

#### **Evaluates: MAXQ Microcontrollers**

#### **General Description**

Features

The MAXQ<sup>®</sup> USB-to-JTAG/1-Wire<sup>®</sup> adapter is a convenient way to interface either the JTAG or 1-Wire port on MAXQ microcontrollers to a PC. The EV kit can be used with compatible software tools running on a host PC to load and debug code on programmable MAXQ microcontrollers. The EV kit contains the MAXQ USB-to-JTAG/1-Wire adapter, an interface cable, and a USB Mini-B cable.

#### **EV Kit Contents**

- MAXQ USB-to-JTAG/1-Wire Adapter (inside enclosure)
- Keyed 10-Pin Interface Ribbon Cable
- ♦ USB Mini-B Cable

- Easily Load and Debug Code
- Interface Provides In-Application Debugging Features
  - ♦ Step-by-Step Execution Tracing
  - ♦ Breakpointing by Code Address, Data Memory Address, or Register Access
  - $\diamond$  Data Memory View and Edit
- Supports Logic Levels from 1.1V to 3.6V
- Supports JTAG and 1-Wire Protocols
- Each Adapter Has Its Own Unique Serial ID, Allowing Multiple Adapters to be Connected Without COM Port Conflicts
- Has In-Field Upgradable Capability if Firmware Needs to be Upgraded
- Enclosure Protects from Shorts and ESD

DESIGNATION	QTY	DESCRIPTION
C1, C3, C6, C8–C11, C15, C16, C18	10	0.1µF, 16V ceramic X7R capacitors (0603) ECJ-1VB1C104K
C2, C4, C7, C14, C17	5	1.0µF, 16V ceramic X7R capacitors (0603) GCM188R71C105KA64D
C5	1	10μF, 6.3V ceramic X7R capacitor (0805) JMK212B7106KG-T
C12, C13	2	18pF, 50V ceramic NP0 capacitors (0402) GRM1555C1H180JZ01D
CN1	1	USB receptacle (Mini-B)
DS1	1	3mm yellow LED WP132XYD
DS2	1	3mm bi-color LED (red/green) 3BC-3-CA-F
F1	1	PTC resettable fuse MF-FSMF035

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

DESIGNATION	QTY	DESCRIPTION
FB1	1	2000 <b>Ω</b> ferrite bead HZ1206C202R-10
P1	1	10-pin 0.1in pitch right-angle male shrouded box header SBH11-PBPC-D05-RA-BK
P2	1	10-position side male shrouded connector header SM10B-SRSS-TB(LF)(SN)
Q1, Q2	2	20V, 2.4A p-channel MOSFETs (SSOT3) FDN304PCT-ND
Q3	1	25V, 220mA n-channel MOSFET (SOT23) FDV301NCT-ND
R1, R2, R13	3	0Ω resistors ERJ-2GE0R00X
R3–R5, R9	4	47kΩ resistors CRCW060347K0FKEA
R6, R14, R16	3	1kΩ resistors CRCW06031K00FKEA

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For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at www.maximintegrated.com.

#### **Component List**

#### **Evaluates: MAXQ Microcontrollers**

DESIGNATION	QTY	DESCRIPTION
R7, R8	2	150 $Ω$ resistors CRCW0603150RFKEA
R10, R15	2	200 $\Omega$ resistors CRCW0603200RFKEA
R11, R12	2	10kΩ resistors CRCW060310K0FKEA
SW1	1	3-pin SPST slide switch
U1	1	500mA, 3.3V LDO linear regulator (8 µMAX®) Maxim MAX1806EUA33+

#### **Component List (continued)**

DESIGNATION	QTY	DESCRIPTION
U2, U3	2	4-bit signal translators FXL4TD245BQX
U4	1	16-bit RISC microcontroller with USB SIE (64 LQFP) Maxim MAXQ622G-0000+
U5	1	Dual high-speed differential ESD-protection IC (6 SOT23) Maxim MAX3207EAUT+
Y1	1	12MHz crystal ABM3-12.000MHZ-D2Y-T



Figure 1. MAXQ USB-to-JTAG/1-Wire Adapter

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#### **Detailed Description**

**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.

The MAXQ USB-to-JTAG/1-Wire Adapter is designed to operate as a USB-to-JTAG or USB-to-1-Wire adapter between programming/debugging tools on the host PC (such as MAX-IDE, MTK, or IAR Embedded Workbench<sup>®</sup> IDE) and a programmable MAXQ microcontroller. The MAXQ622 acts as a USB-to-UART converter and allows the host PC to communicate with the MAXQ622 over a virtual COM port. The MAXQ622 receives commands and data from the PC and handles the task of either driving the four JTAG communication lines (TCK, TMS, TDO, and TDI) or driving the 1-Wire communication line (RST) that connect to another MAXQ microcontroller on a separate EV kit board.

The adapter has two connectors. The first of these is a standard mini-B USB connector that is used to connect the adapter to a USB port on the host PC. The adapter is powered directly over the USB cable. The second connector is the standard 10-pin JTAG interface used by all MAXQ microcontroller EV kits, allowing the adapter to be connected to another MAXQ microcontroller using a 2x5-pin header and 10-pin ribbon cable.

The driver software can be downloaded at <u>www.</u> <u>maximintegrated.com/evkit</u> under MAXQUSBJTAGOW EVKIT Software. Programming and debugging tools can be found at <u>www.maximintegrated.com/products/</u> <u>microcontrollers/development\_tools.cfm</u>.

For more information on the adapter, refer to the MAXQ USB-to-JTAG/1-Wire Adapter: User's Guide.

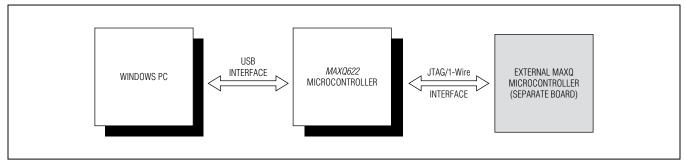


Figure 2. MAXQ USB-to-JTAG/1-Wire Adapter Communications Interface

#### **Evaluates: MAXQ Microcontrollers**

#### Installing the Drivers for Windows XP®

- Download the required driver software. Unzip the driver package (maxusbjtagow.INF) into a working directory.
- Connect the adapter to the PC with the USB cable.
- Open <u>Device Manager</u> in the control panel under <u>System and Security</u> → <u>System</u> under the Hardware tab.
- Look for the adapter under <u>Ports (COM & LPT)</u>. It should show up as MAXQ622 USB-to-JTAG/OWL Dongle. Rightclick and select the option Update Driver...

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HSIEH-XP         Batteries         Computer         Disk drives         Disk drives         Display adapters         DVD/CD-ROM drives         Human Interface Devices         IDE ATA/ATAPI controllers         Keyboards         Mice and other pointing devices         Monitors         Ports (COM & LPT)         MAXQ622 USB-to         Printer Port (LPTI)         Disable         Universal Serial Bus cor         Properties	
Launches the Hardware Update Wizard for the selected device.	

Figure 3. Installing the Driver Through the Device Manager on XP

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Select Install from a list or specific location (Advanced) and click Next.



Figure 4. Hardware Update Wizard—Install from a Specific Location

## **Evaluates: MAXQ Microcontrollers**

• Select Don't search. I will choose the driver to install and click Next.

Hardware Update Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM)
Include this location in the search:
C:\Documents and Settings\Alex Hsieh\My Docume 😽 🛛 Browse
On't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back Next > Cancel

Figure 5. Hardware Update Wizard—Choose the Driver to Install

## **Evaluates: MAXQ Microcontrollers**

• Click Have Disk... to select the INF file.

Hardware	e Update Wizard
Select	the device driver you want to install for this hardware.
	Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
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Model	
	<u>H</u> ave Disk
	< <u>B</u> ack <u>N</u> ext > Cancel

Figure 6. Hardware Update Wizard—Select Device Driver

## **Evaluates: MAXQ Microcontrollers**

• Click **Browse...**, then select the INF file, **maxusbjtagow.INF**. Click **OK**, then **Next**.

Hardware Update Wizard					
Se	elect the d	evice driver you want to install for this hardware.			
3	Install F	rom Disk 🛛 🔀			
S M		Insert the manufacturer's installation disk, and then make sure that the correct drive is selected below.			
		Copy manufacturer's files from:			
⚠		C:\INF Location\ Browse			
		< Back Next > Cancel			

Figure 7. Hardware Update Wizard—Install from Disk

## **Evaluates: MAXQ Microcontrollers**

• A hardware installation warning pops up. Click Continue Anyway.

Hardwa	Hardware Update Wizard				
Plea	Hardware Installation				
	The software you are installing for this hardware: MAXQ USB Serial Port				
	has not passed Windows Logo testing to verify its compatibility with Windows XP. ( <u>Tell me why this testing is important.</u> ) <b>Continuing your installation of this software may impair</b>				
	or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.				
	Continue Anyway STOP Installation				
	< Back Next > Ca	ancel			

Figure 8. Hardware Update Wizard—Hardware Installation

#### **Evaluates: MAXQ Microcontrollers**

• After the Windows OS completes installing the software, click Finish to close the Hardware Update Wizard.



Figure 9. Hardware Update Wizard—Completing the Hardware Update Wizard

#### **Evaluates: MAXQ Microcontrollers**

 Now, in the <u>Device Manager</u>, the adapter should appear under <u>Ports (COM & LPT)</u> as <u>Maxim USB-to-JTAG/1-Wire</u> <u>Adapter (COMx)</u>, where x is the port number.

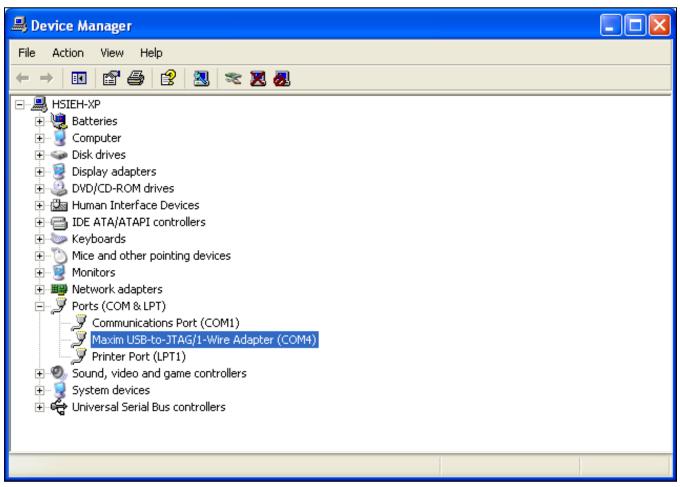


Figure 10. Device Manager After Successful Installation

### **Evaluates: MAXQ Microcontrollers**

#### Installing the Drivers for Windows<sup>®</sup> 7

- Download the required driver software. Unzip the driver package (maxusbjtagow.INF) into a working directory
- Connect the adapter to the PC with the USB cable
- Open Device Manager in the control panel under System and Security
- Look for the adapter under <u>Ports (COM & LPT)</u>. It should show up as MAXQ622 USB-to-JTAG/OWL Dongle. Rightclick and select the option Update Driver Software...

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🕀 🦢 Batteries	
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Disk drives	
🗄 📲 Display adapters	
E → Sungo	
E Mice and other pointing devices	
🗄 📲 Monitors	
🗄 👰 Network adapters	
📲 Cisco AnyConnect VPN Virtual Miniport Adapter for Windows x64	
📲 Intel(R) 82579LM Gigabit Network Connection	
VMware Virtual Ethernet Adapter for VMnet1	
Will Ware Virtual Ethernet Adapter for VMnet8	
È⊡// Dother devices	
PCI Ser Update Driver Software	
Processors Uninstall	
Final Sound, vide	
E- System de	
Universal S Properties	
Launches the Update Driver Software Wizard for the selected device.	

Figure 11. Installing the Driver Through the Device Manager on Windows 7

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

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• Click the **Browse my computer for driver software**.

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🖃 🛁 dal-dt-Mlab(	9	
E - P Batt E - I Cor	Update Driver Software - MAXQ622 USB-to-JTAG/OWL Dongle	
⊡ ⊡ Disk	🔋 🔟 Update Driver Software - MAXQ622 USB-to-JTAG/OWL Dongle	
E - E DVC E - U = Hur E - C = IDE	How do you want to search for driver software?	
in in in iteration in the second sec	Search automatically for updated driver software Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.	
	Browse my computer for driver software Locate and install driver software manually.	
⊕ Proc ⊕ Sou ⊕ Sou ⊕ Sysl ⊕ Univ		
	Cancel	

Figure 12. Update Driver Software—Search for Driver Software

### **Evaluates: MAXQ Microcontrollers**

• Select Let me pick from a list of device drivers on my computer.

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Batt Con Con Content Software - MAXQ622 USB-to-JTAG/OWL Dongle	×
Disk 🕞 🔟 Update Driver Software - MAXQ622 USB-to-JTAG/OWL Dongle	
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General DE     General DE     General Dur     Search for driver software in this location:     General Key	
	owse
Petr Include subfolders	
<ul> <li>Let me pick from a list of device drivers on my computer</li> <li>This list will show installed driver software compatible with the device, and all drive the same category as the device.</li> <li>Proc</li> <li>Sou</li> <li>System</li> <li>Univ</li> </ul>	r software in
	Next Cancel

Figure 13. Update Driver Software—Browse for Driver Software

## **Evaluates: MAXQ Microcontrollers**

• Select **Ports (COM & LPT)** as the device type.

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🗄 🖳 Disp		
	Select your device's type from the list below.	
⊡	Common <u>h</u> ardware types:	
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🕂 🛨 🔤 Mor	network Client	
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	BNetwork Service	
	Non-Plug and Play Drivers	
<u>ē</u>	PCMCIA adapters     Portable Devices	
e- 🗗 Oth	Ports (COM & LPT)	
	- Printers	
🕀 🖓 Port	Processors	
🗄 🛄 Proc	🐺 SBP2 IEEE 1394 Devices	
⊡…≋ Sou ⊕-₁∎ Sysi	SD host adapters	
	Next Cancel	

Figure 14. Update Driver Software—Select Device Type

## **Evaluates: MAXQ Microcontrollers**

• In the next window, select <u>Have Disk...</u> and select the INF file, maxusbjtagow.INF. Click OK then <u>Next</u>.

🚔 Device Manager	
File Action View Help	
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	_
DVC Hun Select the device driver you want to install for this hardware.	
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(Standard	
Brother Brother	
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E Syst Tell me why driver signing is important	
Next Cancel	
	-

Figure 15. Update Driver Software—Install From Disk

#### **Evaluates: MAXQ Microcontrollers**

• While installing the driver software, <u>Windows Security</u> warns about the driver not being signed. Click <u>Install this</u> <u>driver software anyway</u>.

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Disk Update Driver Software - MAXQ622 USB-to-JTAG/OWL Dongle		
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Here Mice		
Mor Security		
Windows can't verify the publisher of this driver software		
→ Don't install this driver software		
Tou should check your manufacturer's website for updated driver software for your		
Port     Port     Only install driver software anyway     Only install driver software obtained from your manufacturer's website or disc.		
Proc Only install oriver software obtained from your manufacturer's website or oisc.     Unsigned software from other sources may harm your computer or steal information.		
E n Syst		
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Figure 16. Update Driver Software—Bypassing Windows Security

#### **Evaluates: MAXQ Microcontrollers**

• After Windows completes software installation, click Close.

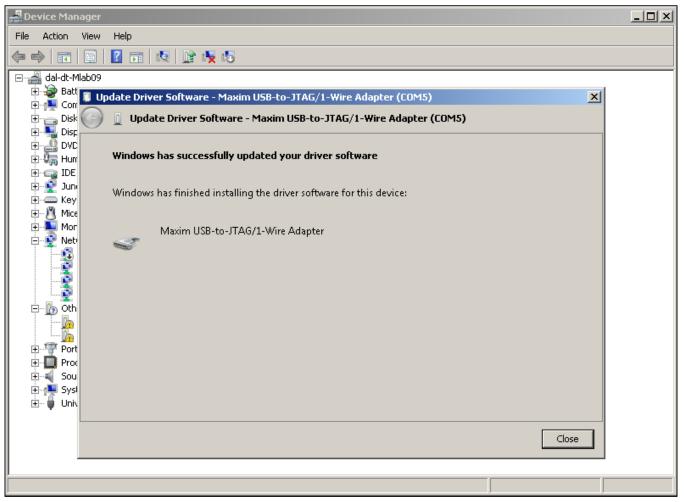


Figure 17. Update Driver Software—Update Done

#### **Evaluates: MAXQ Microcontrollers**

• Now, in the <u>Device Manager</u>, the adapter should appear under <u>Ports (COM & LPT)</u> as <u>Maxim USB-to-JTAG/1-</u> <u>Wire Adapter (COMx)</u>, where x is the port number.

🚔 Device Manager	<u>_     ×</u>
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E Monitors	
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Cisco AnyConnect VPN Virtual Miniport Adapter for Windows x64	
Whether Virtual Ethernet Adapter for VMnet1	
VMware Virtual Ethernet Adapter for VMnet8	
🛱 🕼 Other devices	
🔚 hr PCI Serial Port	
🗄 🐨 Ports (COM & LPT)	
Communications Port (COM1)	
Maxim USB-to-JTAG/1-Wire Adapter (COM5)	
🗄 📲 Sound, video and game controllers	
🕀 📲 System devices	
🗄 🖷 🏺 Universal Serial Bus controllers	

Figure 18. Device Manager After Installation on Windows 7

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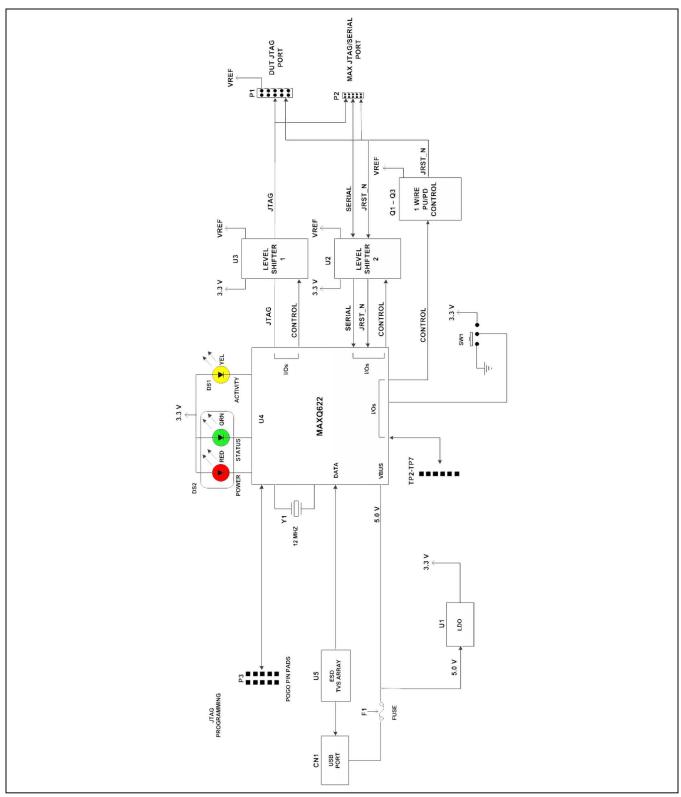


Figure 19. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 1 of 3)

#### **Evaluates: MAXQ Microcontrollers**

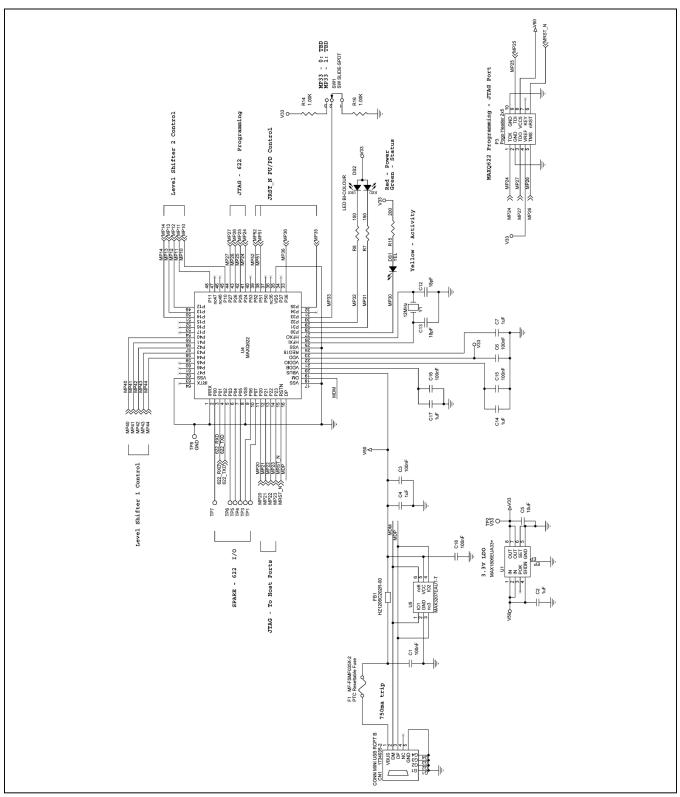


Figure 20. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 2 of 3)

## **Evaluates: MAXQ Microcontrollers**

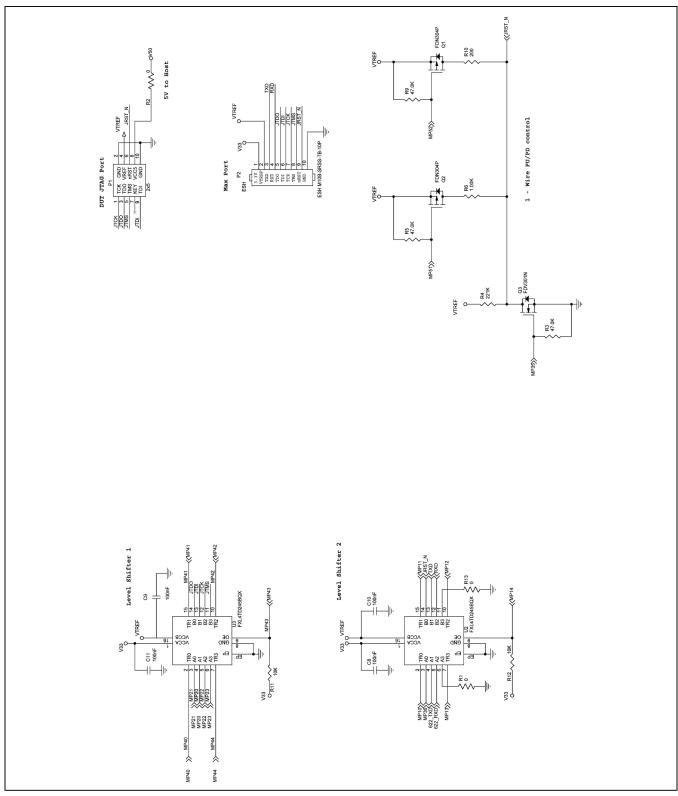


Figure 21. MAXQ USB-to-JTAG/1-Wire Adapter EV Kit Schematic (Sheet 3 of 3)

#### **Evaluates: MAXQ Microcontrollers**

#### **Ordering Information**

PART	TYPE
MAXQUSBJTAGOW-KIT#	Adapter

*#Denotes a RoHS-compliant device that may include lead that is exempt under the RoHS requirements.* 

#### **Evaluates: MAXQ Microcontrollers**

#### **Revision History**

24

REVISION	REVISION	DESCRIPTION	PAGES
NUMBER	DATE		CHANGED
0	11/12	Initial release	—

Maxim cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim product. No circuit patent licenses are implied. Maxim reserves the right to change the circuitry and specifications without notice at any time.

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