

EVALUATION BOARD SOFTWARE QUICK START PROCEDURES

The control software and USB drivers for EVAL-ADF4360-2EBZ1 accompany the EVAL-ADF4360-2EBZ1 on a CD. To install the software, use the following steps:

1. Open **ADF4360_Setup.msi**.
2. The install wizard guides you through the installation process. The software and USB drivers will be installed in the default directory called **C:\Program Files\Analog Devices\ADF4360**.

The software requires Microsoft's .NET Framework Version 2.0 or later to be installed on your machine. The installer automatically downloads the framework from the Microsoft website if you do not have this installed. If you do not have an Internet connection or have a slow connection on the PC, then you can install the .NET framework directly from the CD. Do this by double-clicking **dotnetfx.exe**. Once installed, run the **ADF4360_Setup.msi** again.

WINDOWS XP OS

Once you have installed the software, install the USB drivers. To do so, use the following steps:

1. Plug in a USB cable to the USB connector on the evaluation board. The **Found New Hardware** box appears. See Figure 3.
2. Choose **Install from a list or specified location (Advanced)**.



Figure 3. New Hardware Wizard

3. Browse to **C:\Program Files\Analog Devices\ADF4360**.
4. Click **Continue Anyway** when asked about Windows Logo testing.
5. If the install was successful, the message box in Figure 4 appears.



Figure 4. Successful Install

WINDOWS VISTA OS AND WINDOWS 7 (32-BIT) OS

For Windows Vista or Windows 7 (32-bit), you need to manually install the drivers. To do so, use the following steps:

1. Find the new unknown device (the evaluation board) in **Device Manager** and double-click it to open the properties. The device should be **Unknown device**, under **Other devices** (see Figure 5).

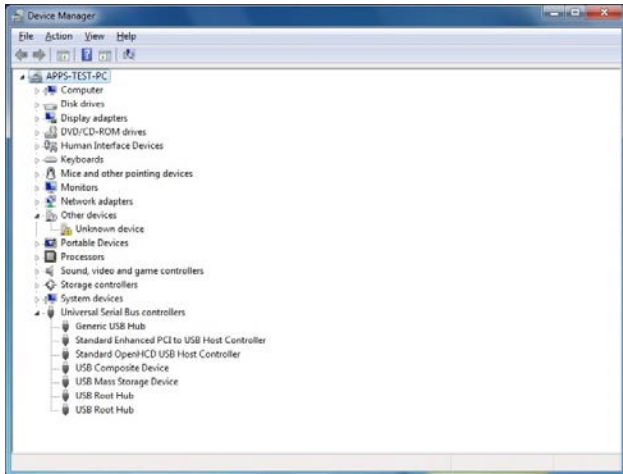


Figure 5. Device Manager

2. Click **Update Driver** in the properties window (see Figure 6).

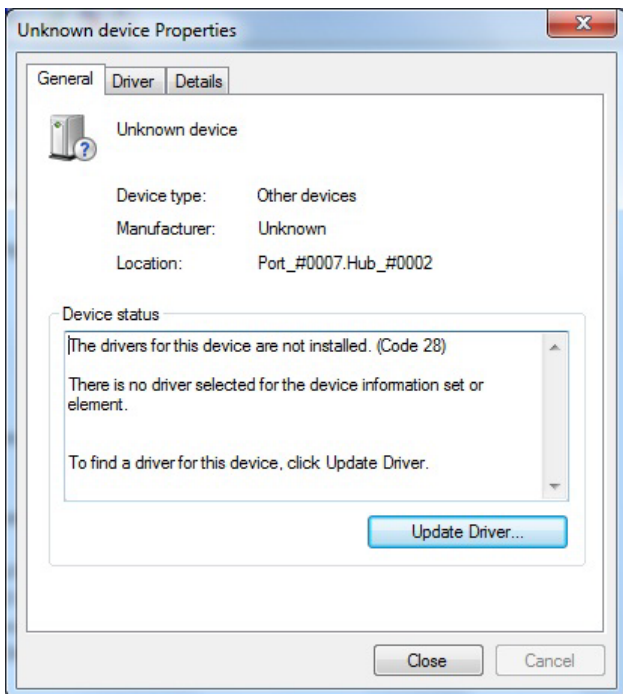


Figure 6. Unknown Device Properties

3. On the Update Driver Software dialog box, choose **Browse my computer for driver software**.
4. Browse to **C:\Program Files\Analog Devices\ADF4360**.
5. Click **OK** or **Next**.
6. If prompted by Windows Security, choose **Install this driver software anyway**.
7. If the install was successful, the message box in Figure 7 appears.

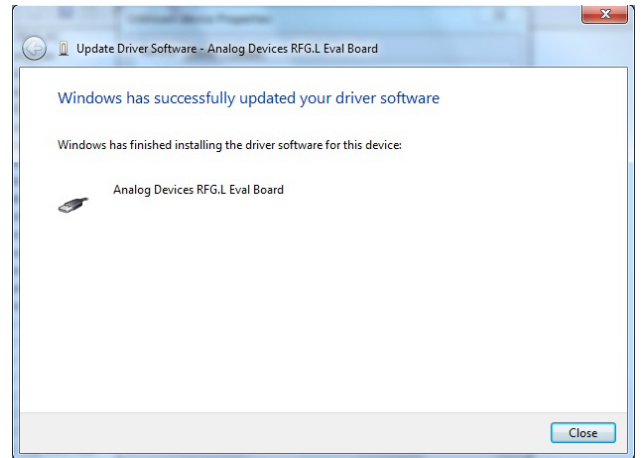


Figure 7. Successful Install

WINDOWS 7 64-BIT OS

If you are using Windows 7 64-bit OS, it is recommended to download Windows XP Mode (a Windows XP emulator) from Microsoft to run the evaluation board software.

Windows XP Mode allows the device driver package to digitally sign allowing you to use Windows 7 64-bit OS in native mode.

USING THE EVALUATION BOARD SOFTWARE

The control software for the EVAL-ADF4360-xEBZ1 accompanies the EVAL-ADF4360-xEBZ1 on a CD. To install the software, see the Evaluation Board Software Quick Start Procedures section.

To run the software, click the **ADF4360.exe** file on the desktop or in the **Start** menu.

The main interface window appears (see Figure 8). Confirm that **Analog Devices RFG.L Eval Board connected** is displayed at the top of the window. Otherwise, the software has no connection to the evaluation board.

The evaluation board can be connected and disconnected while the software is running. Note that when connecting the board, it takes about 5 seconds for the status label to change.

Under the **File** menu, the current settings can be saved to, and loaded from, a text file.

Use the **REF IN Frequency** text box to set the correct reference frequency and the reference frequency divider. The reference TCXO on the evaluation board runs at 10 MHz.

The **Settings** section controls the charge pump current setting, the output power setting, and the multiplexer output setting.

Use the **Frequency Settings** section to control the output frequency. The user can input the desired output frequency in the **RF Output Frequency** text box (in megahertz).

In the **Registers** tab, the user can manually input the desired value to be written to the registers.

In the **Sweep and hop** tab, the user can make the device sweep a range of frequencies, or hop between two set frequencies.

In the **Latches to write** section, at the bottom of the window, the values to be written to each register are displayed. If the background on the text box is green, then the value displayed is different to the value actually on the device. Click **Write x Latch** to write that value to the device.

The **F2**, **F3**, and **F4** keys switch between the three tabs. **F12** increases the output frequency by one channel spacing and writes it to the device. **F11** decreases the output frequency by one channel spacing.

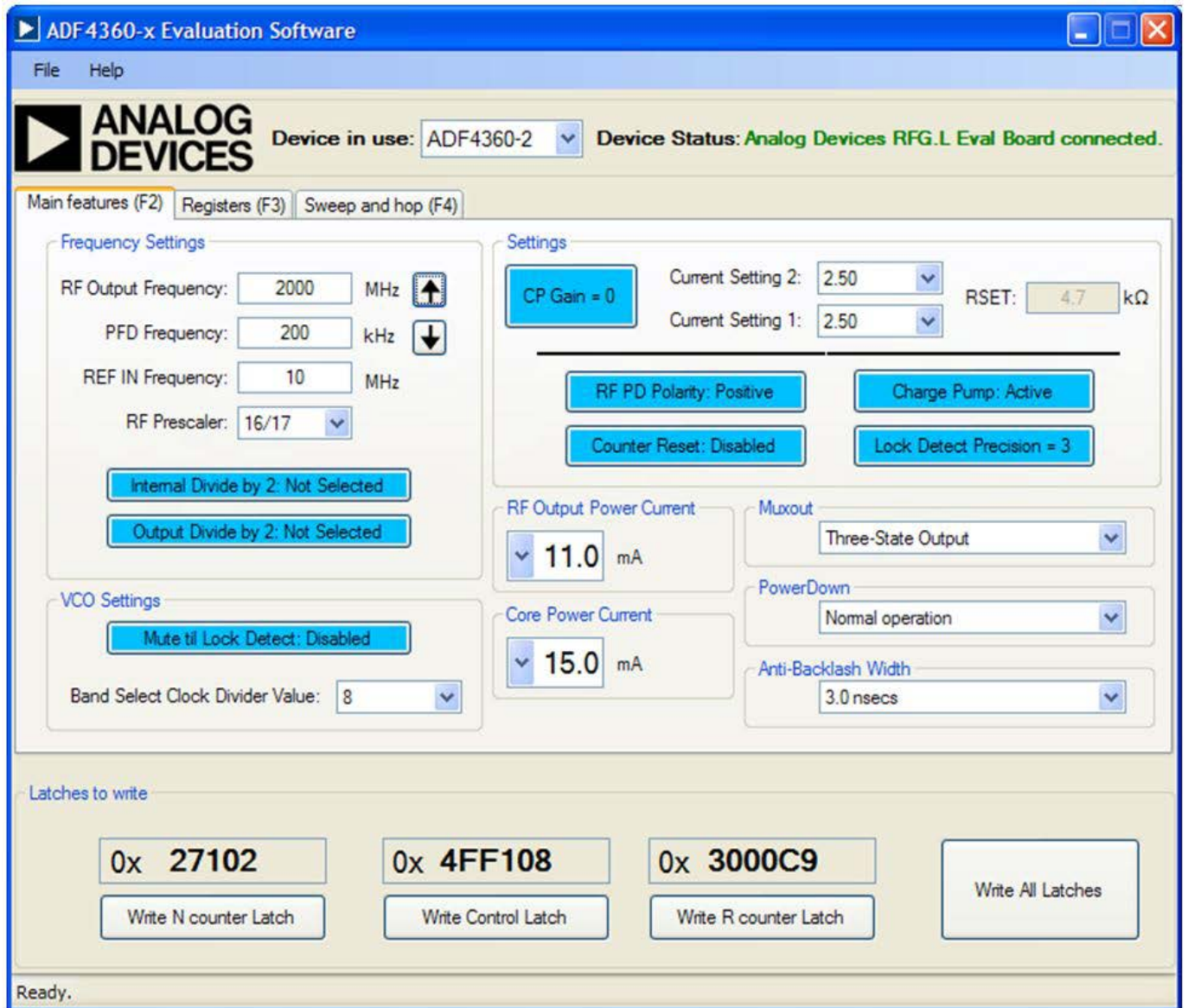


Figure 8. Software Front Panel Display

EVALUATION BOARD SCHEMATIC

600-18880

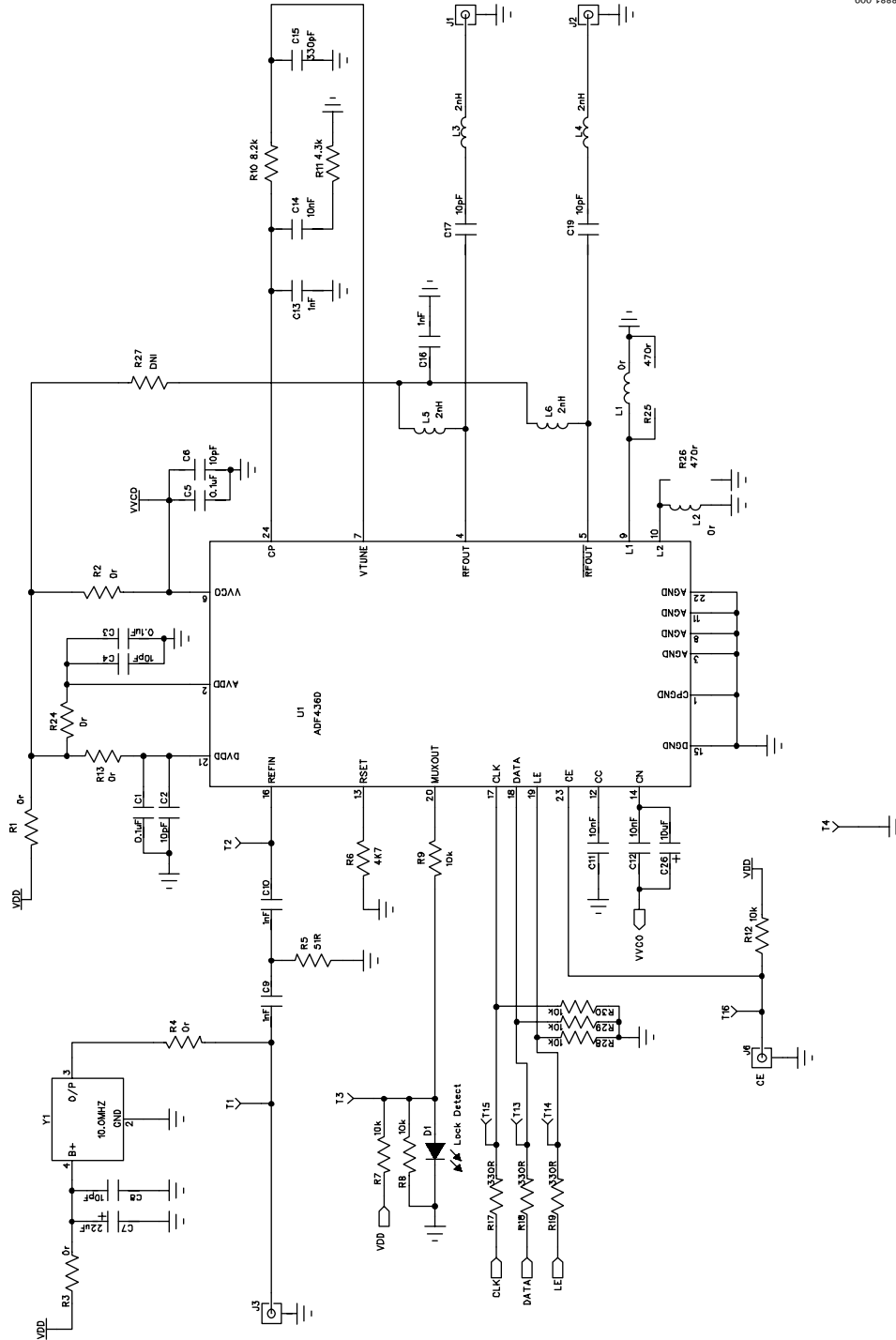
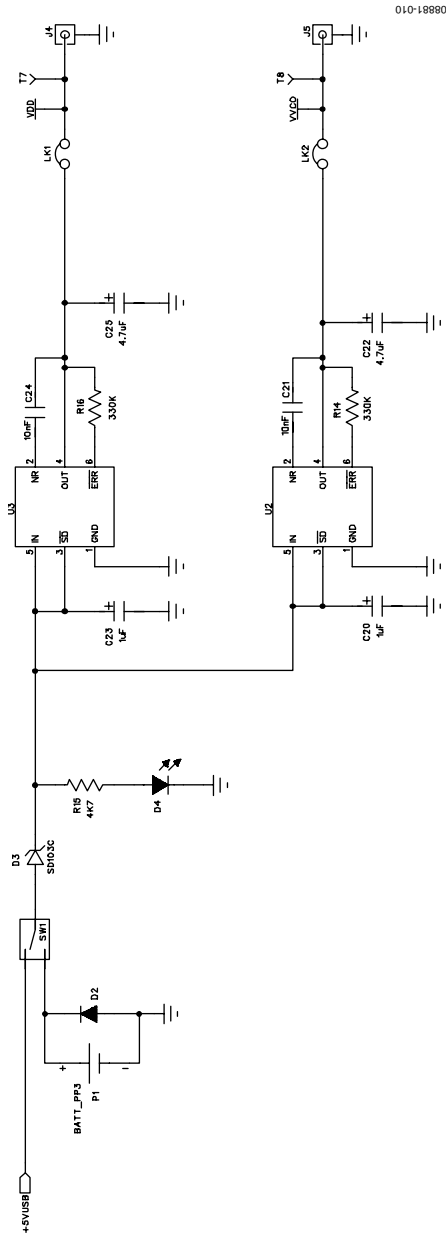
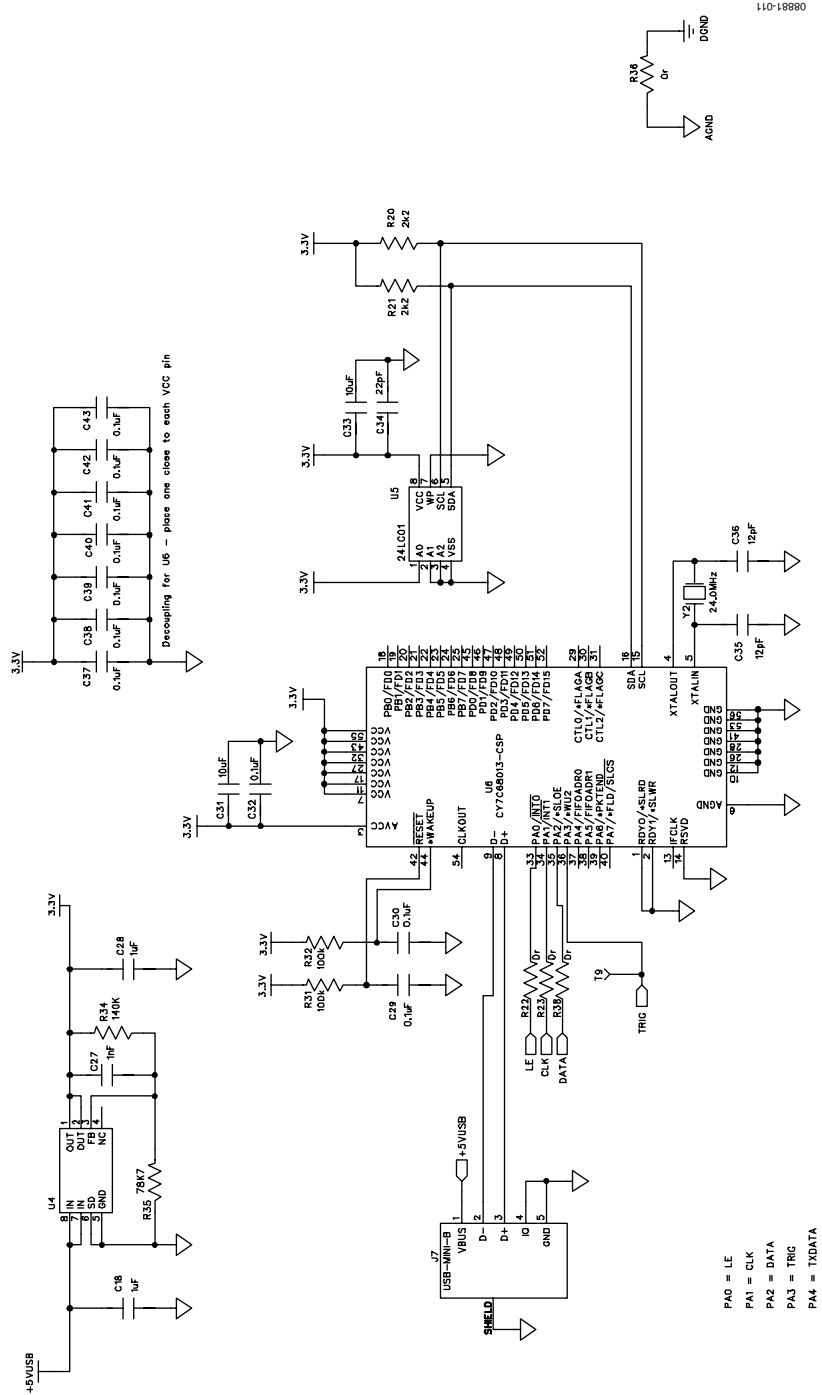


Figure 9. EVAL-ADF4360-2EBZ1 Schematic



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Figure 10. EVAL-ADF4360-2EBZ1 Schematic (Continued)



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Figure 11. EVAL-ADF4360-2EBZ1 Schematic (Continued)

ORDERING INFORMATION

BILL OF MATERIALS

Table 1.

| Reference Designator | Part Description | Manufacturer/Part No. |
|--|--|--|
| C1, C3, C5, C29, C30, C32, C37, C38, C39, C40, C41, C42, C43 | Capacitor, 0402, 0.1 μ F, 16 V | Kemet C0402C104K4RAC |
| C2, C4, C6, C8 | Capacitor, 0402, 10 pF, 50 V | Kemet C0402C100J5GACTU |
| C7 | Capacitor, Case A, 22 μ F, 6.3 V | AVX TAJA226K006R |
| C9, C10, C27 | Capacitor, 0603, 1 nF, 50 V | AVX 06035A102JAT2A |
| C11, C12, C21, C24 | Capacitor, 0402, 10 nF, 16 V | Yageo (Phycomp) CC0402ZRY5V7BB103 |
| C13 | Capacitor, loop filter, 0603, 1 nF, 50 V | Phycomp 2238 861 15102 |
| C14 | Capacitor, loop filter, 0603, 10 nF, 50 V | AVX 08055C103KAT2A |
| C15 | Capacitor, loop filter, 0603, 330 pF, 50 V | Phycomp 2238 861 15331 |
| C16 | Multilayer ceramic capacitor, 50 V, X7R, 1 nF, \pm 10%, 0402 | Murata GRM155R71H102KA01D |
| C17, C19 | Capacitor, 0603, 10 pF, 50 V | AVX 06035A100JAT2A |
| C18, C28 | Capacitor, 0603, 1 μ F, 25 V | Taiyo Yuden TMK107BJ105KA-T |
| C20, C23 | Capacitor, Case A, 1 μ F, 16 V | AVX TAJA105K016R |
| C22, C25 | Capacitor, Case A, 4.7 μ F, 10 V | AVX TPSA475K010R1400 |
| C26 | Capacitor, Case A, 10 μ F, 6.3 V | Kemet T491A106M016AT |
| C31, C33 | Capacitor, 0805, 10 μ F, 6.3 V | Murata GRM21BR71A106KE51L |
| C34 | Capacitor, 0402, 22 pF, 50 V NPO | Kemet C0402C220J5GACTU |
| C35, C36 | Capacitor, 0402, 12 pF, 50 V | Kemet C0402C120J5GACTU |
| D1 | LED, SMD red | Avago HSMS-C170 |
| D2 | Diode, 1 A, 50 V | Multicomp 1N4001 |
| D3 | Schottky diode, 20 V | Micro Commercial Components, Inc., SD103C-TP |
| D4 | LED, SMD red | Avago HSMS-C170 |
| J1, J2 | Jack SMA end launch tab | Johnson Components 142-0701-851 |
| J3 to J6 | Jack SMA end launch tab (not inserted) | |
| J7 | USB mini-B | Molex 56579-0576 |
| L1, L2 | Ceramic chip inductor, 0402 (not inserted) | |
| L3, L4 | Ceramic chip inductor, 2 nH, 5%, 0402 | Coilcraft 0402CS-2N0X_LU |
| L5, L6 | Ceramic chip inductor, 2 nH, 5%, 0402 | Coilcraft 0402CS-2N0X_LU |
| LK1, LK2 | Header, 1-row, 2-way and jumper socket black | Harwin Plc M20-9990245 and Harwin Plc M7567-05 |
| P1 | Battery clip, PCB mounting | Keystone Electronics Corp. 593+594 |
| R1 to R4, R13, R22 to R24, R27, R36, R38 | Resistor, 0603, 0 Ω | Multicomp MC 0.063W 0603 0R |
| R5 | Resistor, 0603, 51 Ω | Multicomp MC 0.063W 0603 1% 51R |
| R6, R15 | Resistor, 0603, 4.7 k Ω | Multicomp MC 0.063W 0603 1% 4K7 |
| R7, R8, R12, R28, R29, R30 | Resistor, 0603, 10 k Ω | Multicomp MC 0.063W 0603 1% 10K |
| R9 | Resistor, 0603, 100 Ω | Multicomp MC 0.063W 0603 1% 100R |
| R10 | Resistor, loop filter, 0805, 8.2 k Ω | Multicomp MC 0.1W 0805 1% 8K2 |
| R11 | Resistor, loop filter, 0805, 4.3 k Ω | Multicomp MC 0.1W 0805 1% 4K3 |
| R14, R16 | Resistor, 0603, 330 k Ω | Multicomp MC 0.063W 0603 1% 330K |
| R17 to R19 | Resistor, 0603, 330 Ω | Multicomp MC 0.063W 0603 1% 330R |
| R20, R21 | Resistor, 0603, 2.2 k Ω | Multicomp MC 0.063W 0603 1% 2K2 |
| R25, R26 | Resistor, 0603, 470 Ω | Multicomp MC 0.063W 0603 1% 470R |
| R31, R32 | Resistor, 0603, 100 k Ω | Multicomp MC 0.063W 0603 1% 100K |
| R34 | Resistor, 0603, 140 k Ω | Multicomp MC 0.063W 0603 1% 140K |

| Reference Designator | Part Description | Manufacturer/Part No. |
|----------------------|--|-----------------------------------|
| R35 | Resistor, 0603, 78.7 kΩ | Multicomp MC 0.063W 0603 1% 78K7 |
| SW1 | Switch, PCB SPDT | APEM TL36P0050 |
| T1 to T8, T13 to T16 | Terminal, PCB, red, PK100 | Vero Technologies, Ltd. 20-313137 |
| T9 to T12 | Test point (not inserted) | |
| U1 | Integrated integer-N synthesizer | Analog Devices, ADF4360-2BCPZ |
| U2 | High accuracy low dropout linear 5 V regulator | Analog Devices, ADP3300ARTZ-3 |
| U3 | High accuracy low dropout linear 3 V regulator | Analog Devices, ADP3300ARTZ-3 |
| U4 | ADP3334 Adjustable LDO regulator | Analog Devices, ADP3334ARMZ |
| U5 | IC Serial EEPROM 8-SOIC | Microchip 24LC64-ISN |
| U6 | USB Microcontroller | Cypress CY7C68013A-56LFXC |
| Y1 | 10 MHz TCXO (FOX801) | Fox Electronics FOX801-BELF |

**ESD Caution**

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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