

MAX7036 Evaluation Kit

Evaluates: MAX7036

General Description

The MAX7036 evaluation kit simplifies the evaluation of the MAX7036, a low-power, sub-GHz, VLIF receiver designed to demodulate Amplitude-Shift Keying (ASK) or On-Off Keyed (OOK) data in the 300MHz to 450MHz frequency range.

The MAX7036 EV kit operates in conjunction with an external Microcontroller (MCU) and Graphical User Interface (GUI) software running on a computer.

The MAX7036EVKIT is available in two versions, each tuned to a different operating frequency: 315MHz (MAX7036EVKIT-315) and 433.92MHz (MAX7036EVKIT-433). The crystal and passive components are optimized for these two frequencies but can easily be changed to work at any RF frequency between 300MHz and 450MHz.

The EV kit includes Windows®10-compatible software that provides a simple GUI. The GUI controls the on-board PMIC and provides a quick start configuration to evaluate the MAX7036 functionality, when the MAX32630FTHR Applications Platform is used.

Features

- Evaluates the MAX7036 Sub-1GHz ISM Receiver
- 3.3V/5V Power Supply Operation or Powered from the USB Interface
- Direct Interface with the Included MAX32630FTHR ARM Microcontroller (MCU) Board
- Available in 315MHz- or 433.92MHz-Optimized Versions
- Available PMOD Hardware Interface
- Windows 10-Compatible Software
- GUI Controls for MAX32630FTHR Board PMIC Operation
- Proven 2-Layer PCB Design
- Fully Assembled and Tested

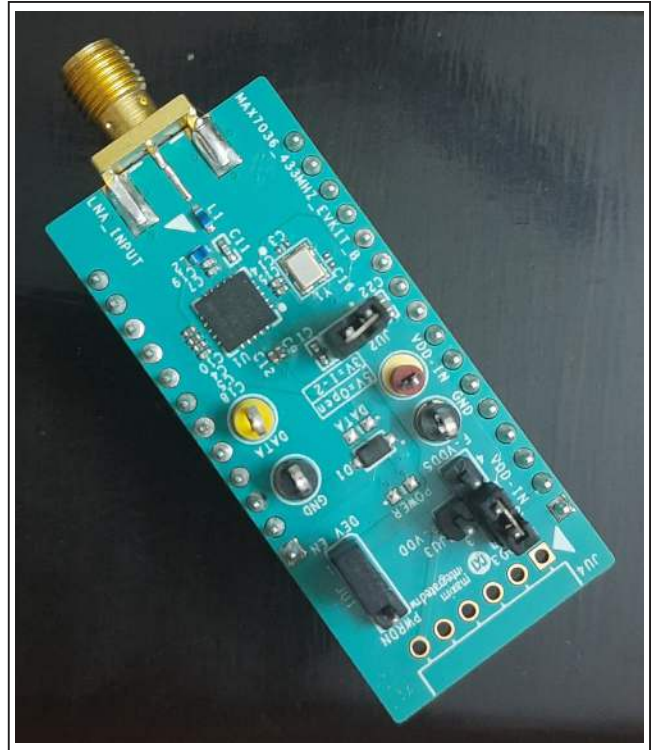


Figure 1. MAX7036EVKIT Board

Ordering Information appears at end of data sheet.

Windows is a registered trademark and registered service mark of Microsoft Corporation.

Quick Start

Required Equipment

- Included in the MAX7036 Evaluation Kit
 - MAX7036 EV kit board
 - MAX32630FTHR# kit
 - FTHR board
 - MAX32625PICO
 - 2x Micro/B USB Cables
- Windows PC* (Windows10) with one to two USB2.0 ports
- Power Supply† capable of 3.3V or 5V, 20mA
- RF Signal Generator capable of delivering from -120dBm to 0dBm of output power at the tuned operating frequency, in addition to AM or Pulse modulation capabilities
- Dual-trace Oscilloscope
- SMA/SMA cable as needed for connection to the RF Signal Generator

Software and Drivers

The MAX7036EVKIT can be used in conjunction with the ARM Cortex-M4F microcontroller MAX32630FTHR Application Platform or ‘FTHR’ board to provide power to the EV kit and to control the device through a GUI software application.

When connected to the FTHR board, the MAX7036EVKIT uses the following drivers and software components. See Appendix I for additional information on this installation process.

- **MAX7036 Software Package**
The software, firmware, and drivers are available from the www.maximintegrated.com website. Login to your MyMaxim account on the website, search for the MAX7036 part or EV kit, click the ‘Design Resources’ tab, and click the ISM RADIO GUI software link. Finally, click the file link on the software landing page to download the ISMRADIOGUI package.

- **mBed MAX32630FTHR and DAPLINK Interface System**
The DAPLINK system is not required unless a firmware update to the FTHR board is released. The FTHR board included in the MAX7036EKVKIT is preprogrammed for interfacing the GUI to the radio. The firmware programming process does not require additional software or drivers. It uses a simple USB drive, drag-and-drop file interface.

It is highly recommended the target PC be connected to a local area network with access to the internet, allowing the automatic download and updates of some drivers. This software setup takes 15 minutes or more to complete.

Installation Procedure

The steps in this section are used when connecting the MAX7036EVKIT to a FTHR board and are needed only once, when configuring the hardware and the PC for the first time. If these steps are already completed, jump directly to the [FTHR Board Quick Start Procedure](#).

Install the MAX7036EVKIT GUI Software

This process takes less than 10 minutes after downloading the software package. See [Appendix I](#) for detailed information on this installation process.

- 1) Double click the ‘ISMRadiosGUISetup.msi’ setup file and follow the Setup Wizard prompts.
 - a. Click <Next> in the ISM Radio GUI Setup Wizard window.
 - b. It is recommended to use the default Destination Folder; click <Next> to continue.
 - c. Install the software by clicking <Install>.
 - d. Click <Finish> when the ISM Radio GUI Setup Wizard installation process is complete.

Table 1. MAX7036EVKIT Installed Files and Folders

| FILE NAME | DESCRIPTION |
|-------------------|--|
| ISM RADIO GUI.exe | Application GUI |
| MaximStyle.dll | Supporting DLL file for software operation |

* required for operation of the MAX7036EVKIT with the GUI software

† required when the FTHR board is not connected to the MAX7036EVKIT

Update the MAX32630FTHR Board Driver on the Host PC

No changes are needed for the FTHR board when first receiving a MAX7036EVKIT (the FTHR board is pre-loaded with the required firmware). Updates to the driver on the host PC is necessary depending on the operating system and if the PC has access to the internet when first connecting to the FTHR board. See [Appendix I](#) for detailed information on how to update the FTHR board firmware and driver for the FTHR board/USB interface.

Hardware Use Procedure

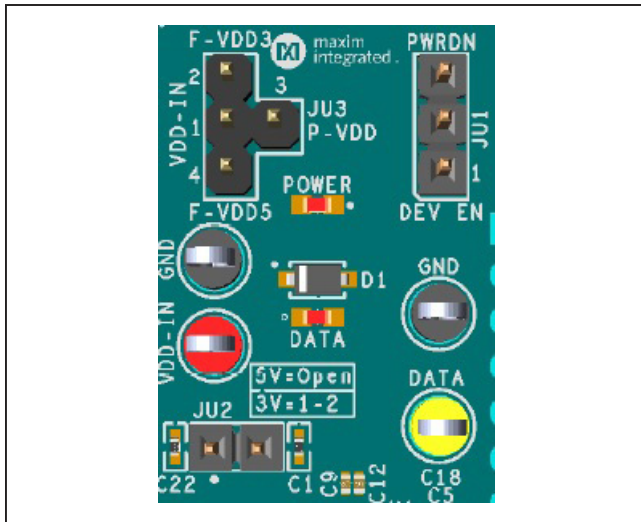


Figure 2. MAX7036EVKIT Jumpers

FTHR Board Quick Start Procedure

Set up the MAX7036EVKIT and FTHR Board Hardware MCU/GUI Operation.

- 1) **Verify the jumpers on the MAX7036EVKIT board are in the default positions;** see [Table 2](#).
- 2) **Connect the MAX7036EVKIT to the FTHR Board.** Ensure the USB connector is oriented on the opposite side of the SMA connector ([Figure 3](#)).
- 3) **Connect the FTHR Board to the PC** using a Micro-USB cable and observe a ‘heartbeat’ on the FTHR board’s red LED.

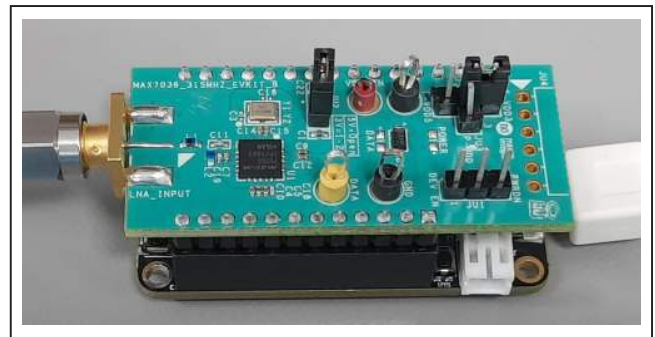


Figure 3. MAX7036EVKIT Orientation to the FTHR Board

Table 2. MAX7036EVKIT Jumper Settings

| JUMPERS | POSITION | EVKIT FUNCTION |
|---|----------|---|
| JU1 | 1-2 | Device Enable |
| | 2-3 | Power Down |
| | Open* | Driven by Controller |
| JU2 | Open | For 5V Operation |
| | 1-2 | For 3.3V Operation |
| JU3 | 1-2* | Power from L3OUT (FTHR board: 3.3V) |
| | 1-3 | Power from PMOD interface (VDD, pin 6 of JU4) |
| | 1-4 | Power from VBUS (FTHR board: 5V) |
| Note: While Driving externally (VDD-IN), JU3 should be Open | | |

*Default position.

- 4) **Connect the RF_IN to a Signal Generator** using an SMA cable.
 - a. Set the Frequency to the target operating frequency: for the MAX7036EVKIT-315 hardware variant use 315.00MHz and for the MAX7036EVKIT-433 hardware variant use 433.92MHz.
 - b. Set the power level out of the generator to -100dBm.
 - c. Set up and enable ASK Modulation. Use a 4kHz square wave (50% duty cycle) modulating signal for ASK. Use 'Pulse Modulation' rather than AM, if it is an available option on the signal generator. Use of the Amplitude Modulation affects the modulated power of the signal differently than Pulse Modulation, resulting in incorrect sensitivity levels.
- 5) **Connect the DATA** test point output to the Oscilloscope.
- 6) **Start the ISM Radios GUI Control Software.**
 - a. An ISM Radio GUI splash screen (Figure 4) displays.

- i. To disable future displays of the splash screen, click the 'Disable Splash' check box.
- ii. To continue to the GUI software when the Select device message is prompted (Figure 5) click <OK>.
- iii. Select the MAX7036-Rx from the Device dropdown menu (Figure 6).

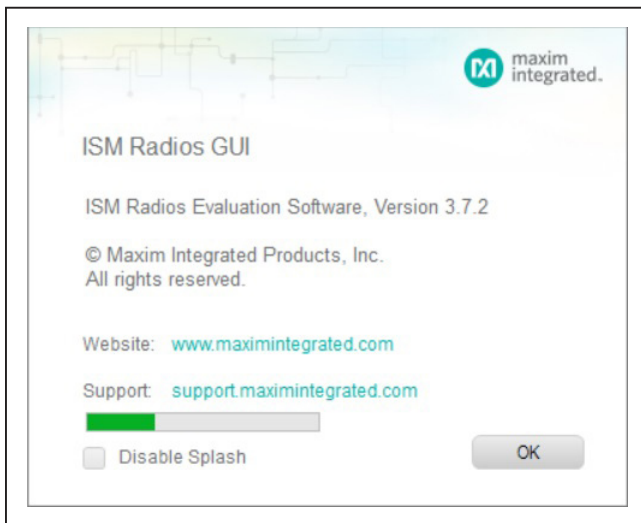


Figure 4. ISM Radios GUI Splash Screen



Figure 5. ISM Radios GUI 'Device' Select Screen



Figure 6. ISM Radios GUI 'Device' Select Screen

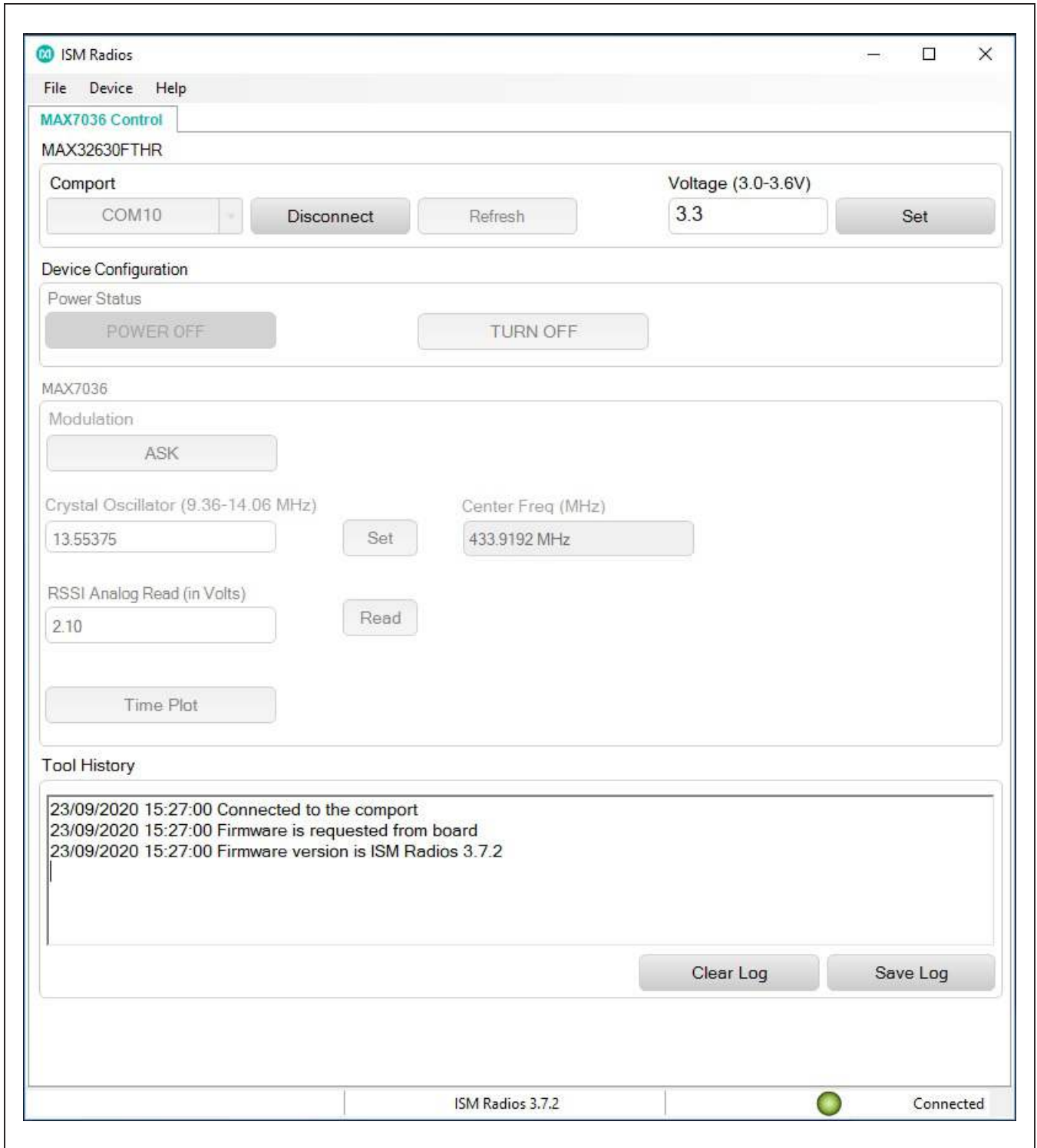


Figure 7. ISM Radio GUI Software

- b. The expected COM port displays if the EVK USB cable is connected prior to starting the GUI. Select the appropriate COM port from the dropdown and click <Connect>. <Connect> button changes to <Disconnect>.

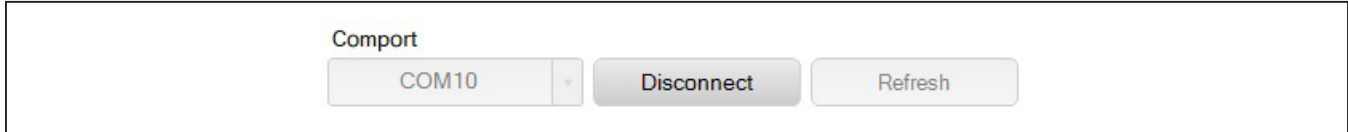


Figure 8. COM Port

- c. Confirm the firmware status bar is changed from 'ISM Radios x.x.x' to 'ISM Radios 3.7.2' or similar. The software LED is lit green and the port status is noted as 'Connected'.

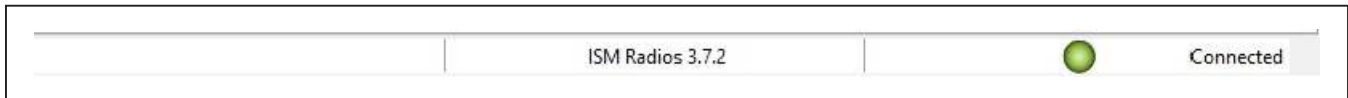


Figure 9. Connected Indicators

- d. Enter a supply level into the 'Voltage' text box and click <Set>; for example, enter '3.3' for a 3.3V supply.



Figure 10. Supply Voltage

- e. Power on the Device by clicking <TURN ON> and it updates the status.



Figure 11a. Power OFF

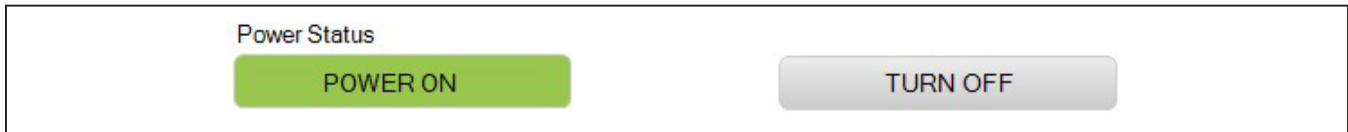


Figure 11b. Power ON

- f. Confirm the Modulation tab is set to ASK (default).



Figure 12. Modulation

- g. Enter a desired Crystal Oscillator frequency (for example, 9.8375MHz for 315MHz/ 13.55375MHz for 433.92MHz and click <Set>.

| | |
|---------------------------------------|---|
| Crystal Oscillator (9.36-14.06 MHz) | Center Freq (MHz) |
| <input type="text" value="13.55375"/> | <input type="text" value="433.9192 MHz"/> |
| <input type="button" value="Set"/> | |

Figure 13. Crystal Oscillator Setting

- 7) Connect the DATA (Yellow) test point to an oscilloscope to see the output data stream or through the <Time Plot> sampler (See Time Plot section under Detailed Description of Software).

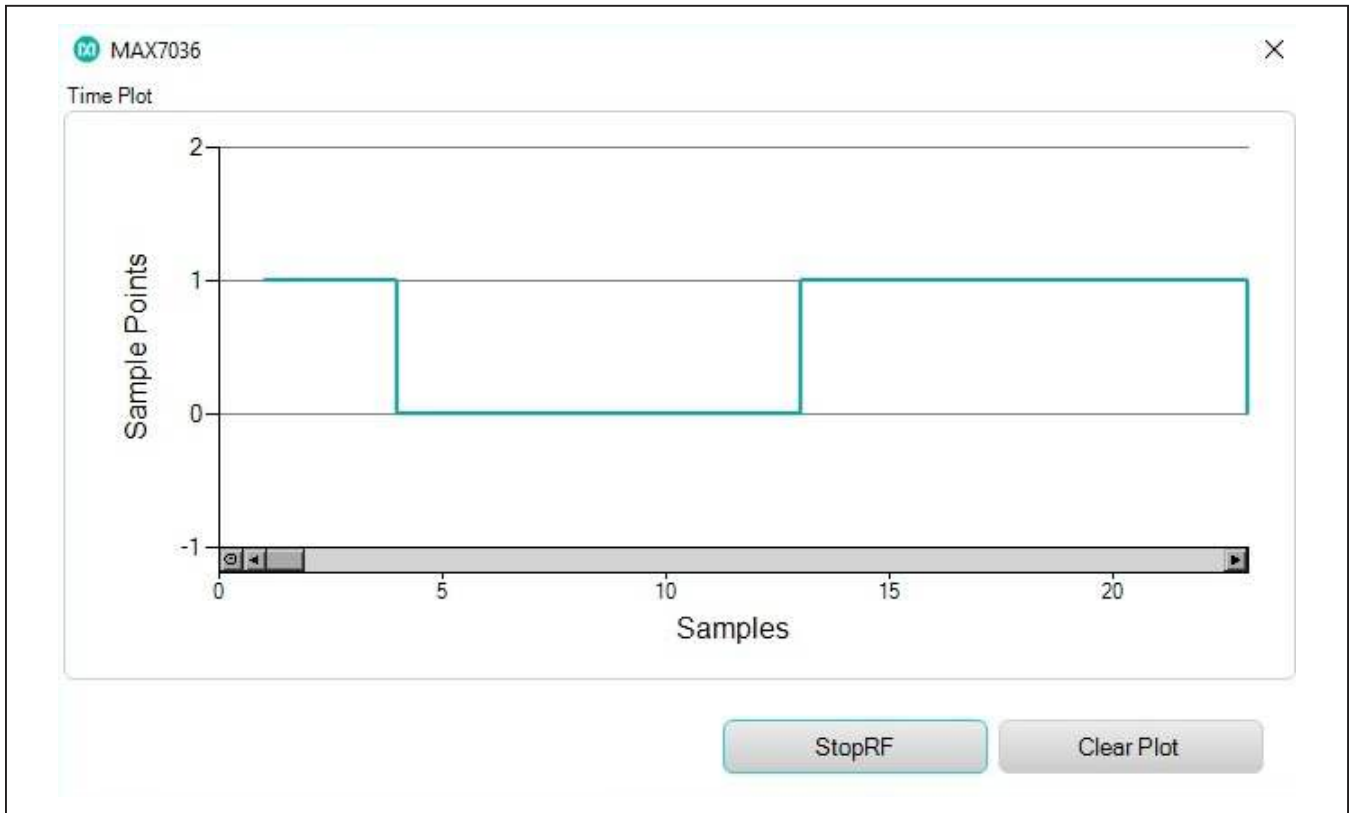


Figure 14. Time Plot of DATA

Preset Quick Start Procedure (Without FTNR Board)

Set up and connect the MAX7036EVKIT hardware for standalone operation.

- 1) Verify the jumpers on the MAX7036EVKIT board are as follows: JU1 is 1-2, JU3 is open, and JU2 is configured according to the [Table 2](#).
- 2) Connect a 3.3V/20mA (or 5.0V/20mA)* supply to the MAX7036EVKIT at the VDD-IN (**Red**) and GND (**Black**) points, output disabled.
- 3) Connect the ASK modulated input signal (centered at 315MHz for MAX7036EVKIT-315, 433MHz for MAX7036EVKIT-433) to the LNA_INPUT SMA as the RF signal using a low-loss SMA cable.
- 4) Enable the power supply's output.
- 5) Connect the DATA (**Yellow**) test point to an oscilloscope to see the output data stream.

Detailed Description

Detailed Description of Hardware

MAX7036EVKIT Printed Circuit Board

The MAX7036 evaluation kit PCB is manufactured on a 2-layer, 1oz copper, FR4 dielectric stack-up PCB. The board was designed to evaluate the MAX7036 ASK super-heterodyne receiver. Layer 1 is primarily designed to keep

the RF signals on one side of the board with short traces, small matching components, and low parasitic impact. Layer 2 was targeted to be a continuous ground plane, wherever possible. The MAX7036EVKIT is available in two pretuned versions: 315MHz (MAX7036EVKIT-315) and 433.92MHz (MAX7036EVKIT-433). The crystals are selected, and the passive components are optimized for these two frequencies but can easily be changed to work at RF frequencies anywhere from 300MHz to 450MHz.

Power

The MAX7036EVKIT board can be powered directly from the FTNR board PMIC through the H1 header, directly from the supply test points, or through the user-installed PMOD header. A single 3.0V to 3.6V(or 4.5V to 5.5V), 20mA power supply can be connected to the board using the two wire loops (marked VDD_IN and GND). Jumper JU3 selects the source of power when not using the direct connection test points: from the L3OUT of the FTNR board, from the VBUS(+5V) of the FTNR board, or the PVI0 of the PMOD connector. [Table 4](#) describes the appropriate jumpers settings.

Data Interface

The MAX7036EVKIT comes preconfigured to directly connect the FTNR board through the H1/H2 headers. The GUI controls the communication between the FTNR board MCU and MAX7036 pins.

Table 3. MAX7036EVKIT Test Points

| NAME | COLOR | EVKIT FUNCTION |
|--------|---------------|--|
| VDD_IN | Red | 3.0V-3.6V(or 4.5V-5.5V) Power Supply Pin |
| GND | Black | Ground |
| DATA | Yellow | ASK Demodulated Data Output |

Table 4. MAX7036EVKIT Power Settings

| OPERATION | JU2 | JU3 |
|------------------|------|------|
| FTNR: 3.0V-3.6V | 1-2 | 1-3 |
| FTNR: 5.0V | Open | 1-4 |
| PMOD: 3.0V-3.6V | 1-2 | 1-2 |
| External: VDD_IN | Open | Open |

*Set according to JU2 configuration.

Data Indicator

An option is available on the evaluation kit layout to connect a surface-mount LED (POWER, and DATA, 0603) and resistors (R7, and R8 respectively, 0603, 470Ω recommended) to provide visual feedback of the activity on the supply and DATA line. Populating these LEDs and resistors cause additional power consumption and they are not included by default in the evaluation kit assembly.

PMOD Interface

The MAX7036EVKIT provides a PMOD-compatible header footprint to interface with the receiver. The H3 connector can be populated with a 6-pin, 100mil, right-angle header allowing direct connections to the DATA, Ground, and VDD lines making it capable with PMOD interfacing.

Populating this header would allow control from the MAX32600MBED kit and MAXREFDES72# Arduino Uno R3 to the PMOD shield adaptor. When using the PMOD interface to supply the MAX7036EVKIT with power, connect the JU3 jumper between pins 1 to 3. See [Appendix II](#) for detailed information on the Evaluation Kit Hardware Modifications.

Detailed Description of Software

The MAX7036 EV kit Controller GUI Software is designed to control the MAX7036 evaluation kit board and MAX32630FTHR board (Figure 3). The software includes USB controls, which provide communication to the MAX7036 through the FTHR board interface.

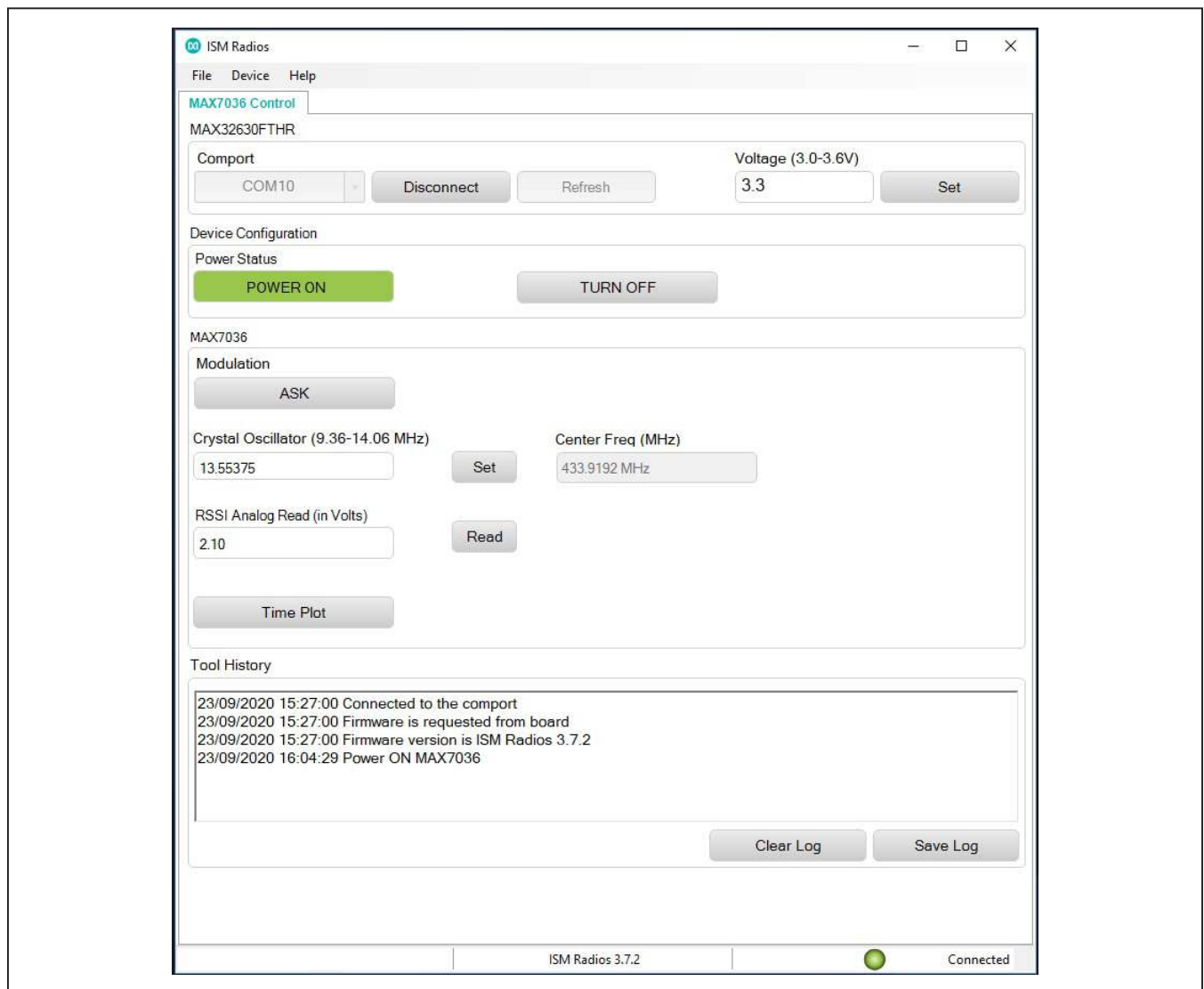


Figure 16. MAX7036 EVKIT GUI Configuration

COM Port

The COM Port section provides a dropdown selection of serial communication ports available for connection to a MAX7036 evaluation kit through an FTTH board. When the GUI is run after connecting the evaluation kit hardware, the dropdown box should default to the proper COM Port. If the hardware is connected to the computer after the GUI is started, click <Refresh> to scan for compatible ports. Once the appropriate COM Port is selected in the dropdown box, click <Connect> (Figure 8).

After properly connecting to the COM Port with the FTTH board, the GUI displays the revision of the FTTH board firmware detected, displays a **Green** LED, and displays 'Connected' in the status bar along the bottom of the GUI window (Figure 9).

Voltage (3.0V to 3.3V)

The Voltage section provides a user-adjustable power supply from the FTTH board MAX14690N Power Management IC (PMIC) to the MAX7036EVKIT and can be used as the primary VDD supply. The PMIC, L3OUT can be set to voltages between 3.0V and 3.6V, and it applies to the level of the logic interface lines as well as the device supply (Figure10).

To program the supply voltage, enter a valid level in the 'Voltage' text box and click <Set>. The default value of the L3OUT voltage is 3.3V.

When using the FTTH board interface to supply the MAX7036EVKIT, make sure to connect the JU3 jumper between pins 1 to 2.

Crystal Oscillator (9.36 to 14.06 MHz)

The Crystal Frequency section allows the user to indicate the frequency of the crystal (f_{XTAL}) installed on the MAX7036EVKIT. This value can be adjusted between 9.36MHz and 14.06MHz. Once the appropriate Crystal Frequency is entered, the calculated receiver frequency value shows on the adjacent text box (Figure13).

The XTAL oscillator frequency sets the received signal frequency as following:

$$f_{XTAL} = \frac{f_{LO}}{32}$$

$$f_{LO} = f_{RECEIVED} \pm f_{IF}$$

where $f_{IF} = 200\text{kHz}$.

MAX7036EVKIT-315 evaluation kits come prepopulated with a 9.8375MHz crystal and the setting in the GUI should be 9.8375MHz. MAX7036EVKIT-433 evaluation kits come prepopulated with a 13.55375MHz crystal and the setting in the GUI should be 13.55375MHz.

RSSI Analog Read

The RSSI circuit provides the DC output proportional to the logarithmic of the input power level. Click <Read> to read the RSSI value. Refer to the [MAX7036 device data sheet](#) TOC for the RSSI vs. Input Power plot for reference.

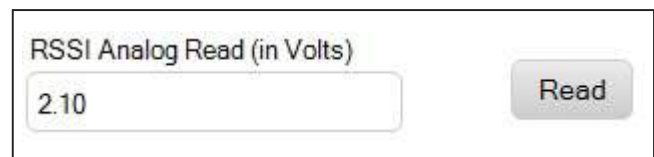


Figure 17. RSSI Output

Time Plot

The <Time Plot> button allows the user to visually see the DATA pin displayed in a plot. This plot works best at around the 10kbps rate and lower for proper oversampling of the received signal.

Click <StartRF> to begin the display. Once it is running, click <StopRF> to stop the sampling. <Clear Plot> clears the current display. Use the mouse scroll to zoom in or out of the display samples.

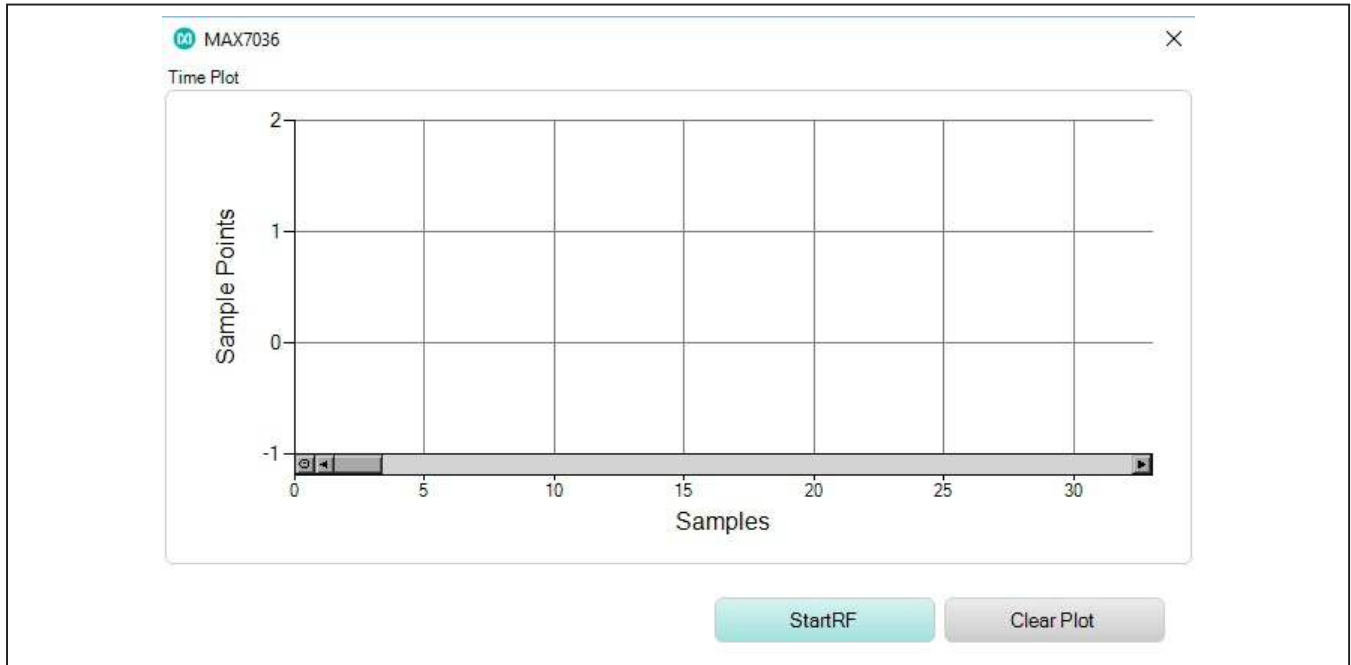


Figure 18. Initial Time Plot Window

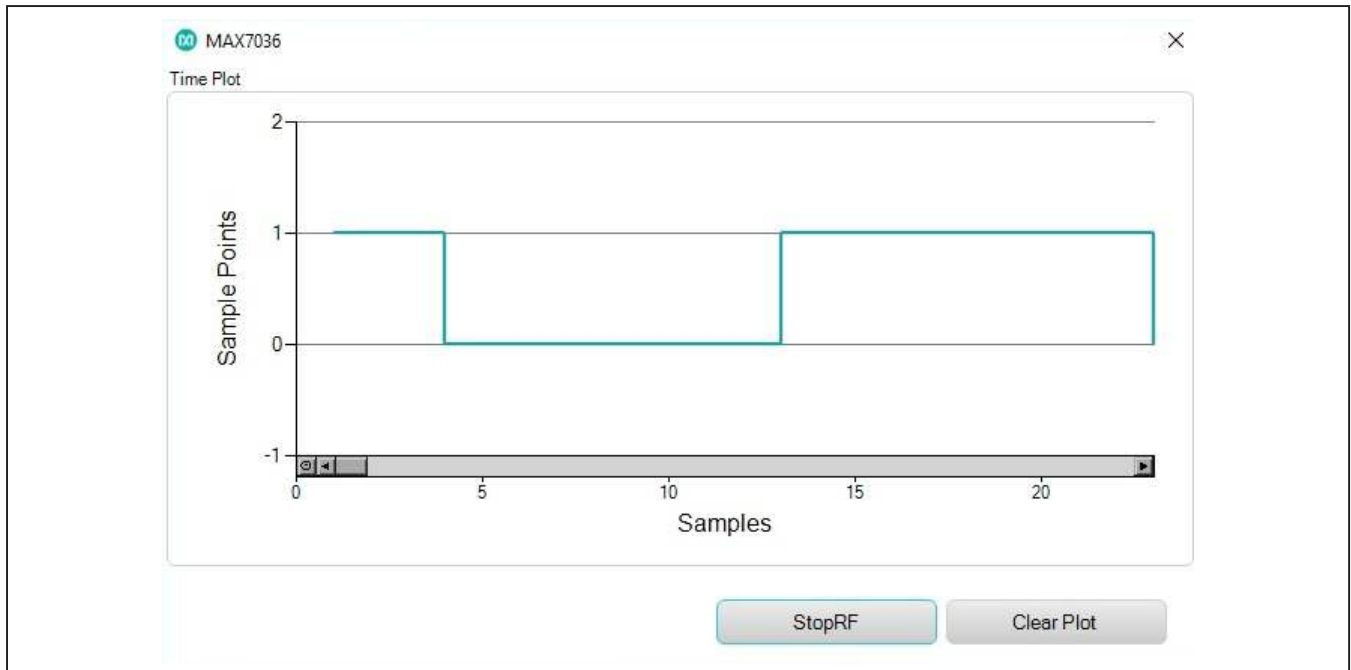


Figure 19. Time Plot Display

Tool History Section

This portion of the GUI contains a Log File text block to record activity within the GUI.

Log File

For every <Set>, connection effort, the GUI activity is logged in this text block. The user can add notes and make edits to the content of the Log File text block.

Clicking on <Clear Log> deletes the contents in the text block.

Clicking <Save Log> opens a ‘Save As’ explorer window and the user is prompted to save a .txt file.

Miscellaneous Software Information

The tool bar along the top of the GUI window provides a couple of options to the user.

File and Help Menu

Selecting File > Exit from the tool bar closes the GUI program. This has the same effect as clicking <X> in the upper-right corner of the GUI software.

Selecting Help > ICs shows the list of Maxim Integrated’s ISM products supported by the GUI. Click the part number for the detailed product information.

Selecting Help > About from the tool bar displays the splash screen. This window shows the name of the software, the revision number, a copyright notice, a link to the Maxim website, a link to the support website, and a checkbox to enable or disable the splash screen during startup. Click <OK> to close the About window.



Figure 20. Tool History

Component Suppliers

| SUPPLIER | PHONE | WEBSITE |
|--|--------------|---------------------|
| YXC Crystal | | www.yxcxtal.com |
| NDK Crystal | | www.ndk.com |
| Johnson Components / Cinch | | belfuse.com/cinch |
| Keystone | 800-221-5510 | www.keyelco.com |
| Murata Electronics North America, Inc. | 770-436-1300 | www.murata.com |
| Panasonic | | |
| Sullins | 760-744-0125 | www.sullinscorp.com |
| Vishay Dale | 800-433-5700 | www.vishay.com |

Ordering Information

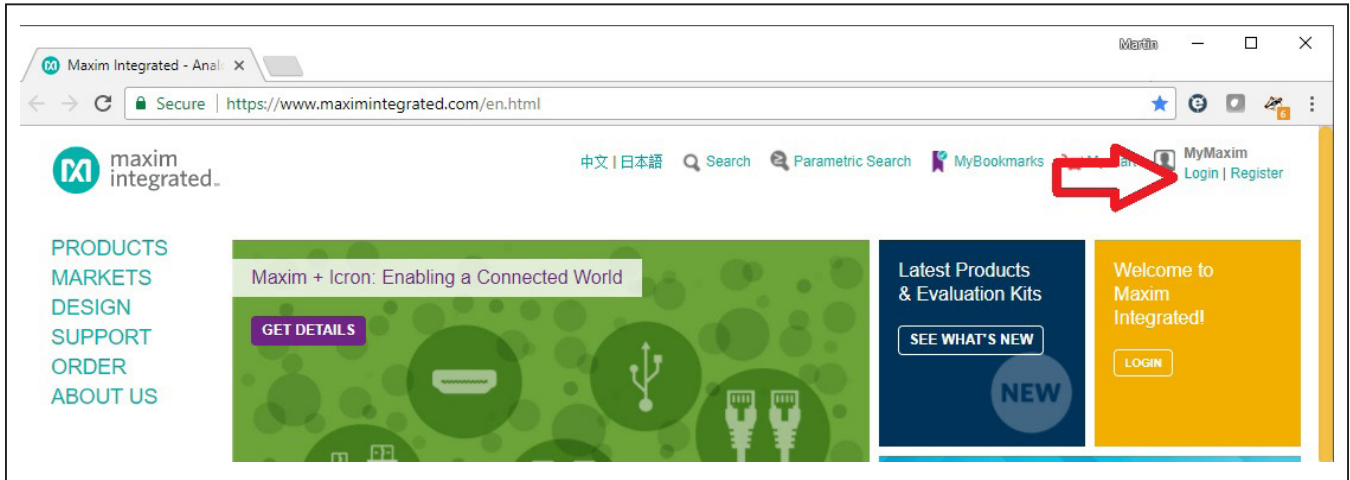
| PART | TYPE |
|-------------------|------------------------------|
| MAX7036EVKIT-315+ | MAX7036EVKIT Tuned to 315MHz |
| MAX7036EVKIT-433+ | MAX7036EVKIT Tuned to 433MHz |

Appendix I – Detailed Software, Firmware, and Driver Installation Procedures

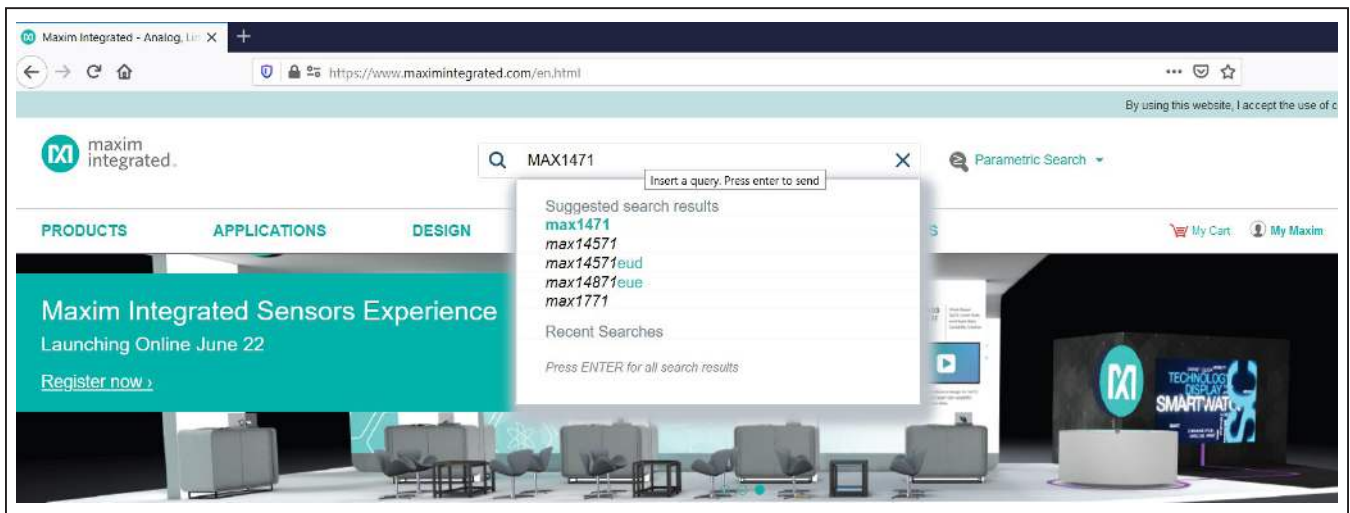
Download the MAX7036EVKIT Software Package

This software and firmware are available from the www.maximintegrated.com website.

- 1) Login to your MyMaxim account on the website.



- 2) Click the magnifying glass and search for the **MAX7036** or a similar part.



3) Click 'Design Resources' for the device or the EV kit, or click the Design Resources tab on the product web page.

Battery Management (1)
Display Power & Control (1)
Charge Pumps (1)
Switching Regulators (17)
Supervisors, Voltage Monitors, Sequencers (12)
LED Drivers (2)
Protection And Control (5)
MOSFET Drivers And Controllers (2)
ANALOG (21) >
Audio (3)
Data Converters (4)
Voltage Reference (1)
Sensors And Sensor Interface (5)
INTERFACE (13) >
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4) Click the appropriate software link.

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MAX1471

315MHz/434MHz Low-Power, 3V/5V ASK/FSK Superheterodyne Receiver

300MHz to 450MHz Superheterodyne ASK/FSK Receiver with Integrated Image Rejection Operates from 3V or 5V Supply

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Technical Documents

- Tutorial 5436 [Getting Started with a Radio Design](#)
- Tutorial 5428 [Squelch in ISM-RF Receivers](#)
- Tutorial 5426 [Baseband Calculations for ISM-RF Receivers](#)
- Tutorial 5422 [Crystal Calculations for ISM-RF Products](#)
- Tutorial 5417 [How to Optimize an ISM Radio Frequency \(RF\) System](#)

Tools & Models

- CAD and Layout**
- [MAX1471 Gerber File](#)
- Software**
- [MAX1471 EVKIT Software](#)
- [MAX1471 EVKit Software](#)

5) Click the file link on the software landing page to download the MAX7036EVKIT package.

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EV KIT SOFTWARE

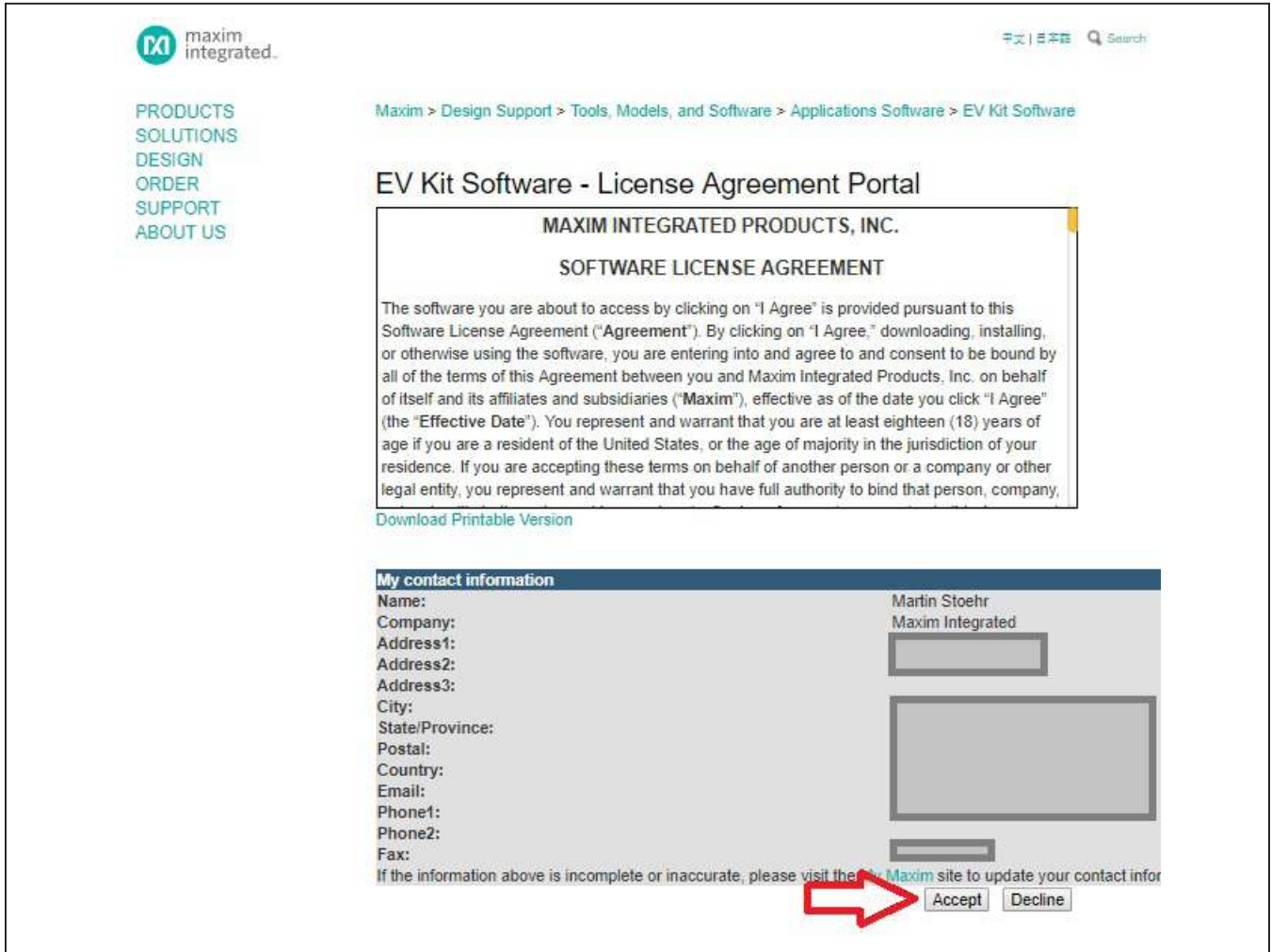
Don't see your EV kit software here? Please use the Site Search to go directly to the EV kit or IC product folder page, and you'll find it on the Design Resources tab.

MAX1471 EVKIT Software

Software Version: 1.1
File name: 1471R11.ZIP (898KB)
Description:
Operating Systems Supported: Windows 98/2000/XP
Required Hardware: MAX1471EVCMOD2 (MAX1471EVKIT plus CMOD232)
Related Data Sheets: [MAX1471 Product folder](#)

Notes: Download and unzip file. Run install.exe to install program.

6) Review the Maxim Software License Agreement (SLA) and accept the terms by clicking Accept.



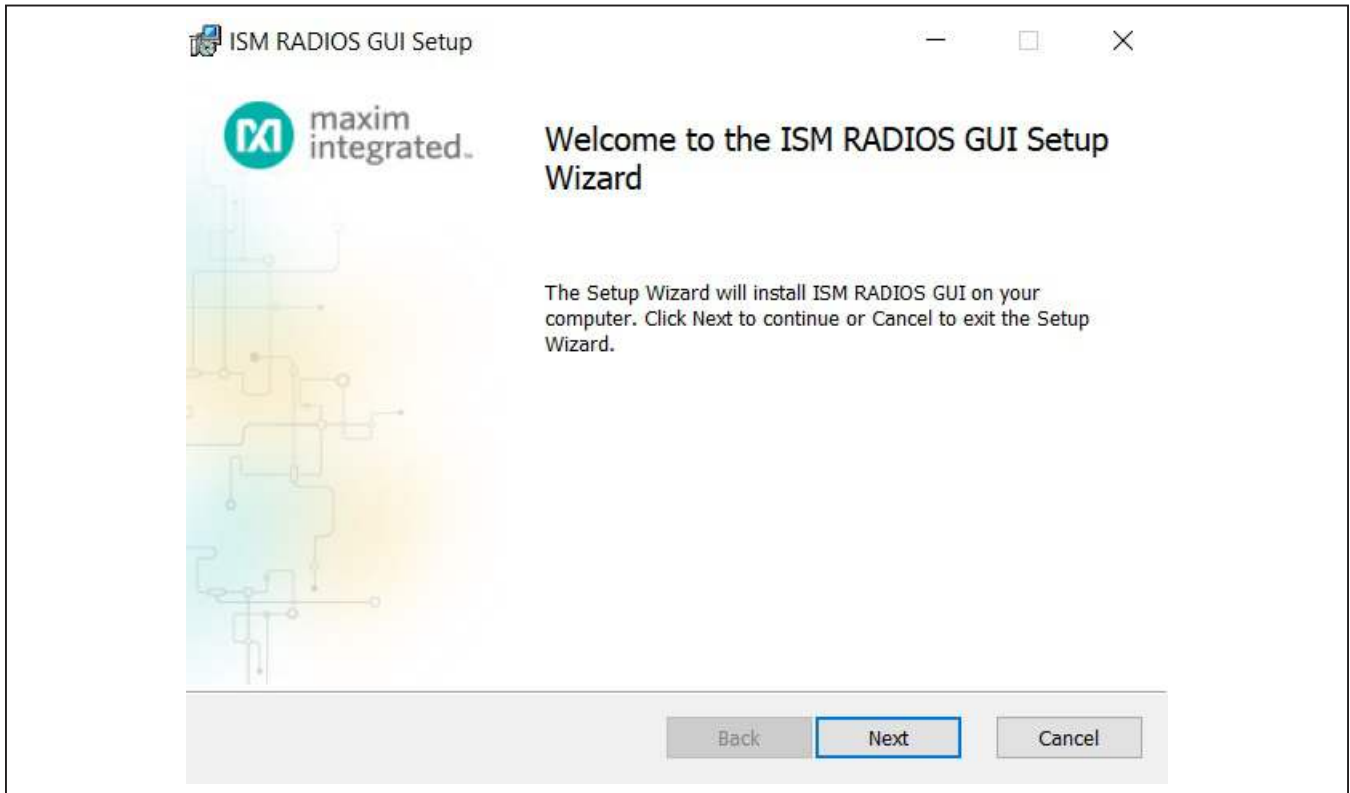
7) Save the EVKIT distribution package to the desktop or other accessible location to install later.

Install the MAX7036EVKIT GUI Software

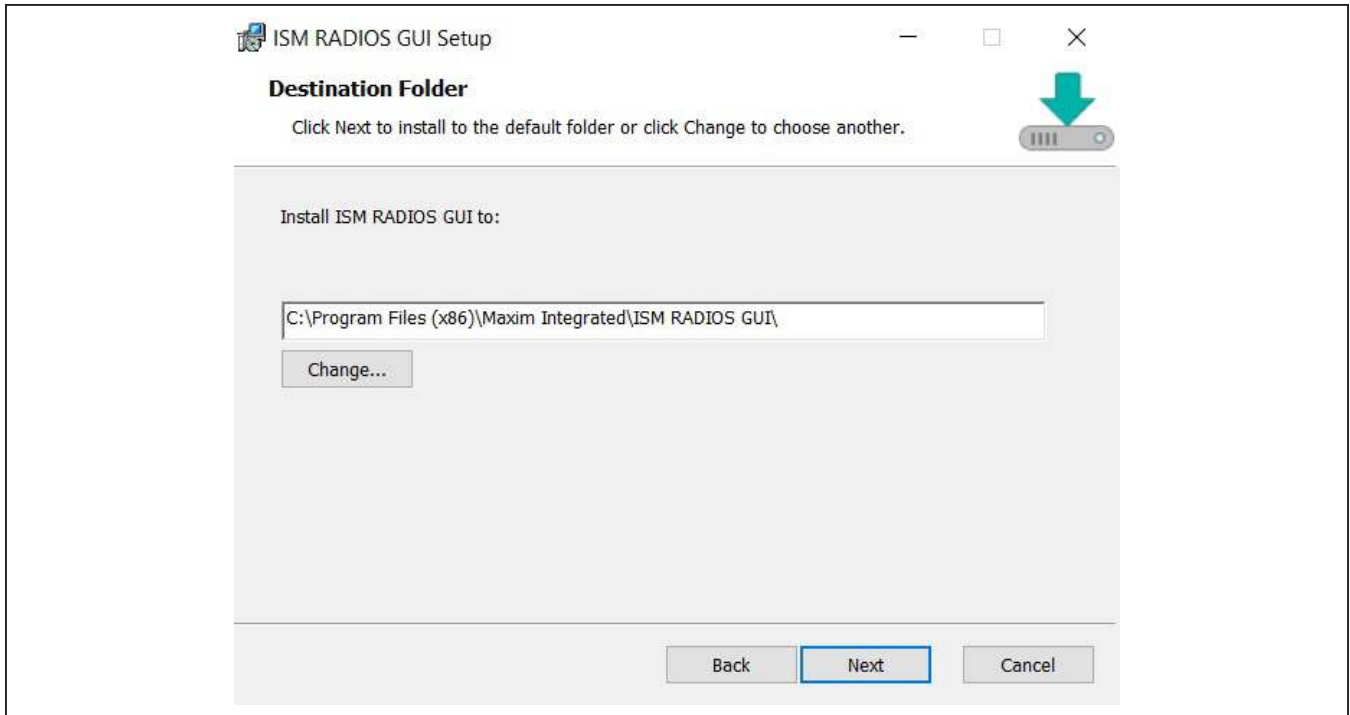
This software and firmware are available from the www.maximintegrated.com website. Refer to the 'Download the MAX7036EVKIT Software Package' section above for information on obtaining the latest firmware from Maxim Integrated.

This process takes less than **10 minutes** after downloading the software, firmware, and driver package.

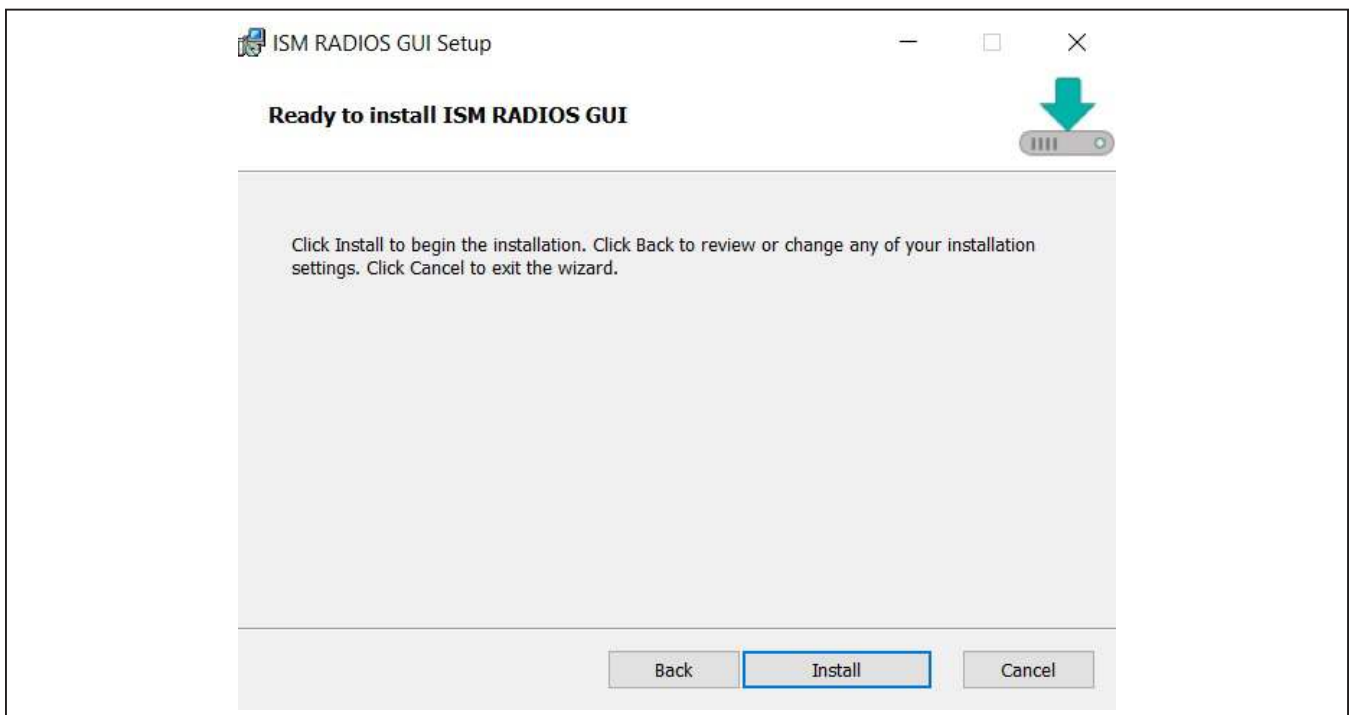
- 1) Download the ISMRadioGUISetup.msi to the PC
- 2) Double click the ISMRadioGUISetup.msi setup file and follow the Setup Wizard prompts.
 - a. Click <Next>



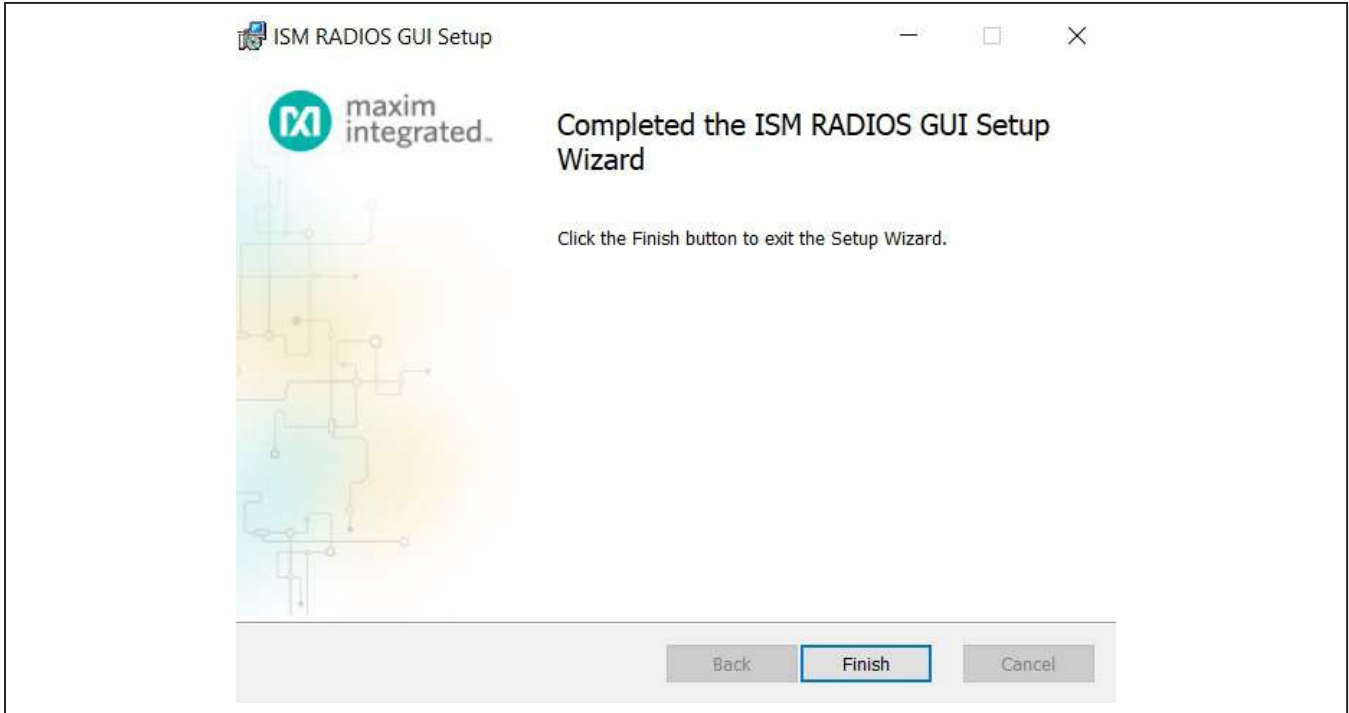
b. Use the default Destination Folder and click <Next>.



c. Install the software by clicking <Install>.



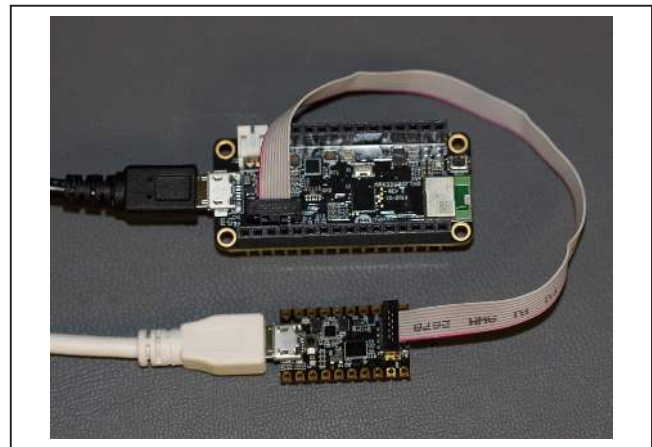
d. Click <Finish> when the setup is complete.



Program the MAX32630FTHR Board with the MAX7036 Firmware

This software and firmware are available from the www.maximintegrated.com website. Refer to the 'Download the MAX7036EVKIT Software Package' section above for information on obtaining the latest firmware from Maxim Integrated.

- 1) Connect the MAX32630FTHR to the MAX32625PICO.
 - a. Use the fine pitch 10pin ribbon cable to connect the boards from the SWD (J3) header on the MAX32625PICO to J4 on the MAX32630FTHR.



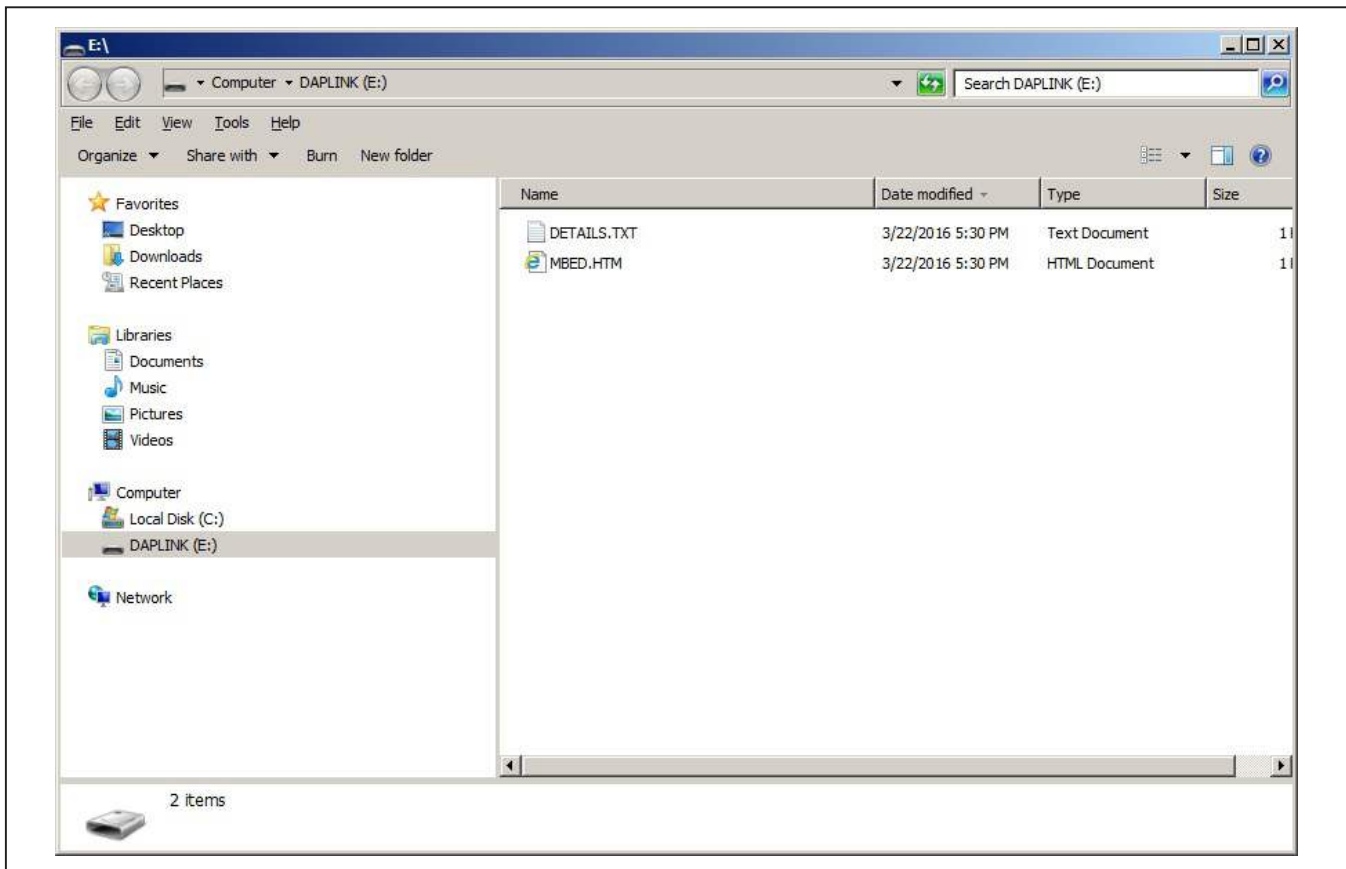
MAX32625PICO DAPLINK

- 2) Connect the MAX32630FTHR to a power source.
 - a. Use a Micro-B USB cable to connect the MAX32630FTHR board to a suitable power source (no USB connectivity is required). [The black USB cable in the photos.] Alternatively, power the board from a charged battery if you remember to turn it on by pressing the power/reset button next to the battery connector. The board turns on automatically when powered from the USB supply.
 - b. The status LED on the FTHR board is lit a steady red.
- 3) Connect the MAX32625PICO to a PC.
 - a. Use a Micro-B USB cable to connect the MAX32625PICO to a PC, through the USB connector. [The white USB cable in the photos.]
 - b. The status LED on the DAPLINK board blinks red when connecting.
 - c. After a few seconds of activity, the PC recognizes the DAPLINK as a standard USB drive.



Windows 10 Example

- 4) Drag and drop or save the ISM_Radio_fw.bin program binary to the mbed or DAPLINK USB drive.



- a. The FTTHR board LED shuts off and the LED on the MAX32625PICO slowly flashes red as the FTTHR board is being programmed.
 - b. Once the programming is complete, the MAX32625PICO USB drive disconnects from the PC and reconnects as a USB drive again.
 - c. If the programming is successful, the contents of the MAX32625PICO USB drive should include a DETAILS.TXT file. If an ERROR.TXT file exists on the drive, check the FTTHR board had power during the programming process and repeat steps 3 and 4.
- 5) To ready the FTTHR board for use, disconnect the MAX32625PICO board (ribbon cable) and press Reset on the FTTHR board or disconnect the FTTHR board from the USB power supply.
- a. When the Reset Button is pressed, the micro-controller restarts and the newly programmed application begins to run. Or, disconnect and reconnect the USB cable if using a PC for power

The latest information and these firmware update instructions can be found on the MAX32630FTTHR board mBed web site: <https://os.mbed.com/platforms/MAX32630FTTHR/> or on the mBed home page (<https://www.mbed.com/>), and searching for 'MAX32630FTTHR'.

If there is no mbed account, choose 'Signup', and create an mbed Account. Otherwise, log in with normal username and password for access to the website, tools, libraries, and documentation.

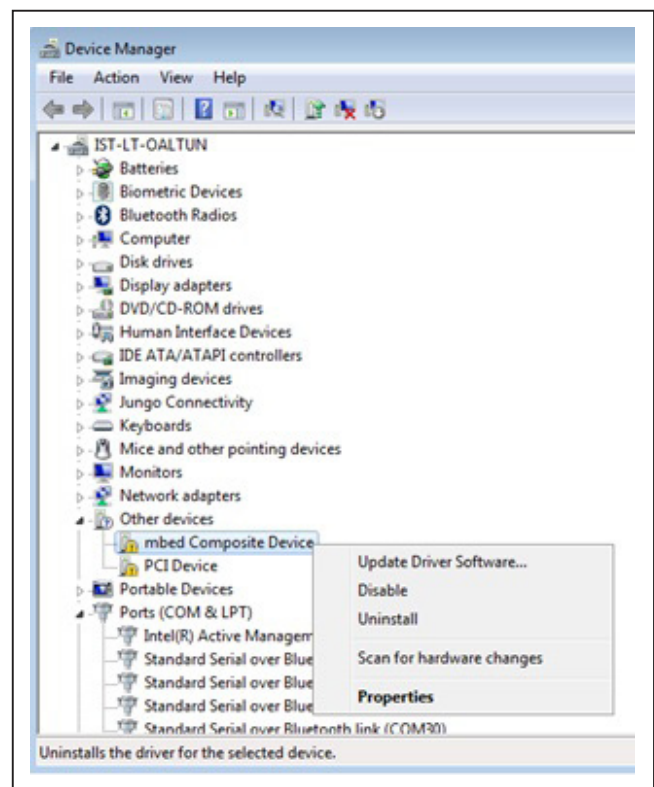
Load the matching HDK image for the platform under programming for the drag and drop programming to work. For the MAX32630FTTHR DAPLINK image:

https://os.mbed.com/media/uploads/switches/max32620_daplink_max32630fthr.bin

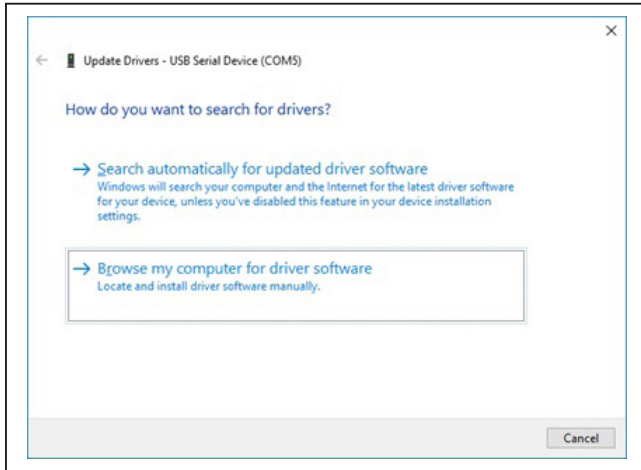
Update the MAX32630FTTHR Board Driver

The required driver is available from the www.maximintegrated.com website. Refer to the 'Download the MAX7036EVKIT Software Package' section above for information on obtaining the latest driver from Maxim Integrated.

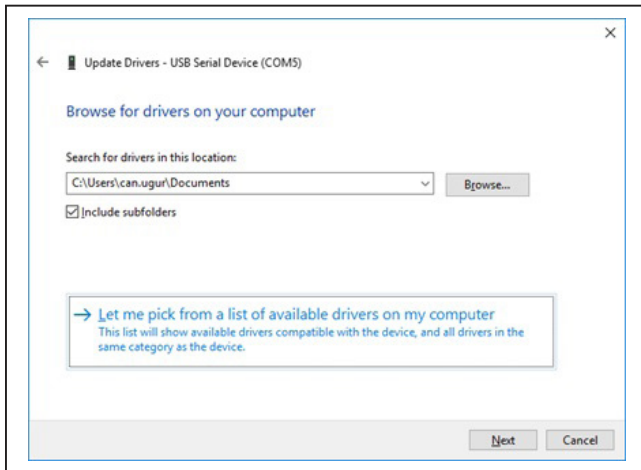
- 1) Connect the MAX32630FTTHR to the PC's USB port.
- 2) In Device Manager, right click Other devices => 'CDC Device' or 'mbed Composite Device'.



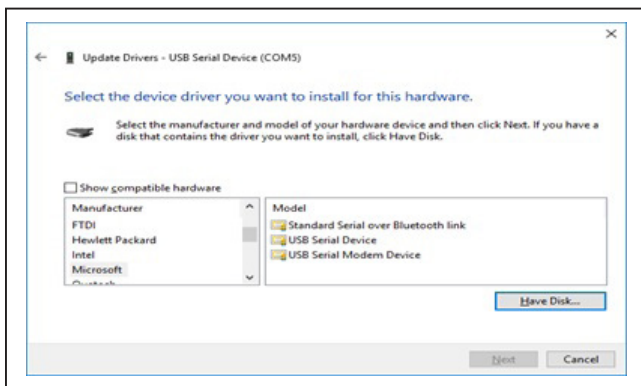
- 3) Click 'Update Driver Software'. Then select Browse my computer for driver software.



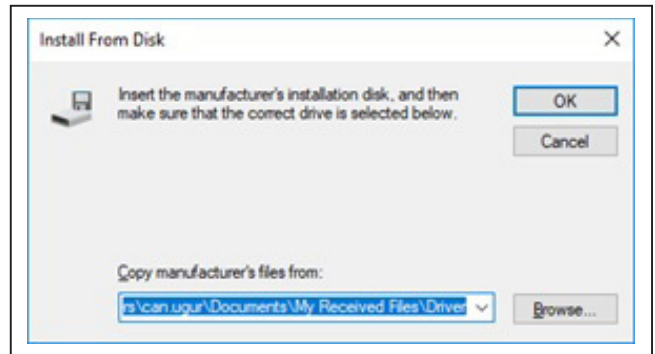
- 4) Select 'Let me pick from a list of available drivers on my computer'.



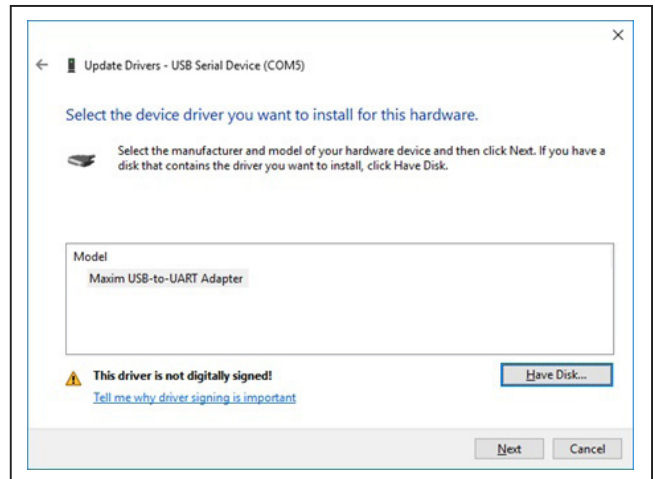
- 5) On a Windows-10 operating system, click <Have Disk...>.



- 6) Browse the path of the driver folder and for Windows-10, click <OK>
Windows-10: browse to the path and click <OK>.



- 7) Click Next.



- 8) Ignore the warnings and click → Install...



Appendix II – Hardware Modifications

PMOD Header Interface

The MAX7036EVKIT provides a PMOD-compatible header footprint providing yet another built-in interface to the receiver. The JU4 connector can be populated with a 6-pin, 100mil, right-angle header such as a SAMTEC TSW-106-25-T-S-RA, allowing direct connections to the DATA, Ground, and VDD lines.

The PMOD interface can be used in combination with the MAX32600MBED kit and the MAXREFDES72# Arduino Uno R3 to PMOD shield adaptor. When using the PMOD interface to supply the MAX7036EVKIT with power, make sure to connect the JU3 jumper between pins 1 to 3.

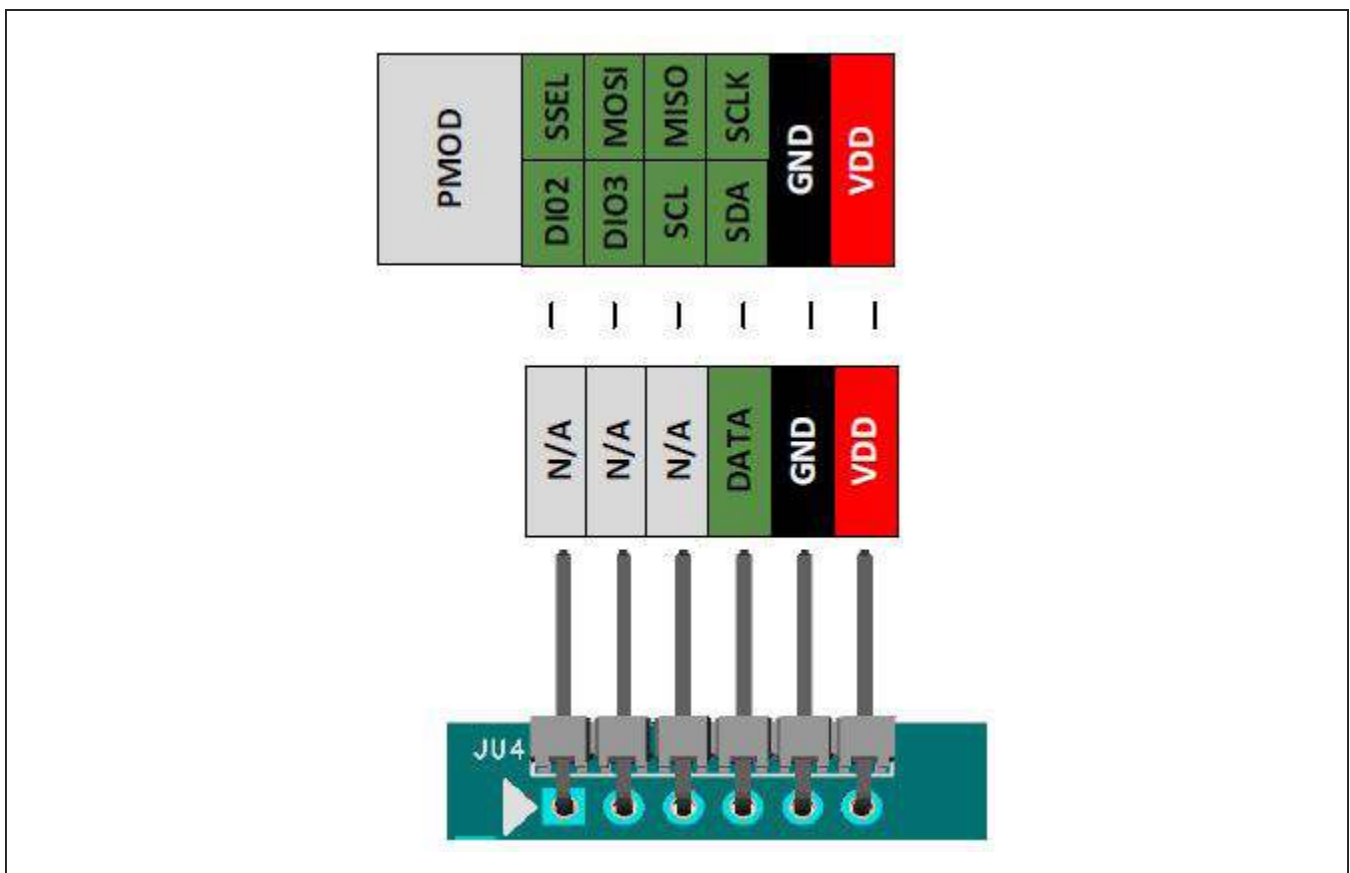
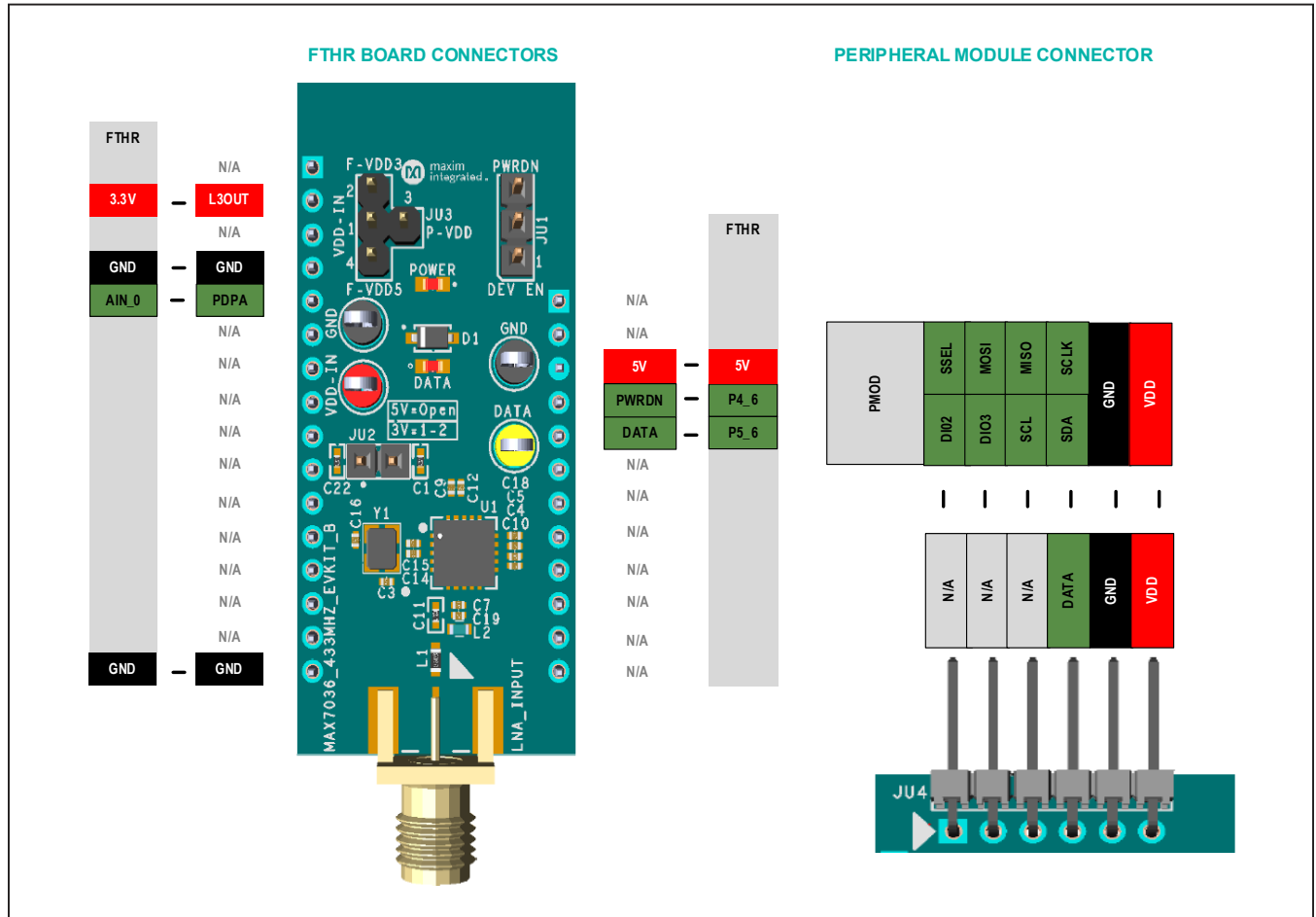


Figure A2-4. MAX7036EVKIT PMOD Interface

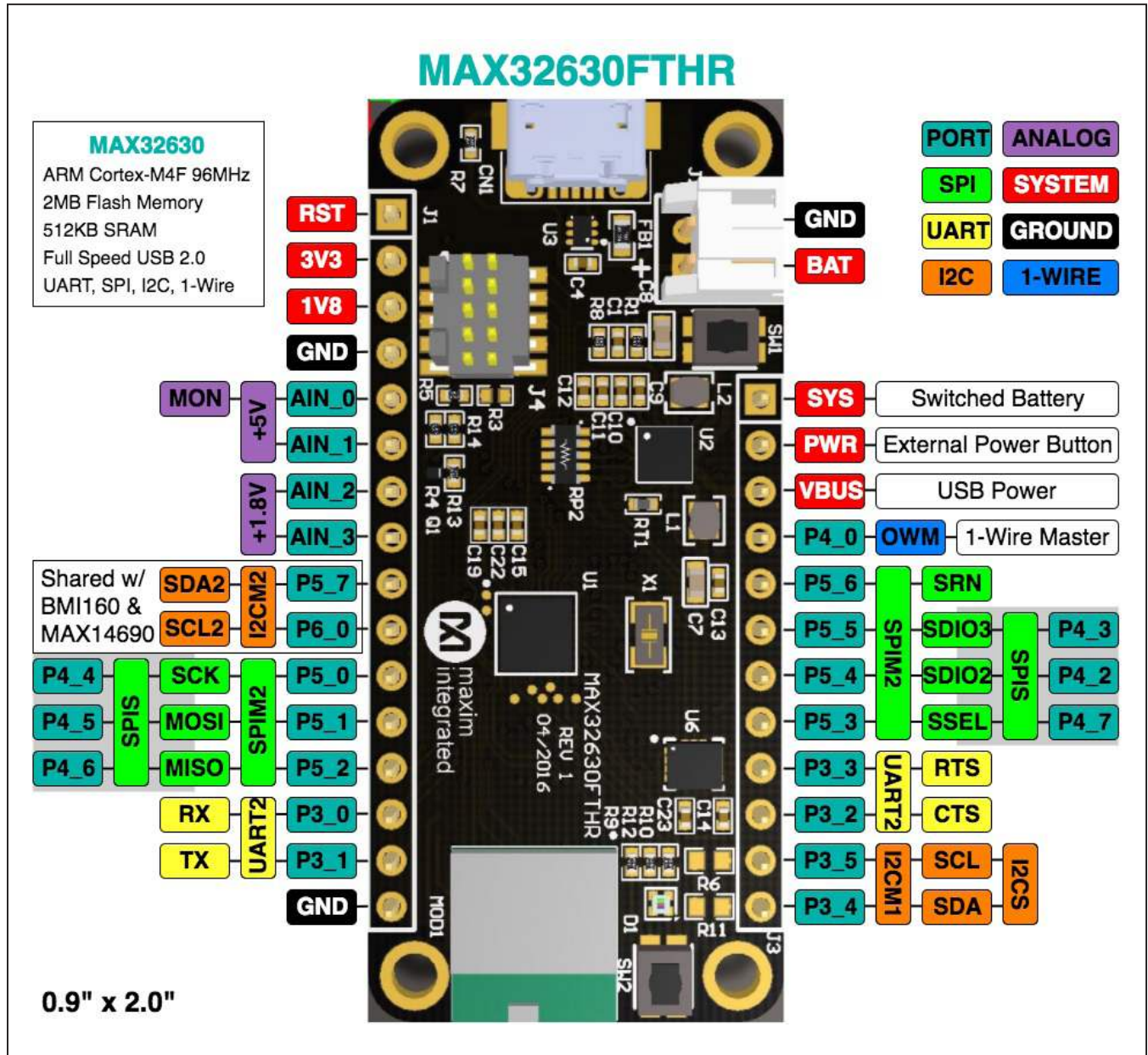
Appendix III – Pinout Sheets

MAX7036EVKIT



MAX32630FTHR

ARM Cortex-M4F microcontroller rapid development platform.



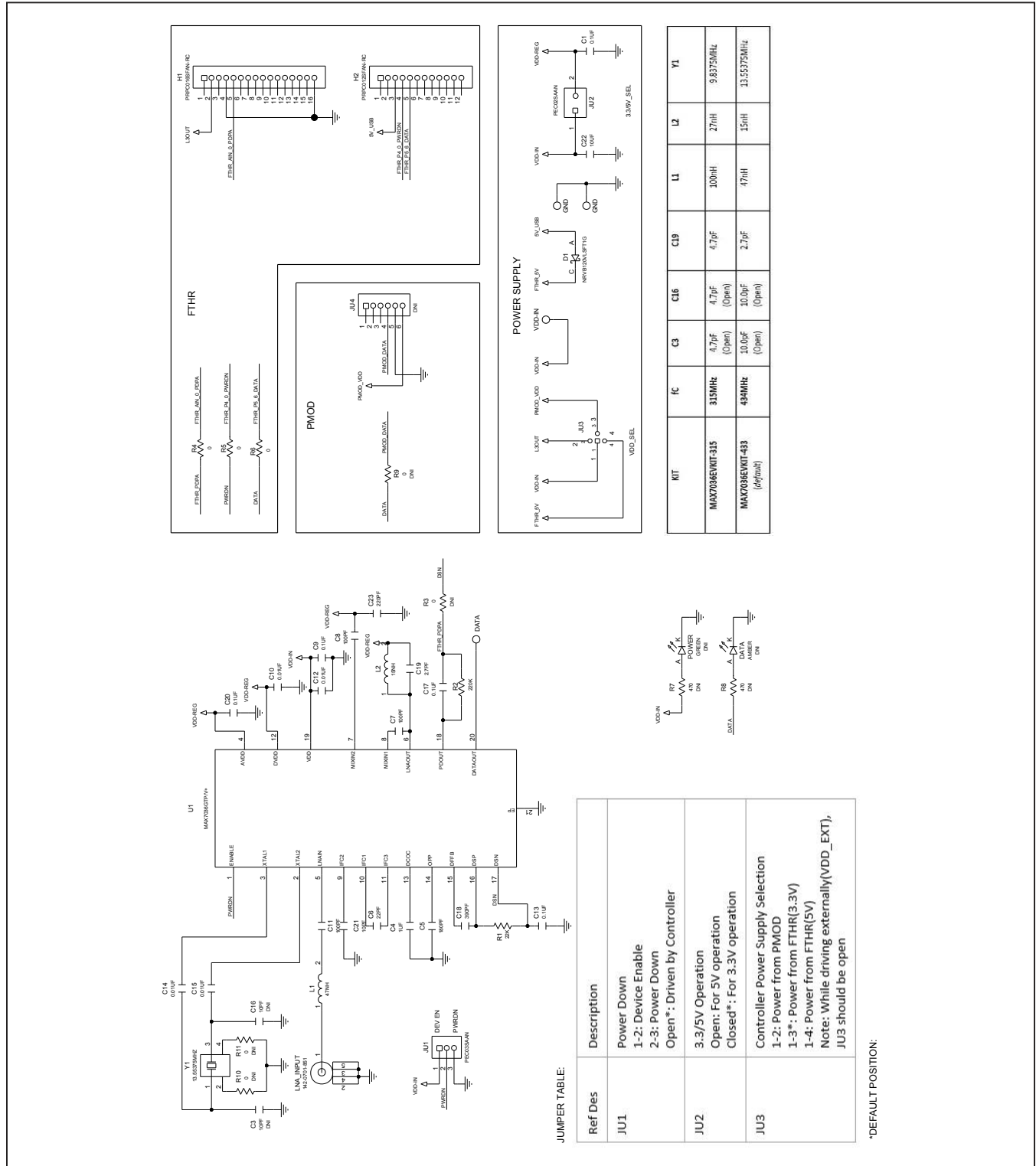
MAX7036 EV Kit Bill of Materials

| NOTE: DNI--> DO NOT INSTALL(PACKOUT) ; DNP--> DO NOT PROCURE | | | | | | | |
|--|-----------------------|---------|-----|--|--|----------------|--|
| ITEM | REF_DES | DNI/DNP | QTY | MFG PART # | MANUFACTURER | VALUE | DESCRIPTION |
| 1 | C1, C9, C13, C17, C20 | - | 5 | GRM155R71E104KE14; C1005X7R1E104K050BB; TMK105B7104KVH; CGJ2B3X7R1E104K050BB | MURATA;TDK;TAIYO YUDEN;TDK | 0.1UF | CAPACITOR; SMT (0402); CERAMIC CHIP; 0.1UF; 25V; TOL=10%; MODEL=GRM SERIES; TG=-55 DEGC TO +125 DEGC; TC=X7R |
| 2 | C4 | - | 1 | C1005X5R1E105K050; GRM155R61E105KA12 | TDK;MURATA | 1UF | CAPACITOR; SMT (0402); CERAMIC CHIP; 1UF; 25V; TOL=10%; TG=-55 DEGC TO +85 DEGC; TC=X5R |
| 3 | C5 | - | 1 | C0402C181J3GAC7867 | KEMET | 180PF | CAP; SMT (0402); 180PF; 5%; 25V; C0G; CERAMIC CHIP |
| 4 | C6 | - | 1 | UMK105CG220JV; GRM1555C1H220JA01; GCM1555C1H220JA16; 04025A220JAT2A | TAIYO YUDEN;MURATA; MURATA;AVX | 22PF | CAPACITOR; SMT (0402); CERAMIC CHIP; 22PF; 50V; TOL=5%; TG=-55 DEGC TO +125 DEGC; TC=C0G |
| 5 | C7, C8, C11 | - | 3 | C0402C101J5GAC; NMC0402NPO101J; CC0402JRNPO9BN101; GRM1555C1H101JA01; C1005C0G1H101J050BA; CGA2B2C0G1H101J050BA | KEMET;NIC COMPONENTS CORP.;YAGEO PHICOMP;MURATA; TDK;TDK | 100PF | CAPACITOR; SMT (0402); CERAMIC CHIP; 100PF; 50V; TOL=5%; TG=-55 DEGC TO +125 DEGC; TC=C0G |
| 6 | C10, C12 | - | 2 | NMC0402X7R103K16TRP; GRM155R71C103KA01; CC0402KRX7R7BB103 | NIC COMPONENTS CORP.;MURATA;YAGEO | 0.01UF | CAPACITOR; SMT (0402); CERAMIC CHIP; 0.01UF; 16V; TOL=10%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=X7R |
| 7 | C14, C15 | - | 2 | C0402C103K5RAC; GRM155R71H103KA88; C1005X7R1H103K050BE; CL05B103KB5NNN; UMK105B7103KV | KEMET;MURATA;TDK; SAMSUNG ELECTRONIC; TAIYO YUDEN | 0.01UF | CAPACITOR; SMT (0402); CERAMIC CHIP; 0.01UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R |
| 8 | C18 | - | 1 | C0402C0G500-391JNE; GRM1555C1H391JA01; CGA2B2C0G1H391J050BA | VENKEL LTD.;MURATA;TDK | 390PF | CAPACITOR; SMT (0402); CERAMIC CHIP; 390PF; 50V; TOL=5%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=C0G |
| 9 | C19 | - | 1 | GJM1555C1H2R7BB01 | MURATA | 2.7PF | CAP; SMT (0402); 2.7PF; +/-0.1PF; 50V; C0G; CERAMIC CHIP |
| 10 | C21 | - | 1 | C0402C100J5GAC; GRM1555C1H100JA01 | KEMET;MURATA | 10PF | CAPACITOR; SMT (0402); CERAMIC CHIP; 10PF; 50V; TOL=5%; TG=-55 DEGC TO +125 DEGC; TC=C0G |
| 11 | C22 | - | 1 | GRM155R60J106ME44; GRM155R60J106ME47; C1005X5R0J106M050BC; CL05A106MQ5NUN; C0402C106M9PAC | MURATA;MURATA;TDK; SAMSUNG ELECTRONICS; KEMET | 10UF | CAPACITOR; SMT (0402); CERAMIC CHIP; 10UF; 6.3V; TOL=20%; TG=-55 DEGC TO +85 DEGC; TC=X5R |
| 12 | C23 | - | 1 | GRM1555C1H221FA01 | MURATA | 220PF | CAP; SMT (0402); 220PF; 1%; 50V; C0G; CERAMIC CHIP |
| 13 | D1 | - | 1 | NRVB120VLSFT1G | ON SEMICONDUCTOR | NRVB120VLSFT1G | DIODE; SCH; SMT (SOD-123FL); PIV=20V; IF=1A |
| 14 | DATA | - | 1 | 5014 | KEYSTONE | N/A | TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; YELLOW; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH; |
| 15 | GND1, GND2 | - | 2 | 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; |
| 16 | H1 | - | 1 | PRPC016SFAN-RC | SULLINS ELECTRONICS CORP | PRPC016SFAN-RC | CONNECTOR; MALE; THROUGH HOLE; PRPC SERIES; STRAIGHT; 16PINS |
| 17 | H2 | - | 1 | PRPC012SFAN-RC | SULLINS ELECTRONICS CORP | PRPC012SFAN-RC | CONNECTOR; MALE; THROUGH HOLE; PRPC SERIES; STRAIGHT; 12PINS |
| 18 | JU1 | - | 1 | PEC03SAAN | SULLINS | PEC03SAAN | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS |
| 19 | JU2 | - | 1 | PEC02SAAN | SULLINS | PEC02SAAN | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS |

MAX7036 EV Kit Bill of Materials (continued)

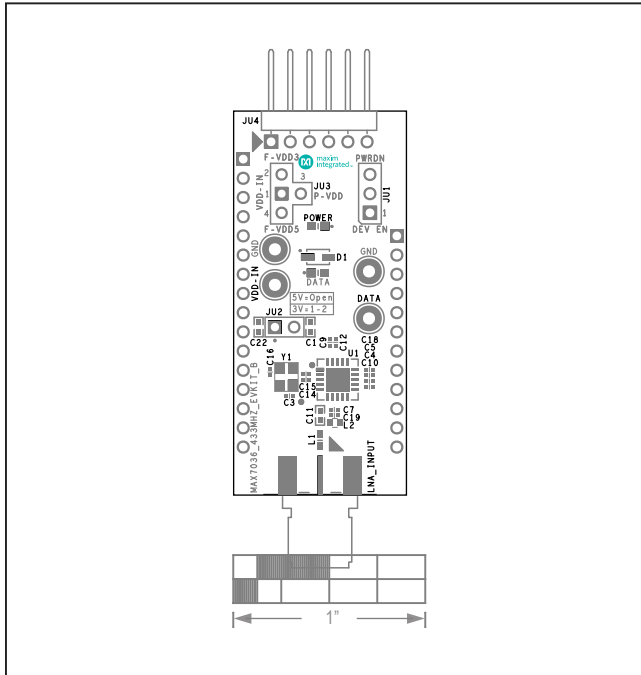
| ITEM | REF_DES | DNI/DNP | QTY | MFG PART # | MANUFACTURER | VALUE | DESCRIPTION |
|-------|-----------|---------|-----|---|--|-------------------|---|
| 20 | JU3 | - | 1 | PEC04SAAN | SULLINS ELECTRONICS CORP. | PEC04SAAN | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS |
| 21 | L1 | - | 1 | LQW18AN47NJ00 | MURATA | 47NH | INDUCTOR; SMT (0603); WIREWOUND CHIP; 47NH; TOL=+/-5%; 0.38A |
| 22 | L2 | - | 1 | LQW18AN15NJ00 | MURATA | 15NH | INDUCTOR; SMT (0603); WIREWOUND; 15NH; 5%; 0.6A |
| 23 | LNA_INPUT | - | 1 | 142-0701-851 | JOHNSON COMPONENTS | 142-0701-851 | CONNECTOR; END LAUNCH JACK RECEPTACLE; BOARDMOUNT; STRAIGHT THROUGH; 2PINS; |
| 24 | R1 | - | 1 | CRCW040222K0FK | VISHAY DALE | 22K | RESISTOR, 0402, 22K OHM, 1%, 100PPM, 0.0625W, THICK FILM |
| 25 | R2 | - | 1 | CRCW0402220KFK; 9C04021A2203FLHF3 | VISHAY DALE;YAGEO PHYCOMP | 220K | RESISTOR; 0402; 220K OHM; 1%; 100PPM; 0.063W; THICK FILM |
| 26 | R4-R6 | - | 3 | CRCW06030000Z0 | VISHAY DALE | 0 | RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.1W; THICK FILM |
| 27 | SU1-SU3 | - | 3 | 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 |
| 28 | U1 | - | 1 | MAX7036GTP/V+ | MAXIM | MAX7036GTP/V+ | IC; RECV; 300MHZ TO 450MHZ ASK RECEIVER WITH INTERNAL IF FILTER; TQFN20-EP |
| 29 | VDD-IN | - | 1 | 5010 | KEYSTONE | N/A | TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SIL; |
| 30 | Y1 | - | 1 | EXS00A-CG08006; X32251355375MSB4SI | NDK;YXC | 13.55375MHZ | EVKIT PART - CRYSTAL; SMT; 10PF; 13.55375MHZ; +/-80PPM; |
| 31 | U2 | - | 1 | MAX32625PICO | MAXIM | | MODULE; BOARD; MAX32625PICO BOARD DESIGN FOR MAX32625 ARM CORTEX-M4F; BOARD; LAMINATED PLASTIC WITH COPPER CLAD |
| 32 | U2 | - | 1 | 1675 | ADAFRUIT INDUSTRIES | | CONNECTOR; FEMALE-FEMALE; WIREMOUNT; 1.27MM IDC CABLE-150MM; WIREMOUNT; 10PINS |
| 33 | U2 | - | 1 | 3025010-03 | QUALTEK ELECTRONICS CORP | | CONNECTOR; MALE-MALE; WIREMOUNT; USB 4P-MICRO USB 5P 915MM; WIREMOUNT; 5PINS |
| 34 | PCB | - | 1 | MAX7036433MHZ | MAXIM | PCB | PCB:MAX7036433MHZ |
| 35 | J1 | DNI | 1 | PPPC161LFBN-RC | SULLINS ELECTRONICS CORP. | PPPC161LFBN-RC | CONNECTOR; FEMALE; THROUGH HOLE; LFB SERIES; 2.54MM CONTACT CENTER; STRAIGHT; 16PINS |
| 36 | J3 | DNI | 1 | PPPC121LFBN-RC | SULLINS ELECTRONICS CORP | PPPC121LFBN-RC | CONNECTOR; FEMALE; THROUGH HOLE; HEADER FEMALE; STRAIGHT; 12PINS |
| 37 | U2 | DNI | 1 | MAX32630FTHR# | MAXIM | MAX32630FTHR# | EVKIT PART-MODULE; MAX32630FTHR; RAPID DEVELOPMENT PLATFORM; |
| 38 | C3, C16 | DNP | 0 | GJM1555C1H100FB01; GRM1555C1H100FA01 | MURATA;MURATA | 10PF | CAPACITOR; SMT (0402); CERAMIC CHIP; 10PF; 50V; TOL=1%; TG=-55 DEGC TO +125 DEGC; TC=C0G |
| 39 | DATA1 | DNP | 0 | LTST-C190YKT | LITE-ON ELECTRONICS INC. | LTST-C190YKT | DIODE; LED; STANDARD; YELLOW; SMT (0603); PIV=5.0V; IF=0.02A; -55 DEGC TO +85 DEGC |
| 40 | JU4 | DNP | 0 | TSW-106-25-T-S-RA | SAMTEC | TSW-106-25-T-S-RA | CONNECTOR; MALE; THROUGH HOLE; 0.025IN SQ POST HEADER; RIGHT ANGLE; 6PINS |
| 41 | POWER | DNP | 0 | LTST-C193KGKT-5A | LITE-ON ELECTRONICS INC. | LTST-C193KGKT-5A | DIODE; LED; STANDARD; YELLOW-GREEN; SMT (0603); PIV=1.9V; IF=0.005A; -55 DEGC TO +85 DEGC |
| 42 | R3 | DNP | 0 | RC0402JR-070RL; CR0402-16W-000RJT | YAGEO PHYCOMP;VENKEL LTD. | 0 | RESISTOR; 0402; 0 OHM; 5%; JUMPER; 0.063W; THICK FILM |
| 43 | R7, R8 | DNP | 0 | CRCW0603470RFK; ERJ-3EKF4700 | VISHAY DALE;PANASONIC | 470 | RESISTOR, 0603, 470 OHM, 1%, 100PPM, 0.10W, THICK FILM |
| 44 | R9-R11 | DNP | 0 | CRCW06030000Z0 | VISHAY DALE | 0 | RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.1W; THICK FILM |
| TOTAL | | | 50 | | | | |

MAX7036 EV Kit Schematic

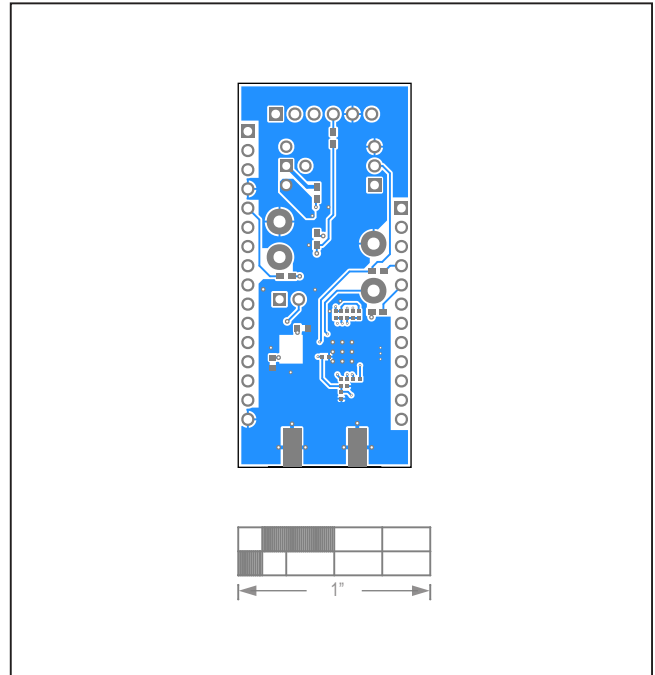


| KIT | IC | C3 | C16 | C19 | L1 | L2 | Y1 |
|--------------------|--------|--------|--------|--------|-------|------|-------------|
| MAX7036EVALKIT-315 | 315MHz | 4.7µF | 4.7µF | (Open) | 100nH | 27nH | 9.8375MHz |
| MAX7036EVALKIT-433 | 433MHz | 10.0µF | 10.0µF | (Open) | 47nH | 15nH | 13.55375MHz |

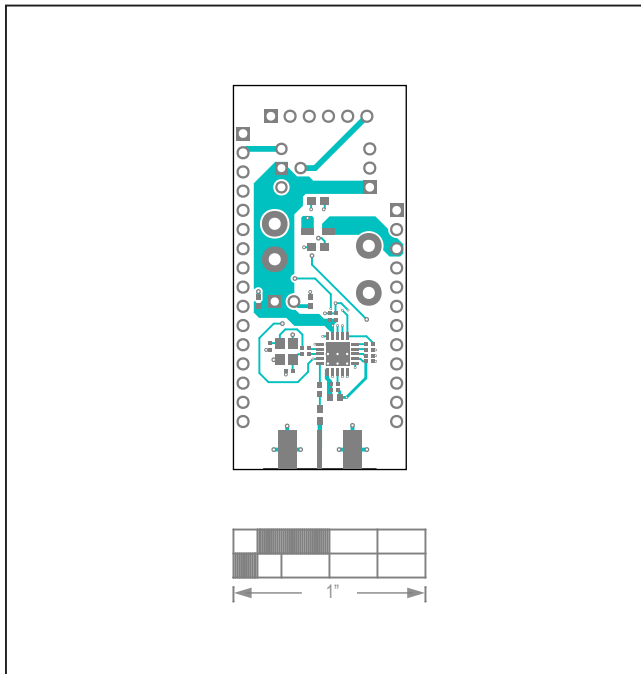
MAX7036 EV Kit Schematic



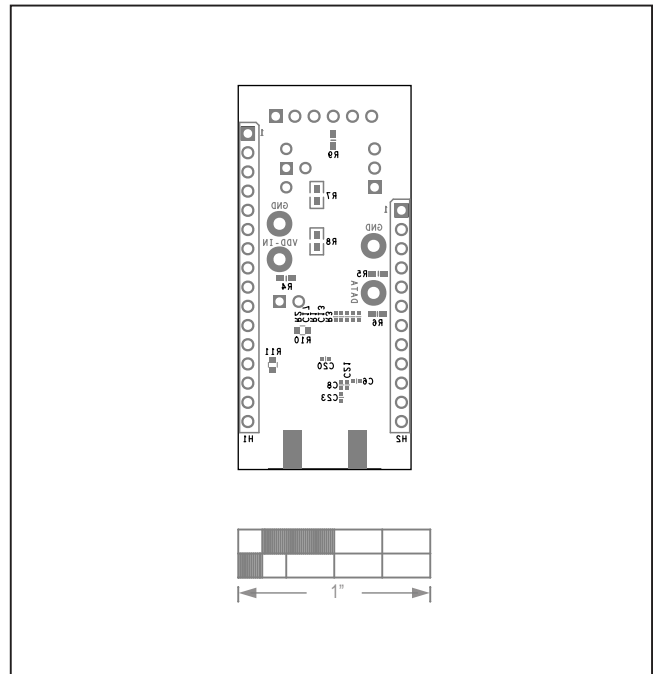
Silk Top



Bottom



Top



Silk Bottom

Revision History

| REVISION NUMBER | REVISION DATE | DESCRIPTION | PAGES CHANGED |
|-----------------|---------------|-------------|---------------|
| 2 | 5/21 | Revision | — |

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