Evaluation Board User Guide

MAX77884/MAX77885 Evaluation Kits

Evaluates MAX77884/MAX77885/MAX77958

General Description

The MAX77884/MAX77885 evaluation kits (EV kits) are fully assembled and tested printed circuit boards (PCBs) that demonstrate the operation of the MAX77884/MAX77885 single-cell lithium-ion battery chargers.

The MAX77884/MAX77885 support 1S Li+ battery applications and operate with an input voltage range of 4.4V to 21V. The MAX77884 supports a maximum charging current of 3.5A, while the MAX77885 supports up to 5.5A. Both ICs integrate reverse boost functionality and low-power-loss switches, enabling a compact solution footprint and high efficiency.

The EV kits validate the performance of the MAX77884/MAX77885 chargers and enable evaluation of complete USB Type-C® power delivery (PD) solutions using the MAX77958 USB Type-C PD controller. This configuration supports fast battery charging through the USB Type-C port and reverse power delivery to the USB Type-C port in battery on-the-go (OTG) mode.

A Micro-B USB cable is included to establish communication between a Windows® PC and the subordinate I²C port on the MAX77884/MAX77885. A Windows-based graphical user interface (GUI) for interacting with the EV kits is available for download from the Analog Devices website at *www.analog.com*. The software operates on Windows 7 and newer versions.

MAX77884/MAX77885 EV Kit Files

FILE	DESCRIPTION
MAX77884_MAX77885.exe	Installs EV kit files onto the computer

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

USB Type-C is a registered trademark of USB Implementers Forum, Inc.
Windows is a registered trademark of Microsoft Corp.

Features

- High-Efficiency Single-Cell Switching Charger
  - Up to 5.5A Charging with MAX77885
  - Up to 3.5A Charging with MAX77884
- 4.4V to 21V Input Operating-Voltage Range
- Reverse Boost with Programmable Output-Voltage Options from 4.3V to 12V
- Charge-Status Output for LED
- Push-Button Input for Exiting from Ship Mode
- Dedicated Input for Suspend Mode (SUSPND)
- USB Type-C Version 1.3- and PD 3.0-Compliant
- Sink, Source, and DRP Port Support
- Programmable Power Supply (PPS) Sink Support
- Fast Role-Swap Initial Sink Support
- Integrated V_{CONN} Switch with Overcurrent Protection (OCP)
- Try.Snk State Support
- Battery Charging 1.2 (BC1.2) Legacy Charger Detection
- Programmable Unplug Detection

EV Kit Photo

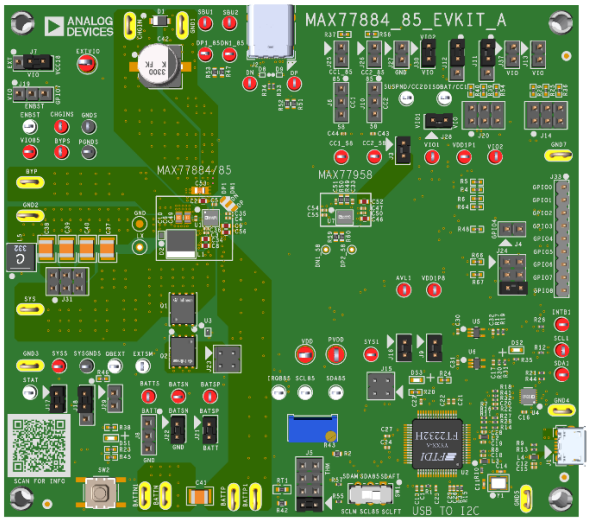


Figure 1. MAX77884/MAX77885 EV Kit Photo—Top View

Quick Start

Required Equipment

- MAX77884/MAX77885 EV kit
  - MAX77884EVKIT#/MAX77885# board
  - Micro-B USB cable
  - MAX77884/MAX77885 EV kit software (GUI)
- USB Type-C or PD travel adapter (TA)
- Power supply
- Battery simulator
- Multimeters
- Windows-based PC
- Oscilloscope to monitor CC pin or other signals

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 kits are fully assembled and tested. Follow the steps below to install the EV kit software, configure hardware connections, and begin operation. The EV kit software operates independently of hardware, but proper configuration is required after communication is established. Ensure the PC remains connected to the internet throughout the process to allow automatic USB driver installation.

1. Visit *www.analog.com* to download the latest version of the MAX77884/MAX77885 EV kit software. Save the file to a temporary folder, then extract its contents.
2. Run MAX77884_MAX77885GUISetup.exe from the extracted folder to install the software. This process copies program files and creates a shortcut in the **Windows | Start** menu. The software requires .NET Framework 4.5 or later. If internet access is available, **Windows** updates the framework automatically.
3. The GUI launches automatically after installation. It can also be opened from the **Windows | Start** menu.
4. Set jumper connections according to the default options in *Table 1*. Change the jumper connections later when evaluating more features. For switch SW1 on the EV kit, position the switch to the right to connect the MAX77884/MAX77885 I^2C lines directly to the USB-to- I^2C translator (MAXUSB). To evaluate communication with the MAX77958 I^2C main, move the switch to the left.
5. Connect the EV kit board as shown in the *EV Kit Configuration*. The two primary inputs required are the battery and the charging adapter. For a quick-start evaluation, apply a 5V power supply to the CHGIN input and a battery voltage greater than 3.8V to the BATT input. The optional voltmeter and ammeter locations for testing charger efficiency are indicated in the *EV Kit* . When correctly configured with CHGIN = 5V and BATT = 3.8V, the SYS voltage is set to regulate above the BATT voltage by default.
6. Use the Micro-B USB cable to connect the EV kit to a USB port on the PC.
7. Open the GUI, click **Device**, then **Connect**. A pop-up confirms detection of the subordinate address for MAX77884/MAX77885 and/or MAX77958. If not detected, verify all connections.
8. Start evaluating the part with the GUI software. Unlock write protection in the GUI and configure charger mode, input current limit, and charging current. Use the **Charger Configurations** tab to evaluate basic charger features. Explore register settings to assess smart power path and additional functionality. Disconnect CHGIN and connect a genuine travel adapter to evaluate USB Type-C charging.

EV Kit Setup and Configuration

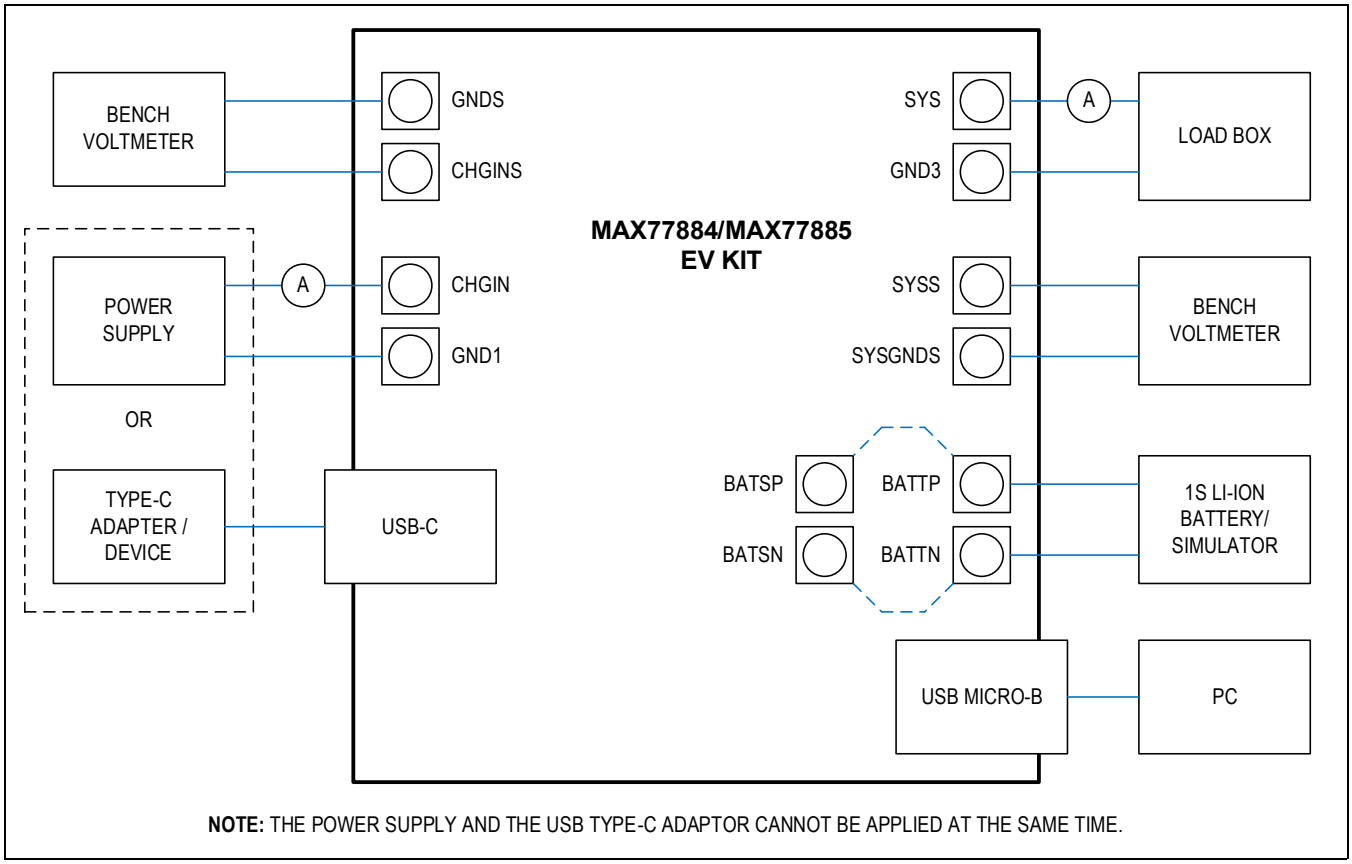


Figure 2. MAX77884/MAX77885 EV Kit Setup and Configuration

Table 1. Jumper Connection Guide for MAX77884/MAX77885

JUMPER	DEFAULT CONNECTION	FEATURE
J6	1 to 2	Open: MAX77884/MAX77885 CC1 or MAX77958 CC1 is NOT connected to USBC connector ***1 to 2: MAX77884/MAX77885 CC1 is connected to USBC connector** 2 to 3: MAX77958 CC1 is connected to USBC connector
J10	1 to 2	Open: MAX77884/MAX77885 CC2 or MAX77958 CC2 is NOT connected to USBC connector ***1 to 2: MAX77884/MAX77885 CC2 is connected to USBC connector** 2 to 3: MAX77958 CC2 is connected to USBC connector
J31	Open	***Open: No additional SYS capacitor.** Connect 1 to 2, 3 to 4, and 5 to 6 for additional SYS capacitors; each jumper adds an extra 100µF to SYS.
J21	Closed	Open: Disconnect BATTSP from BATTP. Allows the BATTSP pin to remote-sense at the battery's positive terminal. ***Closed: BATTSP sense point is directly at BATTP input terminal on the EV kit.**
J22	Closed	Open: Disconnect BATTSN from BATTN. Allows the BATTSP pin to remote-sense at the battery's positive terminal. ***Closed: BATTSN sense point is directly at the BATTN input terminal on the EV kit.**
J23	Open	***Open: Disable the external BATT to the SYS FET circuit.** Close: Enable the external BATT to SYS FET path to further reduce the BATT to SYS on resistance. Need to connect J18 (pin 2 to 3) and J29 (close).
J18	1 to 2	***1 to 2: Enable the QBEXT pin as PGOOD and disable the external BATT to the SYS FET circuit.** 2 to 3: Connect a 100kΩ pull-up for the external BATT to the SYS FET circuit. Need to connect J23 (close) and J29 (close).
J29	Open	***Open: Disable the external BATT to the SYS FET circuit.** Closed: Connect the QBEXT pin to control the external BATT to the SYS FET circuit. Need to connect J23 (close) and J18 (2 to 3).
J5	1 to 2	***1 to 2 Closed: A fixed 10kΩ pull-up and pull-down simulate a constant room temperature.** 3 to 4 Closed: Enable temperature measurement by installing an NTC resistor on the EV kit. 5 to 6 Closed: Enable temperature measurement simulation using potentiometer R43. 7 to 8 Closed: Enable the thermistor function, and connect the THM pin to the battery pack's thermistor to directly measure the battery temperature. For any other configuration, do not configure.
J11	2 to 3	1 to 2: MAX77884/MAX77885 CC1_DISQBAT connected to VIO through J37 ***2 to 3: MAX77884/MAX77885 CC1_DISQBAT connected to CC1**
J37	Open	***Open: Default operation** Closed: Force disconnect QBATT.
J12	2 to 3	1 to 2: MAX77884/MAX77885 CC2_SUSPND connected to VIO through J13 ***2 to 3: MAX77884/MAX77885 CC2_SUSPND connected to CC2**
J13	Open	***Open: Default operation** Closed: Force SUSPEND = 1 to the charger.
J17	Closed	Open: STAT pin LED indicator is disabled. ***Closed: STAT pin LED indicator is enabled.**
J7	2 to 3	Open: Do not configure. 1 to 2: VIO powered through EXT VIO with a 1.8V external power supply. ***2 to 3: VIO powered by USB Micro-B port connected to PC.**
J19	Open	***Open: Disable reverse boost operation.** 1 to 2: Enable reverse boost operation. 2 to 3: MAX77958 to disable/enable MAX77884/MAX77885 reverse boost operation.

JUMPER	DEFAULT CONNECTION	FEATURE
J8	2 to 3	1 to 2: Do not configure. ***2 to 3: MAX77884/MAX77885 EXTSM pin is an active-low input. Exit ship mode by pushing the button (SW2).**
J15	1 to 2	Open: MAX77884/MAX77885 IRQB is not connected. ***1 to 2: MAX77884/MAX77885 connect to 100kΩ pull-up to VIO.** 3 to 4: IRQB LED indicator is enabled.
J14	Open	***All Open: MAX77884/MAX77885 CC1 is NOT pulled-up by CHGIN.** 1 to 2: MAX77884/MAX77885 CC1 is pulled-up to CHGIN through 22kΩ resistor. 3 to 4: MAX77884/MAX77885 CC1 is pulled-up to CHGIN through 10kΩ resistor. 5 to 6: MAX77884/MAX77885 CC1 is pulled-up to CHGIN through 56kΩ resistor.
J20	Open	***All Open: MAX77884/MAX77885 CC2 is NOT pulled-up by CHGIN.** 1 to 2: MAX77884/MAX77885 CC2 is pulled-up to CHGIN through 22kΩ resistor. 3 to 4: MAX77884/MAX77885 CC2 is pulled-up to CHGIN through 10kΩ resistor. 5 to 6: MAX77884/MAX77885 CC2 is pulled-up to CHGIN through 56kΩ resistor.
J25	Open	***Open: No pull-down to GND for MAX77884/MAX77885 CC1** Closed: MAX77884/MAX77885 CC1 is pulled down to GND through a 5.1kΩ resistor if J27 is closed.
J26	Open	***Open: No pull-down to GND for MAX77884/MAX77885 CC2** Closed: MAX77884/MAX77885 CC2 is pulled down to GND through a 5.1kΩ resistor if J27 is closed.
J27	Open	***Open: No pull-down to ground for both MAX77884/MAX77885 CC1 and CC2** Closed: Pull either MAX77884/MAX77885 CC1 or CC2 or both CC1 and CC2 to GND through 5.1KΩ resistor regarding the connect regarding the connection of J25 and J26
J9	Closed	Open: MAX77958 V_{CONN} is not powered. ***Closed: MAX77958 V_{CONN} is powered by SYS.**
J3	Closed	Open: MAX77958 is not connected to VBUS. ***Closed: MAX77958 is connected to VBUS.**
J16	Closed	Open: MAX77958 is not powered by SYS. ***Closed: MAX77958 is powered by SYS.**
J4	Open	***Open: MAX77958 GPIO4 is not connected to MAX77884/MAX77885 IRQB.** Closed: MAX77958 GPIO4 is connected to MAX77884/MAX77885 IRQB.
J24	5 to 6	1 to 2: MAX77958 subordinate address is selected to be 0b0100110. Do not connect 3 to 4 and 5 to 6. 3 to 4: MAX77958 subordinate address is selected to be 0b0100111. Do not connect 1 to 2 and 5 to 6. ***5 to 6: MAX77958 subordinate address is selected to 0b0100101 by connecting the GPIO6 to GND. Default for GUI communication. Do not connect 1 to 2 and 3 to 4.**
J33	Open	All MAX77958 GPIO pins on J33 are available for external connection. Some GPIOs have reserved functionality. Refer to the *MAX77958 data sheet* for details.
J28	Closed	Open: MAX77958 VIO1 is not powered. ***Closed: MAX77958 VIO1 is powered.**
J30	Closed	Open: MAX77958 VIO2 is not powered. ***Closed: MAX77958 VIO2 is powered.**
SW1	1 to 2	***1 to 2: MAX77884/MAX77885 I^2C lines are connected to the host directly.** 2 to 3: MAX77884/MAX77885 I^2C lines are connected to the MAX77958 I^2C main.

**Default options are in bold.*

Detailed Description of Hardware

This EV kit should be used with the following documents:

- MAX77884/MAX77885 and MAX77958 IC data sheets
- MAX77884/MAX77885 EV kit data sheet (this document)
- MAX77884_MAX77885GUISetup.exe EV kit software

Access the latest versions of these resources at: *www.analog.com*.

Detailed Description of Software

Graphical User Interface (GUI)

The GUI enables quick, easy, and comprehensive evaluation of the MAX77884/MAX77885 and MAX77958. Each GUI control corresponds to a register in the MAX77884/MAX77885 and MAX77958. See the **Register Map** section in the respective IC data sheets for detailed register descriptions.

Software Installation

Download the MAX77884/MAX77885 EV kit GUI from the Analog Devices website at *www.analog.com*. Save the software to a temporary folder, then extract the ZIP file. Run the .EXE file and follow the on-screen instructions to complete the installation.

Windows Driver

After connecting the Micro-USB cable between the PC and the EV kit for the first time, Windows automatically installs the required drivers for the USB-to-I2C interface.

Establish Communication

When the device receives power from the CHGIN or BATT input, click **Device**, then click **Connect** to initiate communication with the IC. *Figure 3* shows the correct detection result. Click **Close** to finalize the connection.

Before configuring any tab, click **Read** to synchronize the displayed settings with the IC configuration. Alternatively, click **Start Auto-Read** and set the desired read frequency to maintain real-time updates. See the MAX77884/MAX77885 IC data sheet for detailed register usage. When writing to a register using the **Write** button, disable the **Start Auto-Read** feature.

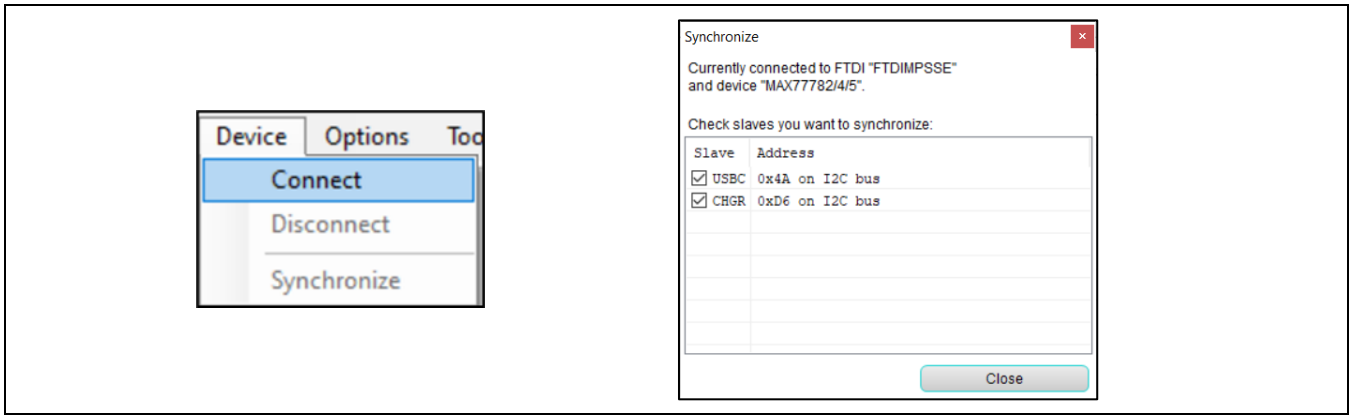


Figure 3. MAX77884/MAX77885 EV Kit GUI—Device and Connect Resulting Window

Top Tab

The **Top** tab displays the IC's top-level configuration settings. See *Figure 4* for the layout of the **Top** tab. Information is grouped by function, and each group is described separately.

The masked top interrupt does not reflect on the IRQB pin, while the unmasked interrupt reflects on the IRQB pin. The **Top Status Indicator** section includes controls for top-level settings. The software reset command is 0xA5.

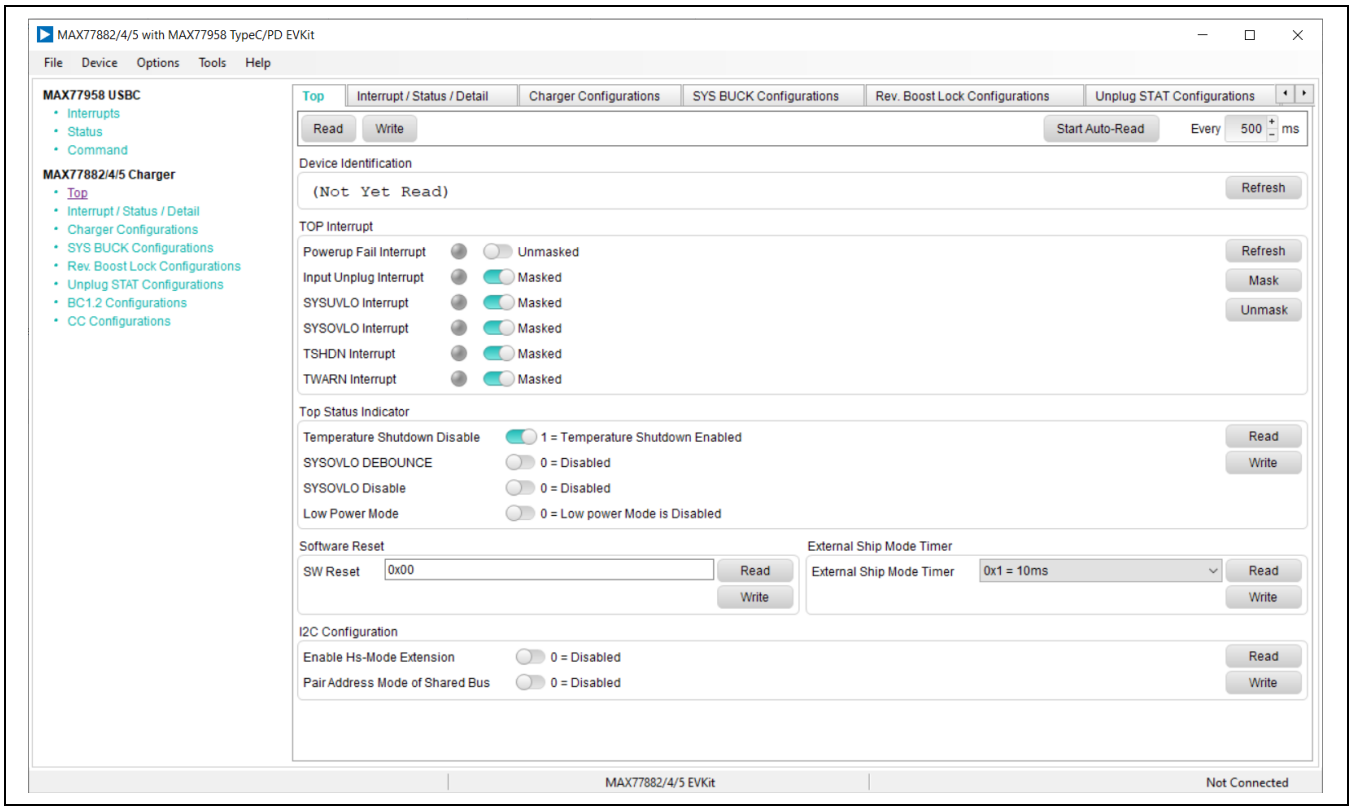


Figure 4. MAX77884/MAX77885 EV Kit GUI—Top Tab

Interrupt/Status/Detail Tab

The **Interrupt/Status/Detail** tab displays the charger interrupt settings, charger status, and detailed charger status for the IC. See *Figure 5* for the tab layout.

The masked charger interrupt does not reflect on the IRQB pin, while the unmasked interrupt reflects on the IRQB pin. The detailed status of the charger helps diagnose its operational state. The detailed charger status also serves as the basis for the interrupt status.

See the description of the CHG_DETAILS_0, CHG_DETAILS_1, CHG_DETAILS_2, and CHG_DETAILS_3 registers in the IC data sheet for more information.

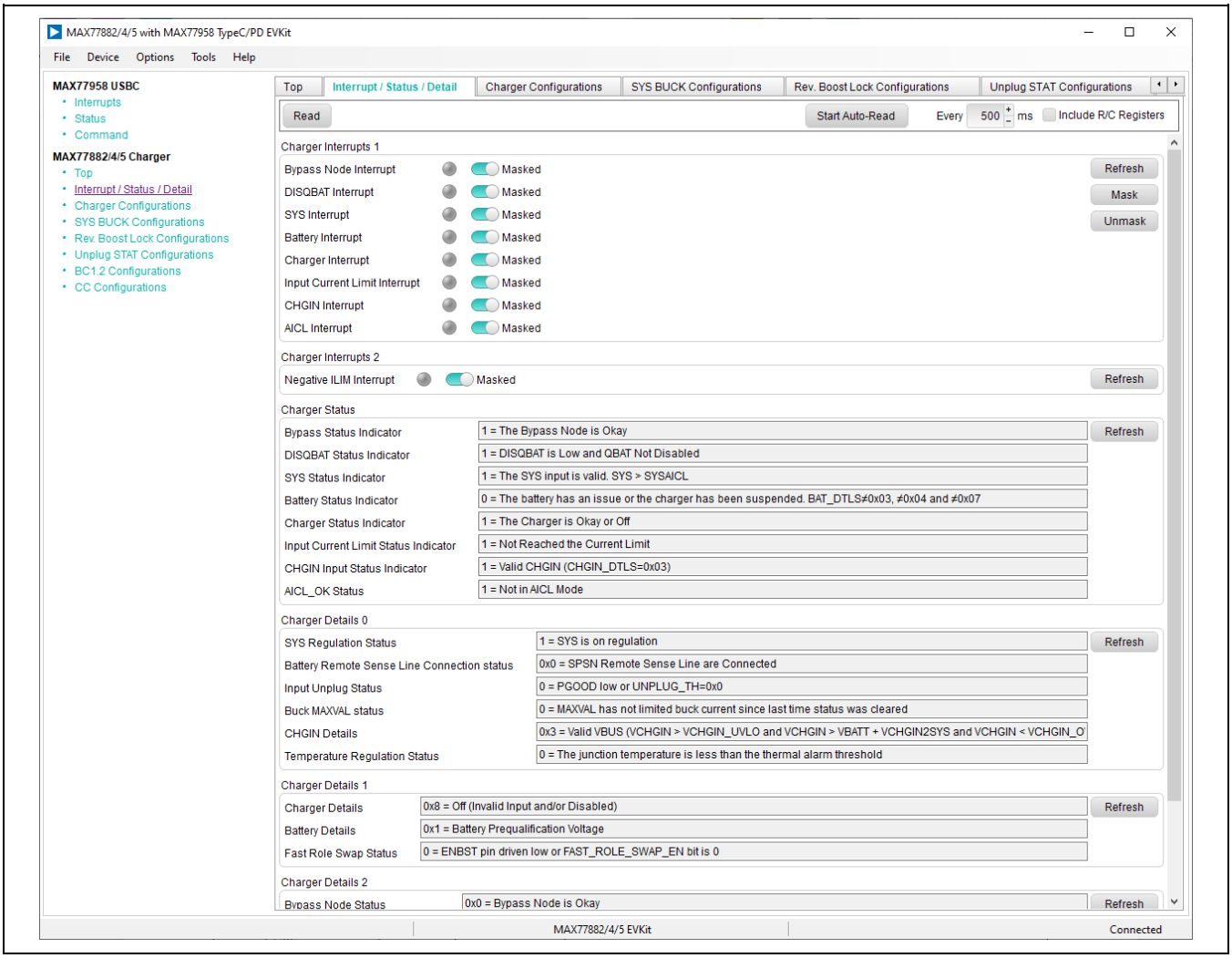


Figure 5. MAX77884/MAX77885 EV Kit GUI—Interrupt, Status, and Detail Tab

Charger Configurations Tab

The **Charger Configurations** tab (see *Figure 6*) displays the charger configuration settings corresponding to registers 0x89 to 0x92 and 0xA2. To unlock the configuration, use the **Unlock** button. Then use Read to confirm that the change has been applied. After unlocking, all configuration registers become editable.

To begin charging a battery with the desired current setting:

- Set **CHGIN Input Current Limit**
- Set **Fast Charge Current Selection**
- Set **MODE Configuration to 0x05** to switch from buck-only mode to charging mode.

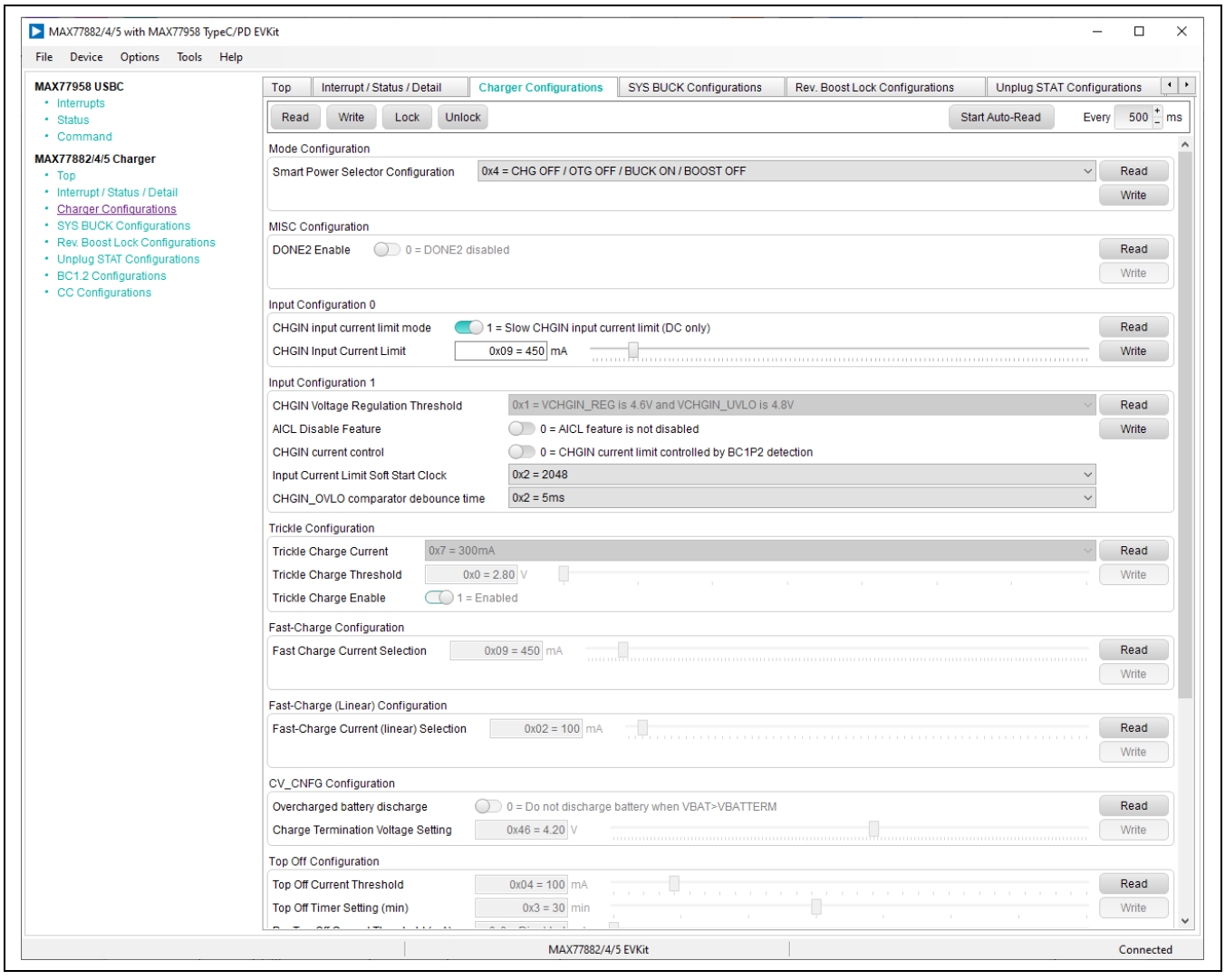


Figure 6. MAX77884/MAX77885 EV Kit GUI—Charger Configurations Tab

SYS BUCK Configurations Tab

The **SYS BUCK Configurations** tab (see *Figure 7*) displays the configuration settings for **QBAT**, **SYS**, **BUCK**, and the linear charger.

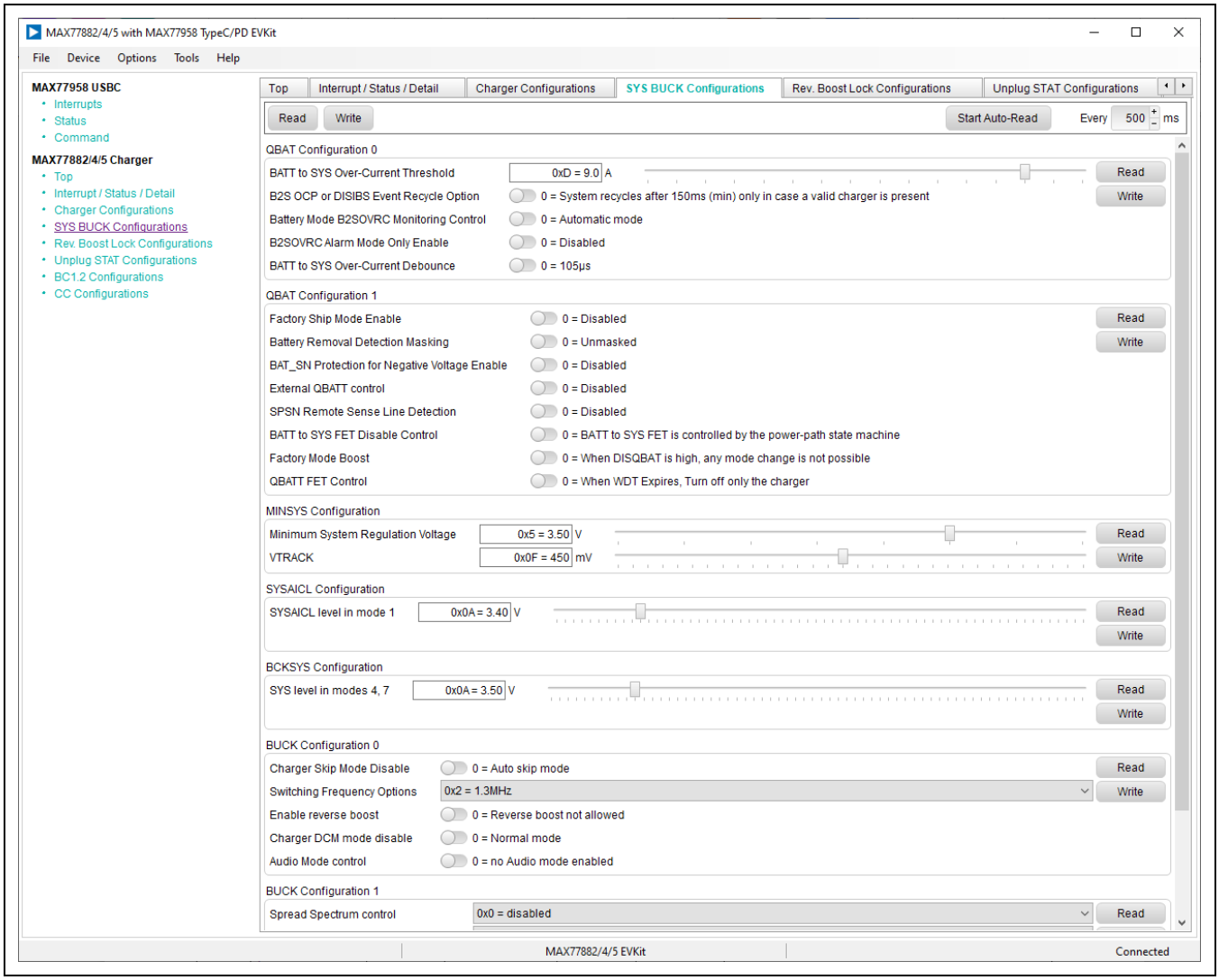


Figure 7. MAX77884/MAX77885 EV Kit GUI—SYS BUCK Configurations Tab

Rev. Boost Lock Configurations Tab

The **Rev. Boost Lock Configurations** tab (see *Figure 8*) displays the charger settings, protection, and reverse boost configurations.

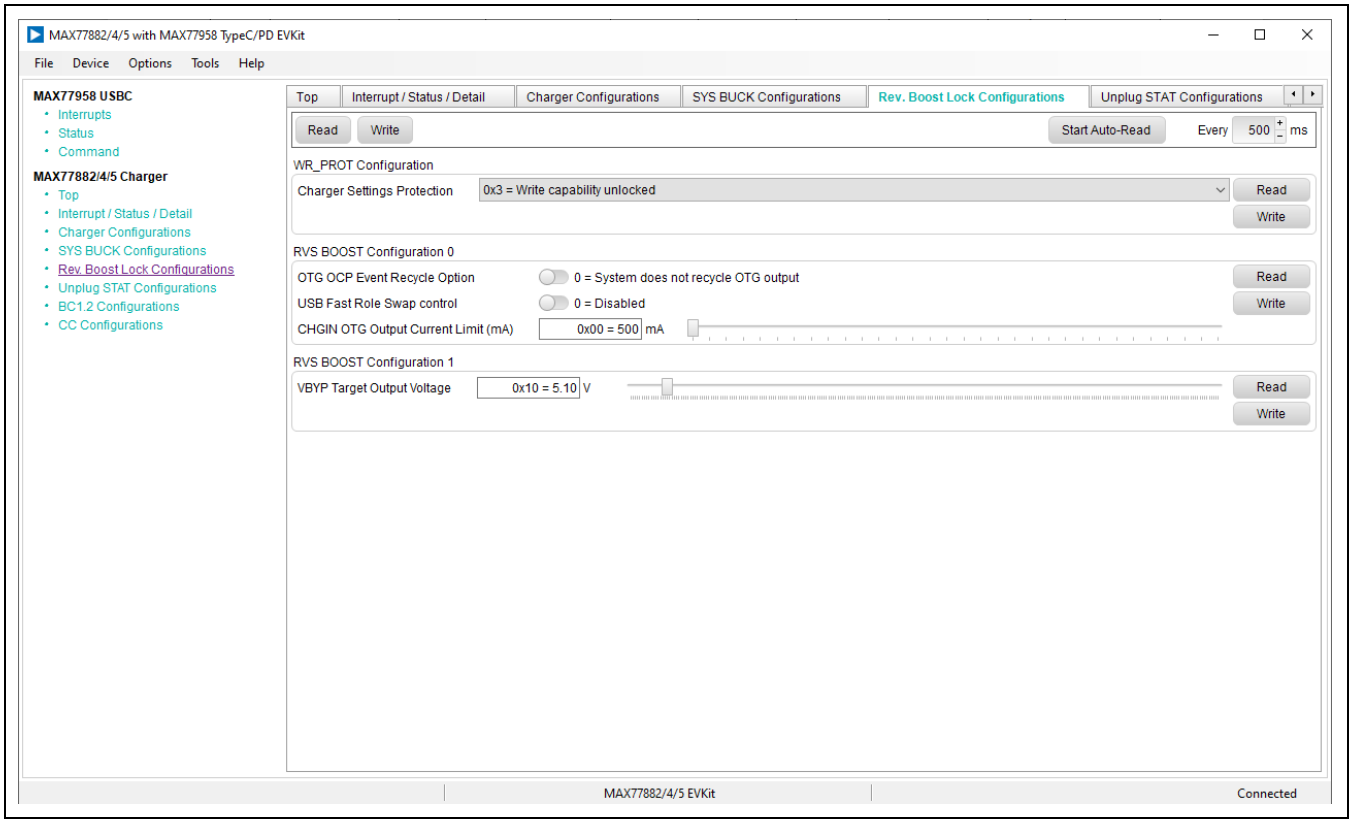


Figure 8. MAX77884/MAX77885 EV Kit GUI—Rev. Boost Lock Configurations Tab

Unplug STAT Configurations Tab

The **Unplug STAT Configurations** tab (see *Figure 9*) displays the **Unplug Configuration** and **STAT Configuration** settings.

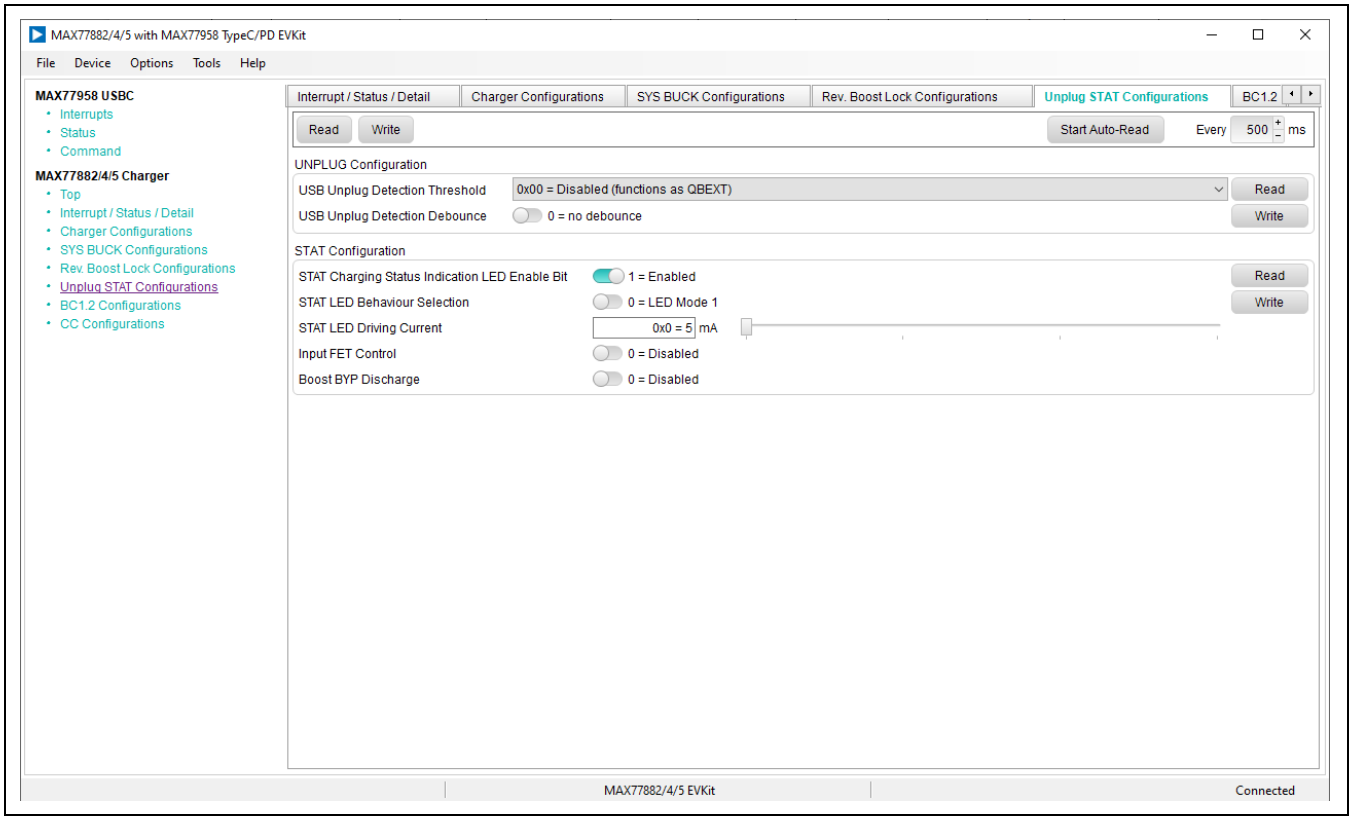


Figure 9. MAX77884/MAX77885 EV Kit GUI—Unplug STAT Configurations Tab

BC1.2 Configurations Tab

The **BC1.2 Configurations** tab (see *Figure 10*) displays the **BC1.2 detection** settings.

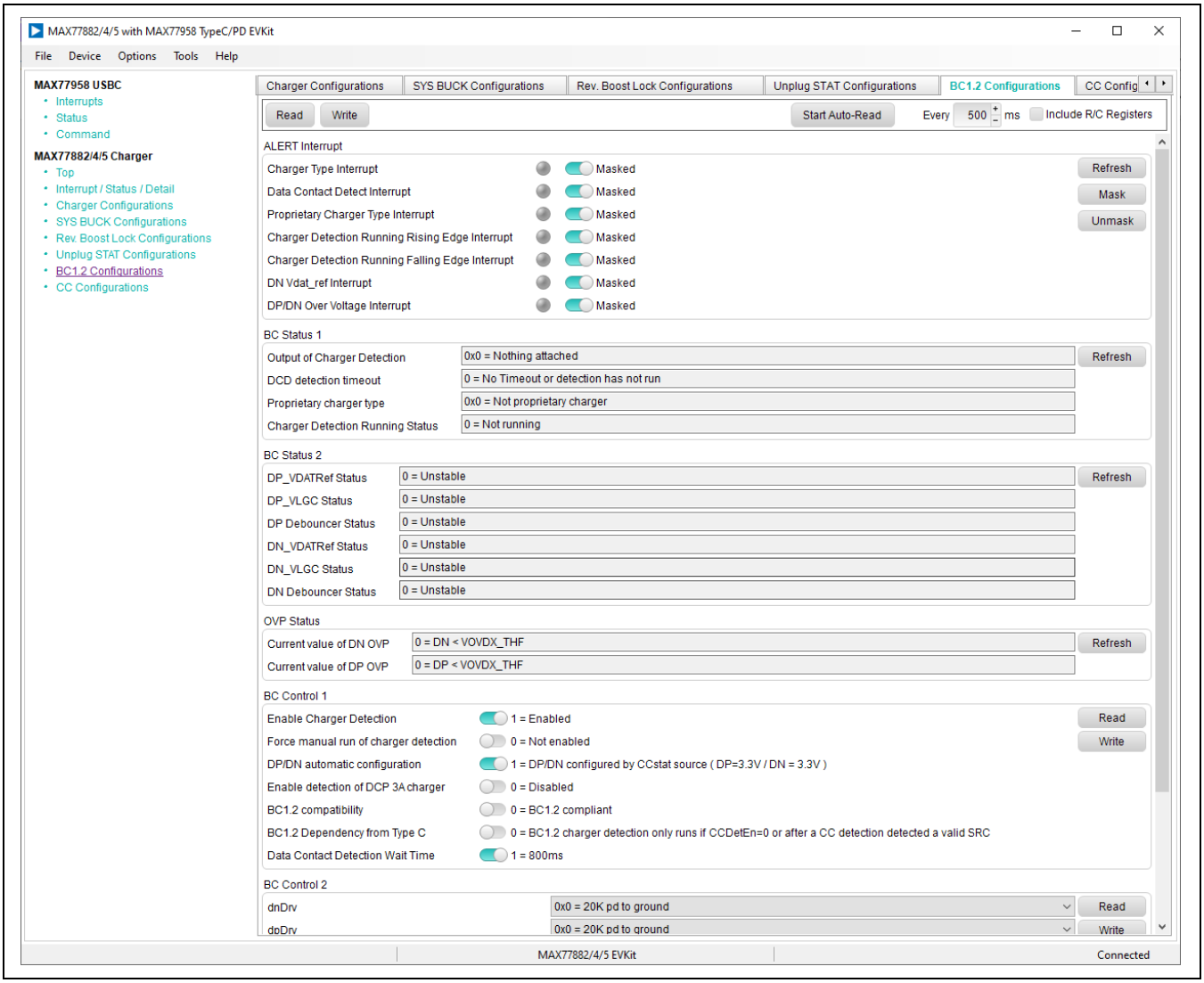


Figure 10. MAX77884/MAX77885 EV Kit GUI—BC1.2 Configurations Tab

CC Configurations Tab

The **CC Configurations** tab (see *Figure 11*) displays the **CC Interrupts**, **CC Status**, and **CC Control** options (only for MAX77884/MAX77885).

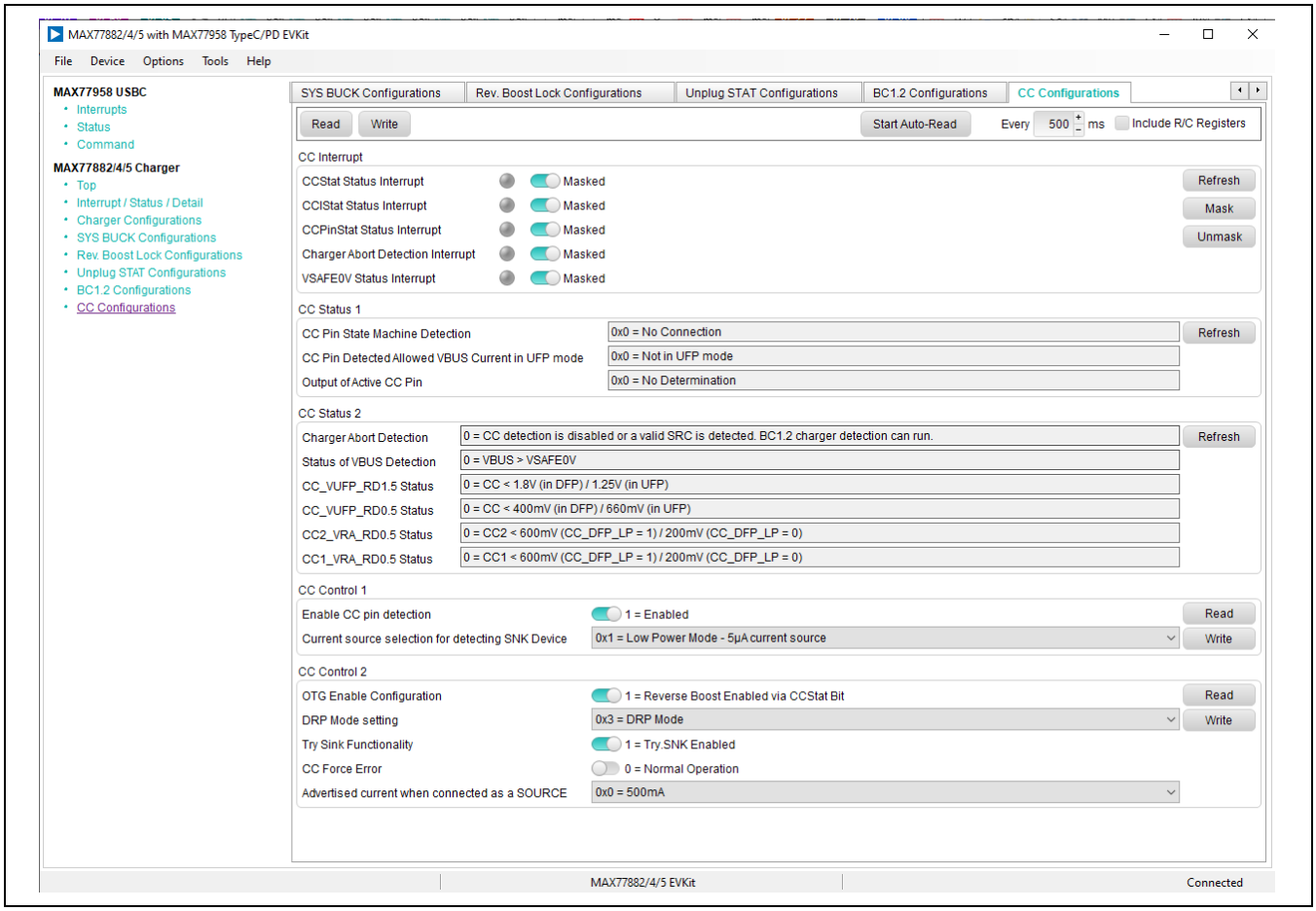


Figure 11. MAX77884/MAX77885 EV Kit GUI—CC Configurations Tab

Test with MAX77958 and USB Type-C Port Interface

Configuration Channel (CC) Detection Test

1. Connect a USB Type-C adapter to the EV kit and observe whether the MAX77958 detects sink mode and configures the input current limit correctly.
2. Connect a USB Type-C cable from a Type-C dual-role port (source preferred) device and observe whether the MAX77958 detects the CC pin state machine and configures the input current limit correctly.

USB Power-Delivery Test

3. Perform the source capability request function test.
4. Connect a USB power-delivery AC adapter to the EV kit.
5. Use a voltmeter to monitor the voltage on VBUS.
6. Go to **Command > Get SrcCap (0x31)**, click **Write** to execute the command. The MAX77958 sends this command over the CC pin to the travel adapter (TA). The TA returns a list of available source capabilities.
7. Review the source capabilities and note the desired PDO. Go to **SrcCap Request (0x32)**, set the value of the PDO, and click **Write** to request the BUS voltage and current.

BC1.2 Charger Type Detection

Plug in a USB Type-A to Type-C cable from a BC1.2 adapter or other legacy port. Check the **MAX77958 BC status** under the **BC Status** tab of the MAX77958 GUI to determine whether the USB Type-C connection detects the correct charger type.

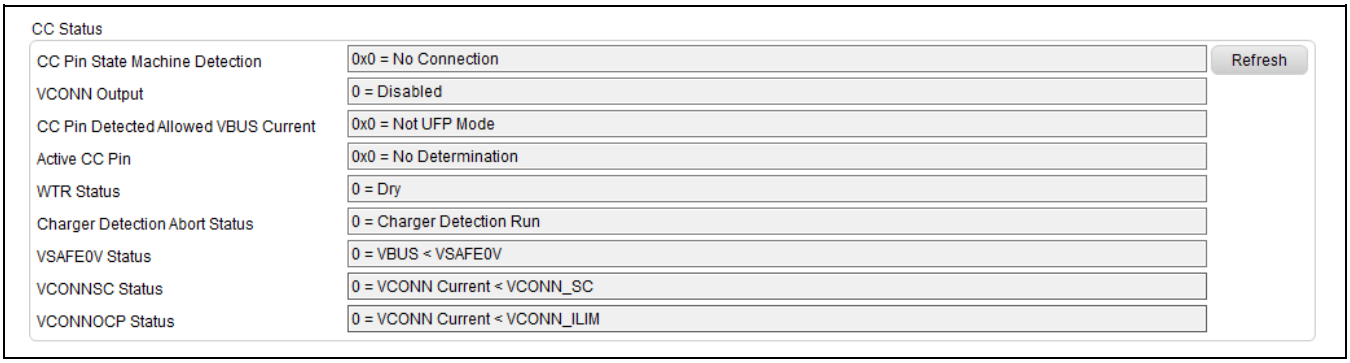


Figure 12. MAX77884/MAX77885 EV Kit GUI—CC Status after Connecting the USB Type-C Connector of the EV Kit to a TA

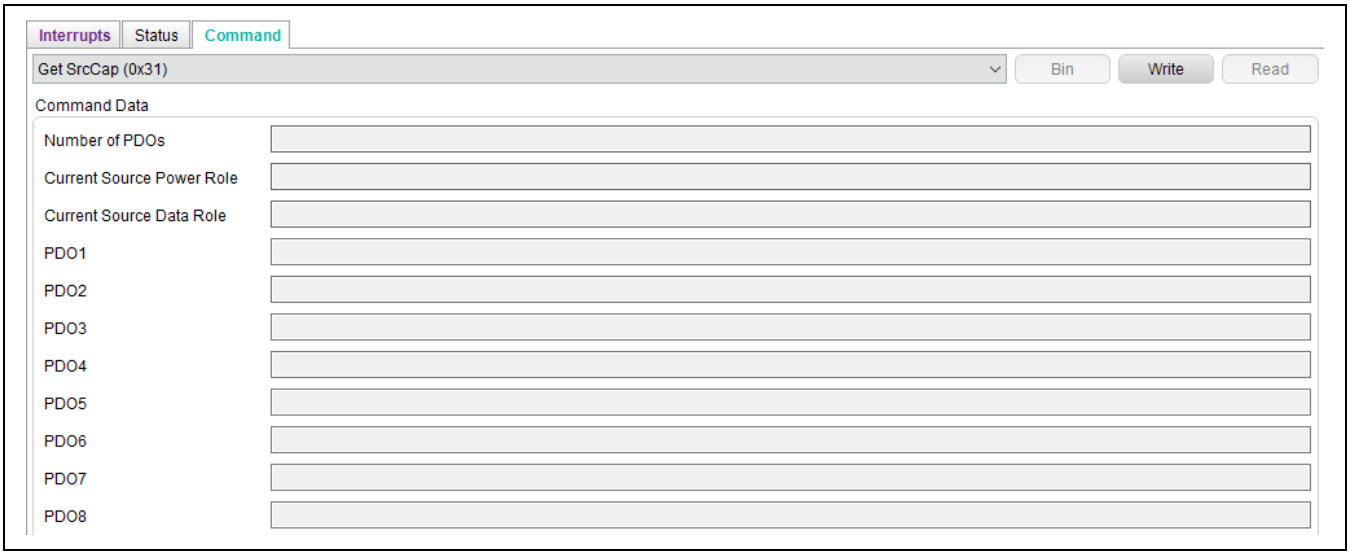


Figure 13. MAX77884/MAX77885 EV Kit GUI—Get Source Capability (Get SrcCap) under the Command Section

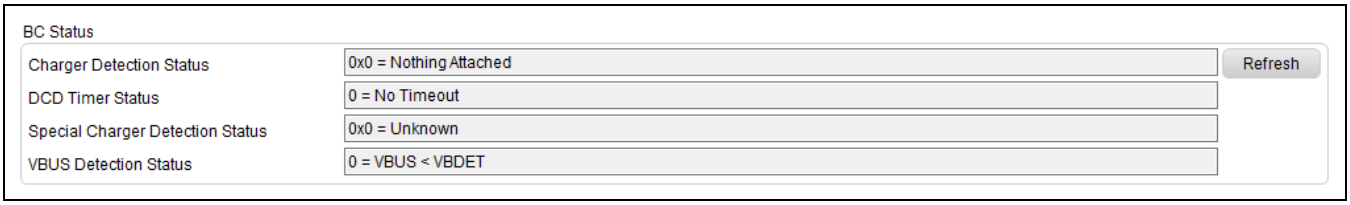


Figure 14. MAX77884/MAX77885 EV Kit GUI—BC Status after Connecting the USB Type-C Connector of EV Kit to Standard Downstream Port (SDP)

Detailed Description of Firmware for the MAX77958

The firmware of the MAX77958 consists of two main components: the core firmware and the customization script.

- The **Core Firmware** complies with USB Type-C 1.3 and PD 3.0 specifications.
- The **Customization Script** defines application-specific behavior, providing flexibility for system design. It supports functions such as GPIO matrix control and charger configuration initialization.

Updates to the customization script enable system-level changes without requiring modifications to the core firmware. Future changes to USB Type-C and PD specifications are supported by updating the MAX77958 core firmware. See the *Core Firmware Update* section of this data sheet. See the *MAX77958 Customization Script Block Update* section and the *MAX77958 Customization Script and OPCode Command Guide* for details.

MAX77958 Customization Script Block Update

The customization script defines the application-specific behavior of the MAX77958. For example, it sets the charger's input current limit after USB device detection.

8. Follow the initial test setup to connect the GUI with the MAX77884/MAX77885 EV kit.
9. Connect 3.8V to BATT. Do not disconnect the EV kit from the PC during the **Customization Script Block Update**.
10. Click **Tools** in the menu bar, then select **CUS Script Update**.
11. In the pop-up window, click **Open** to load the latest customization script, then click **Start** to begin the update.

Figure 15 and *Figure 16* show the **Customization Script Update** process.

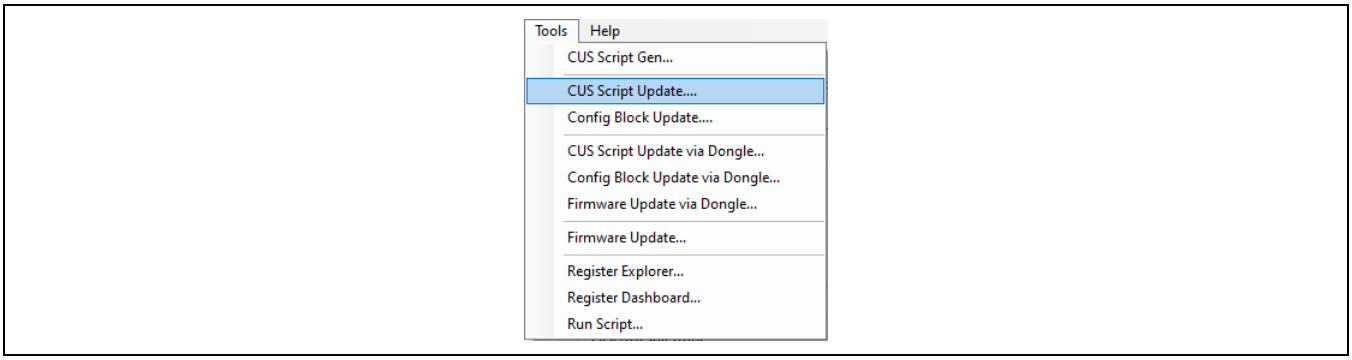


Figure 15. MAX77884/MAX77885 EV Kit GUI—Customization Script Block Update

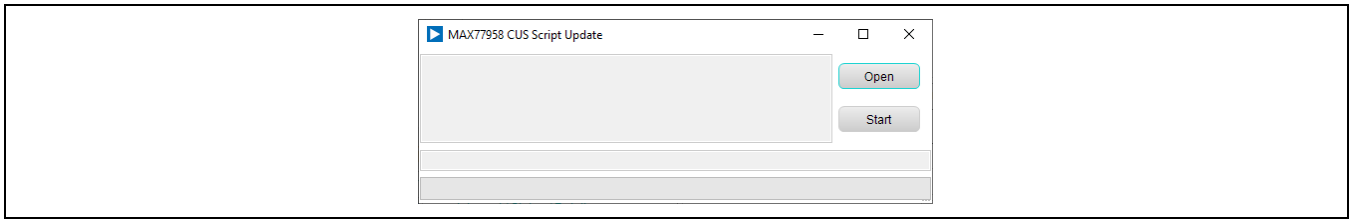


Figure 16. MAX77884/MAX77885 EV Kit GUI—CUS Script Update

Core Firmware Update

Follow the initial test setup to connect the GUI with the MAX77884/MAX77885 EV kit.

12. Connect 3.8V to BATT. Do not disconnect the EV kit from the PC during the firmware update.
13. Click **Tools** in the menu bar, then select **Firmware Update**.
14. In the pop-up window, click **Open** to load the latest firmware. In the file selection window, choose the .bin file, then click **Start** to begin the update.

Figure 17 and *Figure 18* show the **Firmware Update** process when complete.

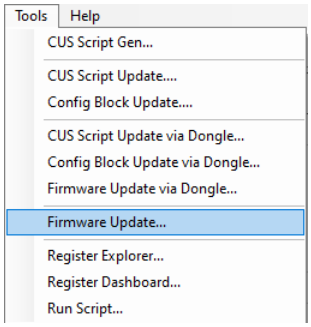


Figure 17. MAX77884/MAX77885 EV Kit GUI—Firmware Update

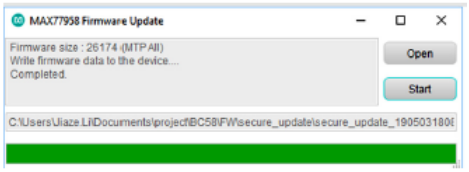


Figure 18. MAX77884/MAX77885 EV Kit GUI—Firmware Update Process Complete

Script Automation

A Python-based scripting system is embedded in the GUI software to automate or configure multiple registers sequentially. To evaluate using Python-based commands, click **Tools > Run Script File**. A script window appears, as shown in *Figure 19*.

- The first tab includes a script editor and an embedded Python terminal interface.
- The second tab provides a Python I/O console.
- The **Help** button opens a coding tutorial for the script window.
- Click **Run** to execute the script.

This scripting feature supports automated testing of configuration sequences.

Optional Tools

For I²C communication debugging, additional tools are available under **Options > CMOD Advanced UI** (see *Figure 20*). These tools are not required for evaluating the MAX77884/MAX77885 and MAX77958 when following the standard test setup procedure described in this document.

However, other subordinate devices can be tested using the I²C debugging tools and GUI software when connected to the MAX77884/MAX77885 and MAX77958 through the **SDA** and **SCL** pins. If successful, multiple subordinate devices can be automated through the script window.

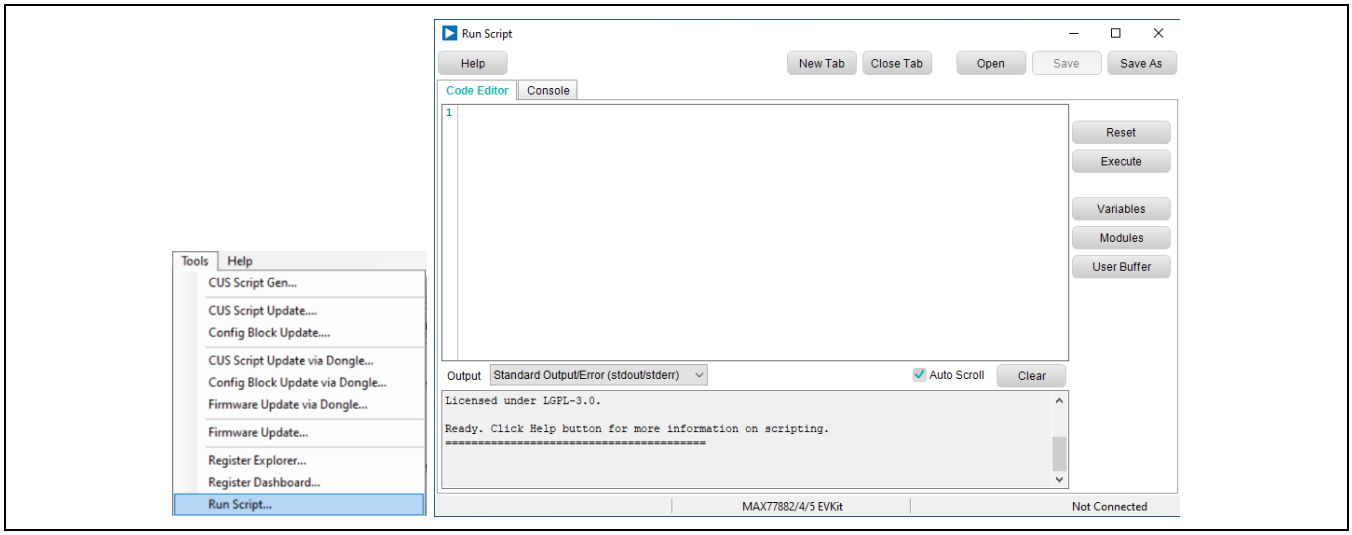


Figure 19. MAX77884/MAX77885 EV Kit GUI—Script Window

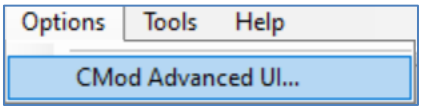


Figure 20. MAX77884/MAX77885 EV Kit GUI—CMOD Advanced UI

Ordering Information

PART	TYPE
MAX77884AEVKIT#	EV Kit
MAX77885AEVKIT#	EV Kit

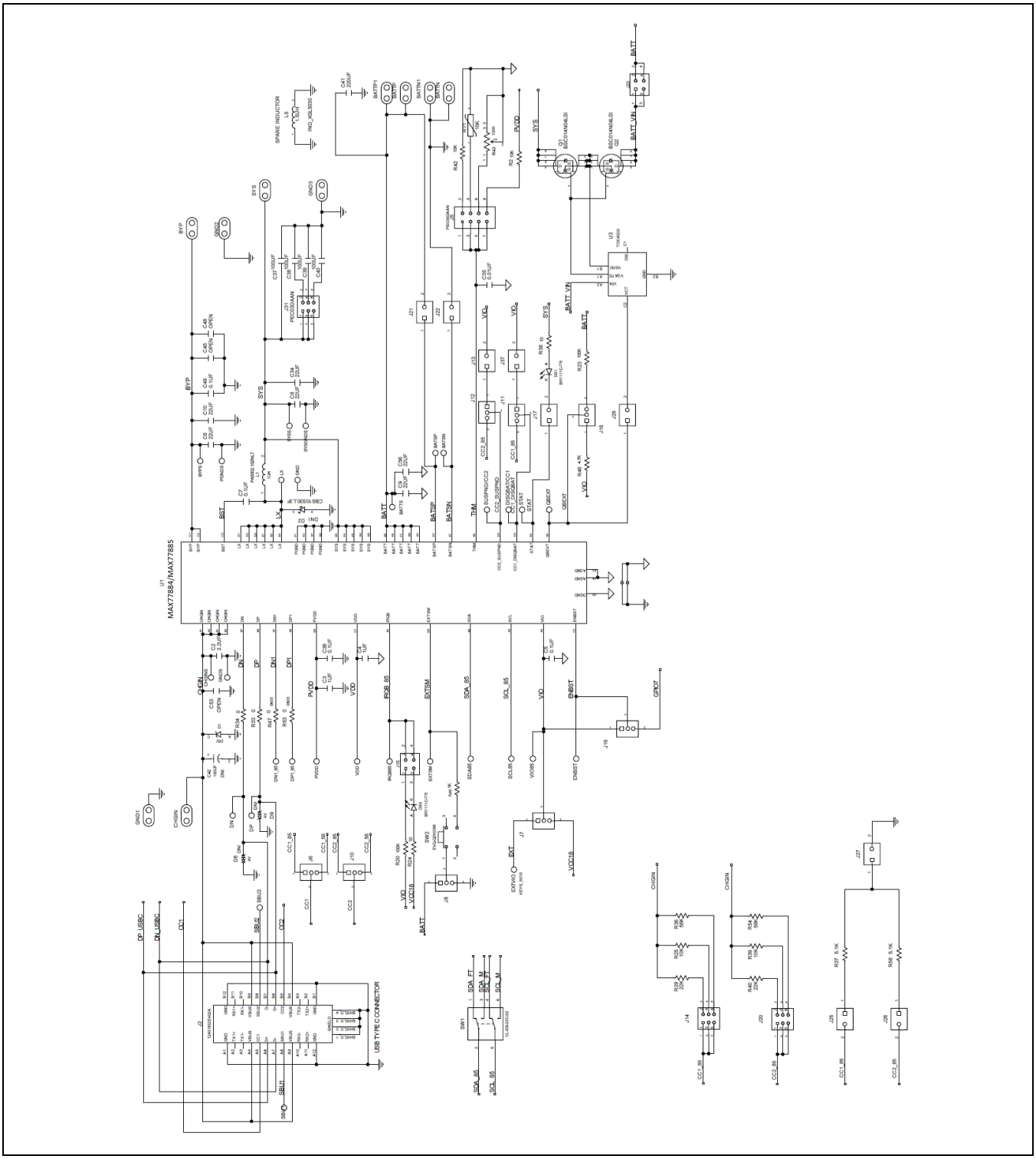
#Denotes RoHS-compliant.

MAX77884/MAX77885 EV Kit Bill of Materials

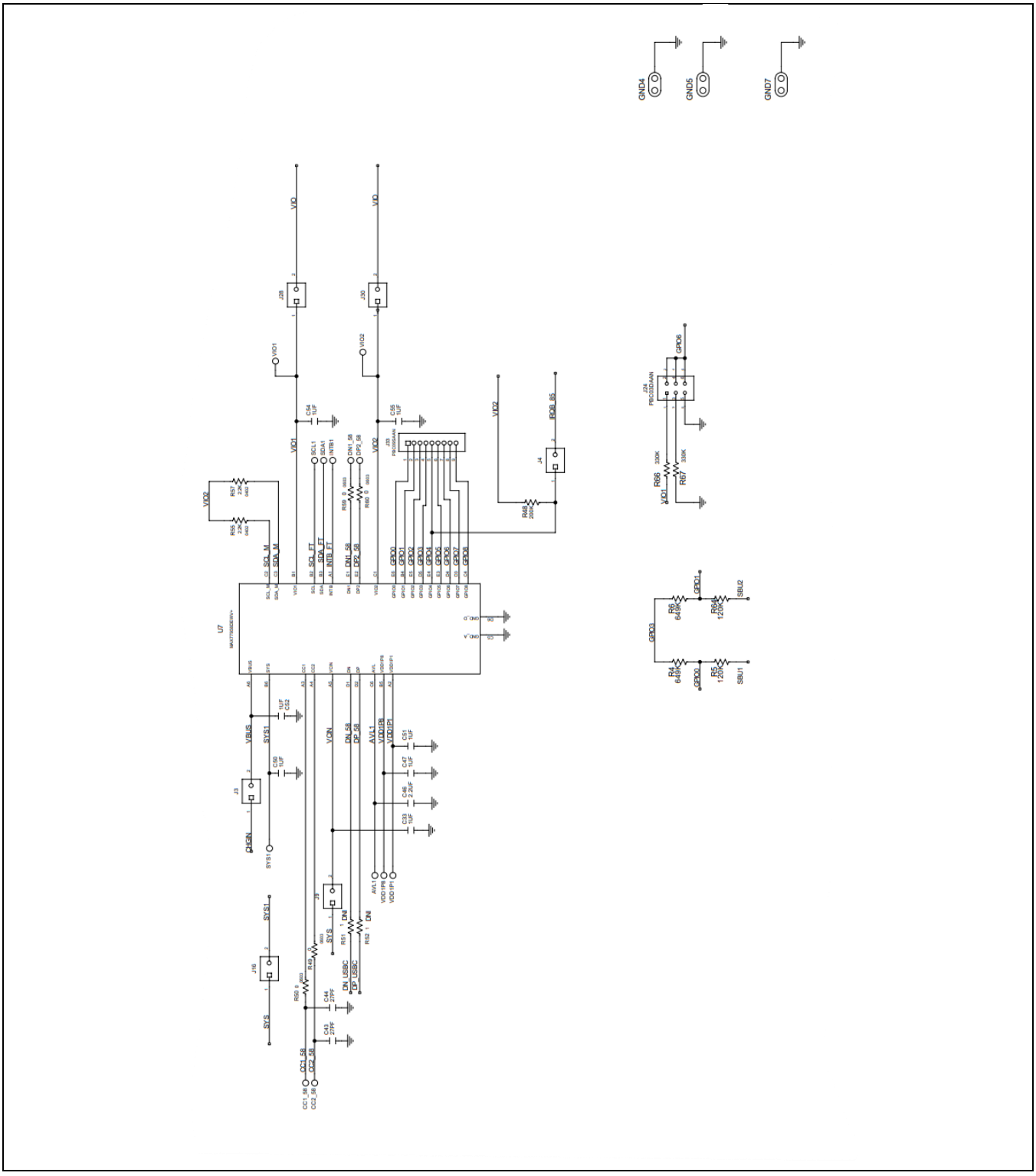
ITEM	REF_DES	DNI/ DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	AVL1, BATSN, BATSP, BATTS, BYPS, CC1_58, CC2_58, CHGINS, DN, DN1_85, DP, DP1_85, INTB1, SBU1, SBU2, SCL1, SDA1, SYS1, SYSS, VDD1P1, VDD1P8, VIO1, VIO2, VIO85	-	24	5000	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE = 0.04IN; RED; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH
2	BATTN, BATTN1, BATTP, BATTP1, BYP, CHGIN, GND1-GND5, GND7, SYS	-	13	9020 BUSS	WEICO WIRE	ANALOGPAD	EVK KIT PARTS; ANALOG PAD; WIRE; NATURAL; SOLID; WEICO WIRE; SOFT DRAWN BUS TYPE-S; 20AWG
3	C1, C5, C7, C15, C18-C21, C23-C29, C36	-	16	GRM155R71A104JA01	MURATA	0.1µF	CAP; SMT (0402); 0.1µF; 5%; 10V; X7R; CERAMIC
4	C2	-	1	C1608X5R1V225K080AC; GRM188R6YA225KA12	TDK;MURATA	2.2µF	CAP; SMT (0603); 2.2µF; 10%; 35V; X5R; CERAMIC
5	C3, C4, C16, C17, C30-C32	-	7	C0402C105K8PAC; CC0402KRX5R6BB105	KEMET; YAGEO	1µF	CAP; SMT (0402); 1µF; 10%; 10V; X5R; CERAMIC
6	C6, C10	-	2	C2012X5R1V226M125AC	TDK	22µF	CAP; SMT (0805); 22µF; 20%; 35V; X5R; CERAMIC
7	C8, C9, C34, C56	-	4	CL10A226MO7JZNC	SAMSUNG ELECTRONICS	22µF	CAP; SMT (0603); 22µF; 20%; 16V; X5R; CERAMIC
8	C11, C14, C43, C44	-	4	C0402C0G500270JNP; GRM1555C1H270JA01	VENKEL LTD.;MURATA	27µF	CAP; SMT (0402); 27PF; 5%; 50V; C0G; CERAMIC
9	C12, C13, C22	-	3	ZRB15XR61A475ME01; CL05A475MP5NRN; GRM155R61A475MEAA; C1005X5R1A475M050BC	MURATA; SAMSUNG; MURATA; TDK	4.7µF	CAP; SMT (0402); 4.7µF; 20%; 10V; X5R; CERAMIC
10	C33, C50, C54, C55	-	4	CL05A105KO5NNN; CC0402KRX5R7BB105	SAMSUNG; YAGEO	1µF	CAP; SMT (0402); 1µF; 10%; 16V; X5R; CERAMIC
11	C35	-	1	C0402C103K5RAC; GRM155R71H103KA88; C1005X7R1H103K050BE; CL05B103KB5NNN; UMK105B7103KV	KEMET;MURATA;TDK;SAMSUNG ELECTRONIC;TAIYO YUDEN	0.01µF	CAP; SMT (0402); 0.01µF; 10%; 50V; X7R; CERAMIC
12	C37-C40	-	4	EMK325ABJ107MM	TAIYO YUDEN	100µF	CAP; SMT (1210); 100µF; 20%; 16V; X5R; CERAMIC
13	C41	-	1	GRM32ER60J227ME05	MURATA	220µF	CAP; SMT (1210); 220µF; 20%; 6.3V; X5R; CERAMIC
14	C46	-	1	GRM188R71A225KE15; CL10B225KP8NNN; C1608X7R1A225K080AC; C0603C225K8RAC	MURATA; SAMSUNG; TDK; KEMET	2.2µF	CAP; SMT (0603); 2.2µF; 10%; 10V; X7R; CERAMIC
15	C47, C51	-	2	ANY	ANY	1µF	CAPACITOR; SMT (0402); CERAMIC CHIP; 1µF; 6.3V; TOL = 10%; MODEL = 1µF; TG = -55ºC TO +85ºC; TC = X5R;
16	C49	-	1	C1005X7R1H104K050BB; GRM155R71H104KE14; C1005X7R1H104K050BE; UMK105B7104KV-FR; 04025C104KAT2A	TDK; MURATA; TDK; TAIYO YUDEN; AVX	0.1µF	CAP; SMT (0402); 0.1µF; 10%; 50V; X7R; CERAMIC
17	C52	-	1	GMK107BJ105KA; C1608X5R1V105K080AB	TAIYO YUDEN; TDK	1µF	CAP; SMT (0603); 1.0µF; 10%; 35V; X5R; CERAMIC
18	D1	-	1	PTVS22VS1UR	NEXPERIA	20V	DIODE; TVS; SMT (SOD-123W); VRM = 20V; IPP = 11.3A
19	DISQBAT/CC1, ENBST, EXTSM, IRQB85, QBEXT, SCL85, SDA85, STAT, SUSPND/CC2	-	9	5002	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.1IN; TOTAL LENGTH = 0.3IN; BOARD HOLE = 0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER
20	DS1-DS3	-	3	BR1111C-TR	STANLEY ELECTRIC CO	BR1111C-TR	DIODE; LED; 1111C SERIES; RED; SMT (0603); PIV = 1.7V; IF = 0.025A
21	EXTVIO, PVDD, VDD	-	3	5010	KEYSTONE	N/A	TEST POINT; PIN DIA = 0.125IN; TOTAL LENGTH = 0.445IN; BOARD HOLE = 0.063IN; RED; PHOSPHOR BRONZE WIRE SIL
22	GNDS, PGNDS, SYSGNDS	-	3	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
23	J1	-	1	10118193-0001LF	FCI CONNECT	10118193-0001LF	CONNECTOR; FEMALE; SMT; MICRO USB B TYPE RECEPTACLE; RIGHT ANGLE; 5PINS
24	J2	-	1	12401832E402A	AMPHENOL	12401832E402A	CONNECTOR; FEMALE; SMT; USB TYPE C CONNECTOR; RIGHT ANGLE; DUAL ROW; 24PINS
25	J3, J4, J9, J13, J16, J17, J21, J22, J25-J30, J37	-	15	PBC02SAAN	SULLINS ELECTRONICS CORP.	PBC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS
26	J5	-	1	PBC04DAAN	SULLINS ELECTRONICS CORP.	PBC04DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 8PINS; -65ºC TO +125ºC
27	J6-J8, J10-J12, J18, J19	-	8	PBC03SAAN	SULLINS	PBC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS; -65ºC TO +125ºC
28	J14, J20, J31	-	3	PEC03DAAN	SULLINS ELECTRONICS CORP.	PEC03DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 6PINS; -65ºC TO +125ºC
29	J15, J23	-	2	PBC02DAAN	SULLINS ELECTRONIC CORP.	PBC02DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS
30	J24	-	1	PBC03DAAN	SULLINS ELECTRONICS CORP.	PBC03DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 6PINS; -65ºC TO +125ºC
31	J33	-	1	PBC09SAAN	SULLINS ELECTRONICS CORP	PBC09SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 9PINS; -65ºC TO +125ºC
32	L1	-	1	PA5002.102NLT	PULSE ELECTRONICS	1µH	INDUCTOR; SMT; SHIELDED; 1µH; 20%; 10.5A

ITEM	REF_DES	DNI/ DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
33	L2-L4	-	3	BLM18AG601SN1	MURATA	600	INDUCTOR; SMT (0603); FERRITE-BEAD; 600; TOL = ±0.5A
34	L5	-	1	XGL5030-152ME	COILCRAFT	1.5µH	INDUCTOR; SMT; COMPOSITE; 1.5µH; 20%; 15.4A
35	MH1-MH4	-	4	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
36	MISC1	-	1	AK67421-1-R	ASSMANN	AK67421-1-R	CONNECTOR; MALE; USB; USB2.0 MICRO CONNECTION CABLE; USB B MICRO MALE TO USB A MALE; STRAIGHT; 5PINS-4PINS
37	Q1, Q2	-	2	BSC014N04LSI	INFINEON	BSC014N04LSI	TRAN; OPTIMOS POWER MOSFET; NCH; PG-TDSON8 FL; PD-(96W); ID-(195A); V-(40V)
38	R1, R7, R14-R16, R18, R22, R32-R34, R44	-	11	ERJ-2GE0R00	PANASONIC	0	RES; SMT (0402); 0; JUMPER; JUMPER; 0.1000W
39	R2, R42	-	2	CRCW060310K0FK; ERJ-3EKF1002; AC0603FR-0710KL; RMCF0603FT10K0	VISHAY; PANASONIC; YAGEO; STACKPOLE	10K	RES; SMT (0603); 10K; 1%; ±100PPM/DEGC; 0.1000W
40	R4, R6	-	2	ERJ-2RKF6493	PANASONIC	649K	RES; SMT (0402); 649K; 1%; ±100PPM/DEGC; 0.1000W
41	R5, R64	-	2	ERJ-2RKF1203	PANASONIC	120K	RES; SMT (0402); 120K; 1%; ±100PPM/DEGC; 0.1000W
42	R8	-	1	CRCW040212K0FK; MCR01MZPF1202	VISHAY DALE; ROHM SEMICONDUCTOR	12K	RES; SMT (0402); 12K; 1%; ±100PPM/DEGC; 0.0630W
43	R9, R13	-	2	RC0402FR-0727RL	YAGEO	27	RES; SMT (0402); 27; 1%; ±100PPM/DEGC; 0.0630W
44	R10	-	1	CRCW04021M00FK	VISHAY DALE	1M	RES; SMT (0402); 1M; 1%; ±100PPM/DEGC; 0.0630W
45	R11, R45	-	2	RC0402FR-071KL; MCR01MZPF1001	YAGEO;ROHM SEMICONDUCTOR	1K	RES; SMT (0402); 1K; 1%; ±100PPM/DEGC; 0.0630W
46	R12, R21	-	2	CRCW04022K20JN	VISHAY DALE	2.2K	RES; SMT (0402); 2.2K; 5%; ±200PPM/DEGK; 0.0630W
47	R17	-	1	CRCW04024752FK; 9C04021A4752FLHF3; CRCW040247K5FK	VISHAY DALE;YAGEO;VISHAY DALE	47.5K	RES; SMT (0402); 47.5K; 1%; ±100PPM/DEGC; 0.0630W
48	R19, R20, R23, R31, R41	-	5	CRCW0402100KFK; RC0402FR-07100KL	VISHAY;YAGEO	100K	RES; SMT (0402); 100K; 1%; ±100PPM/DEGC; 0.0630W
49	R24, R38	-	2	9C04021A10R0FL	YAGEO	10	RES; SMT (0402); 10; 1%; ±100PPM/DEGC; 0.0630W
50	R25, R39	-	2	CRCW040210K0FK	VISHAY	10K	RES; SMT (0402); 10K; 1%; ±100PPM/DEGK; 0.0630W
51	R26, R48	-	2	CRCW0402200KFK; RF73H1ELTP2003	VISHAY DALE; KOA SPEER ELECTRONICS	200K	RES; SMT (0402); 200K; 1%; ±100PPM/DEGC; 0.0630W
52	R27, R28	-	2	CRCW04024K70FK; MCR01MZPF4701	VISHAY DALE; ROHM SEMICONDUCTOR	4.7K	RES; SMT (0402); 4.7K; 1%; ±100PPM/DEGC; 0.0630W
53	R29, R40	-	2	CRCW040222K0FK	VISHAY DALE	22K	RES; SMT (0402); 22K; 1%; ±100PPM/DEGC; 0.0630W
54	R30	-	1	CRCW0402169KFK	VISHAY DALE	169K	RES; SMT (0402); 169K; 1%; ±100PPM/DEGK; 0.0630W
55	R35	-	1	CRCW0402470RFK	VISHAY DALE	470	RES; SMT (0402); 470; 1%; ±100PPM/DEGC; 0.0630W
56	R36, R54	-	2	ERJ-2RKF5602	PANASONIC	56K	RES; SMT (0402); 56K; 1%; ±100PPM/DEGC; 0.0630W
57	R37, R56	-	2	CRCW04025K10FK	VISHAY DALE	5.1K	RES; SMT (0402); 5.1K; 1%; ±100PPM/DEGC; 0.0630W
58	R43	-	1	3296Y-1-104LF	BOURNS	100K	RESISTOR; THROUGH HOLE-RADIAL LEAD; 3296 SERIES; 100KΩ; 10%; 100PPM; 0.5W
59	R46	-	1	ERJ-2RKF4701	PANASONIC	4.7K	RES; SMT (0402); 4.7K; 1%; ±100PPM/DEGC; 0.1000W
60	R47, R49, R50, R53, R59, R60	-	6	CRCW06030000Z0EAHP	VISHAY DRALORIC	0	RES; SMT (0603); 0; JUMPER; JUMPER; 0.2500W
61	R55, R57	-	2	RC0402FR-072K2L	YAGEO	2.2K	RES; SMT (0402); 2.2K; 1%; ±100PPM/DEGC; 0.0630W
62	R66, R67	-	2	CRCW0402330KFK	VISHAY DALE	330K	RES; SMT (0402); 330K; 1%; ±100PPM/DEGC; 0.0630W
63	RT1	-	1	NTCG163JF103F	TDK	10K	THERMISTOR; SMT (0603); THICK FILM (NICKEL PLATED); 10K; TOL = ±1%
64	SW1	-	1	CL-SB-22C-02	COPAL ELECTRONICS INC.	CL-SB-22C-02	SWITCH; DPDT; THROUGH HOLE; 12V; 0.2A; ON-ON; RCOIL = 0.05Ω; RINSULATION =10MΩ; COPAL ELECTRONICS INC.; -40ºC TO +85ºC
65	SW2	-	1	EVQ-Q2K03W	PANASONIC	EVQ-Q2K03W	SWITCH; SPST; SMT; 15V; 0.02A; LIGHT TOUCH SWITCH; RCOIL= Ω; RINSULATION = Ω; PANASONIC
66	U1	-	1	MAX77884/MAX77885	ANALOG DEVICES	MAX77884/MAX77885	EVKIT PART - IC; MAX77884/MAX77885; WLP49
67	U2	-	1	FT2232HL	FUTURE TECHNOLOGY DEVICES INTL LTD.	FT2232HL	IC; MMRY; DUAL HIGH SPEED USB TO MULTIPURPOSE UART/FIFO; LQFP64
68	U3	-	1	TCK402G	TOSHIBA	TCK402G	IC; ASW; CMOS LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC; WLCSP6
69	U4	-	1	MAX14611ETD+	ANALOG DEVICES	MAX14611ETD+	IC; TRANS; QUAD BIDIRECTIONAL LOW-VOLTAGE LOGIC LEVEL TRANSLATOR; TDFN14-EP
70	U5, U6	-	2	MAX8512EXK+	ANALOG DEVICES	MAX8512EXK	IC, VREG, Ultra-Low-Noise, High PSRR, Adjustable VOUT, SC70-5
71	U7	-	1	MAX77958DEWV+	ANALOG DEICES	MAX77958DEWV+	EVKIT PART - IC; STANDALONE USB TYPE-C AND USB POWER DELIVERY CONTROLLER; WLP30; PACKAGE OUTLINE: 21-100339; PACKAGE CODE: W302B3+1
72	Y1	-	1	7M-12.000MAAJ	TXC CORPORATION	12MHZ	CRYSTAL; SMT; 12MHZ; 18PF; TOL = ±30PPM; STABILITY = ±30PPM
73	PCB	-	1	MAX778828485	ANALOG DEVICES	PCB	PCB:MAX778828485
74	D2	DNP	0	CBS10S30,L3F	TOSHIBA	CBS10S30,L3F	DIODE; SCH; SMT (SOD); PIV = 30V; IF = 1A
75	C42	DNP	0	EEE-FK1V101P	PANASONIC	100µF	CAP; SMT (CASE_F); 100µF; 20%; 35V; ALUMINUM-ELECTROLYTIC
76	D8, D9	DNP	0	PESD4V0W1BDSF	NEXPERIA	4V	EVKIT PART-DIODE; TVS; SMT (SOD962-2); VRM = ±4V; IPP = N/A
77	R51, R52	DNP	0	CRCW06031R00JN	VISHAY DALE	1	RES; SMT (0603); 1; 5%; ±200PPM/DEGC; 0.1000W
78	C45, C48	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (0805); OPEN; FORMFACTOR
79	C53	DNP	0	N/A	N/A	OPEN	CAPACITOR; SMT (0805); OPEN; IPC MAXIMUM LAND PATTERN
80	R3	DNP	0	N/A	N/A	OPEN	RESISTOR; 0402; OPEN; FORMFACTOR

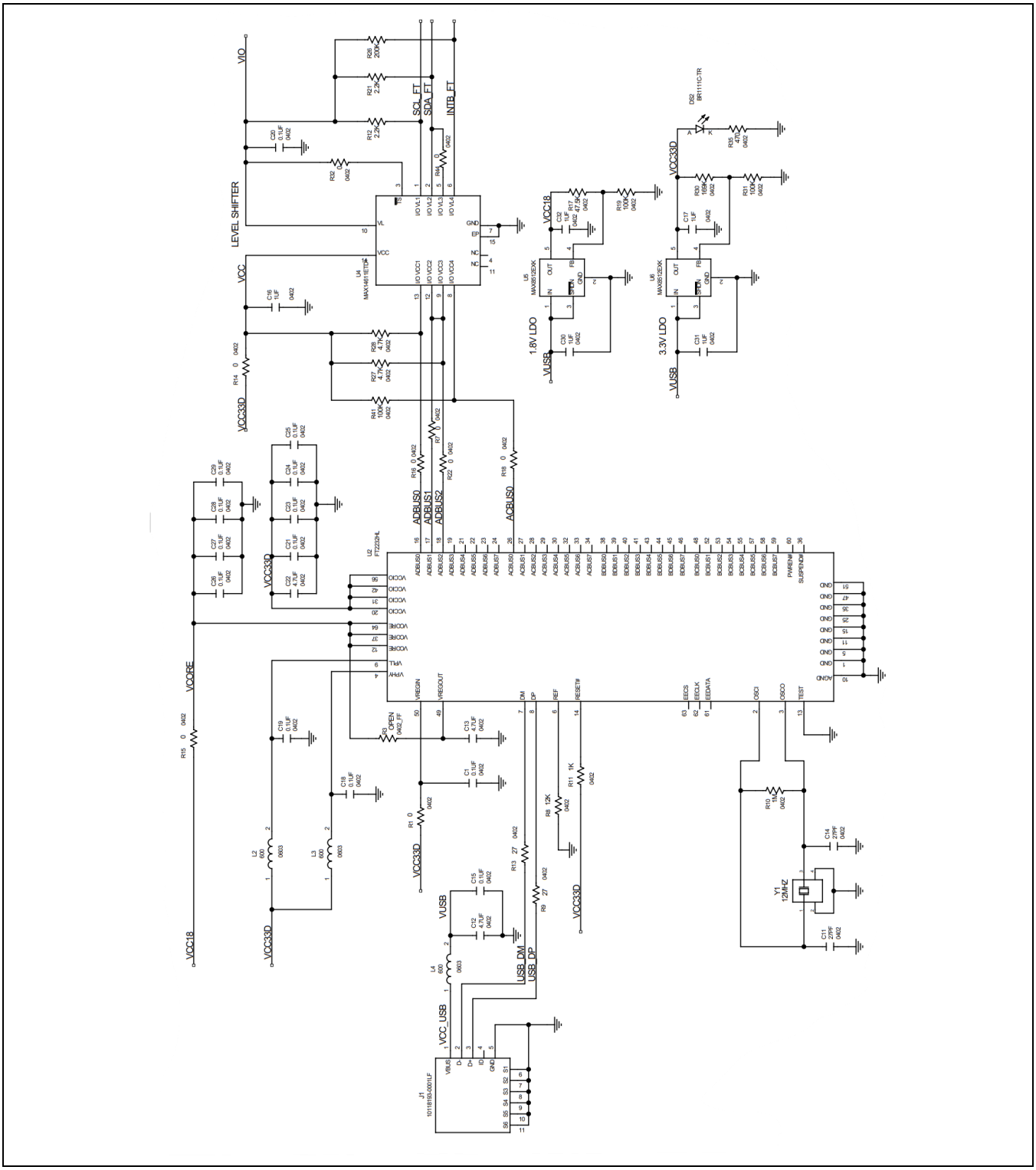
MAX77884/MAX77885 EV Kit Schematic



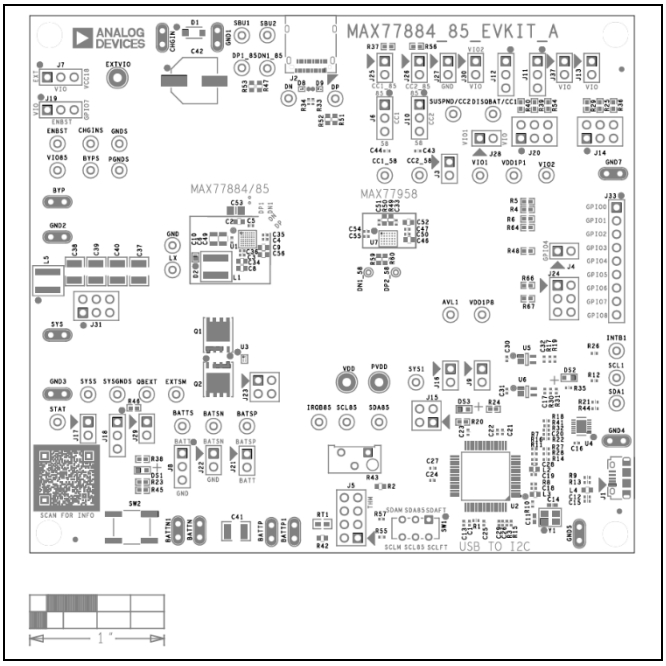
MAX77884/MAX77885 EV Kit Schematic (continued)



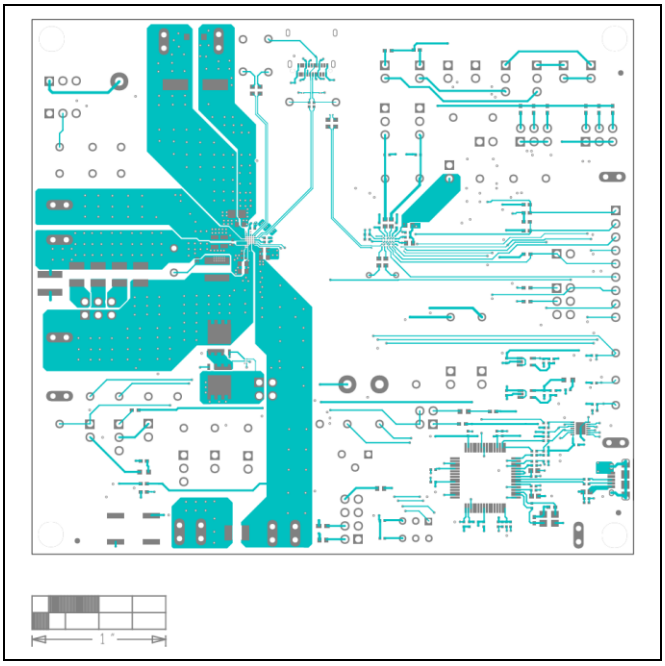
MAX77884/MAX77885 EV Kit Schematic (continued)



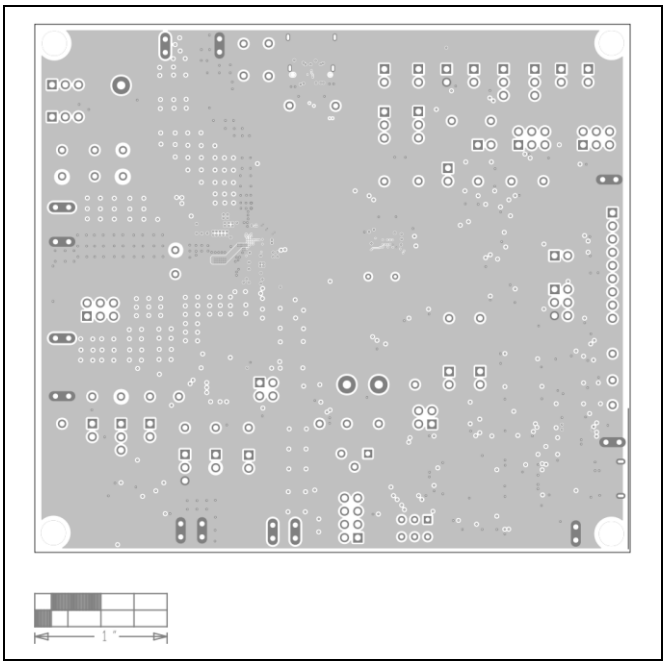
MAX77884/MAX77885 EV Kit PCB Layout



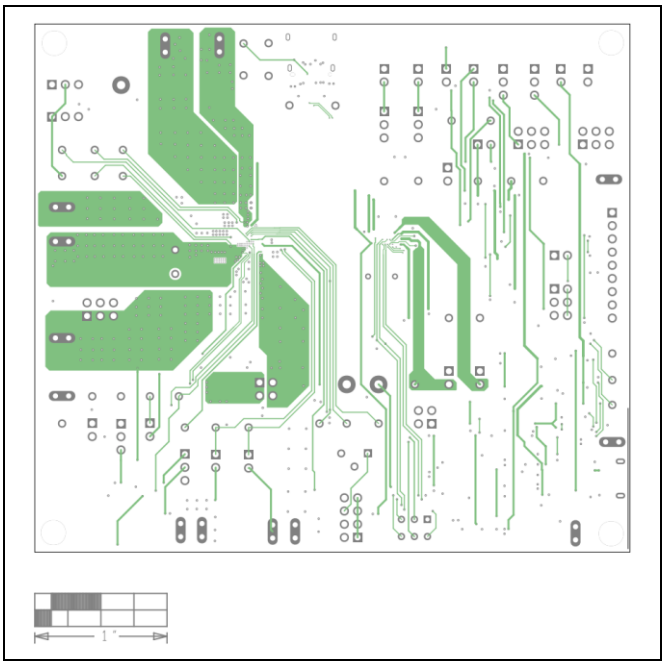
MAX77884/MAX77885 EV Kit Component Placement Guide—Top Silkscreen



MAX77884/MAX77885 EV Kit PCB Layout—Top

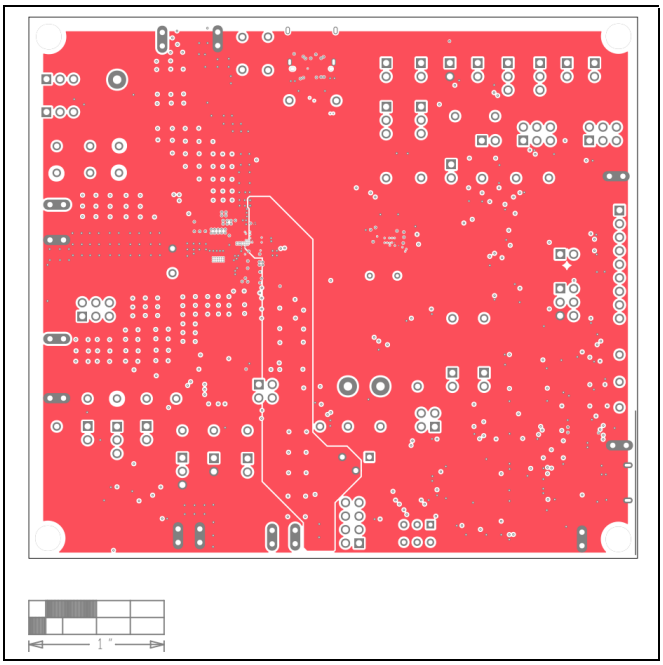


MAX77884/MAX77885 EV Kit PCB Layout—Layer 2

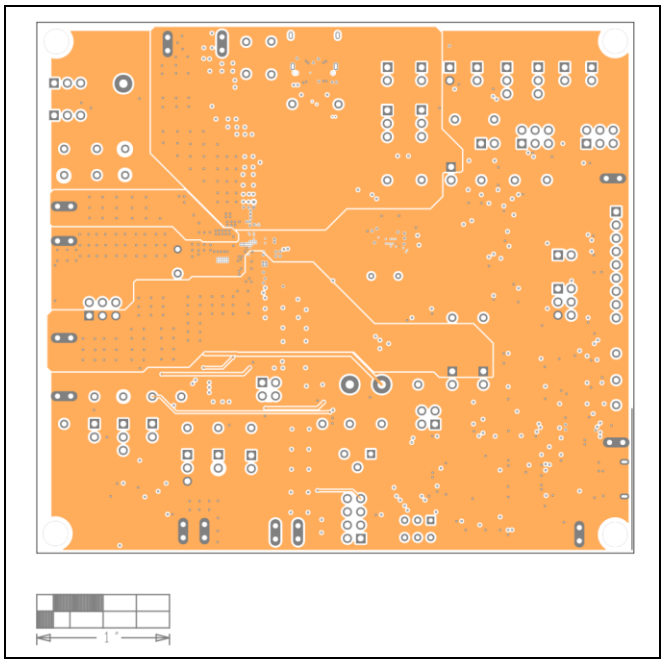


MAX77884/MAX77885 EV Kit PCB Layout—Layer 3

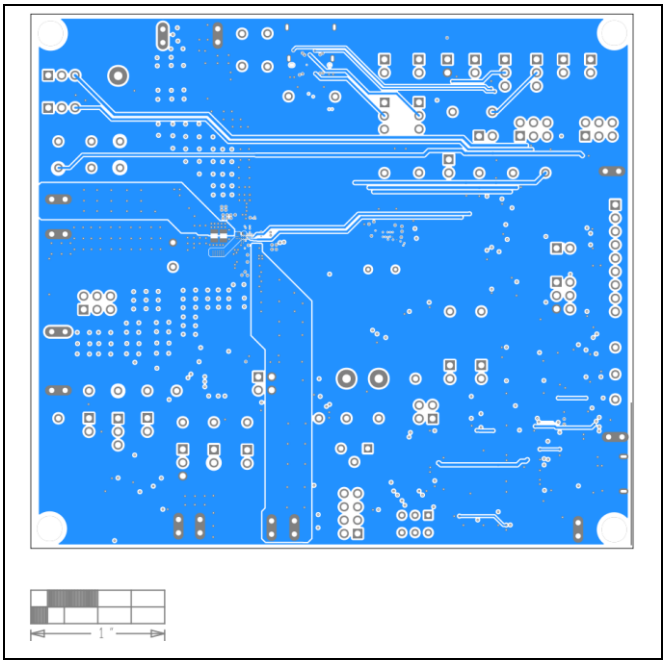
MAX77884/MAX77885 EV Kit PCB Layout (continued)



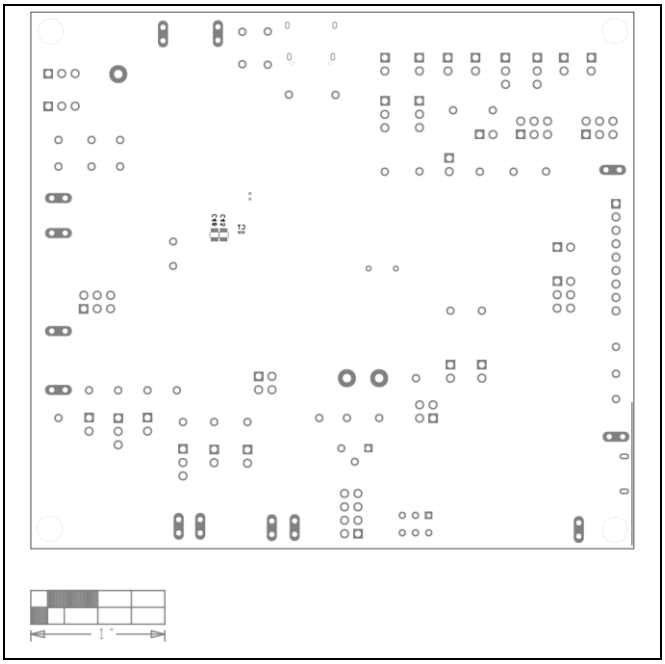
MAX77884/MAX77885 EV Kit PCB Layout—Layer 4



MAX77884/MAX77885 EV Kit PCB Layout—Layer 5



MAX77884/MAX77885 EV Kit PCB Layout—Bottom



MAX77884/MAX77885 EV Kit Component Placement Guide—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	11/25	Initial release	—

Notes