DS28E30 Evaluation Kit

General Description

The DS28E30 evaluation kit (EV kit) provides the hardware and software necessary to exercise the features of the DS28E30. The EV system consists of five DS28E30 in WLP package mounted on an interface PCB, along with a DS9481P-300# USB-to-I^{2}C/1-Wire® adapter. The evaluation software runs under Windows® 10, 8, and 7 operating systems for 64-bit and 32-bit versions. It provides a convenient user interface to exercise the features of the DS28E30.

Features

- Demonstrates the Features of the DS28E30 DeepCover® ECDSA Secure Authenticator
- 1-Wire Communication is Logged to Aid Firmware Designers Understanding of DS28E30
- 1-Wire/I^{2}C USB Adapter Creates a Virtual COM Port on Any PC
- Fully Compliant with USB Specification v2.0
- Software Runs on Windows 10, 8, and 7 for 64-Bit and 32-Bit Versions
- 3.3V ±3% 1-Wire Operating Voltage
- Evaluation Software Available by Request
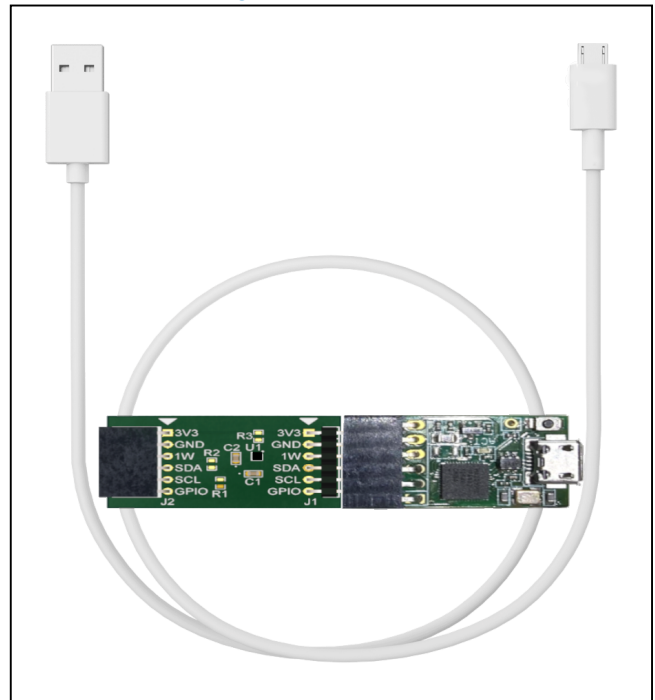
Ordering Information **appears at end of data sheet.**

EV Kit Contents

QTY	DESCRIPTION
5	DS28E30X+ interface PCB boards
1	DS9481P-300# USB to I^{2}C /1-Wire Adapter
1	USB Type-A to Micro-USB Type-B Cable

#Denotes RoHS compliance.

+Denotes a lead(Pb)-free/RoHS-compliant package.

DS28E30 EV System

1-Wire and DeepCover are registered trademarks of Maxim Integrated Products, Inc.

Windows is a registered trademark of Microsoft Corporation.

319-100727; Rev 1; 1/22

Quick Start

This section includes a list of recommended equipment and instructions on how to set up the Windows-based PC for the evaluation software.

Required Equipment

- DS9481P-300# USB to I^{2}C/SPI/1-Wire Adapter (included)
- DS28E30X+Interface PCB (five included)
- USB Type A to Micro-USB Type B cable (included)
- PC with a Windows 10, 8, or 7 operating system (64-bit or 32-bit) and a spare USB 2.0 or higher port
- Download DS28E30 EV kit software (light version) or request full DS28E30 EV kit developer software

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.

Hardware Setup and Driver Installation Quick Start

The following steps were performed on a Windows 10 PC to set up the DS28E30 EV kit hardware and software:

1) Obtain and unpack the **DS28E30_Evaluation_Kit_Lite_Version_Setup_V1_0_0** file or the latest version.

2) In a file viewer (Figure 1), double-click the **DS28E30_Evaluation_Kit_Lite_Version_Setup_V1_0_0.exe** file to begin the installation.

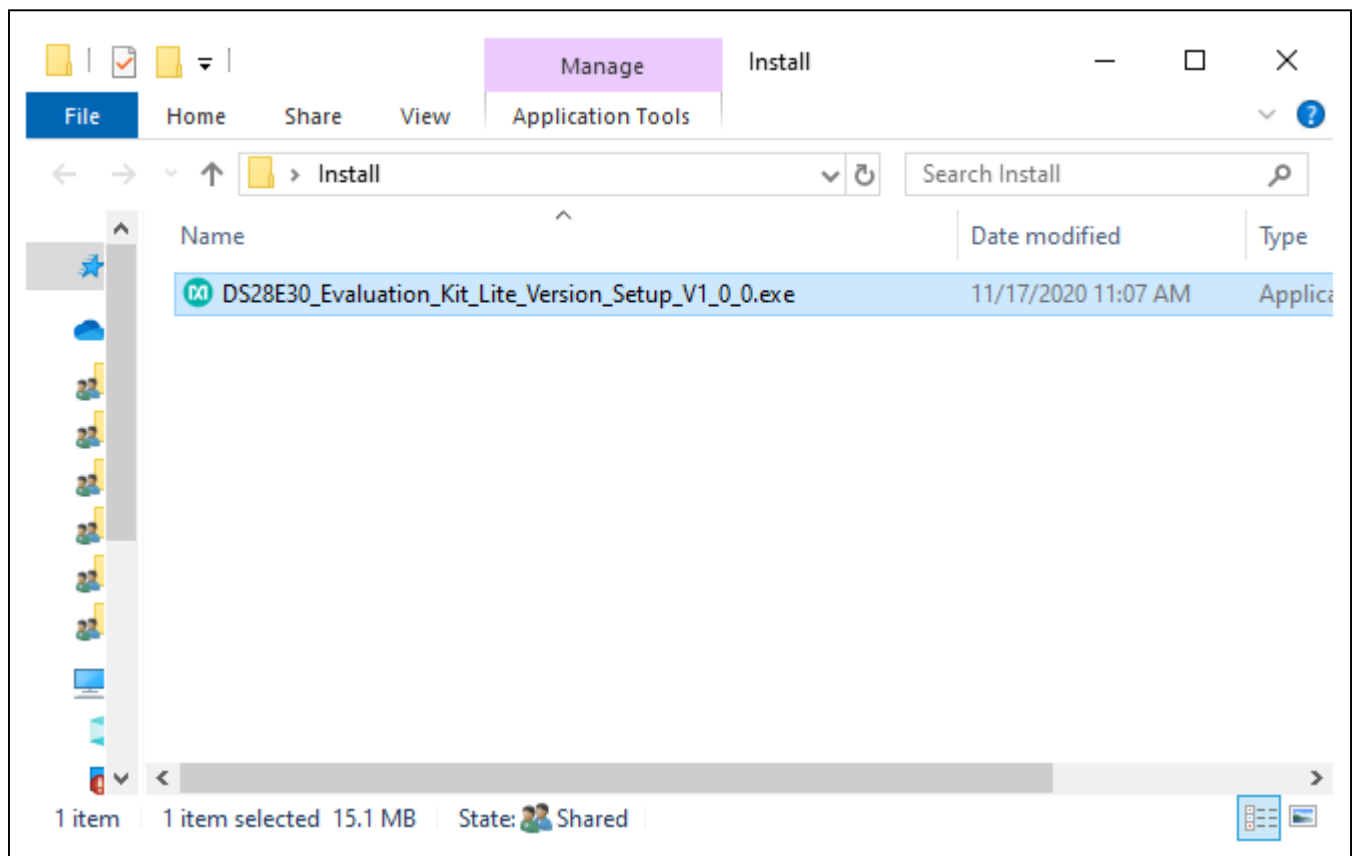*Figure 1. File Viewer*

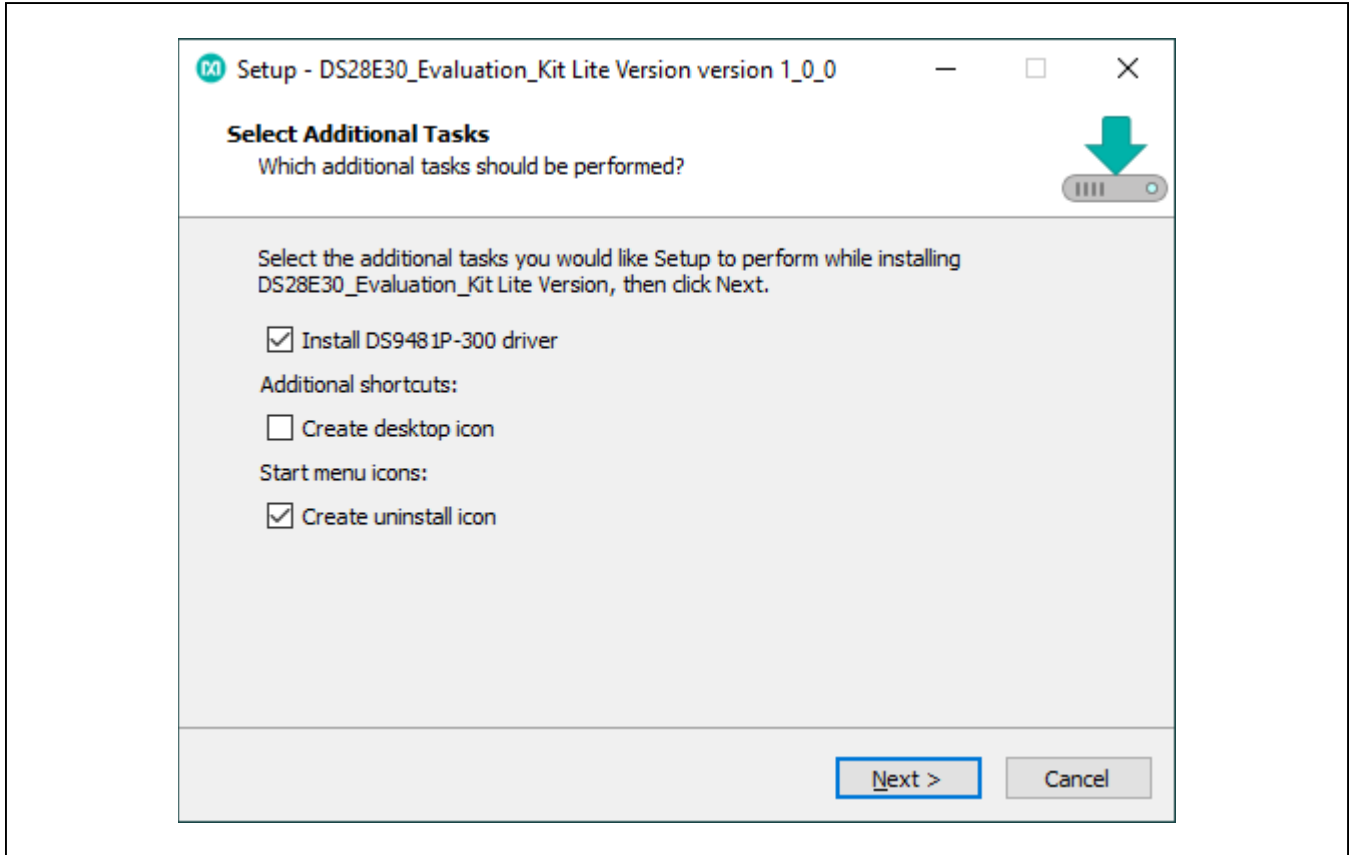3) On the Setup window, click **Next** ([Figure 2](#)).

Figure 2. DS28E30 Setup Wizard

4) On the Device Driver Installation Wizard screen, click **Next** and follow the instructions. ([Figure 3]).

5) On the Completing the Device Driver Installation Wizard screen, click **Finish** to complete the installation of the EV kit software and required drivers ([Figure 4]).
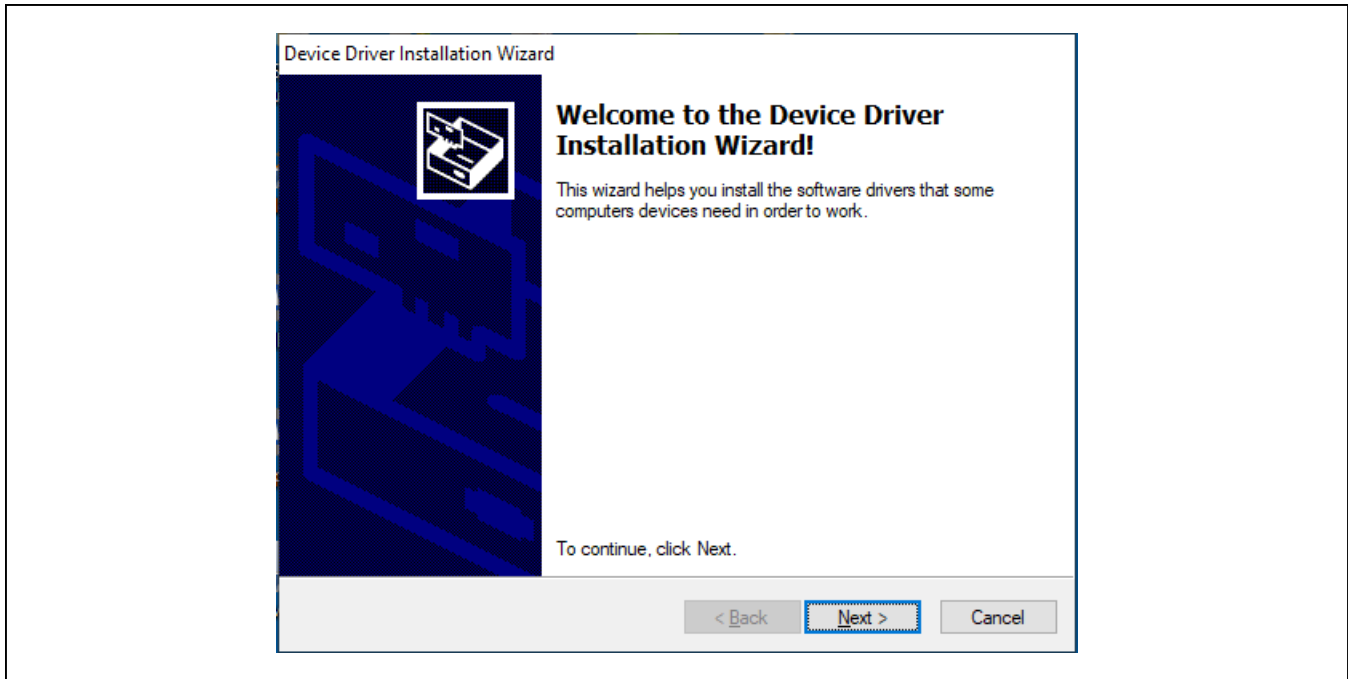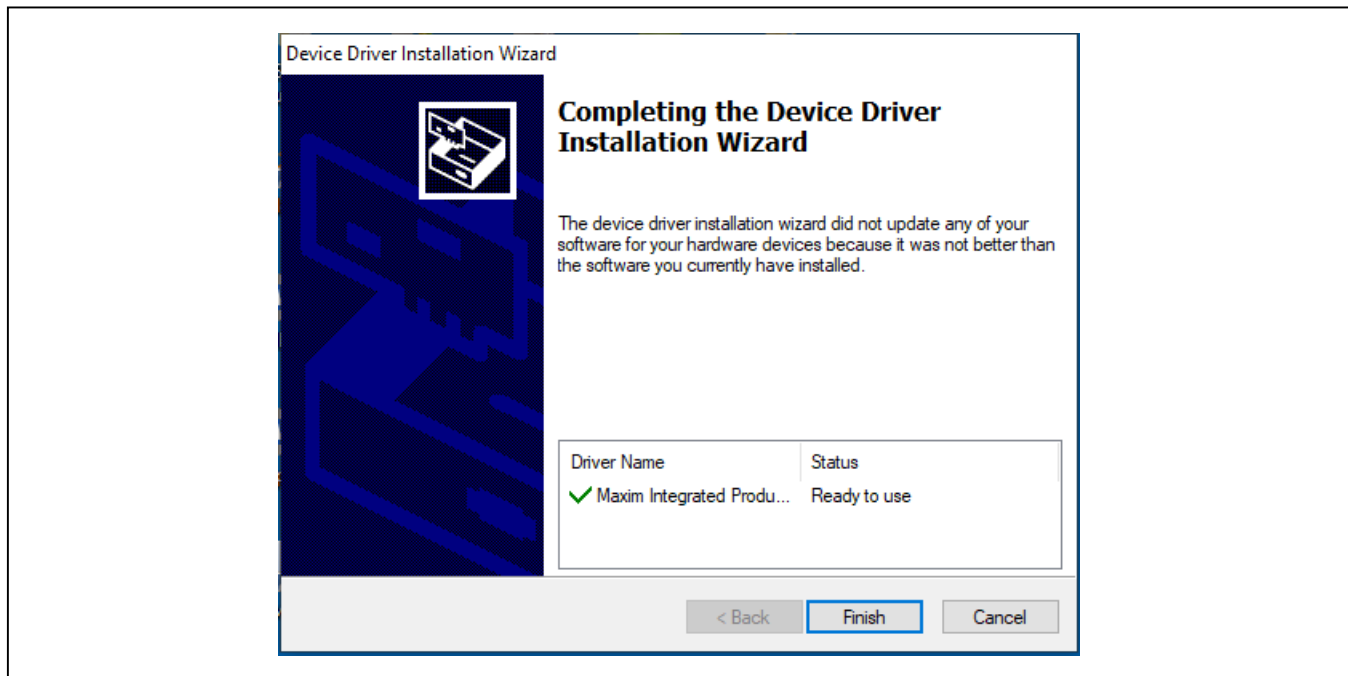

Figure 3. DS9481P-300# Driver Installation.

Figure 4. Finish DS9481P-300# Drivers Installation

6) Select the Launch DS28E30_Evaluation_Kit Lite Version check box, then click **Finish** to open the program (Figure 5).

7) Connect the DS28E30 Interface PCB board into the DS9481P-300# (Figure 6).

8) Plug the DS28E30 EV kit into the PC using a USB Type-A to Micro-USB Type-B cable.
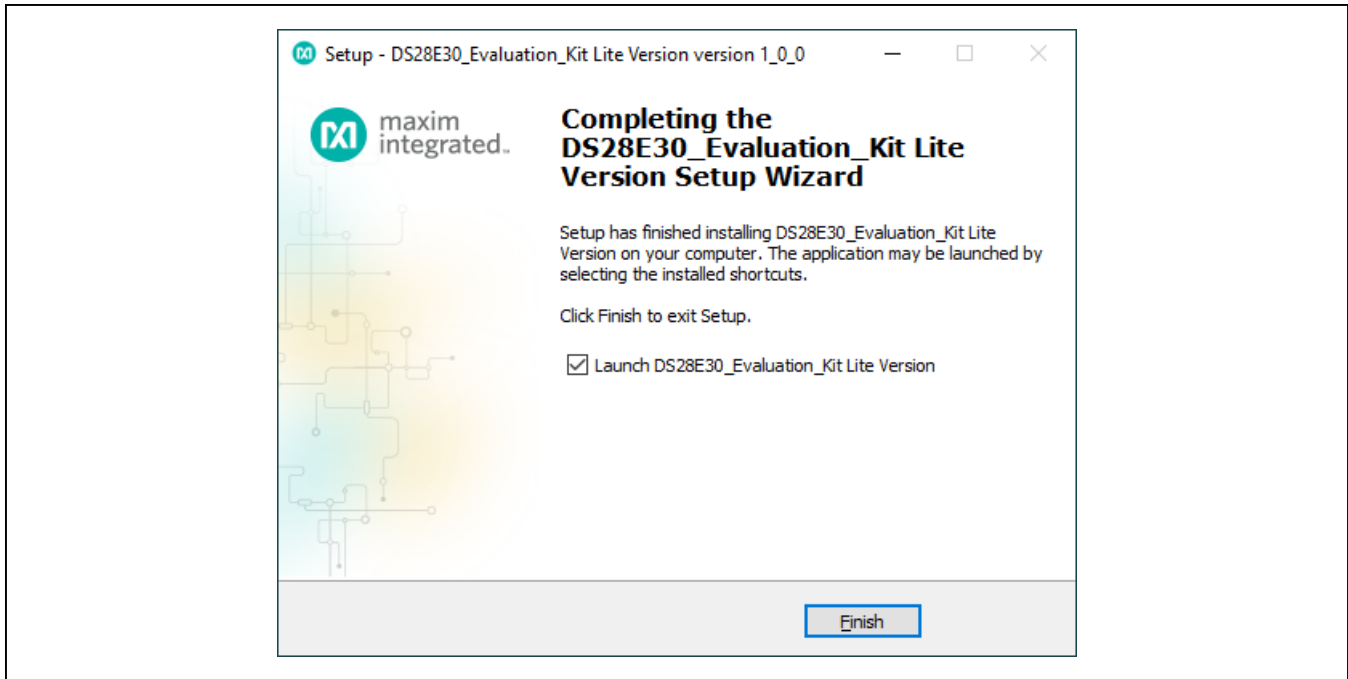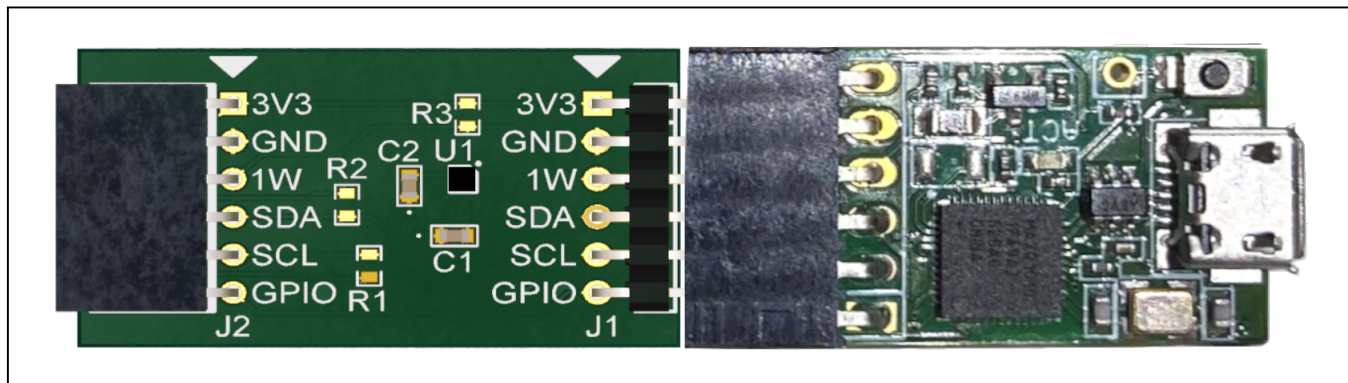

Figure 5. Run Software After Installation

Figure 6. DS9481P-300# and DS28E30 PCB Interface Board

9) The DS28E30 EV kit program opens and automatically connects to the COM port. Review message in the lower right corner of the window to verify connection ([Figure 7]).
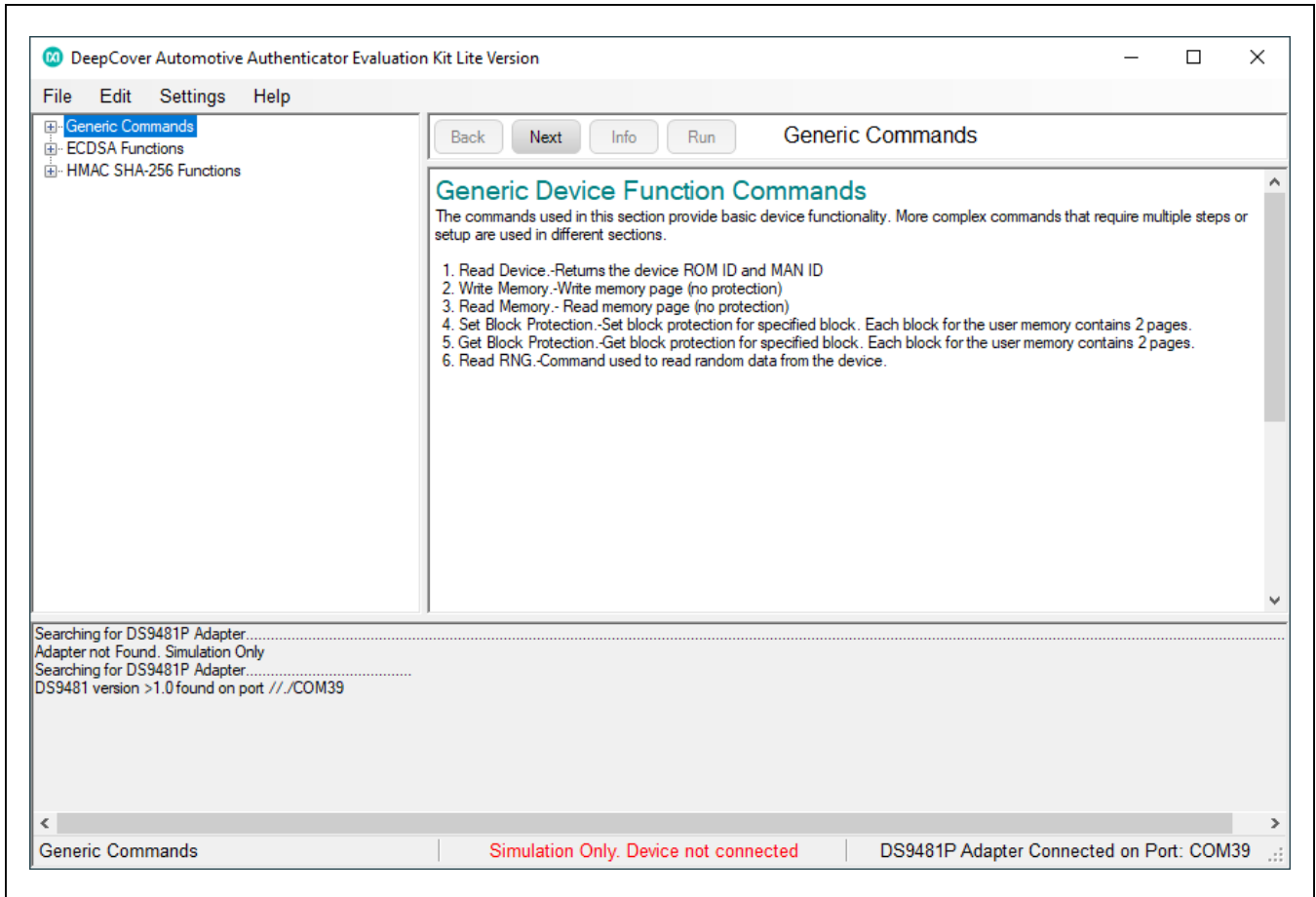

Figure 7. DS28E30 EV Kit Program (Default View Upon Opening)

EV Kit Supported Functions

The DS28E30 EV kit program is designed as a usage example. To display the device command sequence transactions, as well as SHA and ECDSA computations, select Settings > Debug Info to enable. See Table 1 for GUI function descriptions.

Navigating

The DS28E30 EV kit Lite Program is divided into the following four sections:

- **Menu Bar:** Provides access to settings, configuration, hardware selection, and other features and information used to support the software operations.

- **Functions Panel:** Access to the device demonstration sequences.

- **Command Panel:** Sequence output, configuration, and command execution.

- **Log:** Provides information for command execution and software operation.

Connection and Detecting Hardware

The DS9481P-300# adapter automatically connects to a COM port on software initialization. Alternatively, the adapter can be connected by selecting Settings > Adapter Port > Connect.

The DS28E30 EV kit Lite requires the device selection for correct operation and hardware interface. Select the DS28E30 to start hardware interface by selecting Settings > Select Device > DS28E30.

Table 1. GUI Setup and Usage Flows Supported

FLOW	DESCRIPTION
Generic Commands	Generic non-cryptographic DS28E30 commands (e.g., Read Device, Read and Write Memory, Set and Read Protection, and RNG function)
Auth ECDSA Write*	Examples to set up device for ECDSA authentication, certificate generation, and verification.

Available only in full EV kit version.

Ordering Information

PART	TYPE
DS28E30EVKIT#	EV Kit

#Denotes RoHS compliance.

DS28E30 EV Kit Bill of Materials

DESIGNATOR	QTY	DESCRIPTION
Pack-Out	1	1-Wire Authenticator EV kit DS28E30EVKIT#
Pack-Out	1	CABLE, USB A-TO-MICRO-B CABLE (1M) 68784-0001
Pack-Out	1	BOX, BROWN, 9 3/16" X 7" X 1 1/4"
Pack-Out	1	FOAM, ANTI-STATIC PE 12X12X3.175MM
Pack-Out	1	LABEL, SATIN 1-3/4" X 1-3/8"
Pack-Out	1	2X3", STATISHIELDING, ZIPTOP
Pack-Out	1	INSERT+, MAXIM WEB INSTRUCTION
Pack-Out	1	DS9481P-300 EVAL KIT# DS9481P-300#

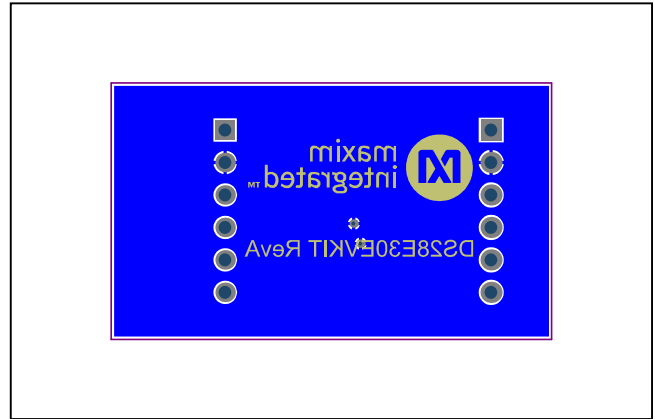| DESIGNATOR	QTY	DESCRIPTION
DS28E30+ PCB	5	PCB+, DS28E30+
C1, C2	2	CAP+,0.47UF,10%,10V, X7R,0603
J1	1	CONNECTOR, MALE, THROUGH HOLE, .100", R/A, 6PINS
J2	1	CONNECTOR+, RCPT,.100" 6POS, R/A GOLD
U1	1	1-WIRE AUTHENTICATOR
PACK-OUT	1	LABEL BLANK THT-1-423 0.75 X 0.25
PACK-OUT	1	BAG, STATIC SHIELDZIP4X6, W/ESD LO

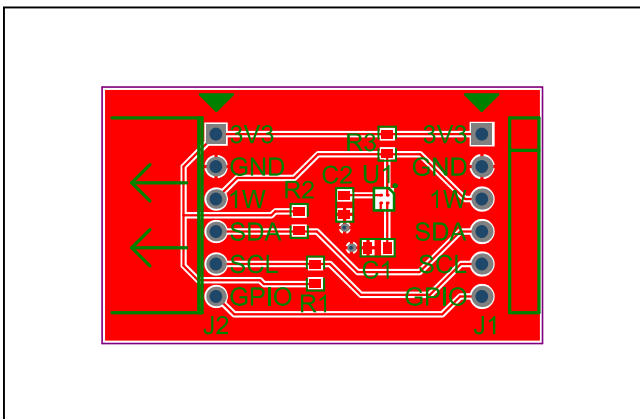## DS28E30 EV Kit Schematic
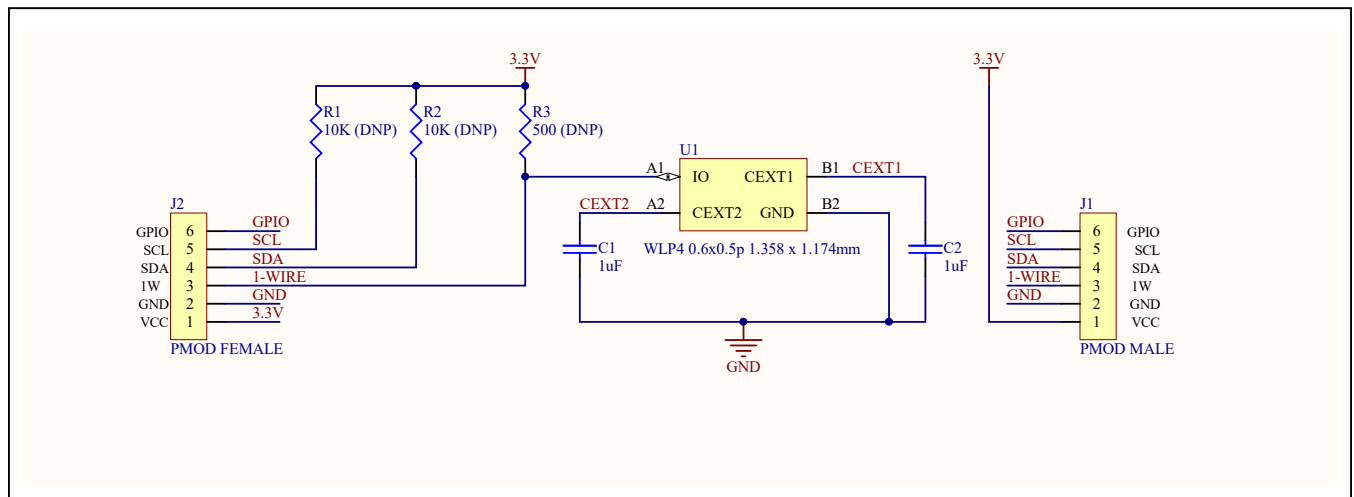
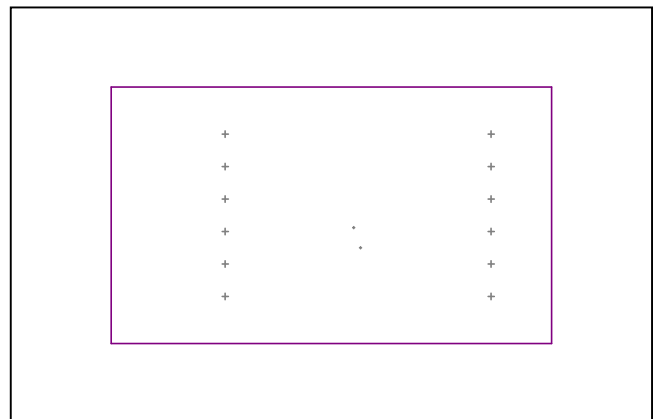## DS28E30 EV Kit PCB Layout
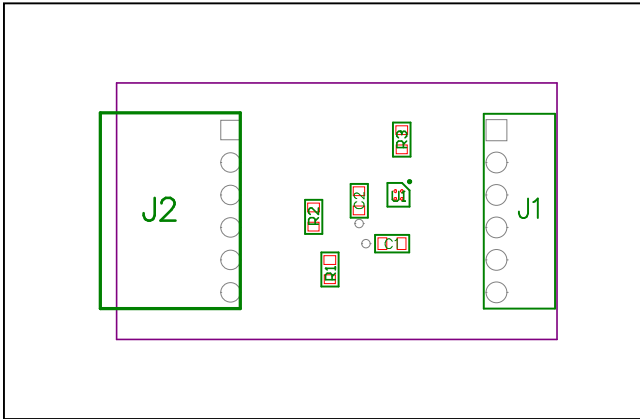
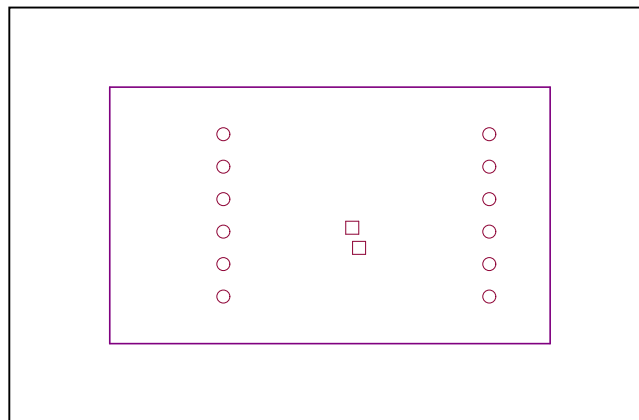*DS28E30 EV Kit PCB—Top Silkscreen*

DS28E30 EV Kit PCB—Bottom

DS28E30 EV Kit PCB—Top Assembly

DS28E30 EV Kit PCB—Layer 2

DS28E30 EV Kit PCB—Layer 3

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	3/21	Initial release	—
1	1/22	Updated user guide link	1

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