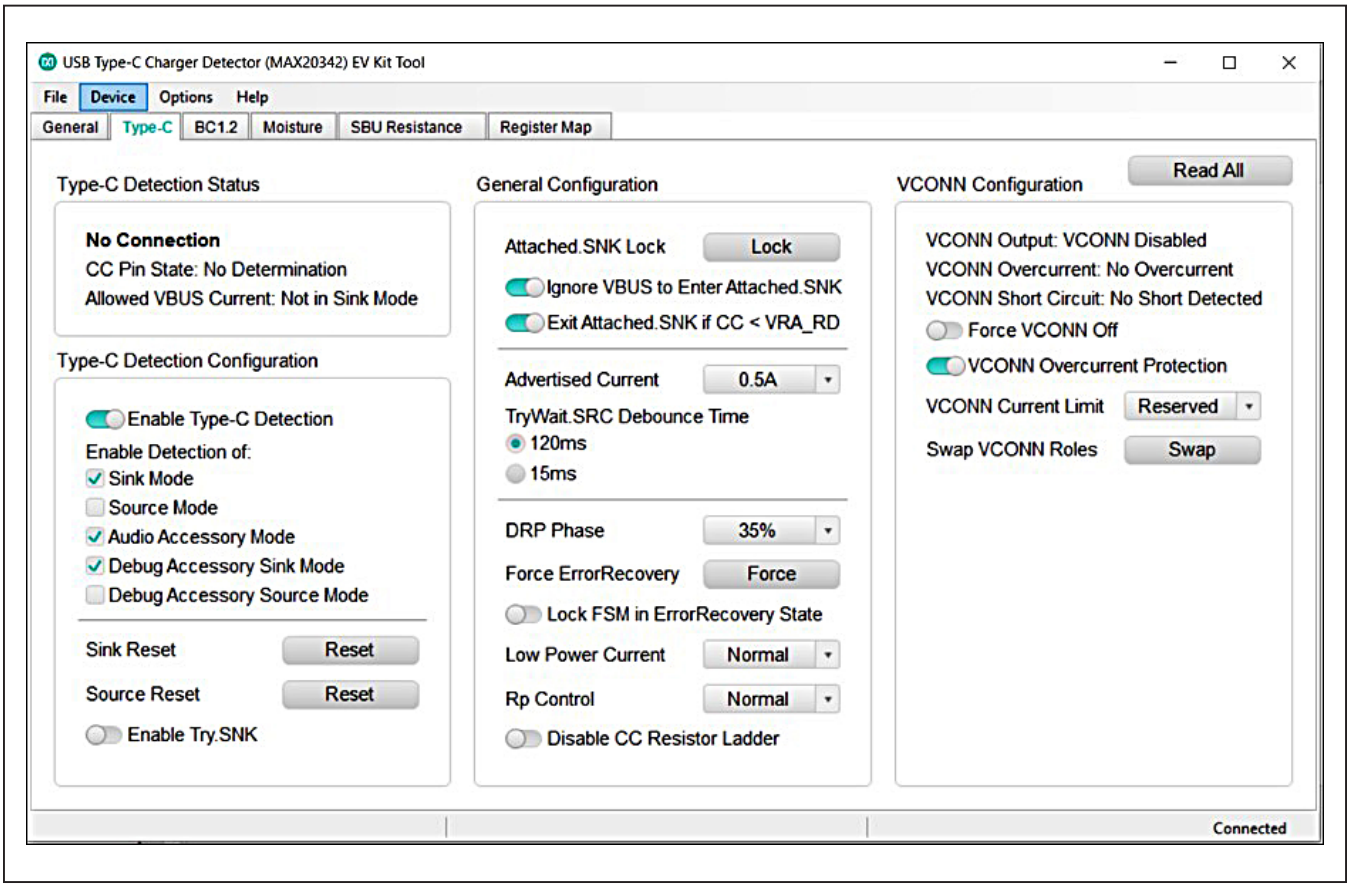


Figure 4. Type-C Tab

BC1.2 Tab

The **BC1.2** tab (Figure 5) hosts the settings for BC1.2 charger detection. View charger detection results and status according to charger type and proprietary charger. The **BC1.2 Charger Detection Configuration** panel provides an **Enable Charger Detection** button to enable or disable the charger detection, and **Manual Charger Detection** button to force a charger detection manually. The **Data Contact Detection** panel provides the DCD timeout status and options to select wait time for DCD.

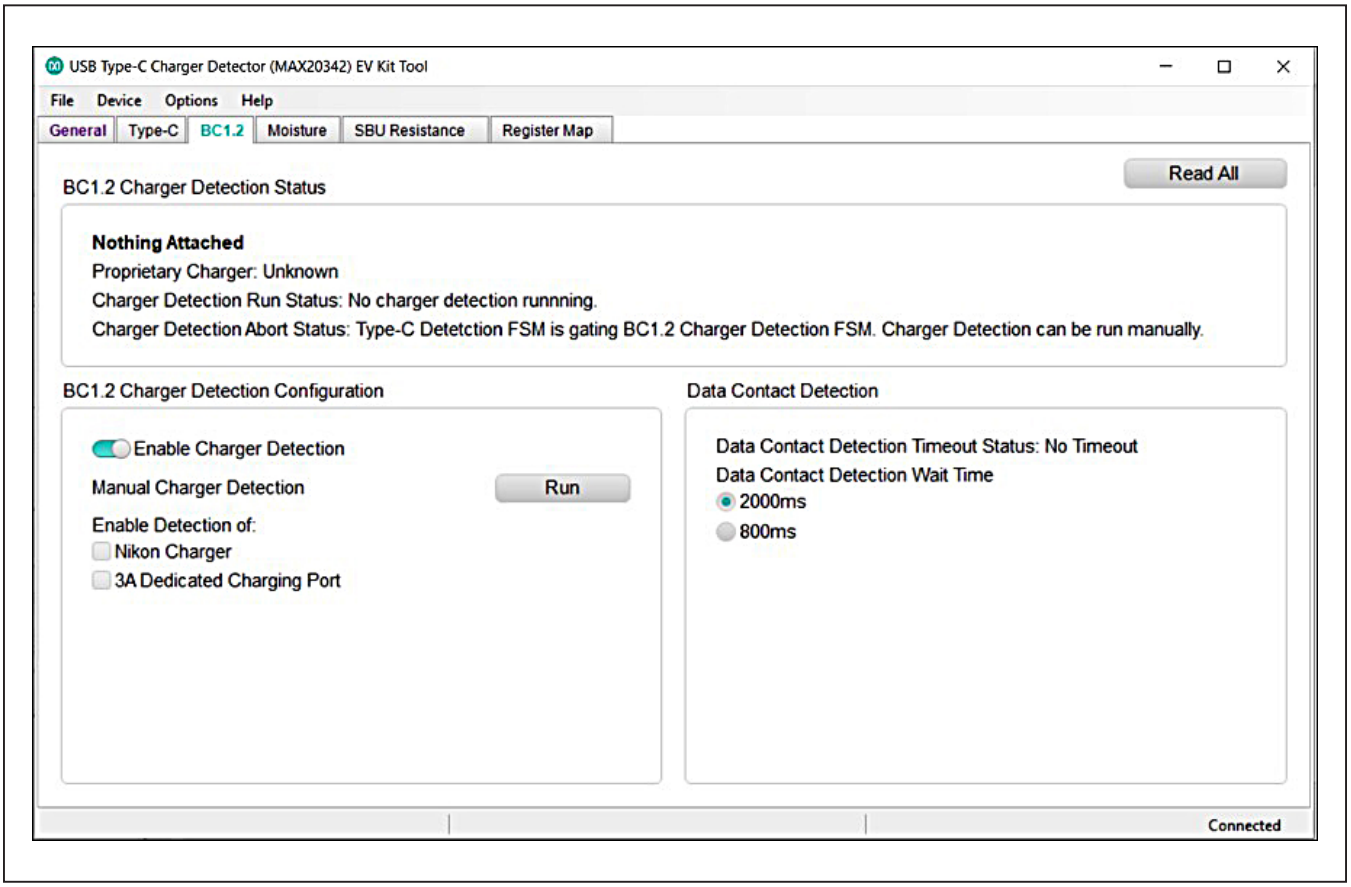


Figure 5. BC1.2 Tab

Moisture Tab

The **Moisture** Tab (Figure 6) provides settings for a moisture detection configuration. The moisture detection function can be automatically configured (by toggling on **Enable Automatic Configuration**) or manually configured (by toggling off **Enable Automatic Configuration**). It also supports manual triggering (by clicking the **Run** button next to **Manual Moisture Detection**) or 10-second periodic triggering (by toggling on **Enable Periodic Measurements**). The moisture detection function is run only when the MAX20342 is not in shutdown mode, and V_B or a CC connection has not been detected. Refer to *Moisture Detection* section in the the MAX20342 IC data sheet, for details about these configurations.

The moisture detection threshold (R_{MOIST}) can be set by two parameters: selecting the voltage value in **Moisture Detection Voltage Threshold** drop-down menu and selecting pullup current in **Moisture Detection Max Pull-up Current**. Based on these selections, the program GUI updates and displays R_{MOIST}. Refer to Table 5 of the MAX20342 IC data sheet for the conditions of moisture detected.

In manual configuration (by toggling off **Enable Automatic Configuration**), select the pullup and pulldown pins through the **Non-Automatic Moisture Detection Pull-up and Pull-down Settings** panel. If more than one pullup or pulldown pins are selected, the ADC results show the equivalent resistance connected in parallel.

The **ADC Results and Interrupts** panel outputs the average ADC voltage results and the final pullup current. The program GUI calculates the resistance based on obtained voltage and current results. Interrupts, self-cleared after read, are set according to Figure 3 and Figure 6 of the MAX20342 IC data sheet.

Burst measurement happens when it is in automatic configuration (**Enable Automatic Configuration** toggled on) and moisture is detected. Each pin, CC1, CC2, SBU1, and SBU2 is individually pulled up while other pins are grounded. The resistance results measured from each pin are updated in the **Moisture Detection Burst Measurement Results** panel.

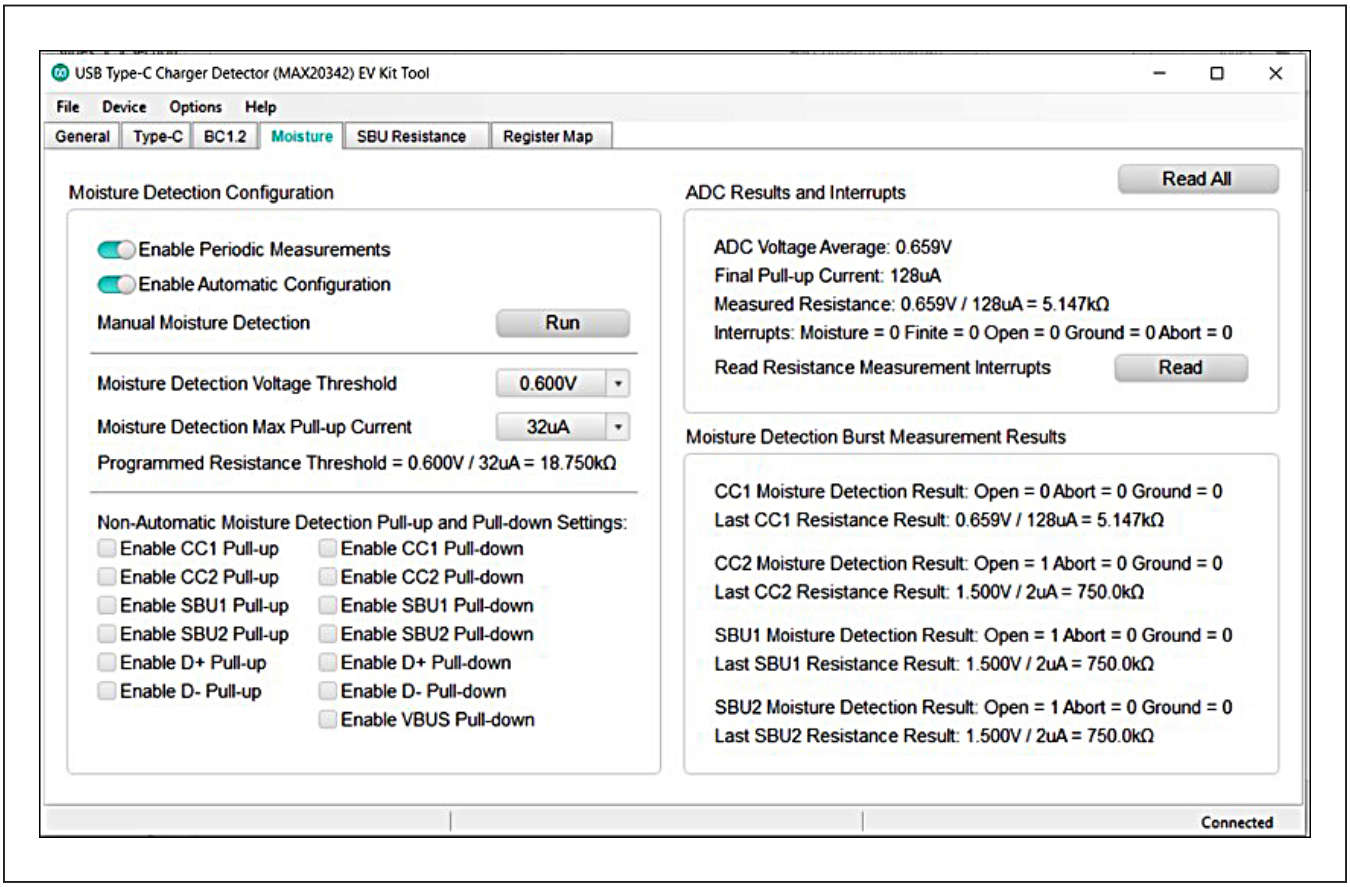


Figure 6. Moisture Tab

SBU Resistance Tab

The **SBU Resistance** tab (Figure 7) provides settings for debug accessory resistance detection. The detection can be triggered manually (by clicking the **Run** button next to **Manual SBU1/SBU2 Detection**), continuously (by toggling on **Enable Continuous SBU1/SBU2 Resistor Measurement**), or one-shot (by toggling on **Enable One-shot SBU1/SBU2 Resistor Measurement**). One detection consists of measuring the resistances on SBU1/SBU2 to ground in sequence, reporting the results, and asserting the corresponding interrupts. Refer to the *Debug Accessory Modes* section in the MAX20342 IC data sheet for details about these configurations.

The MAX20342 can automatically detect up to five accessory modes based on the measured resistance between SBU1 (or SBU2) and ground. These five resistance thresholds are selected by the corresponding drop-down option from **Choose an Accessory to Configure** block. Configure the minimum and maximum voltage thresholds as well as pullup current for each accessory mode. With these parameters set, a resistance range for each accessory mode is defined and displayed on the GUI. Refer to Table 7 and Table 8 of the MAX20342 IC data sheet for the allowed ranges of debug accessory detection.

The SBU1/SBU2 resistance results are shown in the **SBU Accessory Detection Measurement Results** panel. The program GUI calculates the resistance based on obtained voltage and current results.

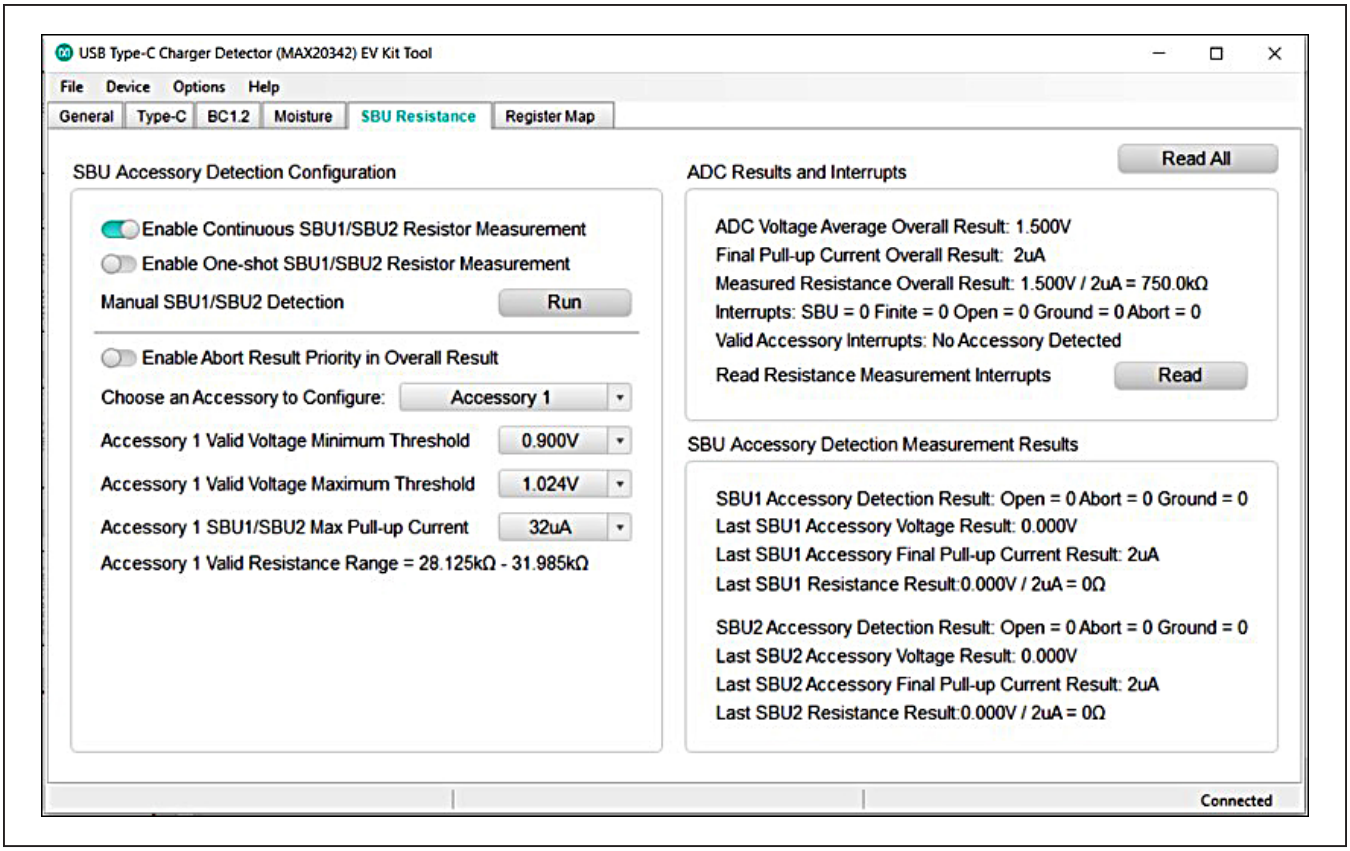


Figure 7. SBU Resistance Tab

Register Map Tab

The **Register Map** tab (Figure 8) provides all names and values of MAX20342 registers. Click **Read All** at the top right corner to perform a burst read of all registers.

The left table shows the register to be read from or written to. The right table contains descriptions for each register field of the selected 8-bit register. All bits, along with their field names, are displayed at the bottom of the page.

To set a bit, click the bit label. **Bold** text represents logic 1 and regular text represents logic 0. To configure the changes to the device, click the **Write** button at the bottom right.

Detailed Description of Hardware

The MAX20342 EV kit evaluates the MAX20342 USB Type-C charger detector with integrated overvoltage protection that communicates over the I²C interface. The EV kit demonstrates the IC features such as BC1.2 charger detection, USB Type-C detection, overvoltage protection, USB switch control, moisture detection, and SBU accessory detection. The EV kit uses the IC in a 24-bump (2.62mm x 2.02mm) wafer-level package (WLP) on a proven, four-layer PCB design. The EV kit operates from the USB +5V DC, and therefore, does not require an external power supply. Alternatively, the EV kit can be powered with an external power supply through EXT_5V of JU1 or EXT_VBAT of JU2.

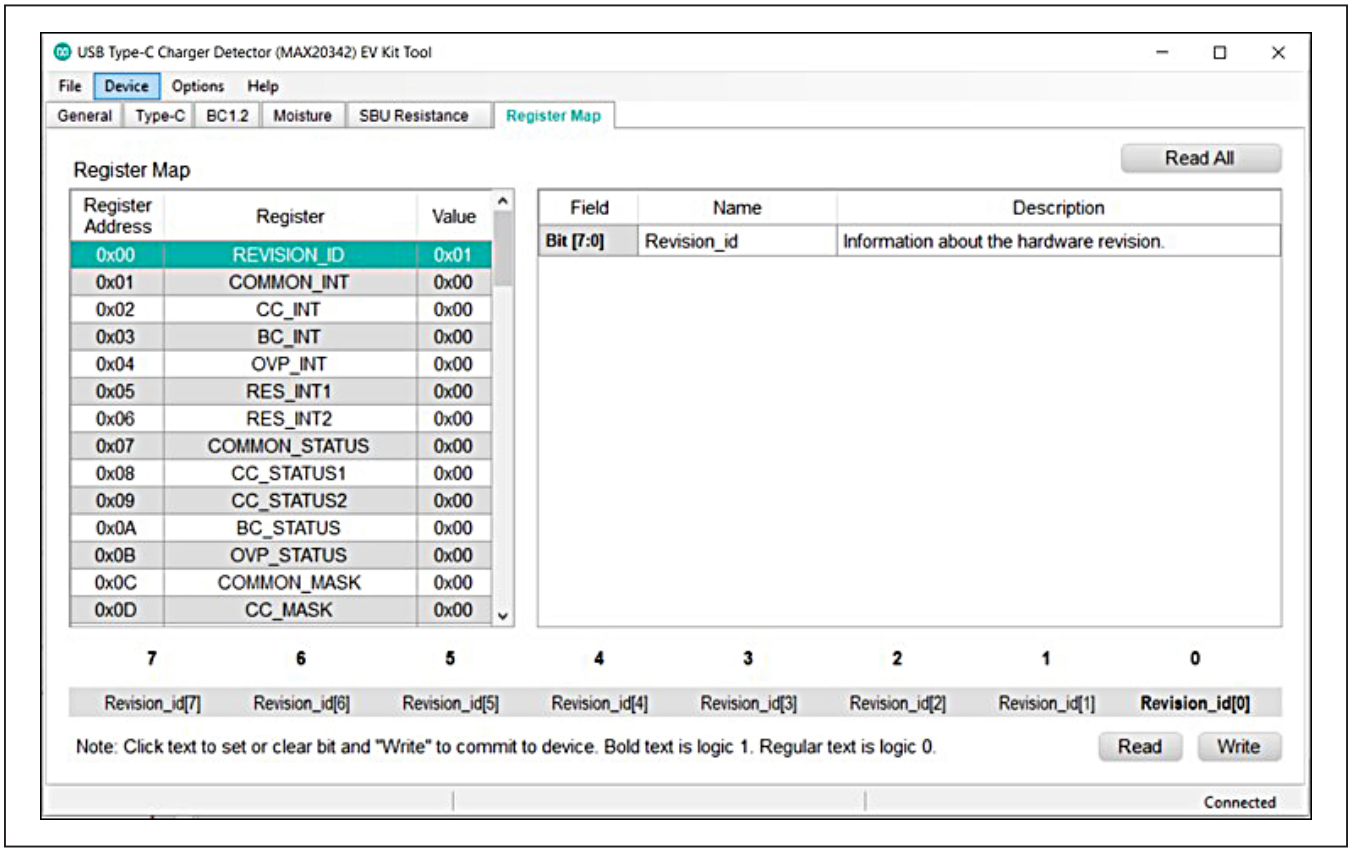


Figure 8. Register Map Tab

Table 1. Jumper Table (JU1-JU24)

JUMPER	SHUNT POSITION	DESCRIPTION
JU1	1-2*	Connect VB of U1 to VBUS of USB4. U1 powered from the USB Type-C port.
	2-3	Connect VB of U1 to the external 5V applied at EXT_5V test point.
JU2	1-2*	Connect VBAT of U1 to INT_VBAT of U2. U1 powered from USB1 and regulator U2.
	2-3	Connect VBAT of U1 to the external VBAT applied at EXT_VBAT test point.
JU3	1-2*	Pullup SCL of U1 to VIO 3.3V.
JU4	1-2*	Pullup SDA of U1 to VIO 3.3V.
JU5	1-2*	Pullup $\overline{INT}$ of U1 to VIO 3.3V.
JU6	1-2*	Pullup $\overline{CE}$ of U1 to VIO 3.3V.
JU7	1-2*	Connect VB of U1 to the LED indicator D3.
JU8	1-2*	Connect VBAT of U1 to the LED indicator D4.
JU9	1-2*	Connect OUT of U1 to the LED indicator D5.
JU10	1-2	Select 2.3V for INT_VBAT to supply BAT of U1.
	1-3	Select 3.3V for INT_VBAT to supply BAT of U1.
	1-4*	Select 4.2V for INT_VBAT to supply BAT of U1.
JU11	1-2*	Pullup $\overline{DB}$ of U1 to VIO 3.3V.
JU12	1-2	Connect VBUS of USB4 (USB Type-C port) to VBUS2 of USB2 and USB3.
	Open	Disconnect VBUS of USB4 (USB Type-C port) to VBUS2 of USB2 and USB3.
JU14	1-2	Connect VIO to the 3.3V output of regulator U3.
	2-3*	Connect VIO to 3.3V_EXT of J1.
JU15	1-2*	Connect VBUS2 of USB2 and USB3 to OUT of U1.
	2-3	Connect VBUS2 of USB2 and USB3 to 5V supply from USB1.
JU16	1-2	Connect SBU1 of U1 to pulldown resistor R18 7.5kΩ.
	3-4	Connect SBU1 of U1 to pulldown resistor R19 24kΩ.
	5-6*	Connect SBU1 of U1 to pulldown resistor R28 30kΩ.
	7-8	Connect SBU1 of U1 to pulldown resistor R40 80.6kΩ.
	9-10	Connect SBU1 of U1 to pulldown resistor R20 100kΩ.
	11-12	Connect SBU1 of U1 to pulldown resistor R29 150kΩ.
	13-14	Connect SBU1 of U1 to pulldown resistor R21 330kΩ.
JU17	1-2	Connect SBU2 of U1 to pulldown resistor R22 7.5kΩ.
	3-4	Connect SBU2 of U1 to pulldown resistor R23 24kΩ.
	5-6	Connect SBU2 of U1 to pulldown resistor R30 30kΩ.
	7-8*	Connect SBU2 of U1 to pulldown resistor R41 80.6kΩ.
	9-10	Connect SBU2 of U1 to pulldown resistor R24 100kΩ.
	11-12	Connect SBU2 of U1 to pulldown resistor R31 150kΩ.
	13-14	Connect SBU2 of U1 to pulldown resistor R25 330kΩ.

Table 1. Jumper Table (JU1-JU24) (continued)

JUMPER	SHUNT POSITION	DESCRIPTION
JU18	1-2	Connect VBUS of U1 to the potentiometer selection of JU19.
	3-4	Connect SBU1 of U1 to the potentiometer selection of JU19.
	5-6	Connect SBU2 of U1 to the potentiometer selection of JU19.
	7-8	Connect CC1 of U1 to the potentiometer selection of JU19.
	9-10	Connect CC2 of U1 to the potentiometer selection of JU19.
	11-12	Connect CDP of U1 to the potentiometer selection of JU19.
	13-14	Connect CDN of U1 to the potentiometer selection of JU19.
	15-16	Connect GND to the potentiometer selection of JU19.
JU19	1-2*	Select potentiometer R1 50kΩ between JU19 and JU20.
	3-4	Select potentiometer R26 300kΩ between JU19 and JU20.
	5-6	Select potentiometer R27 1MΩ between JU19 and JU20.
JU20	1-2	Connect VBUS of U1 to the potentiometer selection of JU19.
	3-4	Connect SBU1 of U1 to the potentiometer selection of JU19.
	5-6	Connect SBU2 of U1 to the potentiometer selection of JU19.
	7-8	Connect CC1 of U1 to the potentiometer selection of JU19.
	9-10	Connect CC2 of U1 to the potentiometer selection of JU19.
	11-12	Connect CDP of U1 to the potentiometer selection of JU19.
	13-14	Connect CDN of U1 to the potentiometer selection of JU19.
	15-16	Connect GND to the potentiometer selection of JU19.
JU21	1-2	Connect CC1 of U1 to resistor R34 56.2kΩ.
	3-4	Connect CC1 of U1 to resistor R35 5.1kΩ.
	5-6	Connect CC1 of U1 to resistor R36 1kΩ.
JU22	1-2	Pullup resistor R34 56.2kΩ to VBUS (R_P).
	3-4	Pullup resistor R35 5.1kΩ to GND (R_D).
	4-6	Pullup resistor R36 1kΩ to GND (R_A).
JU23	1-2	Connect CC2 of U1 to resistor R37 56.2kΩ.
	3-4	Connect CC2 of U1 to resistor R38 5.1kΩ.
	5-6	Connect CC2 of U1 to resistor R39 1kΩ.
JU24	1-2	Pullup resistor R37 56.2kΩ to VBUS (R_P).
	3-4	Pullup resistor R38 5.1kΩ to GND (R_D).
	4-6	Pullup resistor R39 1kΩ to GND (R_A).

**Default position*

Supply Voltage Selection

This section covers the procedure to select supply voltage to power the MAX20342 either from V_B or BAT.

Supply Voltage from BAT

To select the supply voltage from BAT, configure the default jumper connections from Table 1, then connect the USB A-to-micro-B cable between the PC and the USB1 port on the EV kit. The LED D4 illuminates, indicating the voltage of BAT. The GUI program shows the battery voltage status in the **General** tab (see Figure 9).

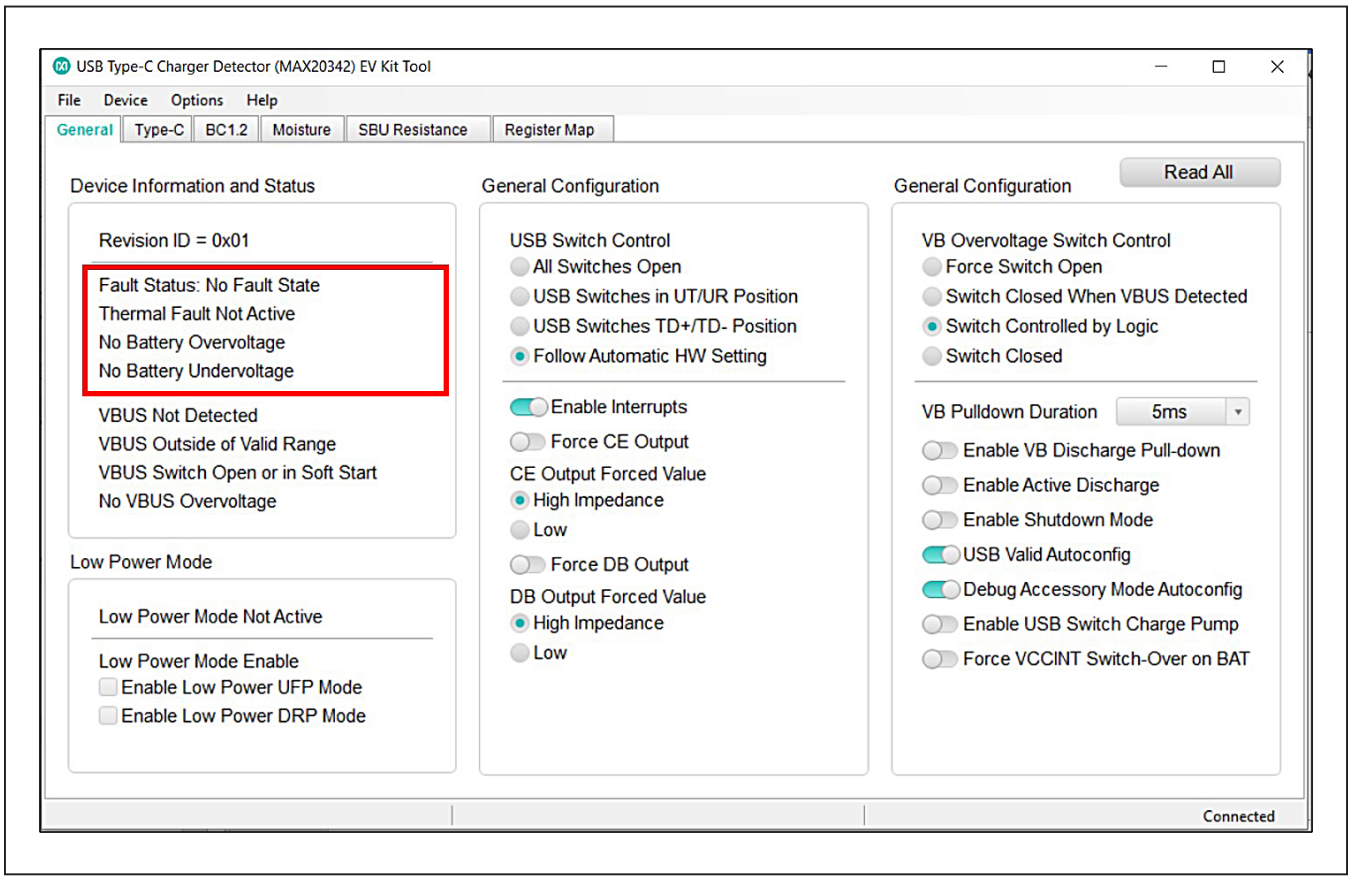


Figure 9. Status of Battery Voltage Detection

Supply Voltage from V_B

To select the supply voltage from V_B, configure default jumper connections from Table 1, then disconnect the USB A-to-micro-B cable between the PC and the USB1 port on the EV kit. Connect USB Type-C cable between the PC and the USB4 port on the EV kit. The LED D3 illuminates, indicating the voltage of V_B. The GUI program shows the VBUS voltage status in the **General** tab (see Figure 10).

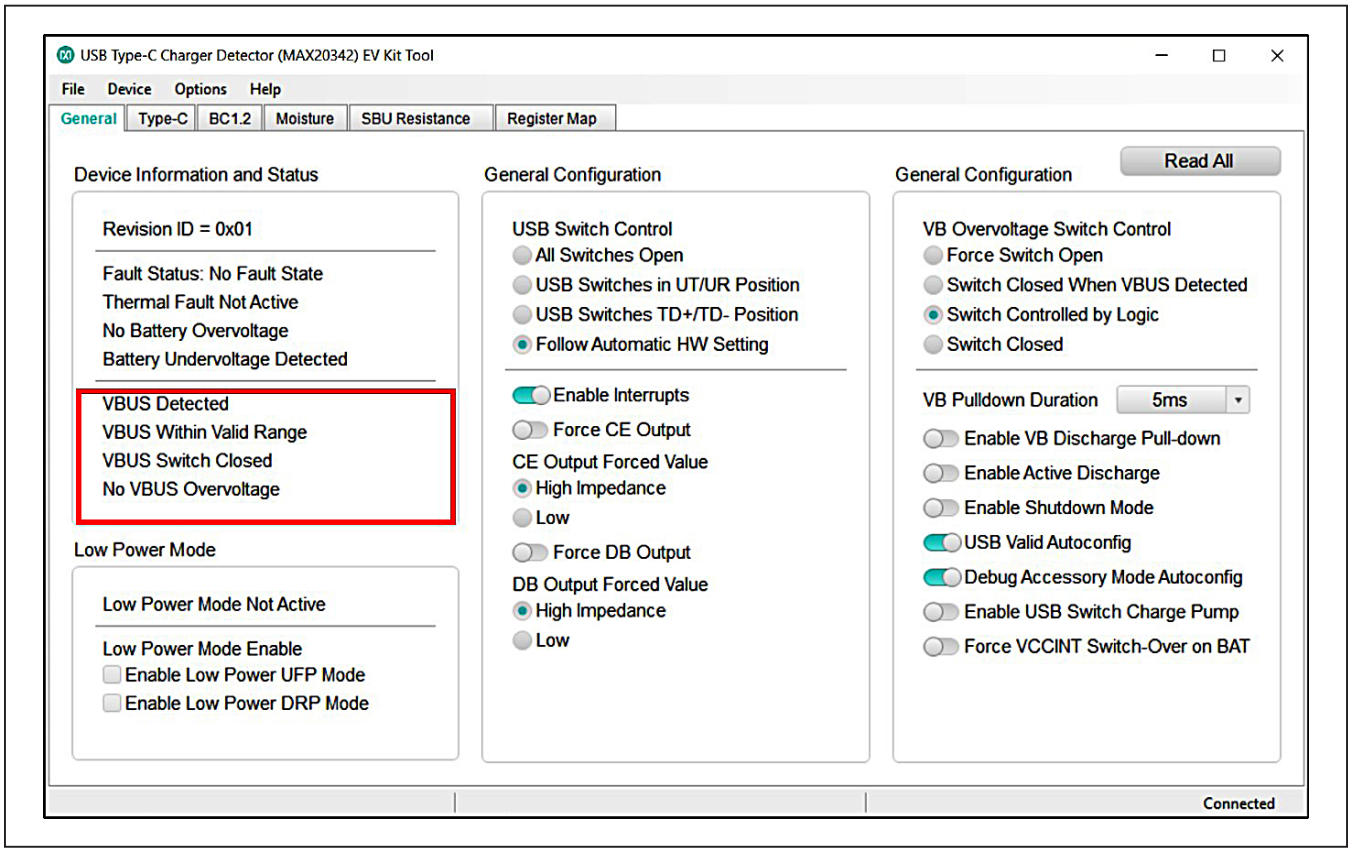


Figure 10. Status of VBUS Voltage Detection

Supply Voltages Present on Both BAT and V_B

With both valid supply voltages present on the BAT and V_B pins, the MAX20342 features an internal supply voltage selector that can be set through the VCCINTOnBAT bit of register 0x15. By default, the MAX20342 is powered from the higher valid voltages between BAT and V_B. However, it is possible to switch the valid supply voltage to BAT by writing 1 to the VCCINTOnBAT bit or toggle the button in the GUI program (see Figure 11).

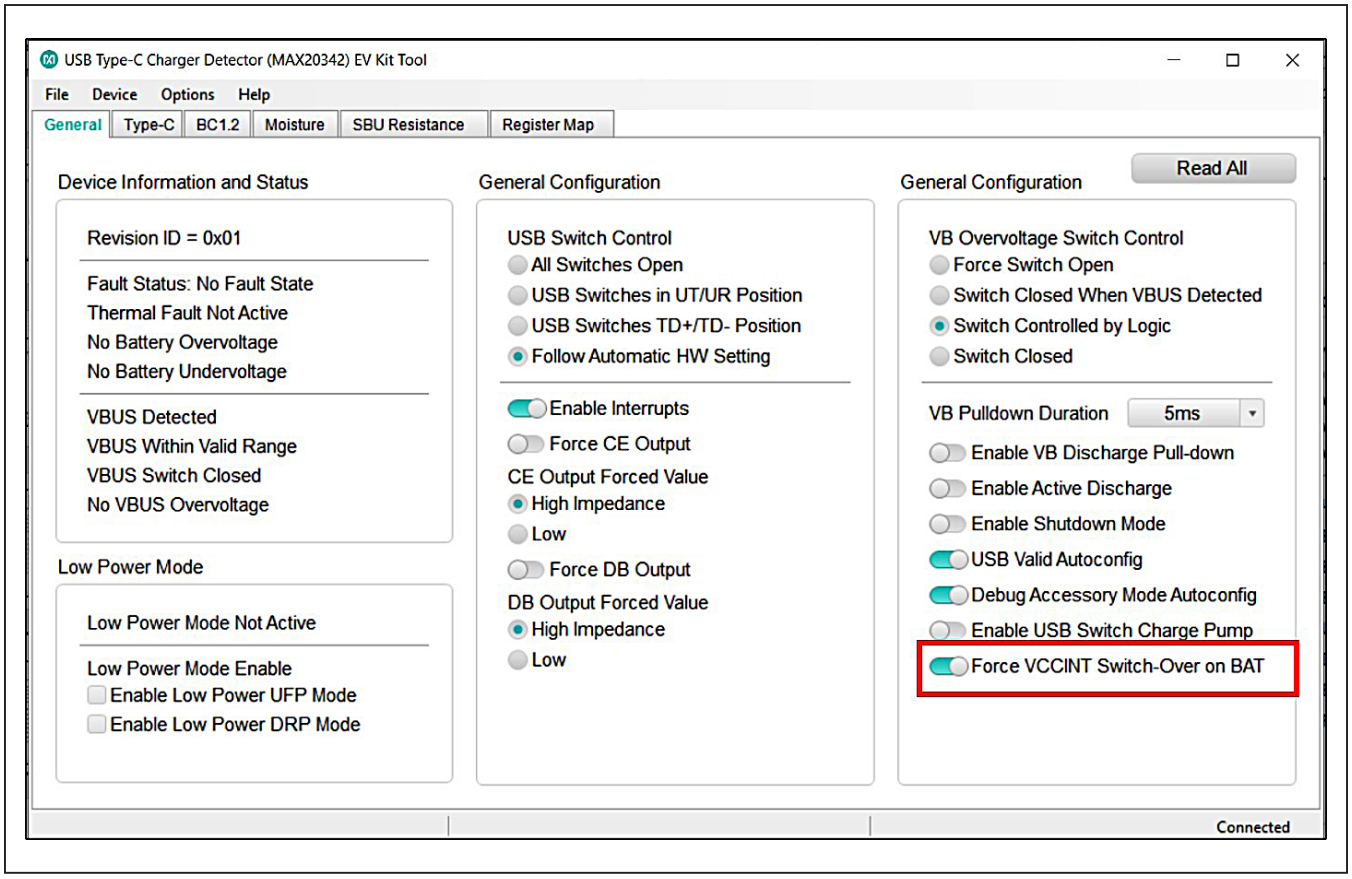


Figure 11. Internal Supply Voltage Switchover

Moisture Detection

This section covers the procedure to perform moisture detection with the MAX20342.

Hardware setting

1) Follow the default jumper settings from Table 1.
2) Connect pin 3-4 of JU21 and pin 3-4 of JU22. Such configuration connects a 5.1kΩ resistor to pin CC1.
3) Do not connect any jumpers of JU23 and JU24. Such configuration leaves pin CC2 open.
4) Power the MAX20342 through USB1 (through BAT).
5) Do not connect a USB Type-C cable to the USB4 port, or supply any voltage to V_B.

GUI Program

Interpreting moisture detection results is detailed in the following procedure and Figure 12.

1) Open the MAX20342 EV kit GUI program. The status bar should display **Connected**. Navigate to the **Moisture** tab.
2) Toggle on, if necessary, both **Enable Periodic Measurements** and **Enable Automatic Configuration**, which are on by default. For **Enable Automatic Configuration**, the MAX20342 is configured to measure the resistance between CC1 (alternatively CC2) and all other USB Type-C pins which are grounded. Regarding periodic measurements, the MAX20342 updates the measured resistance every 10 seconds. In this case, the pattern repeats such that resistance measurement on CC1 is displayed, and 10 seconds later, CC2 resistance measurement is shown. Refer the MAX20342 IC data sheet for more information.
3) By default, the **Moisture Detection Voltage Threshold** is set to 0.600V, and the **Moisture Detection Max Pull-up Current** is 32µA. These two parameters are used to compute the moisture resistance threshold (R_{MOIST}), approximately 18.750kΩ. If the resistance result from either CC1 or CC2 is less than R_{MOIST}, in this case 18.750kΩ, moisture is detected.

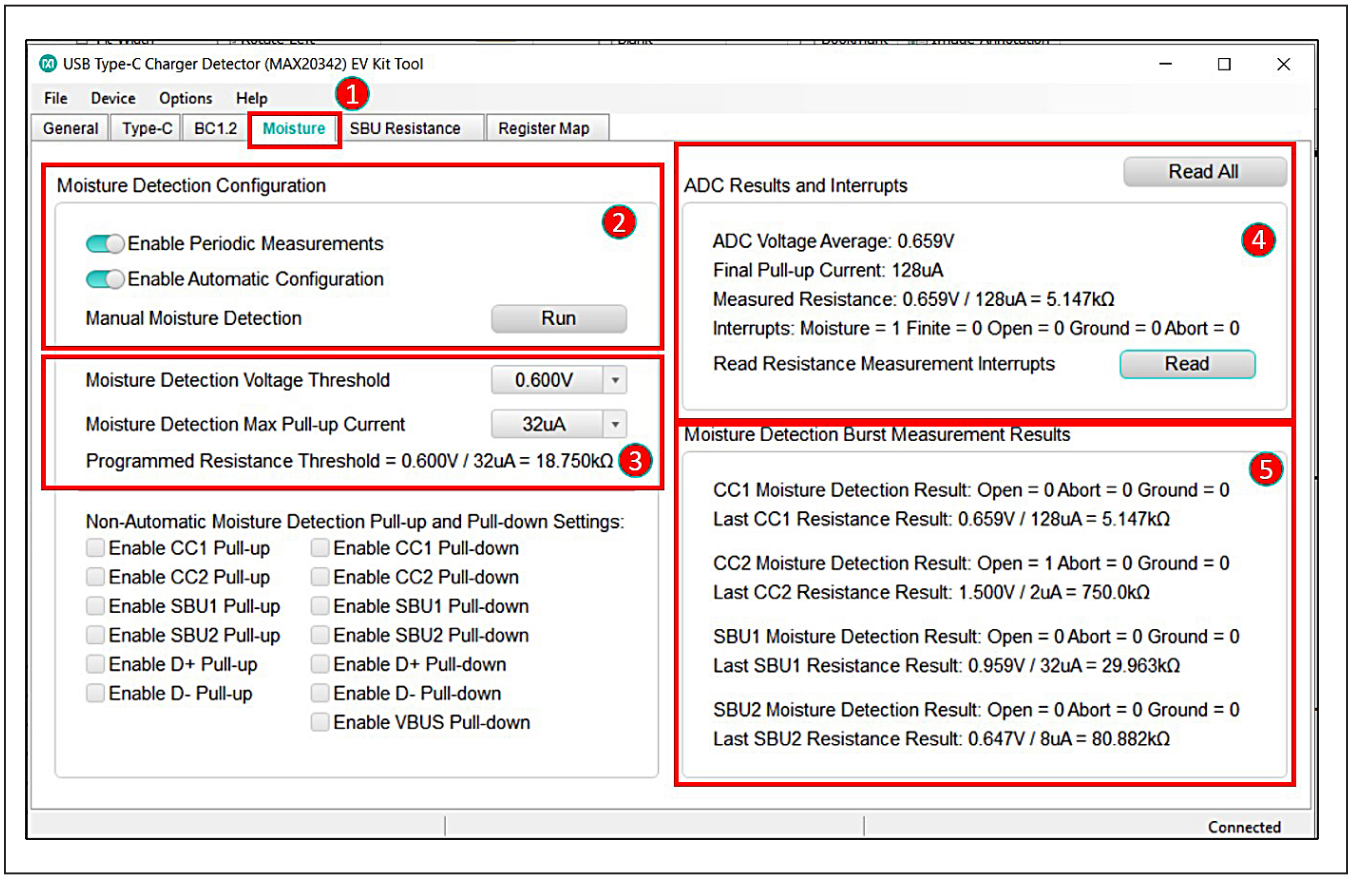


Figure 12. Moisture Detection Shows Resistance Measurement Results of CC1

4) The **ADC Results and Interrupts** panel shows resistance result for pin CC1. The **Measured Resistance** shows **5.147kΩ**, which is close to the actual resistance value connected to CC1. Since the computed resistance result is less than R_{MOIST} 18.750kΩ, moisture is detected. Click the **Read** button next to **Read Resistance Measurement Interrupts** to display the corresponding interrupt (i.e., **Moisture = 1**).

Burst measurements happen after moisture is detected on CC1 (refer to Figure 2 in the MAX20342 IC data sheet). Results are shown in the **Moisture Detection Burst Measurement Results** panel. CC1 resistance is **5.147kΩ** (discussed above). CC2 resistance is **750.0kΩ**, with interrupt **Open = 1**, since CC2 is left open. SBU1 resistance is 29.963kΩ due to a default jumper connection at pin 5-6 of JU16. SBU2 resistance is 80.882kΩ due to a default jumper connection at pin 7-8 of JU17.

5) After 10 seconds, the ADC shows the resistance measurement of pin CC2 (see Figure 13). As CC2 is left open, the **Measure Resistance** displays the highest ADC value equivalent to **750.0kΩ**.

6) The **ADC Results and Interrupts** panel is updated every 10 seconds. The resistance measurement results of CC1 and CC2 are shown alternatively in Figure 12 and Figure 13.

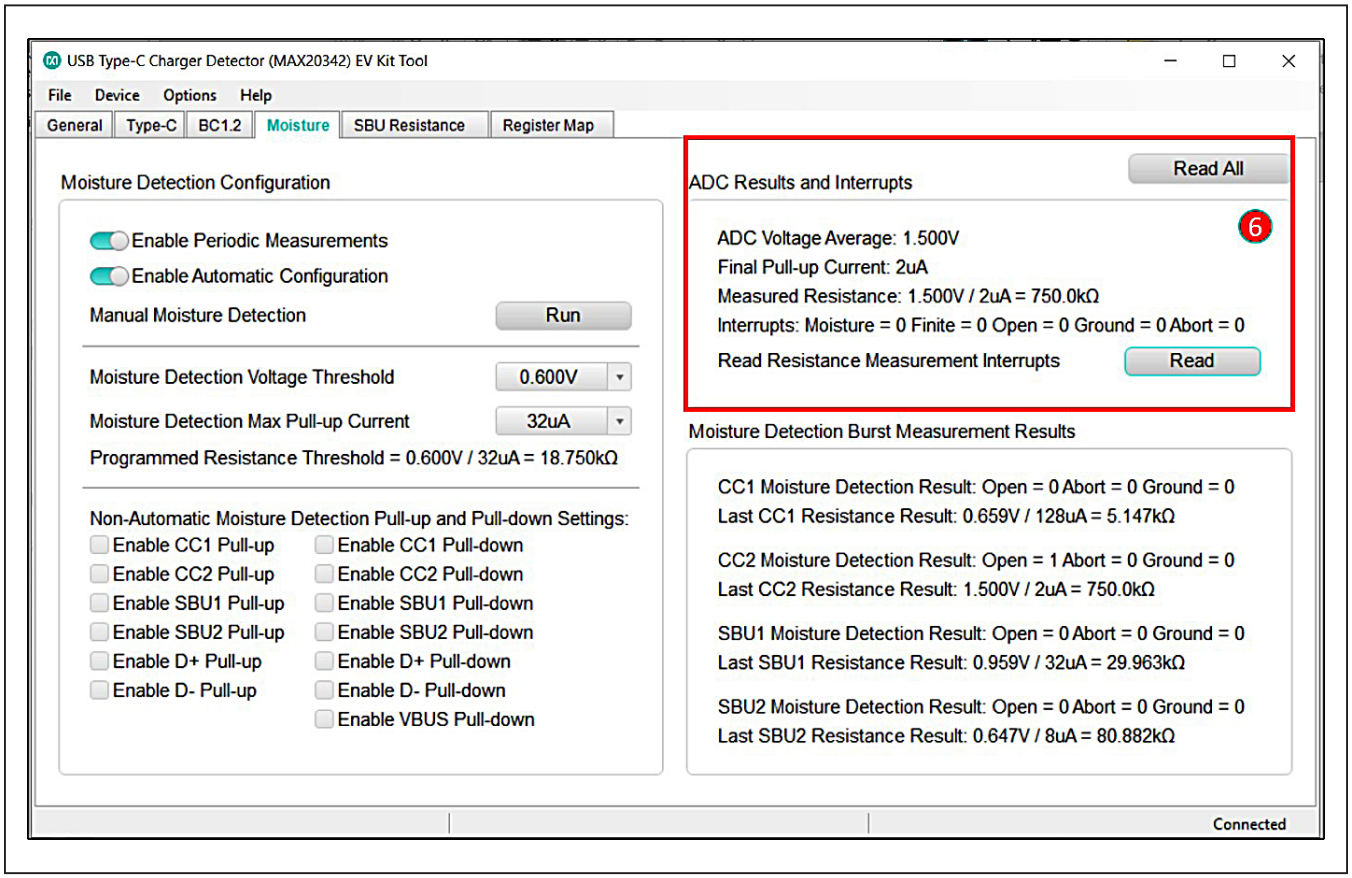


Figure 13. Moisture Detection Shows Resistance Measurement Results of CC2

SBU Resistance Detection

This section covers the procedure to perform SBU resistance detection with the MAX20342.

Hardware Setting

1) Follow the default jumper settings from Table 1.
2) Connect a USB Type-C cable to the USB4 port. The MAX20342 is now powered through V_B.

GUI Program

Interpreting moisture detection results is detailed in the following procedure and Figure 14.

1) Open the MAX20342 EV Kit GUI Program. The status bar displays **Connected**. Navigate to the **SBU Resistance** tab.
2) By default, the **Continuous SBU1/SBU2 Resistor Measurement** is toggled on. Click the **Run** button next to **Manual SBU1/SBU2 Detection**.
3) This panel is used to customize the accessory resistance ranges. By default, **Accessory 1** resistance range is set between 28.125kΩ and 31.985kΩ.
4) Since there are resistors connected to both pins SBU1 (30kΩ) and SBU2 (80.6kΩ), the **ADC Results and Interrupts** panel shows the overall SBU Detection Overall Result (refer to Table 6 of the MAX20342 IC data sheet). Click the **Read** button next to **Read Resistance Measurement Interrupts** to show corresponding interrupts (i.e., **SBU = 1** and **Abort = 1**).
5) The **SBU Accessory Detection Measurement Results** panel shows measured resistance results from the SBU1 and SBU2 pins. SBU1 resistance shows 29.963kΩ, which is close to 30kΩ. SBU2 resistance shows 80.882kΩ, which is close to 80.6kΩ.

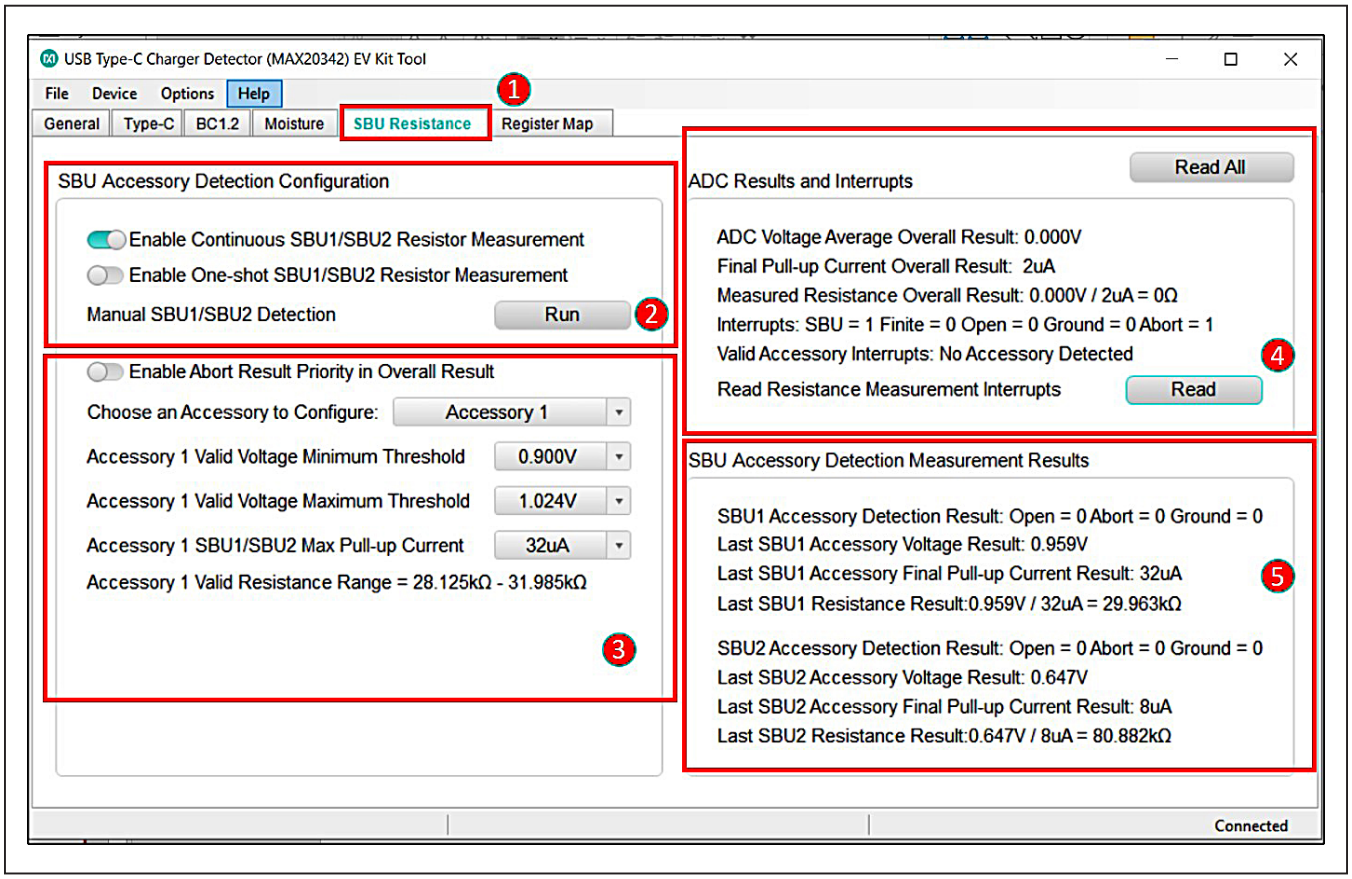


Figure 14. SBU Resistance Results on Both SBU1 and SBU2 Pins

Temporarily remove SBU2 resistance by removing jumper connection of JU17. The **SBU Resistance** tab shows only the measured resistance from SBU1 (see Figure 15).

6) Click the **Run** button next to **Manual SBU1/SBU2 Detection** to update the ADC result.

7) Click the **Read** button next to **Read Resistance Measurement Interrupts** to show corresponding interrupts (i.e. **SBU = 1**). The **Measured Resistance** shows **29.963kΩ**, close to the actual resistance value on SBU1. Accessory 1 is detected as the measured resistance falls into the Accessory 1 range.

8) The **SBU Accessory Detection Measurement Results** panel shows measured resistance results from SBU1 and SBU2 pins. SBU1 resistance shows **29.963kΩ**, which is close to 30kΩ. SBU2 resistance shows **750.0kΩ** (interrupt **Open = 1**), with SBU2 open.

Temporarily remove SBU1 resistance by removing jumper connection of JU16. The **SBU Resistance** tab shows only the measured resistance from SBU2 (see Figure 16), with Accessory 2 resistance detected.

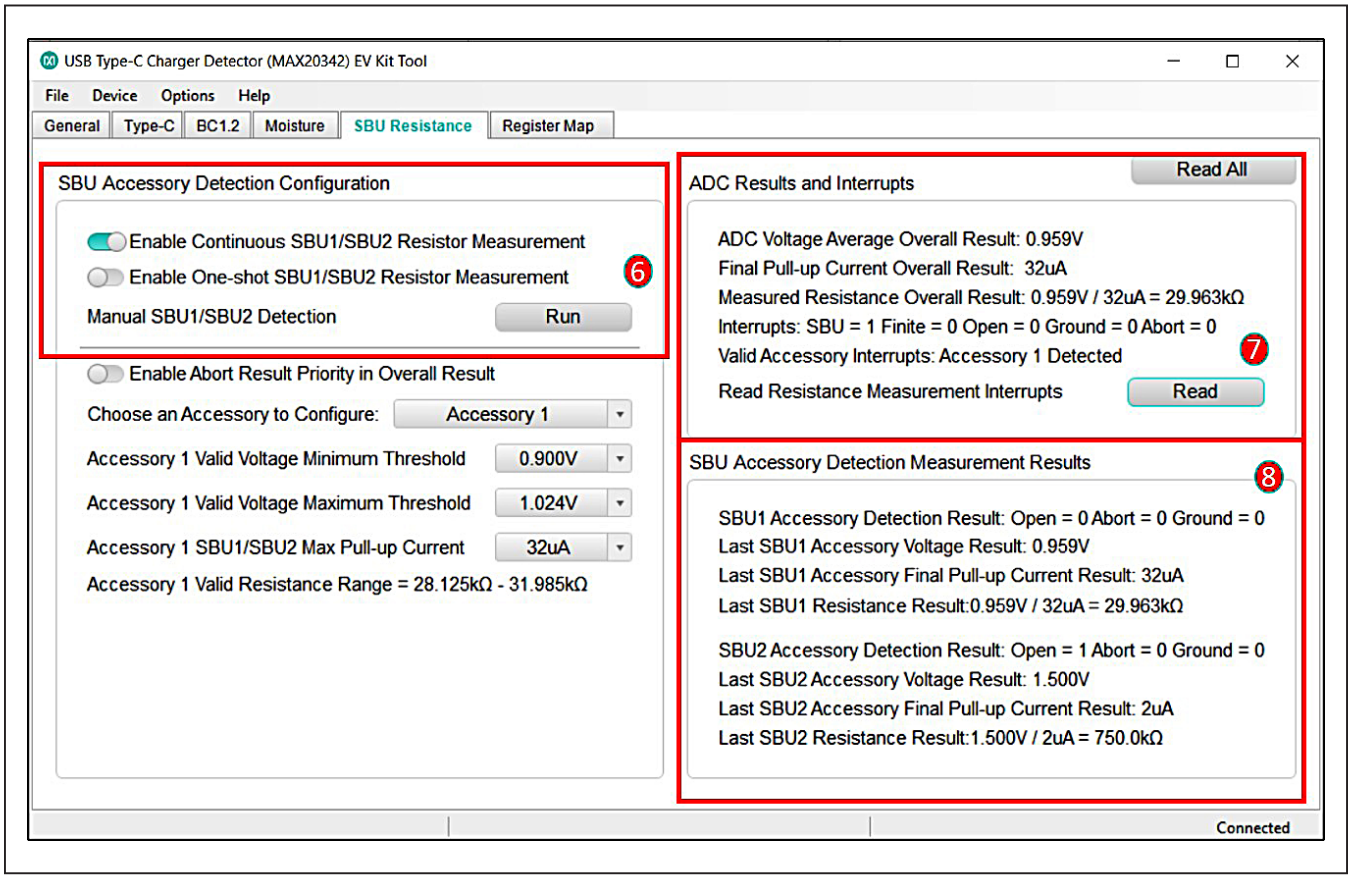


Figure 15. SBU Resistance Result with Resistor Connected to Only SBU1.

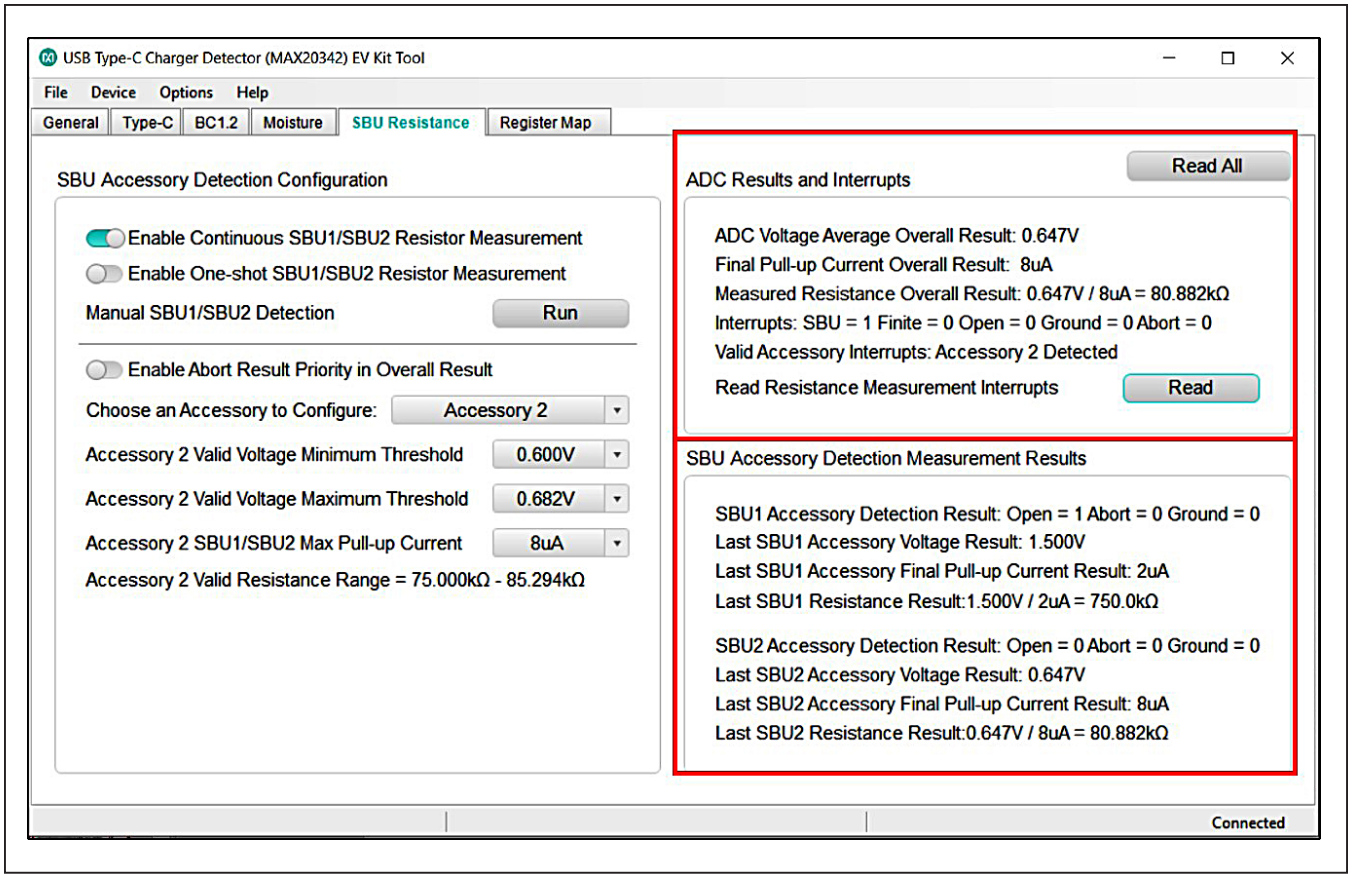


Figure 16. SBU Resistance Result with Resistor Connected to Only SBU2

Ordering Information

PART	TYPE
MAX20342EVKIT#	EV Kit

#Denotes RoHS compliance.

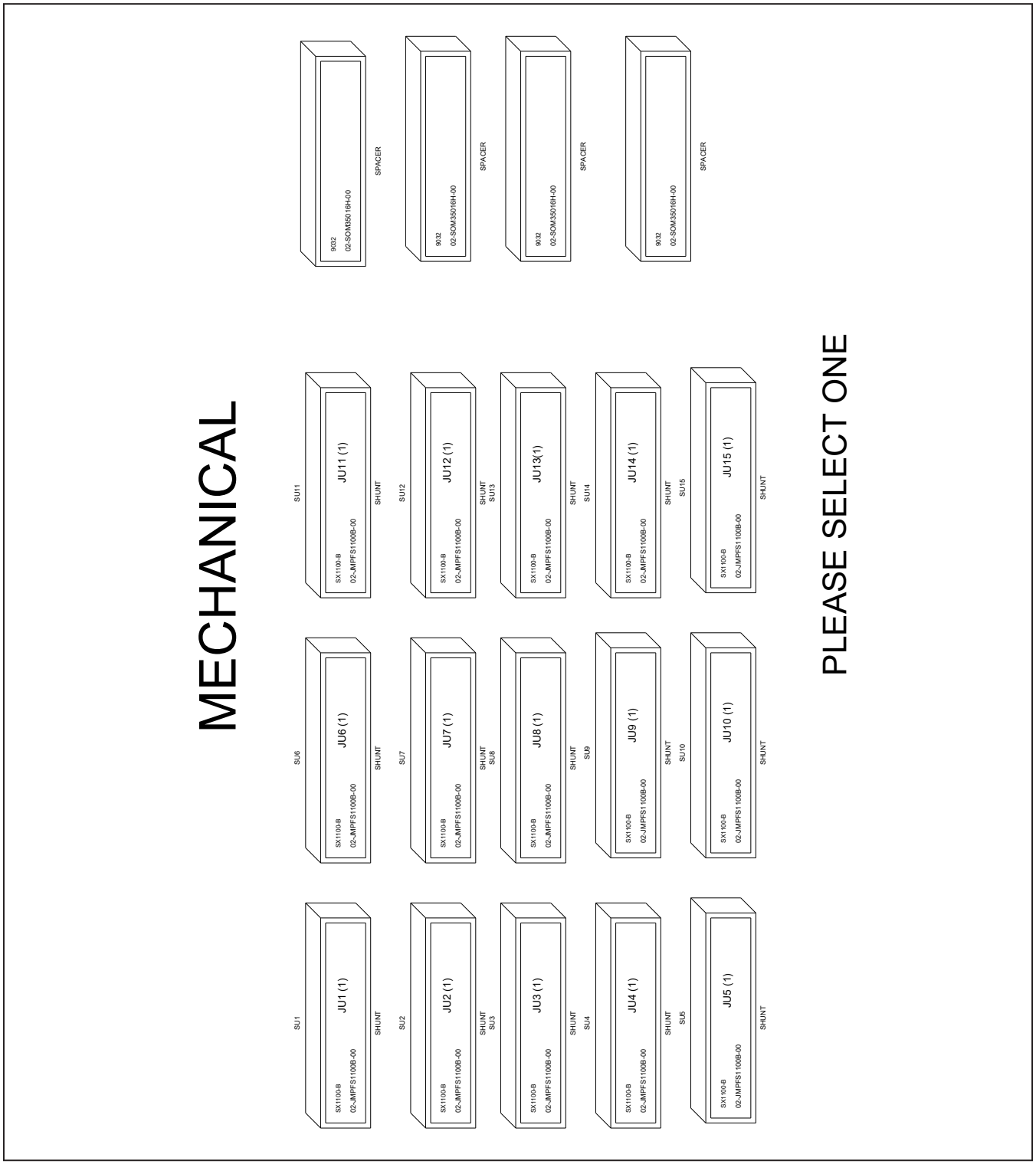
MAX20342 EV Kit Bill of Materials

ITEM	QTY	REF DES	MAXINV	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	6	+5V, EXT_5V, EXT_VBAT, OUT, VB, VBAT	02-TPMINI5000-00	5000	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH = 0.3IN; BOARD HOLE = 0.04IN; RED; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH; RECOMMENDED FOR BOARD THICKNESS=0.062IN; NOT FOR COLD TEST
2	6	C1, C4-C7, C9	20-0001U-04	GRM21BR71H105KA12; CL21B105KBFNNN; C2012X7R1H105K085AC; UMK212B7105KG	MURATA; SAMSUNG ELECTRONICS; TDK	1µF	CAPACITOR; SMT (0805); CERAMIC CHIP; 1µF; 50V; TOL=10%; TG =-55°C TO +125°C; TC = X7R
3	5	C2, C14-C17	20-004U7-72	GRM31CR71H475KA12; GRJ31CR71H475KE11; GXM31CR71H475KA10	MURATA;MURATA; MURATA	4.7µF	CAPACITOR; SMT (1206); CERAMIC CHIP; 4.7µF; 50V; TOL = 10%; MODEL=; TG = -55°C TO +125°C; TC = X7R
4	4	C3, C11-C13	20-000U1-91	C0603C104K5RAC; C1608X7R1H104K; ECJ-1VB1H104K; GRM188R71H104KA93; CGJ3E2X7R1H104K080AA; C1608X7R1H104K080AA; CL10B104KB8NNN; CL10B104KB8NFN; 06035C104KAT2A	KEMET;TDK; PANASONIC;MURATA; TDK;TDK;SAMSUNG; SAMSUNG;AVX	0.1µF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.1µF; 50V; TOL=10%; TG = -55°C TO +125°C; TC = X7R; NOTE: NOT RECOMMENDED FOR NEW DESIGN USE 20-000U1-01
5	2	C8, C10	EC111000002734	CL21B106KPQNNN; LMK212AB7106KG; C0805X106K8RACAUTO; GRM21BR71A106KA73	SAMSUNG;TAIYO YUDEN; KEMET;MURATA	10µF	CAP; SMT (0805); 10µF; 10%; 10V; X7R; CERAMIC CHIP
6	2	CD+, CD-	02-TPMINI5117-00	5117	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH = 0.3IN; BOARD HOLE = 0.04IN; BLUE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH; RECOMMENDED FOR BOARD THICKNESS = 0.062IN; NOT FOR COLD TEST
7	5	CE, DBB, INT, SCL, SDA	02-TPMINI5002-00	5002	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH = 0.3IN; BOARD HOLE = 0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER; NOT FOR COLD TEST
8	3	D1, D2, D6	30-LSL29KG1J21Z-00	LS L29K-G1J2-1-Z	OSRAM	LS L29K-G1J2-1-Z	DIODE; LED; SMART; RED; SMT (0603); PIV = 1.8V; IF = 0.02A; -40°C TO +100°C
9	3	D3-D5	30-5988070107F-00	598-8070-107F	DIALIGHT	598-8070-107F	DIODE; LED; STANDARD; GREEN; SMT (0603); PIV=3.2V; IF=0.02A
10	1	D7	30-CMPZ5242B-00	CMPZ5242B	CENTRAL SEMICONDUCTOR	12V	DIODE; ZNR; SMT (SOT-23); VZ = 12V; IZ = 0.02A
11	1	J1	01-TSW10608SDRA12P-17	TSW-106-08-S-D-RA	SAMTEC	TSW-106-08-S-D-RA	CONNECTOR; THROUGH HOLE; DOUBLE ROW; RIGHT ANGLE; 12PINS; THIS PART IS DEDICATED FOR PMOD PERIPHERAL BOARD
12	4	JU1, JU2, JU14, JU15	01-PEC03SAAN3P-21	PEC03SAAN	SULLINS	PEC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS
13	9	JU3-JU9, JU11, JU12	01-PEC02SAAN2P-21	PEC02SAAN	SULLINS	PEC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS
14	1	JU10	01-TSW10407LS4P-17	TSW-104-07-L-S	SAMTEC	TSW-104-07-L-S	EVKIT PART-CONNECTOR; MALE; THROUGH HOLE; TSW SERIES; SINGLE ROW; STRAIGHT; 4PINS
15	2	JU16, JU17	01-PEC07DAAN14P-21	PEC07DAAN	SULLINS ELECTRONICS CORP.	PEC07DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 14PINS
16	2	JU18, JU20	01-PEC08DAAN16P-21	PEC08DAAN	SULLINS ELECTRONICS CORP.	PEC08DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 16PINS; -65°C TO +125°C
17	1	JU19	01-PEC03DAAN6P-21	PEC03DAAN	SULLINS ELECTRONICS CORP.	PEC03DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 6PINS; -65°C TO +125°C
18	4	JU21-JU24	01-PBC03DAAN6P-21	PBC03DAAN	SULLINS ELECTRONICS CORP.	PBC03DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 6PINS; -65°C TO +125°C
19	1	R1	80-0050K-33	3266W-1-503LF	BOURNS	50K	RESISTOR; THROUGH-HOLE-RADIAL LEAD; SQUARE TRIMMING POTENTIOMETER; 12 TURNS; 50KΩ; 10%; 100PPM; ; TADJ; MOLDER CERAMIC OVER METAL FILM
20	5	R2-R5, R17	80-002K2-53	CRCW06032K20JN; ERJ-3GEYJ222	VISHAY DALE; PANASONIC	2.2K	RESISTOR; 0603; 2.2KΩ; 5%; 200PPM; 0.10W; THICK FILM
21	4	R6-R8, R15	80-0001K-77	RR0816P-102-B-T5; PCF0603R-1K0B	SUSUMU CO LTD; TT ELECTRONICS	1K	RESISTOR; 0603; 1KΩ; 0.1%; 25PPM; 0.063W; METAL FILM
22	2	R9, R10	80-0100K-53	ERJ-3GEYJ104; CRCW0603100KJN	PANASONIC;VISHAY	100K	RESISTOR; 0603; 100KΩ; 5%; 200PPM; 0.10W; THICK FILM
23	1	R11	80-0102K-24	CRCW0603102KFK	VISHAY DALE	102K	RESISTOR; 0603; 102KΩ; 1%; 100PPM; 0.10W; THICK FILM
24	1	R12	80-043K2-24	CRCW060343K2FK; ERJ-3EKF4322	VISHAY DALE; PANASONIC	43.2K	RESISTOR; 0603; 43.2KΩ; 1%; 100PPM; 0.10W; THICK FILM
25	1	R13	80-061K9-24	CRCW060361K9FK	VISHAY DALE	61.9K	RESISTOR; 0603; 61.9KΩ; 1%; 100PPM; 0.10W; THICK FILM
26	1	R14	80-0124K-24	CRCW0603124KFK	VISHAY DALE	124K	RESISTOR; 0603; 124KΩ; 1%; 100PPM; 0.10W; THICK FILM
27	1	R16	80-0000R-27A	RC1608J000CS; CR0603-J/-000ELF; RC0603JR-070RL	SAMSUNG ELECTRONICS; BOURNS;YAGEO PH	0	RESISTOR; 0603; 0Ω; 5%; JUMPER; 0.10W; THICK FILM
28	2	R18, R22	80-007K5-24	ERJ-3EKF7501; CRCW06037K50FK	PANASONIC;VISHAY	7.5K	RESISTOR; 0603; 7.5KΩ; 1%; 100PPM; 0.10W; THICK FILM

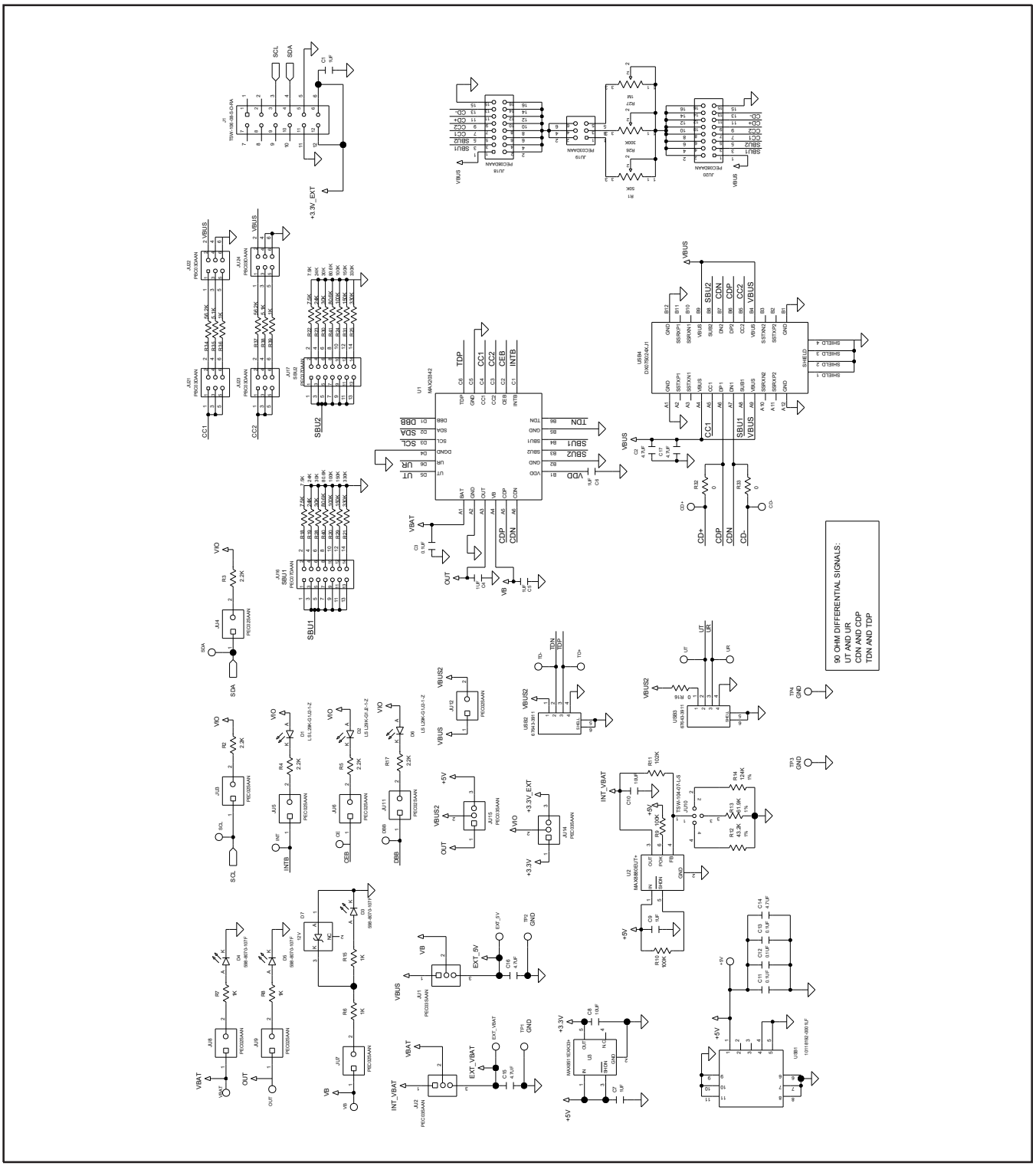
MAX20342 EV Kit Bill of Materials (continued)

ITEM	QTY	REF DES	MAXINV	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
29	2	R19, R23	80-0024K-24	ERJ-3EKF2402	PANASONIC	24K	RESISTOR; 0603; 24KΩ; 1%; 100PPM; 0.10W; THICK FILM
30	2	R20, R24	80-0100K-24	CRCW0603100KFK; RC0603FR-07100KL; RC0603FR-13100KL; ERJ-3EKF1003; AC0603FR-07100KL	VISHAY DALE;YAGEO; YAGEO;PANASONIC	100K	RESISTOR; 0603; 100K; 1%; 100PPM; 0.10W; THICK FILM
31	2	R21, R25	80-0330K-24	CRCW0603330KFK	VISHAY DALE	330K	RESISTOR, 0603, 330KΩ, 1%, 100PPM, 0.10W, THICK FILM
32	1	R26	80-0300K-H4	3362P-1-304LF	BOURNS	300K	RESISTOR; THROUGH-HOLE-RADIAL LEAD; 300KΩ; 10%; 100PPM; 0.5W; SQUARE TRIMMING POTENTIOMETER
33	1	R27	80-0001M-86	3214W-1-105E	BOURNS	1M	RESISTOR; SMT J-LEAD; TRIMMING POTENTIOMETER; 5 TURNS; 1MΩ; 10%; 100PPM; 0.25W; TADJ
34	2	R28, R30	80-0030K-24	CRCW060330K0FK	VISHAY DALE	30K	RESISTOR; 0603; 30KΩ; 1%; 100PPM; 0.10W; THICK FILM
35	2	R29, R31	80-0150K-24	CRCW0603150KFK	VISHAY DALE	150K	RESISTOR, 0603, 150KΩ,1%, 100PPM, 0.10W, THICK FILM
36	2	R32, R33	80-0000R-BA38	CRCW04020000Z0EDHP; RCS04020000Z0	VISHAY DRALORIC; VISHAY DALE	0	RESISTOR; 0402; 0Ω; 0%; JUMPER; 0.2W; THICK FILM
37	2	R34, R37	80-056K2-24	CRCW060356K2FK; ERJ-3EKF5622	VISHAY;PANASONIC	56.2K	RESISTOR; 0603; 56.2KΩ; 1%; 100PPM; 0.10W; METAL FILM
38	2	R35, R38	80-005K1-24	ERJ-3EKF5101	PANASONIC	5.1K	RESISTOR; 0603; 5.1KΩ; 1%; 100PPM; 0.10W; THICK FILM
39	2	R36, R39	80-0001K-24A	CR0603-FX-1001ELF	BOURNS	1K	RESISTOR; 0603; 1KΩ; 1%; 100PPM; 0.10W; THICK FILM
40	2	R40, R41	80-080K6-24	CRCW060380K6FK; ERJ-3EKF8062; RC0603FR-0780K6L	VISHAY;PANASONIC; YAGEO	80.6K	RESISTOR; 0603; 80.6KΩ; 1%; 100PPM; 0.10W; METAL FILM
41	4	SPACER1-SPACER4	02-SOM35016H-00	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
42	15	SU1-SU15	02-JMPFS1100B-00	S1100-B;SX1100-B; STC02SYAN	KYCON;KYCON; SULLINS ELECTRONICS CORP.	SX1100-B	TEST POINT; JUMPER; STR; TOTAL LENGTH = 0.24IN; BLACK; INSULATION=PBT;PHOSPHOR BRONZE CONTACT = GOLD PLATED
43	2	TD+, TD-	02-TPMINI5116-00	5116	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH = 0.3IN; BOARD HOLE = 0.04IN; GREEN; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH; RECOMMENDED FOR BOARD THICKNESS=0.062IN; NOT FOR COLD TEST
44	2	TP1, TP2	02-TPMINI5001-00	5001	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH = 0.3IN; BOARD HOLE = 0.04IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH; RECOMMENDED FOR BOARD THICKNESS = 0.062IN; NOT FOR COLD TEST
45	2	TP3, TP4	02-TPMINI5011-00	5011	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.125IN; TOTAL LENGTH = 0.445IN; BOARD HOLE = 0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH; RECOMMENDED FOR BOARD THICKNESS=0.062IN; NOT FOR COLD TEST
46	1	U1	00-SAMPLE-01	MAX20342	MAXIM	MAX20342	EVKIT PART - IC; MAX20342; WLP24; PACKAGE OUTLINE: 21-100430; PACKAGE CODE: W242A2+1
47	1	U2	10-MAX8880EUT-U	MAX8880EUT+	MAXIM	MAX8880EUT+	IC; VREG; ULTRA-LOW-IQ LOW-DROPOUT LINEAR REGULATOR WITH POK; SOT23-6
48	1	U3	10-MAX8511EXK33-X	MAX8511EXK33+	MAXIM	MAX8511EXK33+	IC; VREG; ULTRA-LOW-NOISE, HIGH PSRR, LOW-DROPOUT, LINEAR REGULATOR; SC70-5
49	2	UR, UT	02-TPMINI5118-00	5118	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH = 0.3IN; BOARD HOLE = 0.04IN; GREY; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH; RECOMMENDED FOR BOARD THICKNESS=0.062IN; NOT FOR COLD TEST
50	1	USB1	01-101181920001LF5P-26	10118192-0001LF	FCI CONNECT	10118192-0001LF	CONNECTOR; FEMALE; SMT; MICRO USB B TYPE RECEPTACLE; RIGHT ANGLE; 5PINS
51	2	USB2, USB3	01-6764339114P-26	67643-3911	MOLEX	67643-3911	CONNECTOR; FEMALE; THROUGH HOLE; USB A-TYPE CONNECTOR; RIGHT ANGLE; 4PINS
52	1	USB4	01-DX07S024XJ124P-26	DX07S024XJ1	JAE ELECTRONIC INDUSTRY	DX07S024XJ1	CONNECTOR; FEMALE; USB TYPE-C RECEPTACLE; THROUGH HOLE; DX07 SERIES; RIGHT ANGLE; 24PINS
53	1	PCB	EPCB	MAX	MAXIM	PCB	PCB:MAX
TOTAL	137						

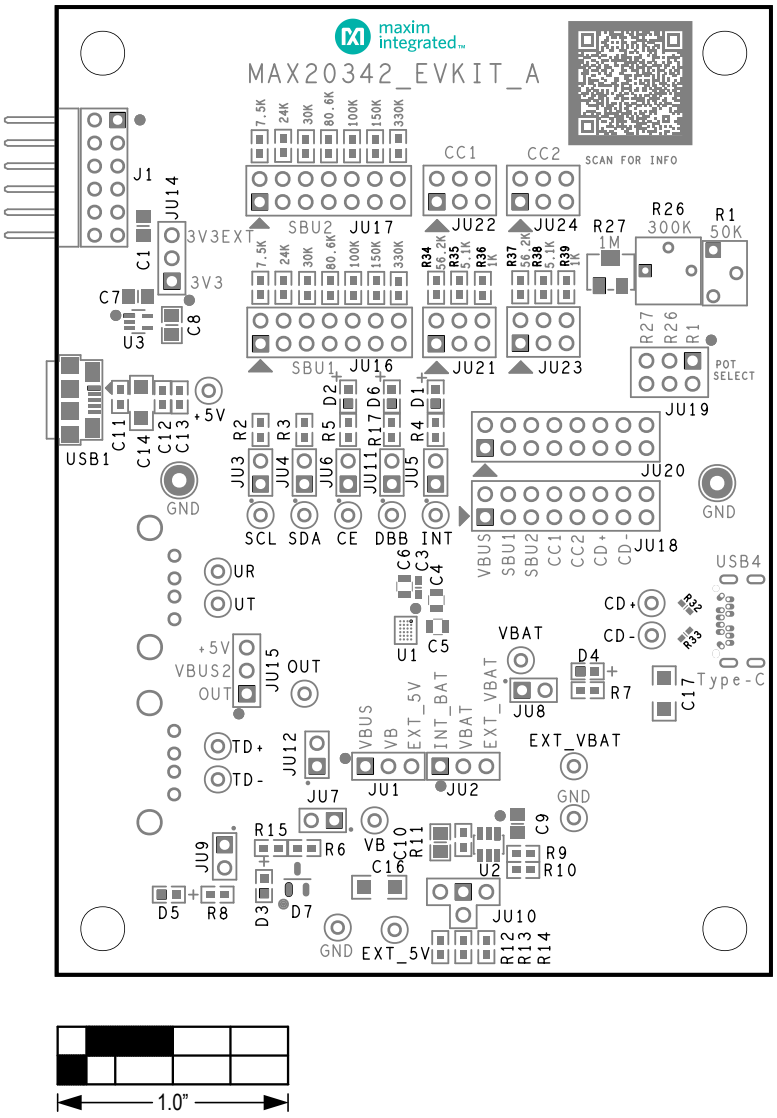
MAX20342 EV Kit Schematic Diagrams



MAX20342 EV Kit Schematic Diagrams (continued)

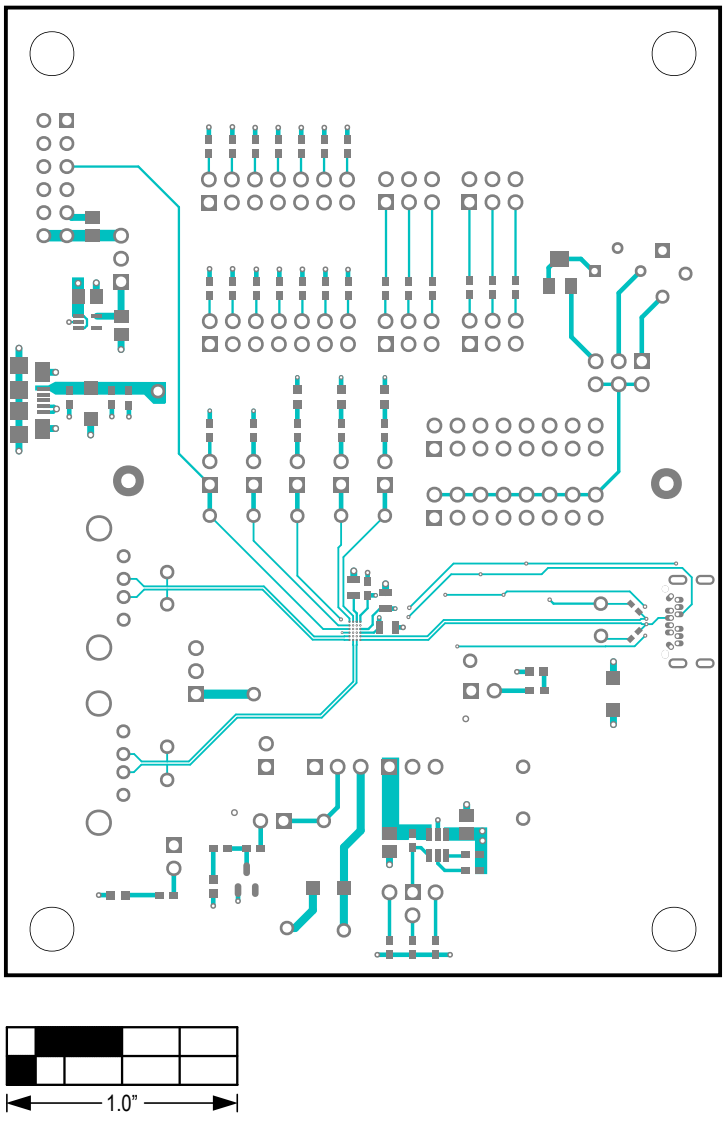


MAX20342 EV Kit PCB Layout Diagrams



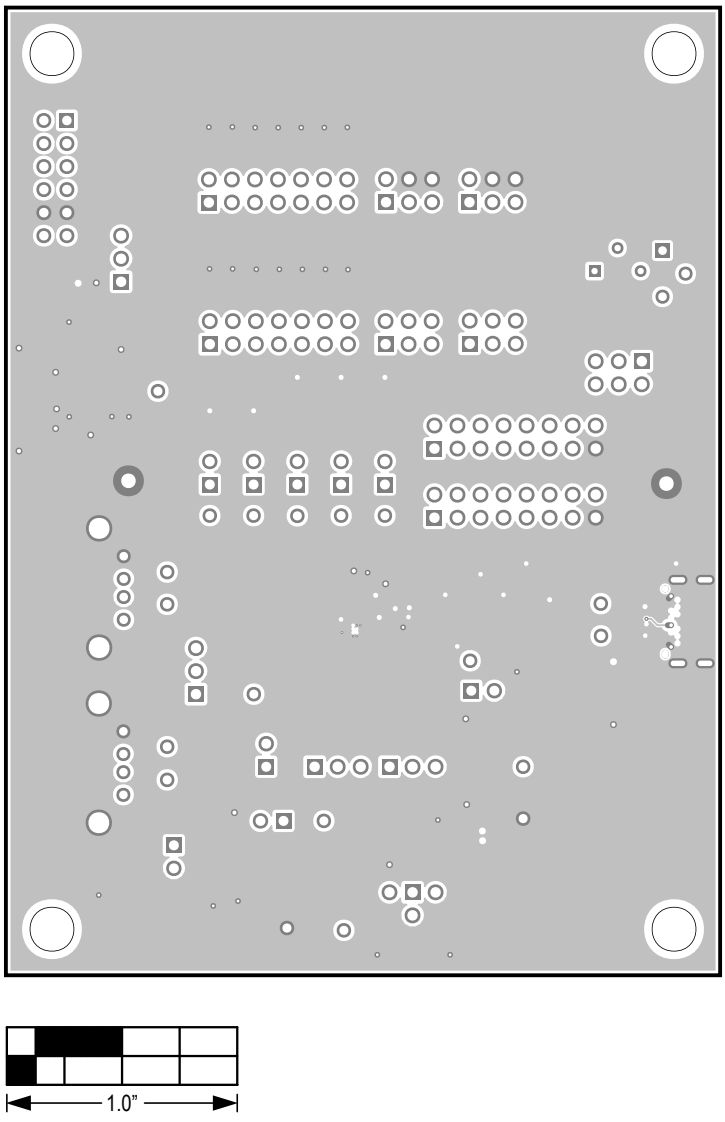
MAX20342 EV Kit PCB Layout—Silkscreen Top

MAX77962 EV Kit PCB Layout Diagrams



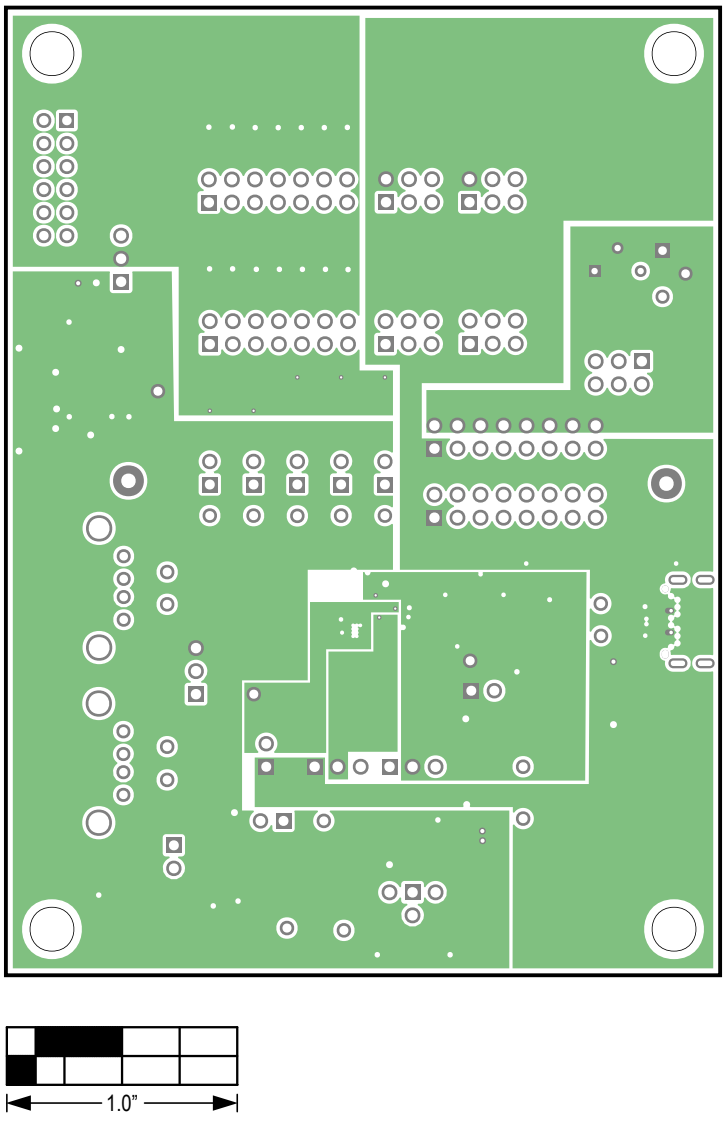
MAX20342 EV Kit PCB Layout—Top Layer

MAX77962 EV Kit PCB Layout Diagrams



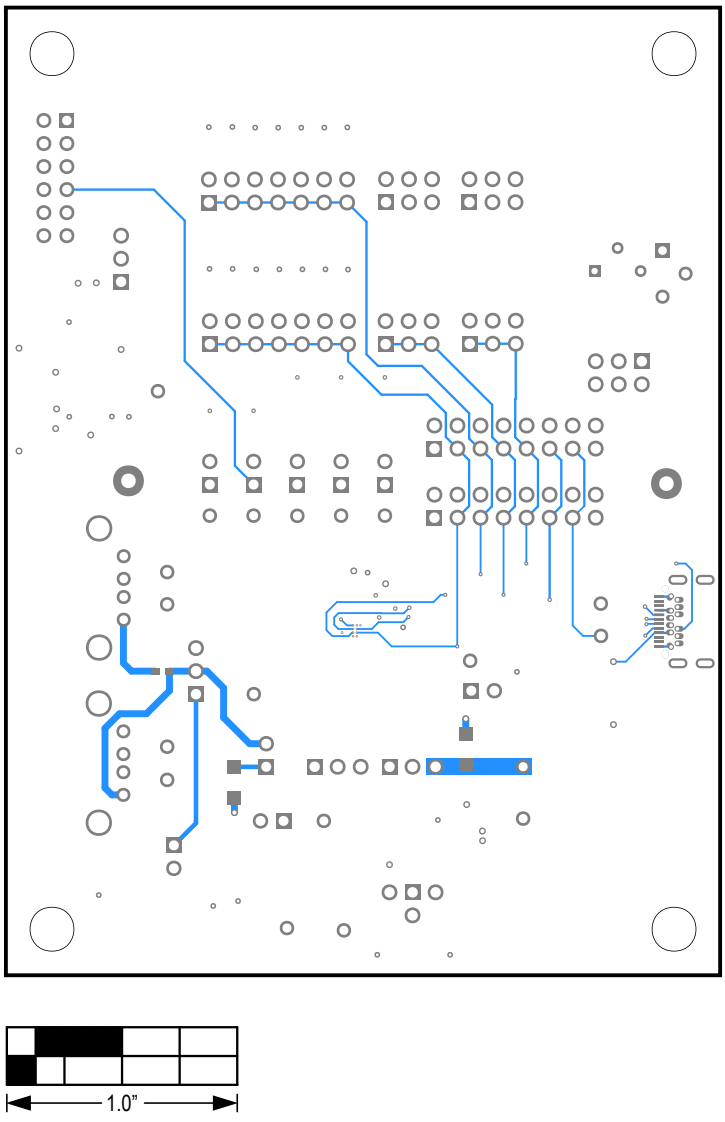
MAX20342 EV Kit PCB Layout—Layer GND

MAX77962 EV Kit PCB Layout Diagrams



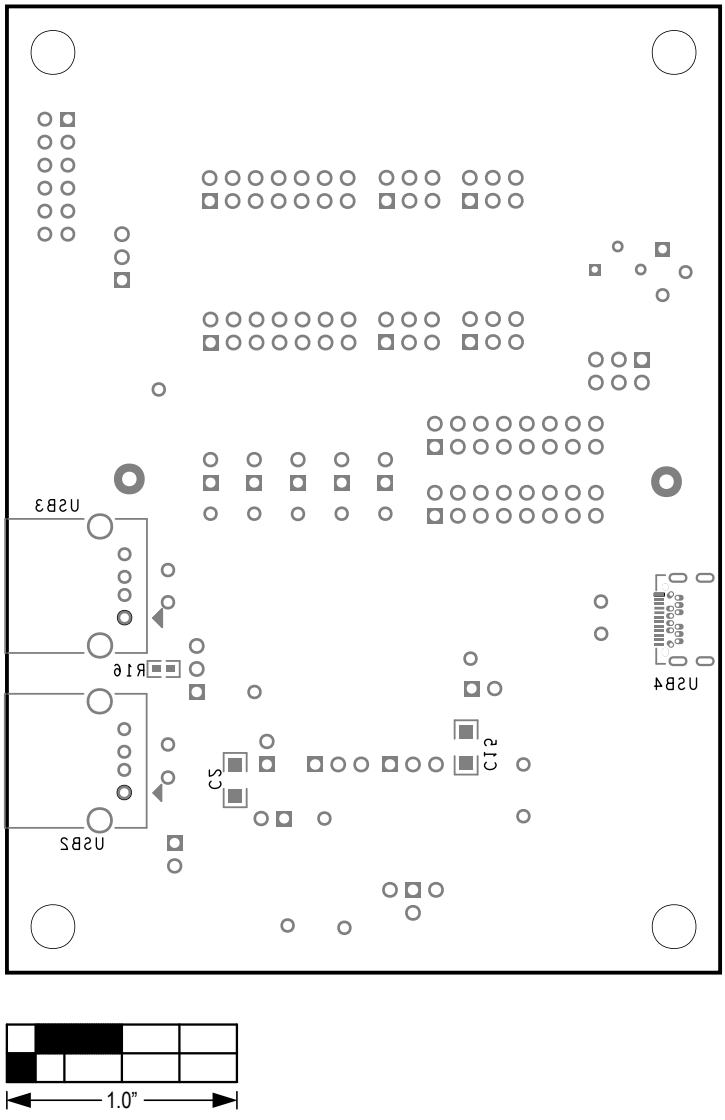
MAX20342 EV Kit PCB Layout—Layer 3_PWR

MAX77962 EV Kit PCB Layout Diagrams



MAX20342 EV Kit PCB Layout—Bottom Layer

MAX77962 EV Kit PCB Layout Diagrams



MAX20342 EV Kit PCB Layout—Silkscreen Bottom

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	7/20	Initial release	—

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