

# DS90UA101-Q1EVM & DS90UA102-Q1EVM REV. E1 DS90UA101-Q1EVM User's Guide

This section provides an overview of the DS90UA101-Q1EVM and DS90UA102-Q1EVM evaluation modules, their contents, ordering information for adapters and cables, quick setup guide, and troubleshooting information.

## 1.1 Overview

The Texas Instruments DS90UA101-Q1EVM Evaluation Module (EVM), when used in conjunction with the DS90UA102-Q1EVM, provides an easy way to evaluate the operation and performance of the DS90UA101-Q1 / DS90UA102-Q1 Multi-Channel Digital Audio Serializer/Deserializer.

Figure 1-1 below shows the setup of the two EVMs.

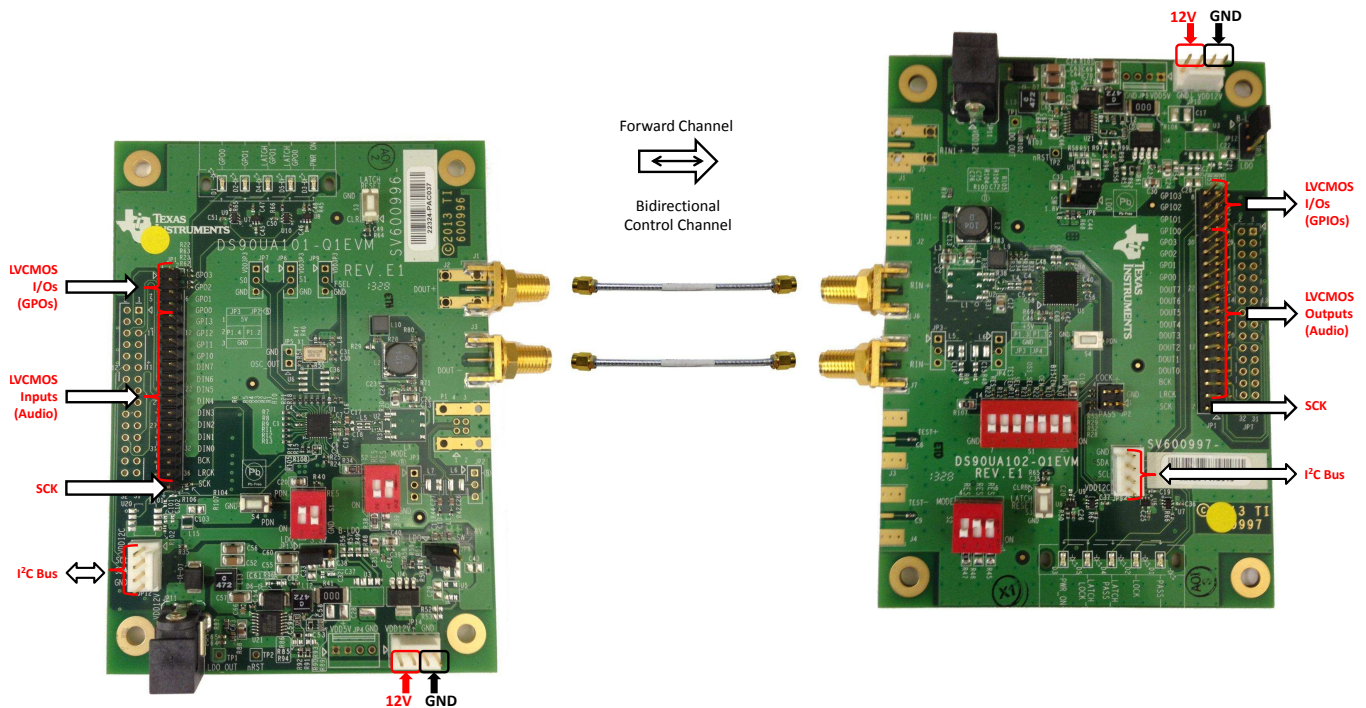


Figure 1-1. DS90UA101-Q1EVM & DS90UA102-Q1EVM Pair

## 1.2 Contents of DS90UA101-Q1EVM and DS90UA102-Q1EVM REV. E1 <sup>(1)</sup> <sup>(2)</sup>

The DS90UA101-Q1EVM REV. E1 contains the following item(s):

- DS90UA101-Q1 evaluation board, revision E1.

The DS90UA102-Q1EVM REV. E1 contains the following item(s):

- <sup>(1)</sup> Coaxial cables are not provided with the EVM.
- <sup>(2)</sup> SMA-STP adapter and STP cable are not provided with the EVM.

- DS90UA102-Q1 evaluation board, revision E1.
- Other components required: 12V power supply and two (2) 50Ω coaxial cables.  
 Optional requirements (for I<sup>2</sup>C control): SPA Dongle and ALP software.

**1.2.1 Specification for Orderable Coaxial Cable:** <sup>(3)</sup>

The DS90UA101-Q1EVM and DS90UA102-Q1EVM work with standard 50Ω coaxial cables terminated with SMA connectors. The cable assembly can be ordered from Digi-Key, such as the ACX1571-ND cable assembly.

**1.2.2 Specification for Orderable SMA-STP Adapter and STP Cable**

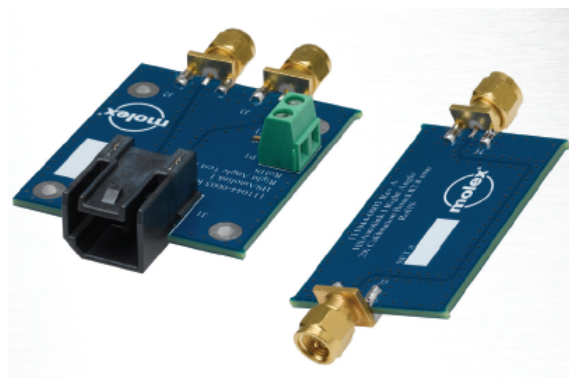
**1.2.2.1 Specification for Orderable SMA-STP Adapter:**

Many applications use 100Ω differential STP cable. To interface an STP cable with the DS90UA101-Q1EVM/DS90UA102-Q1EVM pair, an SMA-STP adapter is used. The adapter can be ordered from Molex (Contact: [Table 1-1](#), Part #: 111044-0003, [Figure 1-2](#)). Refer to [Section 1.2.2.2](#) for ordering matching STP cable.

<sup>(3)</sup> Not a specific recommendation, for evaluation purpose only.

**Table 1-1. SMA-STP Adapter Ordering Contacts**

Region	Contact	Email
USA	Mike Gardner	Mike.Gardner@molex.com
EUROPE	Laurent Stickeir	Laurent.Stickeir@molex.com
JAPAN	Masahiro Sakano	Masahiro.Sakano@molex.com



**Figure 1-2. AutoLink I Right Angle – Molex Part Number 111044-0003**

**1.2.2.2 Specification for Orderable STP Cable:**

The 100Ω differential STP cable, which works with the SMA-STP adapter ([Section 1.2.2.1](#)), can be ordered directly from Digi-Key: WM5026-ND.

**1.3 Quick Setup of EVMs**

This subsection is a setup guide to get up and running quickly, using all factory default board settings. Refer to [Chapter 2](#) for a more detailed description of the boards, and refer to [Chapter 4](#) for additional board configurations/features. Schematics and BOMs of the boards can be found in [Appendix A](#) and [Appendix B](#), respectively.

[Figure 1-3](#) below shows the default factory settings for DS90UA101-Q1EVM. Make sure S1, S2, JP8, and JP13 of Serializer board are configured as pictured.

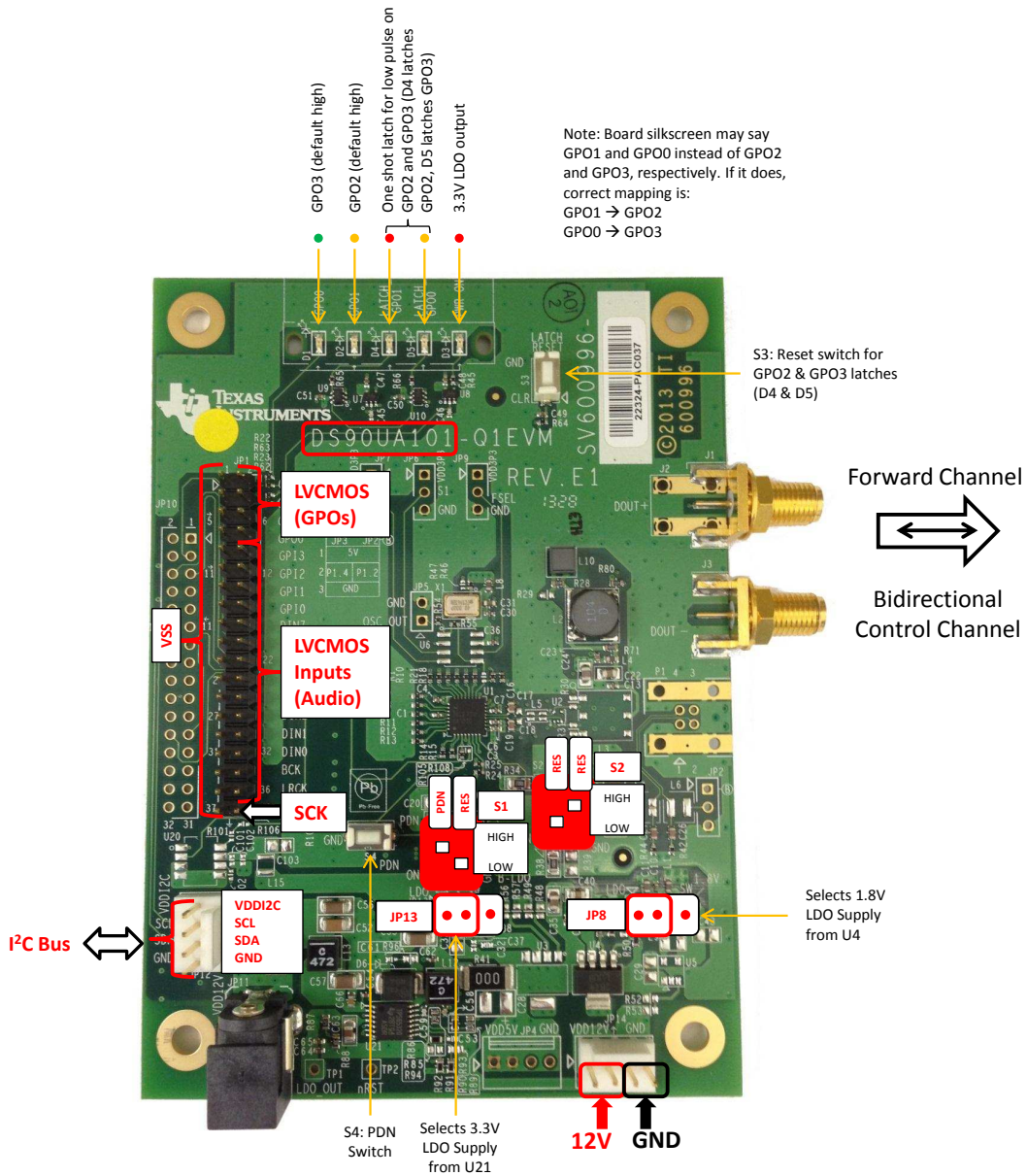
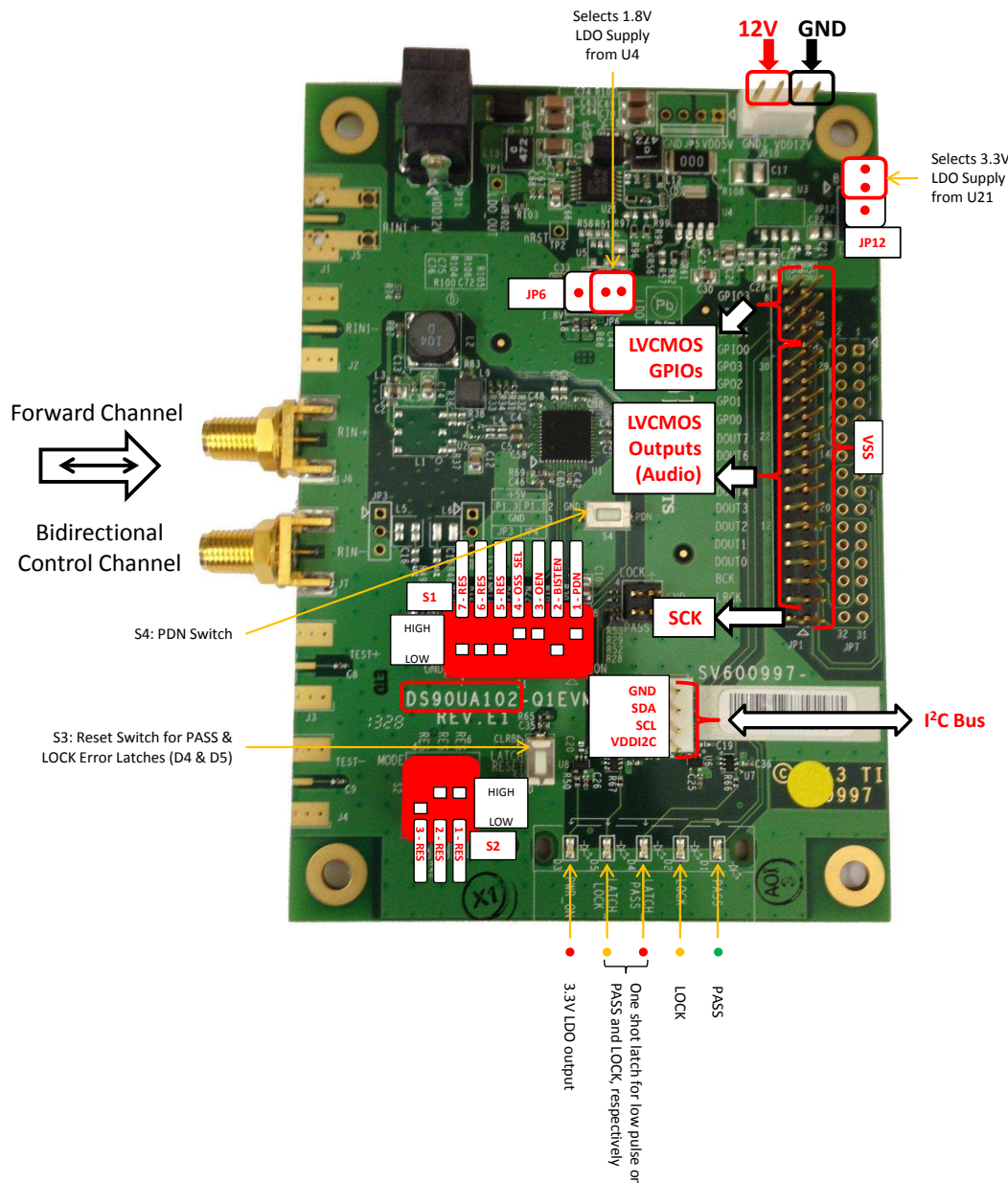


Figure 1-3. Default Settings for DS90UA101-Q1EVM REV. E1 Serializer Board

Figure 1-4 below shows the default factory settings for DS90UA102-Q1EVM. Make sure S1, S2, JP6, and JP12 of Deserializer board are configured as pictured.



**Figure 1-4. Default Factory Settings for DS90UA102-Q1EVM REV. E1 Deserializer Board**

After configuring the individual EVMs, follow the steps below to connect them together:

- Connect the DS90UA101-Q1EVM and DS90UA102-Q1EVM evaluation boards using two (2) coax cables.
  - Match DOUT+ on Serializer board to RIN+ on Deserializer Board, and DOUT- to RIN-.
- Connect 12V power to Deserializer board and Serializer board (recommended current limit is 300mA for each board).
- Look for the LED D2 (LOCK) to light up on the DS90UA102-Q1 board. If the LED is lit and stable, then the DS90UA102-Q1 is LOCKED to the serial stream sent from the DS90UA101-Q1.

CONGRATULATIONS, you are up and running! If not, continue to the next section, [Section 1.4](#).

## 1.4 Troubleshooting the EVM Setup

1. Check power supply polarity!!! Warning: reverse supply polarity can damage the board.
2. Check to make sure there is sufficient current by checking the voltage supplied to the boards (should be ~12V).
3. Check to make sure there is a signal by probing both C17 AND C18 on SER board and C4 AND C5 on DES board. This checks serial stream sent from the SER to the DES to see if it is present.
4. Using an oscilloscope, monitor the LOCK signal at pin 4 (pin 3 is GND) of connector JP2 on DES board. Do not rely on visual inspection of D2 (Lock LED) present on Deserializer board.
5. With no SCK input applied on SER board, SCK output frequency on DES board should be ~25MHz for the default settings.
6. Go back to [Figure 1-3](#) and [Figure 1-4](#) to double check factory settings.

## Board Setup Details

This section describes the different interfaces (power connections, serial interface, etc.) on the board, as well as describe the different board settings (jumpers and switches) in more detail.

### 2.1 Board Interfaces

#### 2.1.1 Board Interfaces: Power Connections

To power the Serializer board:

1. Connect 12V to pin 1 or 2 of JP14, OR connect 12V via Power Jack on JP11. (Refer [Figure 2-1](#))
2. Connect ground to pin 3 or 4 of JP14. (Refer [Figure 2-1](#))

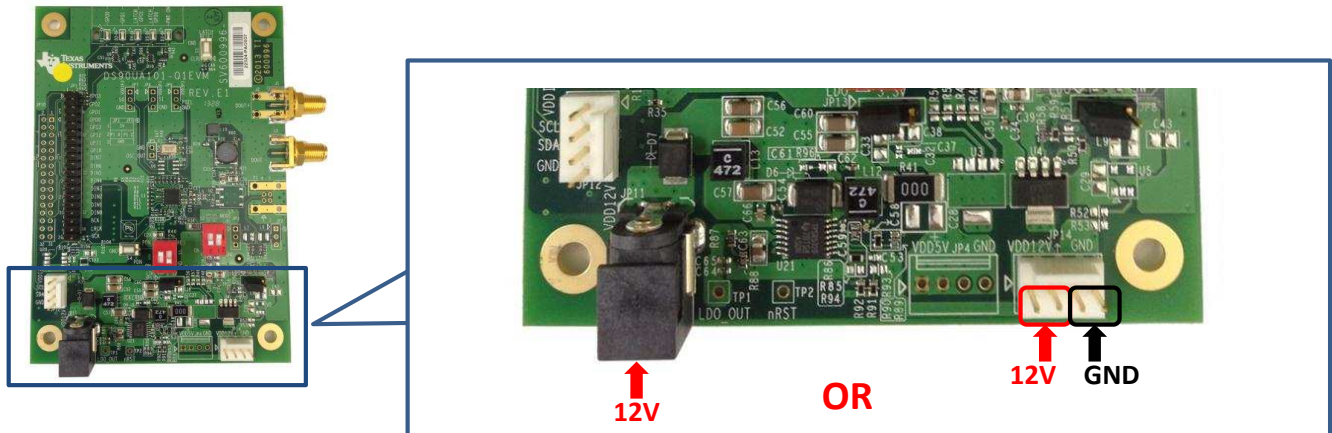


Figure 2-1. Powering the DS90UA101-Q1 Evaluation Board

To power the Deserializer board:

1. Connect 12V to pin 1 or 2 of JP10, OR connect 12V via Power Jack on JP11. (Refer [Figure 2-2](#))
2. Connect ground to pin 3 or 4 of JP10. (Refer [Figure 2-2](#))

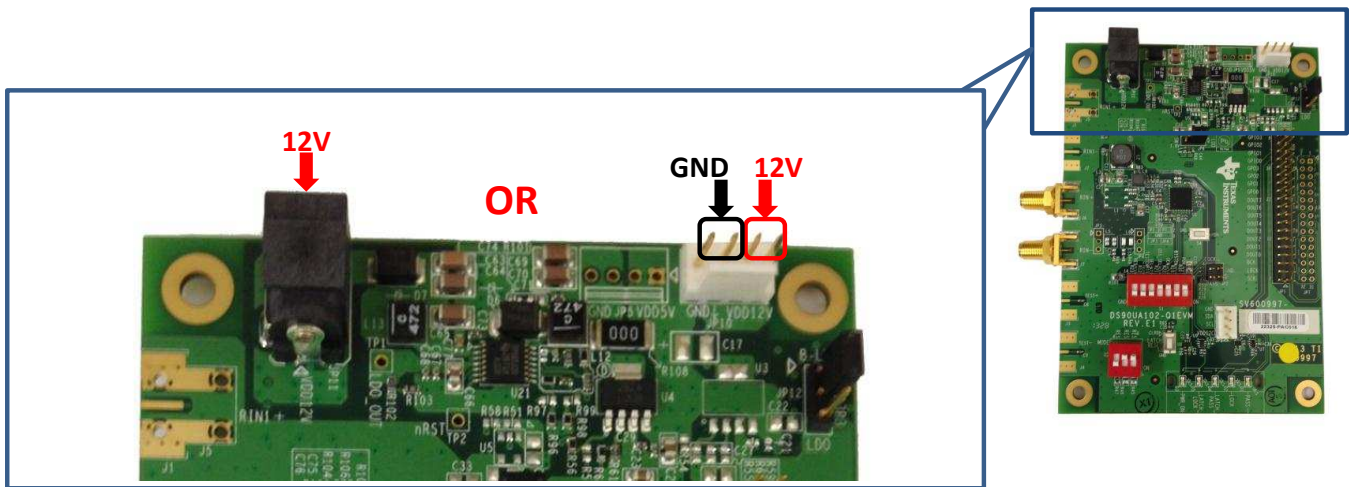


Figure 2-2. Powering the DS90UA102-Q1 Evaluation Board

### 2.1.2 Board Interfaces: Serial Interface Connection

SMA connectors are the default interface connections on both boards. The serial stream comes out of the Serializer board and into the Deserializer board. Interface the two boards as follows: DOUT+ (J1, SER) → RIN+ (J6, DES) and DOUT- (J3, SER) → RIN- (J7, DES). Refer to [Figure 2-3](#).

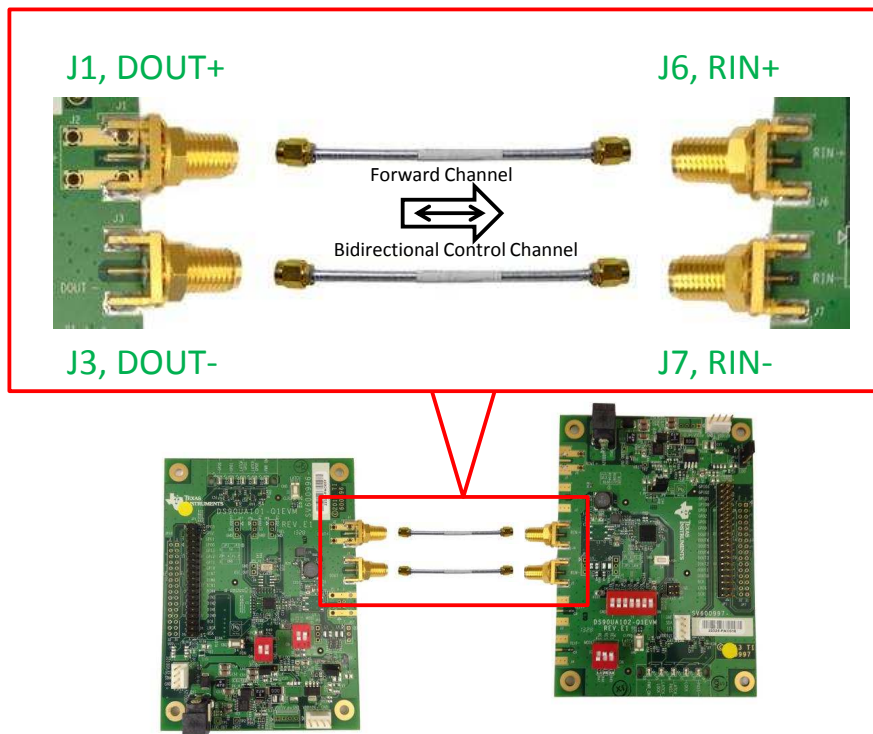
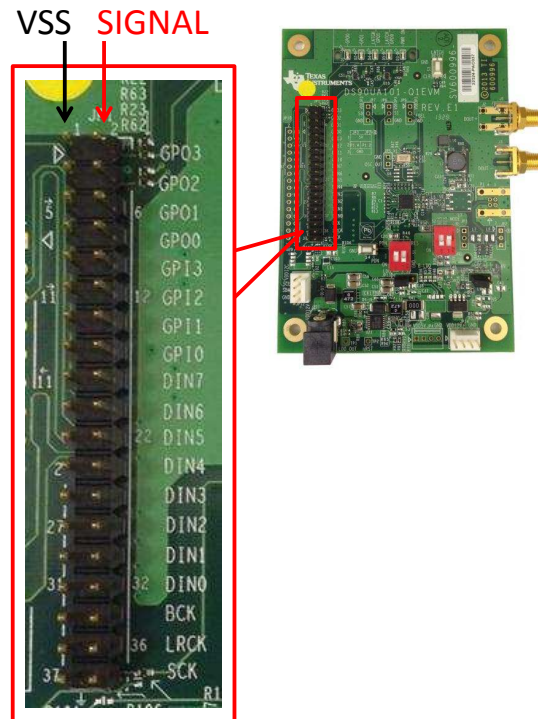


Figure 2-3. Serial Link Connection Using 2 SMA Cable Assemblies.

### 2.1.3 Board Interfaces: Digital Audio Inputs (On DS90UA101-Q1EVM)

The following pins are input pins for the digital audio interface on the DS90UA101-Q1 Serializer board: JP1 – GPI[3:0], DIN[7:0], BCK, LRCK, SCK. The even numbered pins are the input signals. All the odd numbered pins are connected to VSS. Refer to [Figure 2-4](#) below.

The other 4 pins of JP1, GPO[3:0], are general purpose outputs that reflect general purpose inputs fed into GPIO[3:0] of DS90UA102-Q1EVM. Their outputs can also be be programmed through local registers.



**Figure 2-4. Parallel Input Connector on Serializer Board for Digital Audio Inputs**

### 2.1.4 Board Interfaces: Digital Audio Outputs(On DS90UA102-Q1EVM)

The following pins are output pins for the digital audio interface on the DS90UA102-Q1 Deserializer board: JP1 – GPO[3:0], DOUT[7:0], BCK, LRCK, SCK. The even numbered pins are the input signals. All the odd numbered pins are connected to VSS. Refer to [Figure 2-5](#) below.

Four pins of JP8, GPIO[3:0], can also act as general purpose inputs/outputs. When acting as general purpose inputs, these signals are transferred across the serial interface to the Serializer board, where they are output on the Serializer's GPO[3:0]. When acting as outputs, their values can be programmed through the Deserializer's local registers.



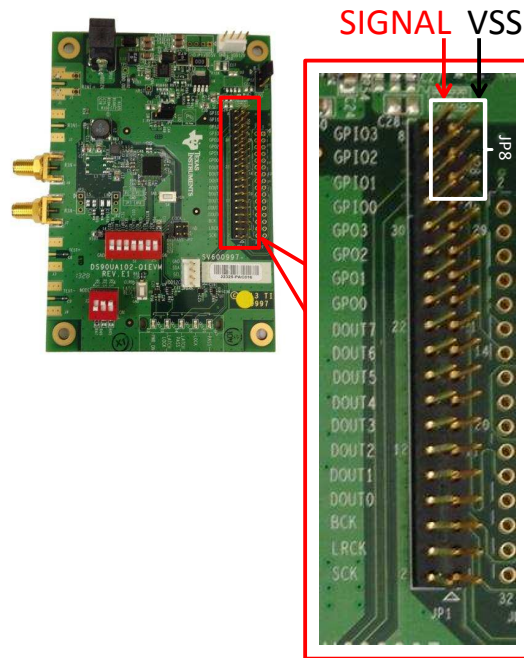


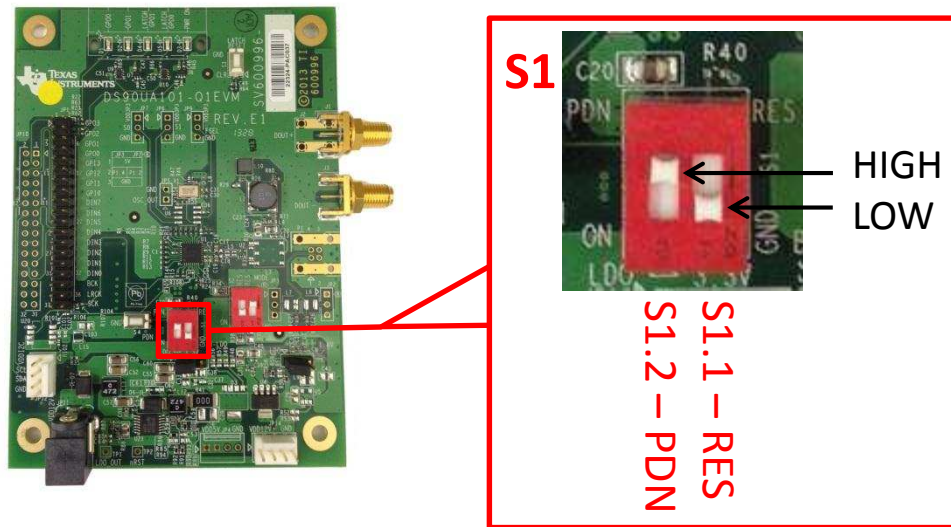
Figure 2-5. Parallel Output Connector on Deserializer Board for Digital Audio Outputs

## 2.2 Factory Default Configuration of Switch and Jumpers

### 2.2.1 DS90UA101-Q1EVM Serializer Board Default Configuration

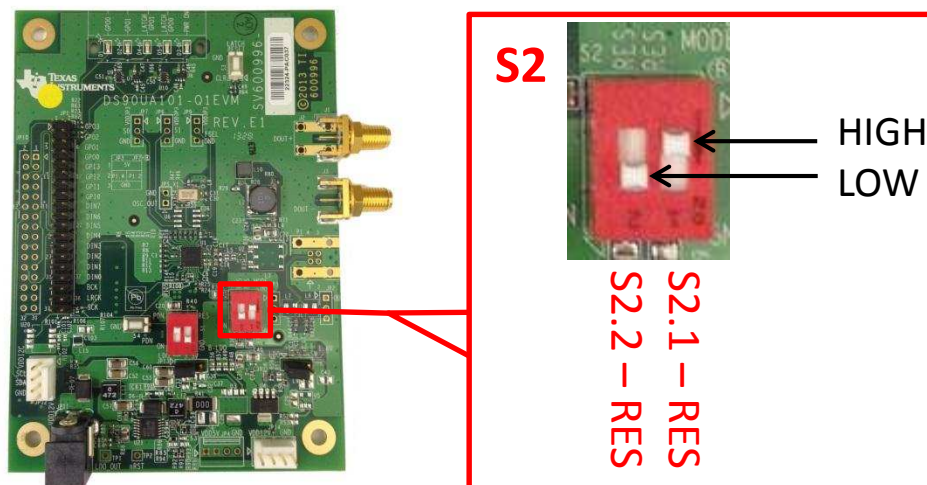
S1, S2, JP8 and JP13 of Serializer board are factory configured as shown in [Figure 1-3](#) for plug and play operation.

1. The S1 switch is factory set as shown in [Figure 2-6](#).  
The PDN switch (S1.2) is set HIGH and will turn on the DS90UA101-Q1 upon power up. This switch is connected to PDB pin of the device.  
The RES pin (S1.1) is pulled low as recommended by datasheet.



**Figure 2-6. Switch S1: Default settings on Serializer Board**

- Switch S2 is factory set as shown below in [Figure 2-7](#). This switch is used to set the resistive divider for the SET pin on the DS90UA101-Q1, as recommended by the datasheet. Leave these settings unchanged.



**Figure 2-7. Switch S2: Default settings on Serializer Board**

- S3 is a momentary switch, which is present on the top right corner of the SER board. Press this switch to clear the output of one-shot latches for GPO3 and GPO2.
- S4 is a momentary switch for Transmitter (Serializer) Power Down.
- On JP8 and JP13, a 2-pin jumper is factory placed as shown in [Figure 1-3](#). This selects power from U4 for 1.8V  $V_{DD}$  and from U21 for 3.3V  $V_{DDIO}$ .

### 2.2.2 DS90UA102-Q1EVM Deserializer Board Default Configuration

S1, S2, JP6, JP12 of Deserializer board are factory configured as shown in [Figure 1-4](#) for plug and play operation.

1. The S1 switch is factory set as shown below in [Figure 2-8](#).
  - (a) The PDN switch is set high and will turn on the DS90UA102-Q1 upon power up. This switch is connected to PDB pin of the device.
  - (b) The OEN and OSS\_SEL switch are set HIGH and will enable the DS90UA102-Q1 outputs to toggle upon power up.
 Refer [Table 2-1](#) for more details.

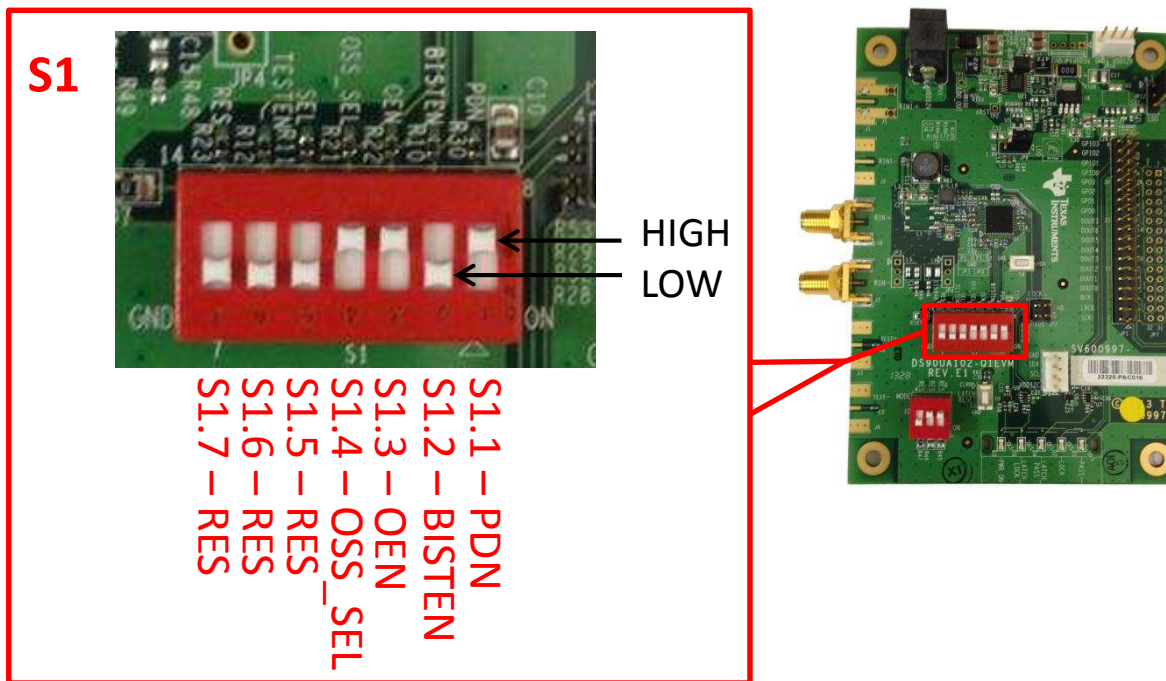
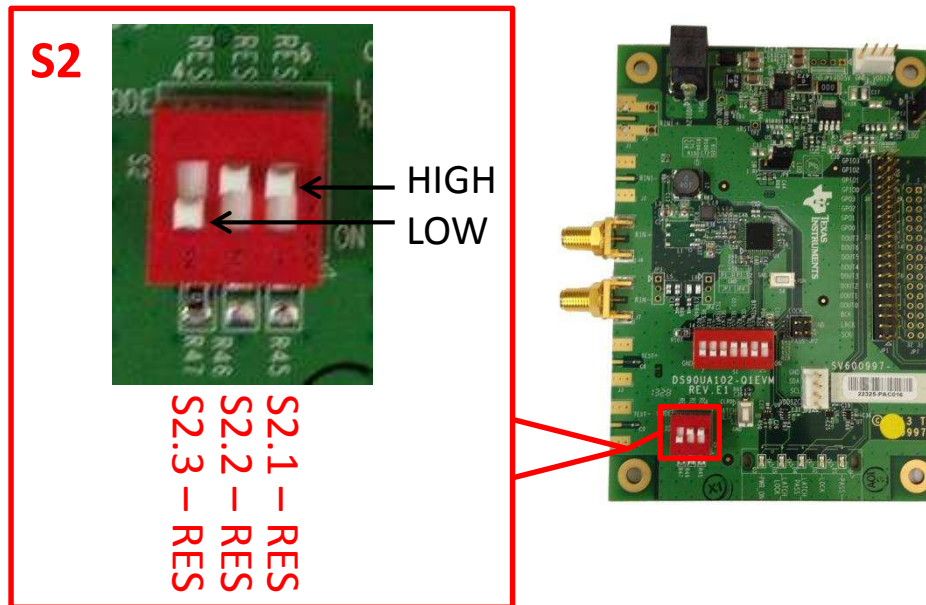


Figure 2-8. Switch S1: Default settings on Deserializer Board

Table 2-1. Switch S1: Deserializer Board

Switch reference	Default Setting	Function
S1.1 - PDN	High	HIGH: Deserializer is enabled and ON. LOW: Deserializer is in sleep (power down) mode. In this mode, register data are NOT retained and are reset to default values.
S1.2 - BISTEN	Low	HIGH: BIST mode enabled. LOW: BIST mode disabled.
S1.3 - OEN	High	Refer to the "Output States" table in the device datasheet. Default settings are used in normal operation.
S1.4 - OSS SEL		
S1.5 - RES	Low	Reserved and must always be set LOW.
S1.6 - RES		
S1.7 - RES		

- The S2 switch is factory set as shown below in [Figure 2-9](#). This switch is used to set the RESERVED pins of the device. Leave these settings unchanged.



**Figure 2-9. Switch S2: Default settings on Deserializer Board**

- S3 is a momentary switch located at the bottom center of the DES board. Press this switch to clear the output of one-shot latches for LOCK and PASS.
- S4 is a momentary switch for Receiver (Deserializer) Power Down.
- On JP6 and JP12, a 2-pin jumper is factory placed as shown in [Figure 1-4](#). This selects power for 1.8V  $V_{DD}$  from U4 and 3.3V  $V_{DDIO}$  from U21.

This section goes over hardware and software setup to communicate with the chipset over I<sup>2</sup>C.

### 3.1 Default I<sup>2</sup>C Addresses

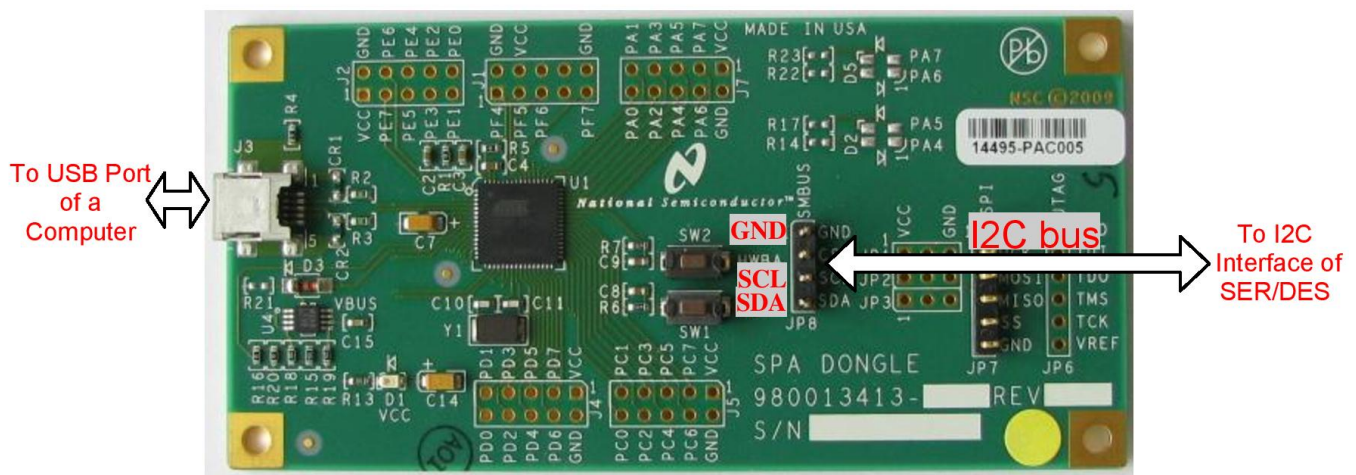
The default 7-bit I<sup>2</sup>C address of DS90UA101-Q1 is set to 0x58 (101 1000) using a suitable resistor divider on its IDx pin. Also, the default 7-bit I<sup>2</sup>C address of DS90UA102-Q1 is set to 0x60 (110 0000). Change resistor R25 on Serializer board and R33 on Deserializer board to change the I<sup>2</sup>C address of these devices. Refer to the device datasheets for more information.

### 3.2 SPA Dongle Board <sup>(1) (2)</sup>

The SPA dongle is required to use interactive GUI over I<sup>2</sup>C i.e., ALP (Analog LaunchPAD). Download and install ALP from: <http://www.ti.com/tool/ALP>.

Before using ALP for these devices, it is also required to download DS90UA101-Q1/DS90UA102-Q1 ALP profiles from the same web page and copy DS90UA101-Q1 & DS90UA102-Q1 folders to location: [Program Files\National Semiconductor Corp\Analog LaunchPAD vx.xx.xxxx\Profiles](#) on your system.

The SPA dongle is shown in [Figure 3-1](#) given below. It is powered through USB and LED D1 will light up RED when the SPA dongle is connected to a computer to indicate that the board is powered.



**Figure 3-1. SPA Dongle**

As shown in above [Figure 3-1](#), I<sup>2</sup>C port of DS90UA101-Q1 (JP12) or DS90UA102-Q1 (JP9) evaluation board must be connected to connector, JP8 on SPA dongle.

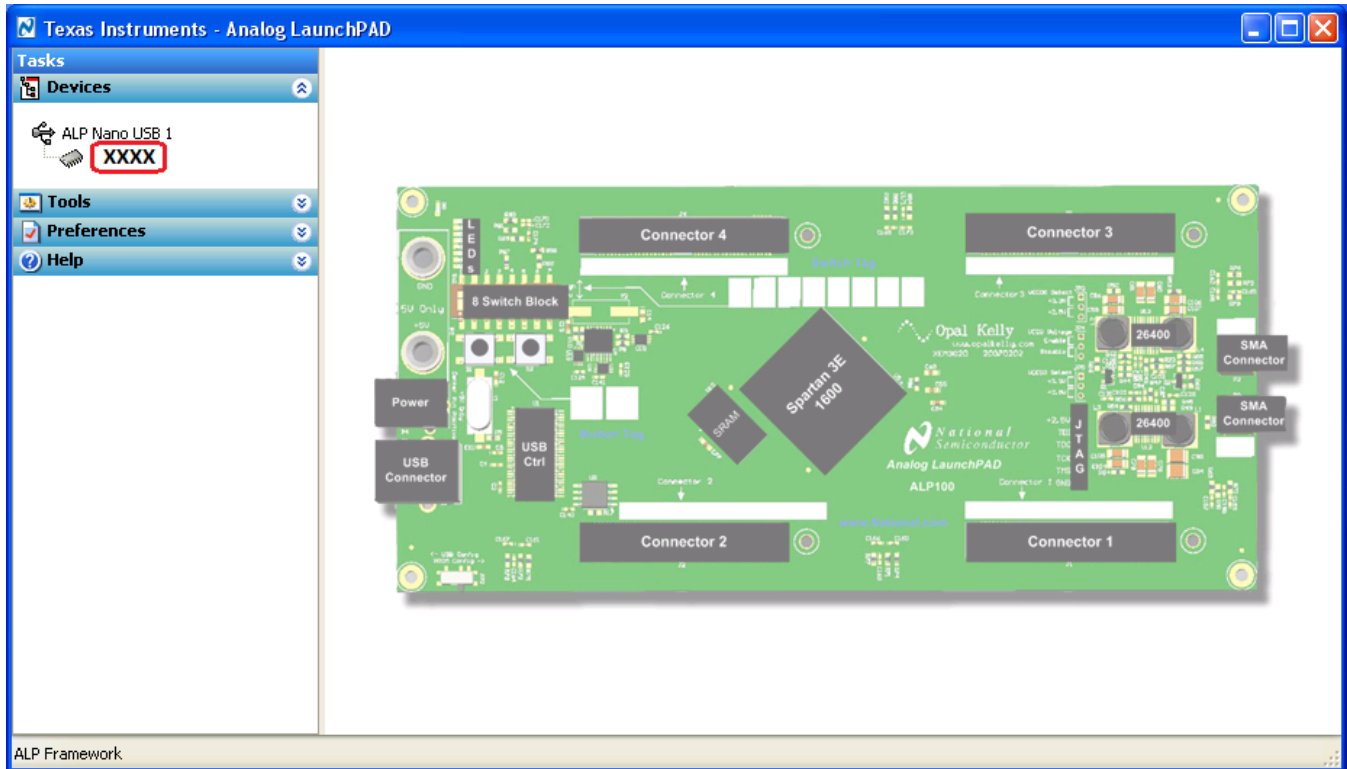
Refer [Figure 1-3](#) and [Figure 1-4](#) to find these connections.

#### 3.2.1 EEPROM Setup of SPA Dongle

Once ALP software is running and SPA dongle is connected as stated above, the following steps are required to communicate with a particular device. The example below sets up ALP for the DS90UA101-Q1:

(1) Not provided with the EVM.  
(2) Any I<sup>2</sup>C controller that supports clock stretching can be used.

1. Under the **Devices** tab, there could be any device name at the place highlighted in RED as shown in [Figure 3-2](#).



**Figure 3-2. Devices Tab**

2. To communicate with a particular device, go to **Tools > EEPROM Setup** ([Figure 3-3](#)) .

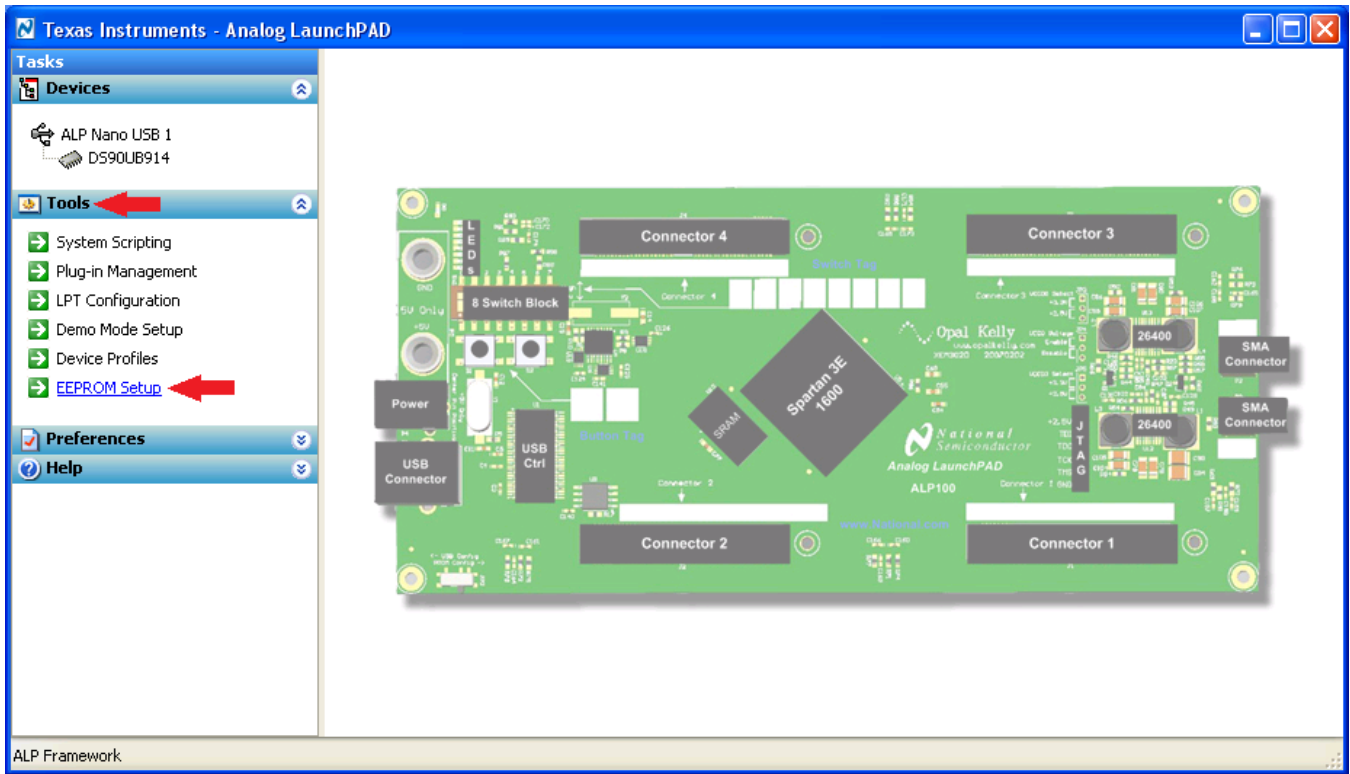


Figure 3-3. Tools Tab

3. Select the current device, which will be highlighted in BLUE as shown in Figure 3-4.

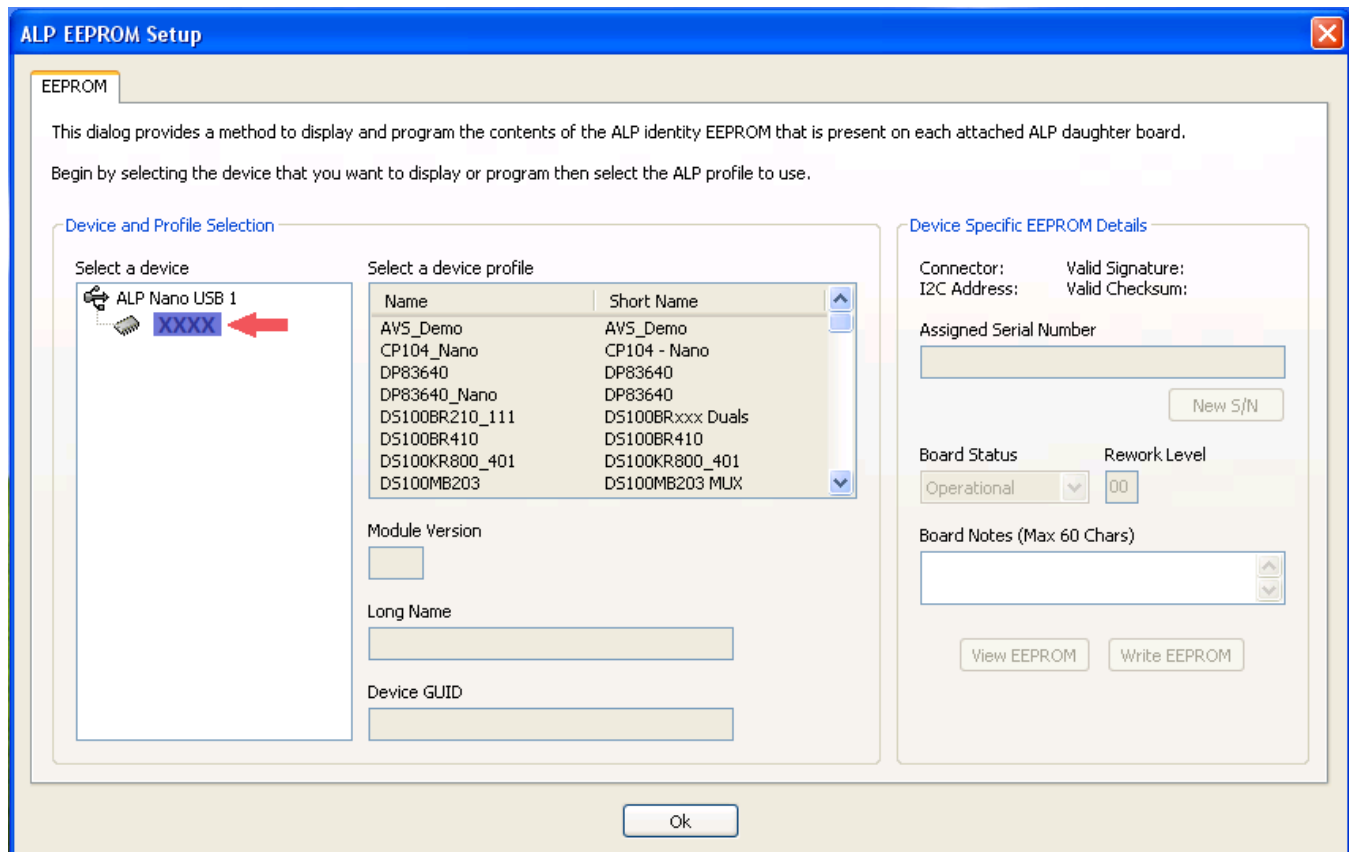


Figure 3-4. ALP EEPROM Setup Window1

4. **Select a device profile**, which is **DS90UA101** for example, and then click on **Write EEPROM** (Figure 3-5).



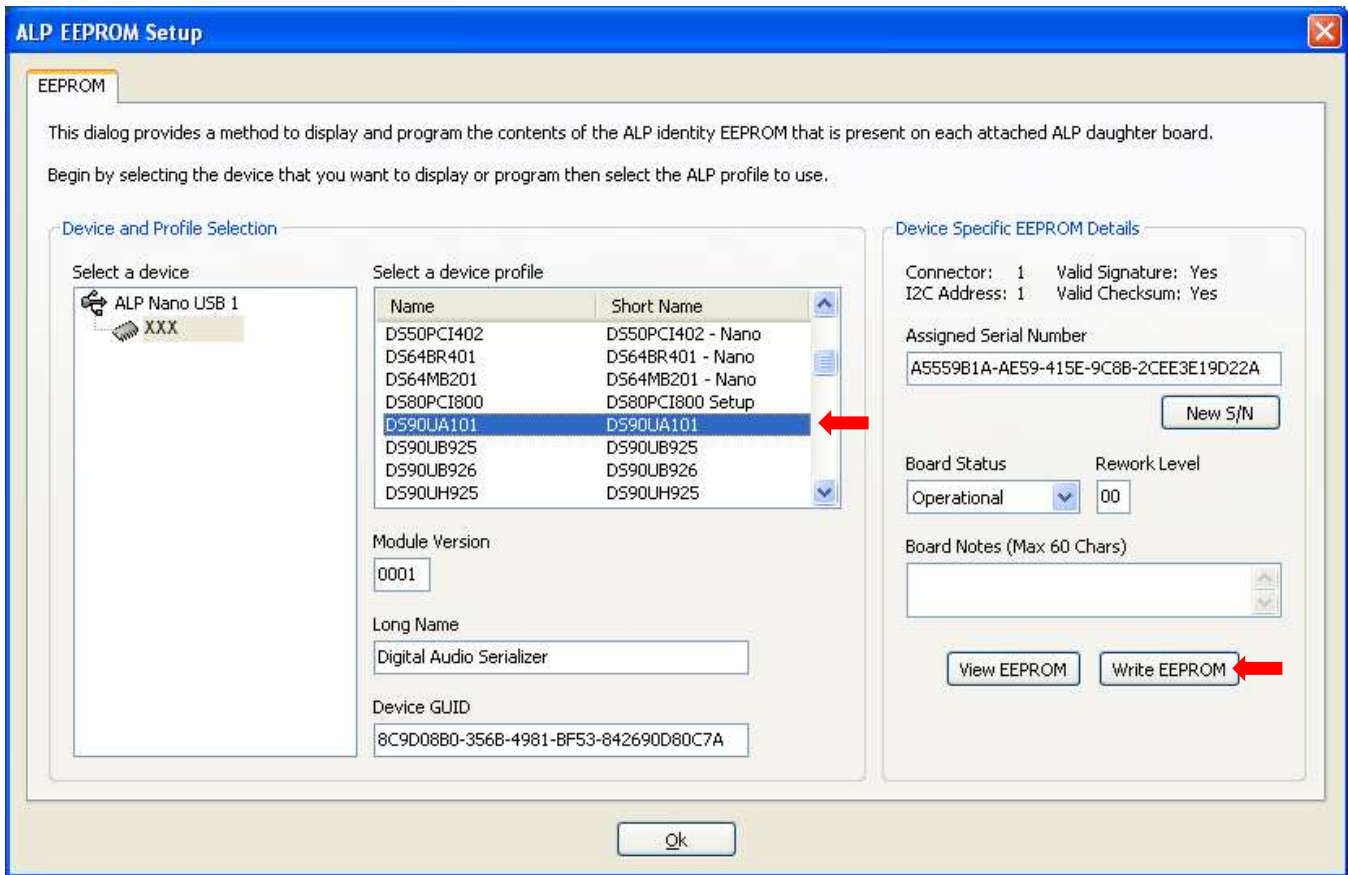


Figure 3-5. Selecting Device Profile

- EEPROM Status will prompt as shown in Figure 3-6, press **OK**.

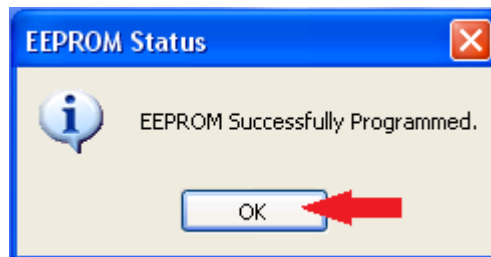
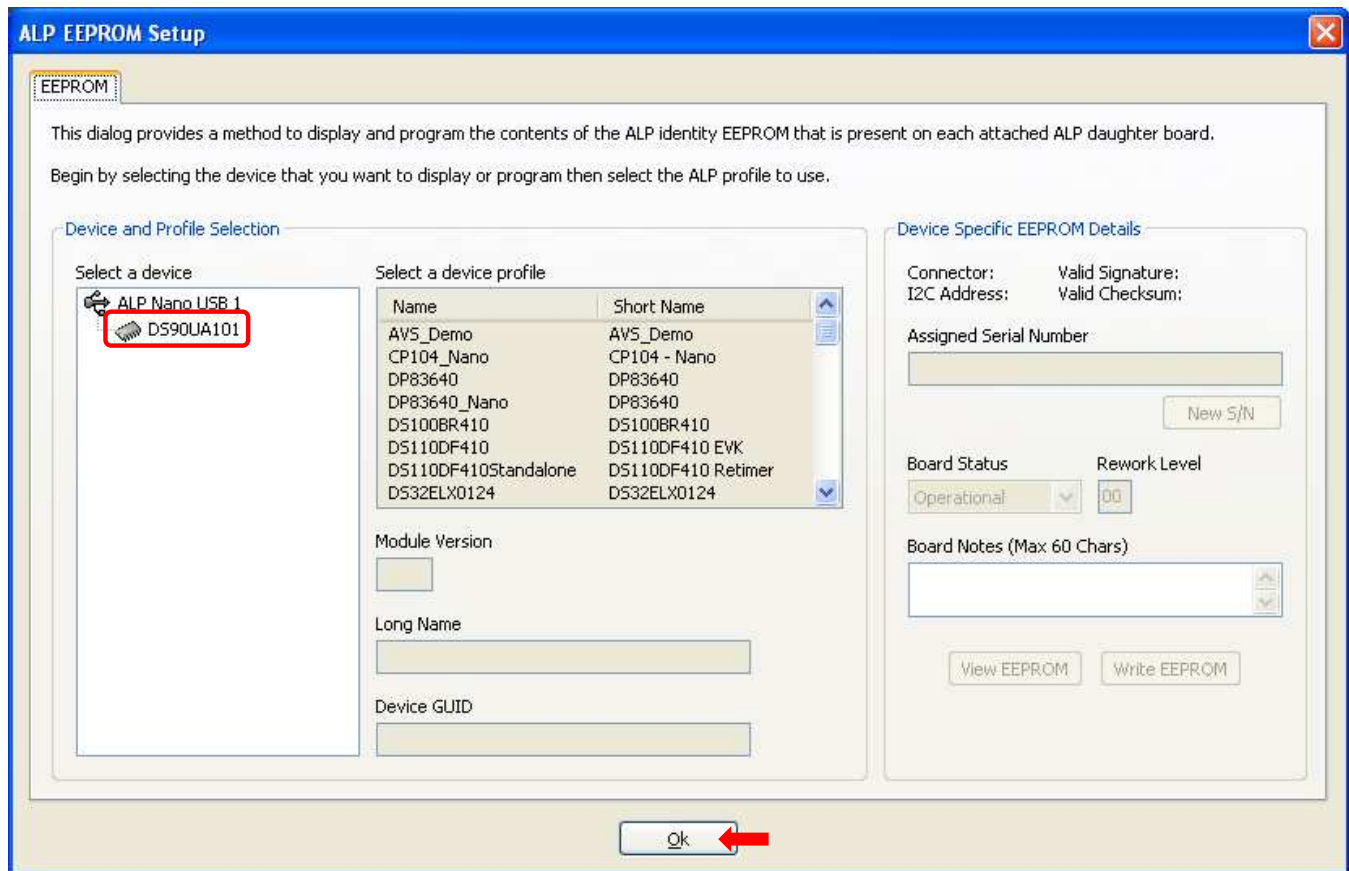


Figure 3-6. EEPROM Status

- ALP EEPROM Setup window will show up with device name **DS90UA101** as highlighted in Figure 3-7. Press **OK**.



**Figure 3-7. ALP EEPROM Setup Window2**

- Under the Devices tab click on **DS90UA101** to open up the DS90UA101-Q1 profile and its associated tabs (Figure 3-8).

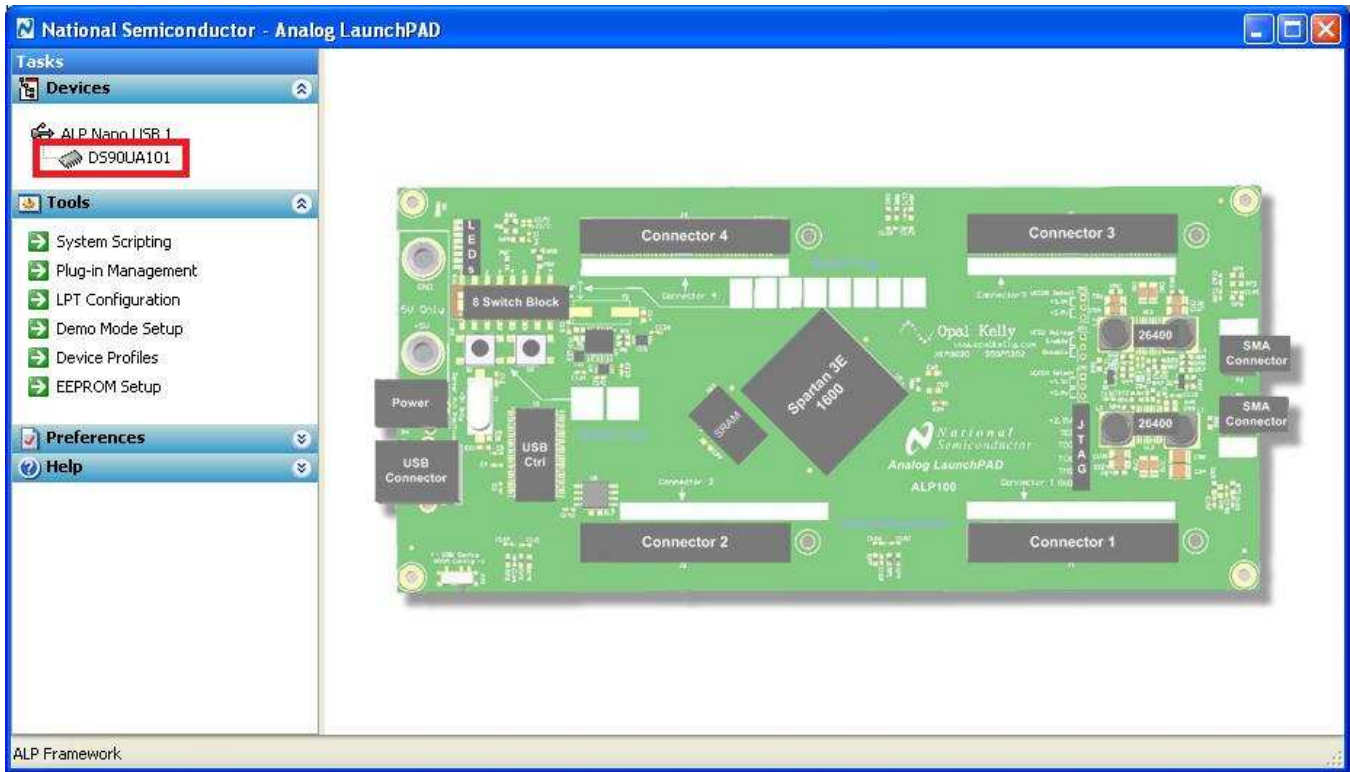


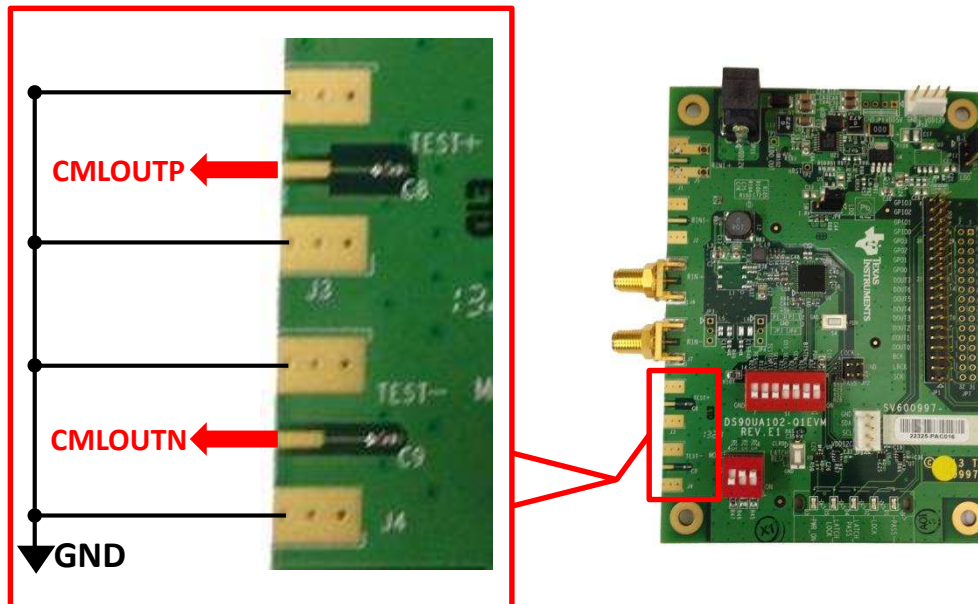
Figure 3-8. ALP EEPROM Setup Window3

## Additional Features

This section details the board configurations for additional features available on the evaluation boards.

### 4.1 Eye Monitor – CMLOUTP/N

The chipset features a differential eye monitor output to analyze the signal quality of the serial stream at the receiving end of the transmission media. This eye monitor outputs the signal after it has gone through the receiver's equalizer. Refer to [Figure 4-1](#) below for the location of the CMLOUTP/N pads.

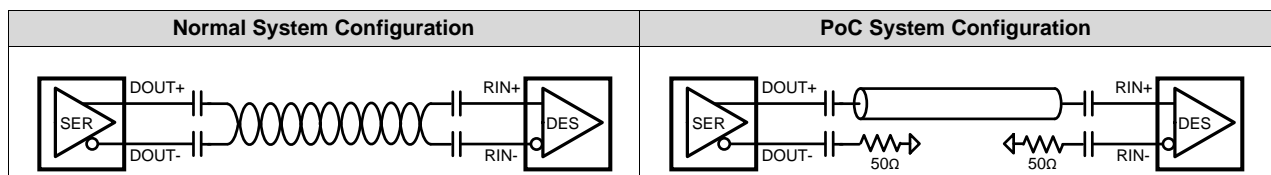


**Figure 4-1. Top view of CML access points on Deserializer Board**

To use the Eye Monitor feature, mount SMA connectors on J3 and J4. Connector J3 connects CMLOUTP (or TEST+) and J4 connects to CMLOUTN (or TEST-), which are present on left hand side of DS90UA102-Q1 evaluation board. CMLOUTP/N must be enabled by register, 0x3F[4] = 0, to be able to monitor the serial stream.

### 4.2 Power over Coaxiable Cable (PoC) - Board Configuration

The DS90UA101-Q1EVM and DS90UA102-Q1EVM were built to support the option of having power over coax (PoC). In this configuration, power is applied to the Deserializer board, and this power source is also sent across the same coaxiable cable used to send the serial data stream to power the Serializer board. Additionally, the system configuration is changed to use only DOUT+ to RIN+, as shown below:



To use the PoC feature:

- Mount R38 (0 $\Omega$ ) on DS90UA102-Q1EVM and R29 (0 $\Omega$ ) on DS90UA101-Q1EVM.
- Terminate DOUT- (J3, SER) and RIN- (J7, DES) with 50 $\Omega$  terminators.
- Replace C19 on DS90UA101-Q1EVM with 0.047 $\mu$ F and replace C5 on DS90UA102-Q1EVM with 0.047 $\mu$ F.

The PoC system setup is shown below (Figure 4-2):

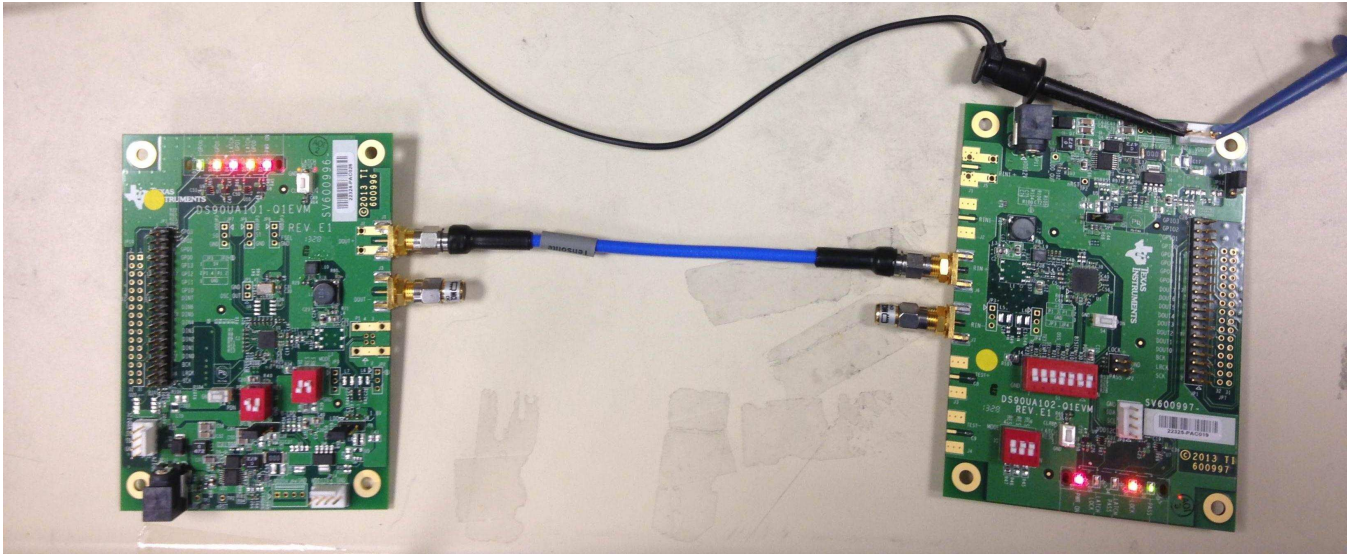


Figure 4-2. DS90UA101-Q1EVM & DS90UA102-Q1EVM in PoC Configuration

## ***DS90UA101-Q1EVM/DS90UA102-Q1EVM REV. E1 Schematics***

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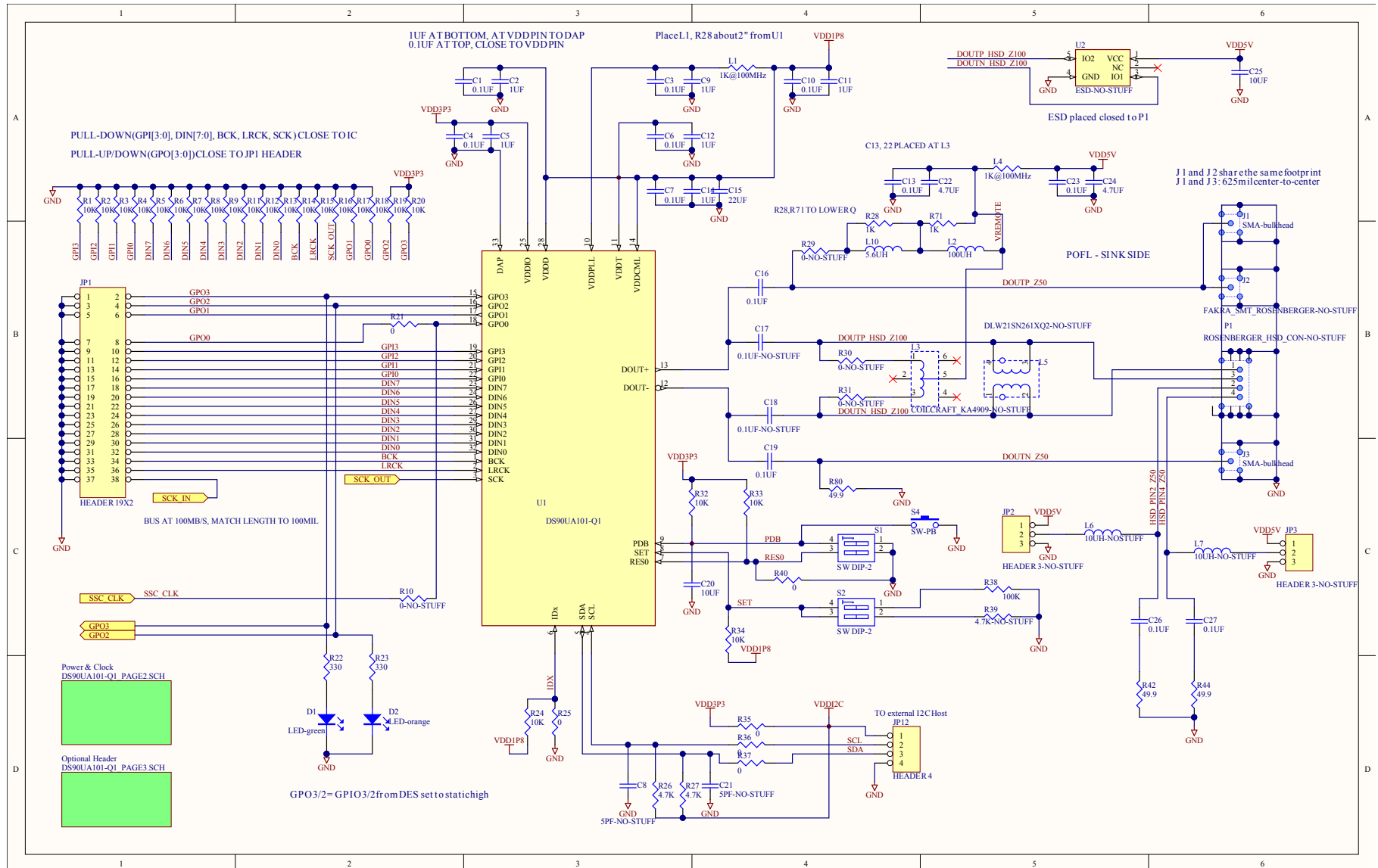
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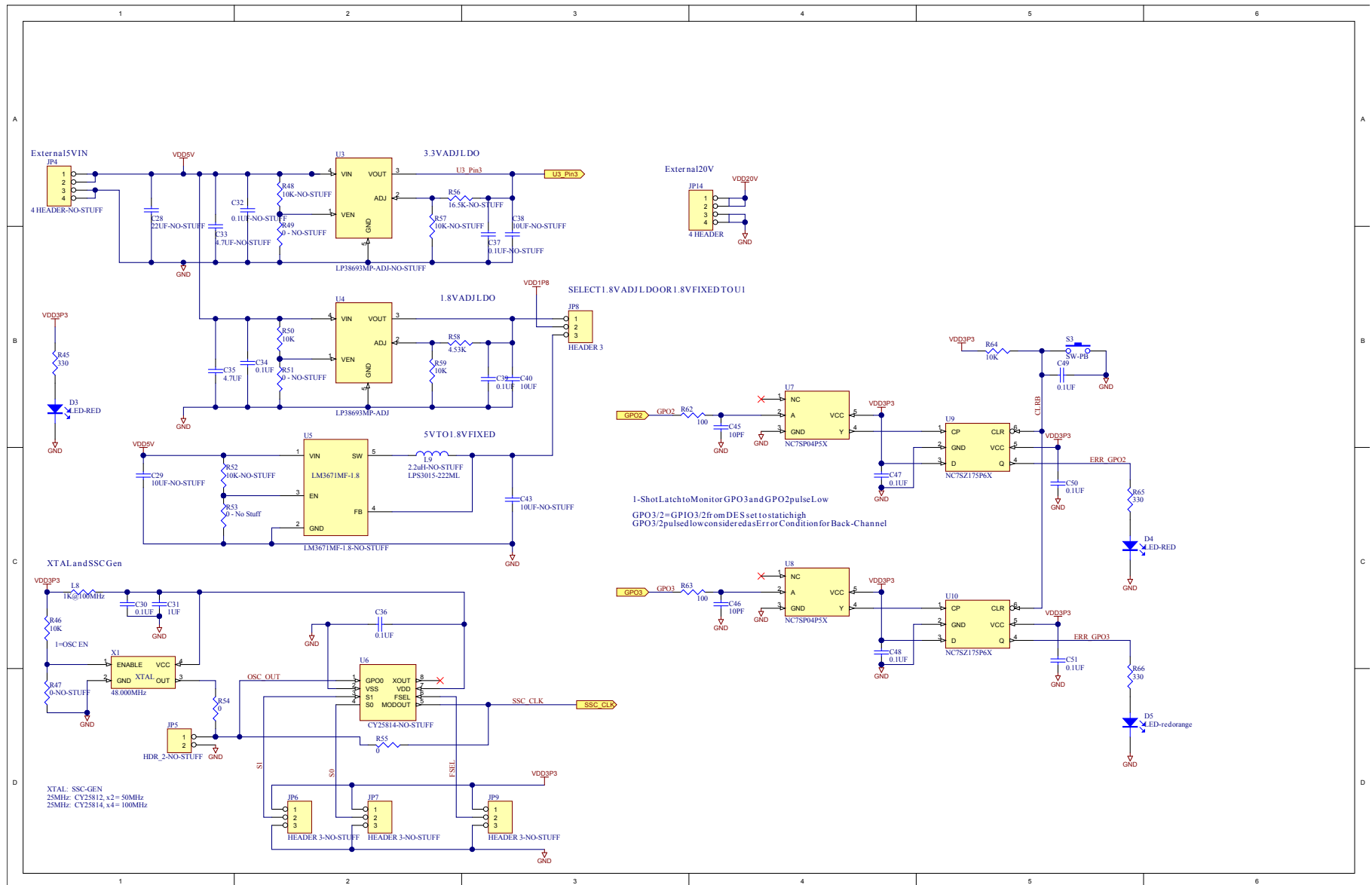
This section shows the schematics of the DS90UA101-Q1EVM and DS90UA102-Q1EVM REV. E1.

## A.1 DS90UA101-Q1EVM REV. E1 Serializer Board Schematic

### A.1.1 DS90UA101-Q1 Serializer

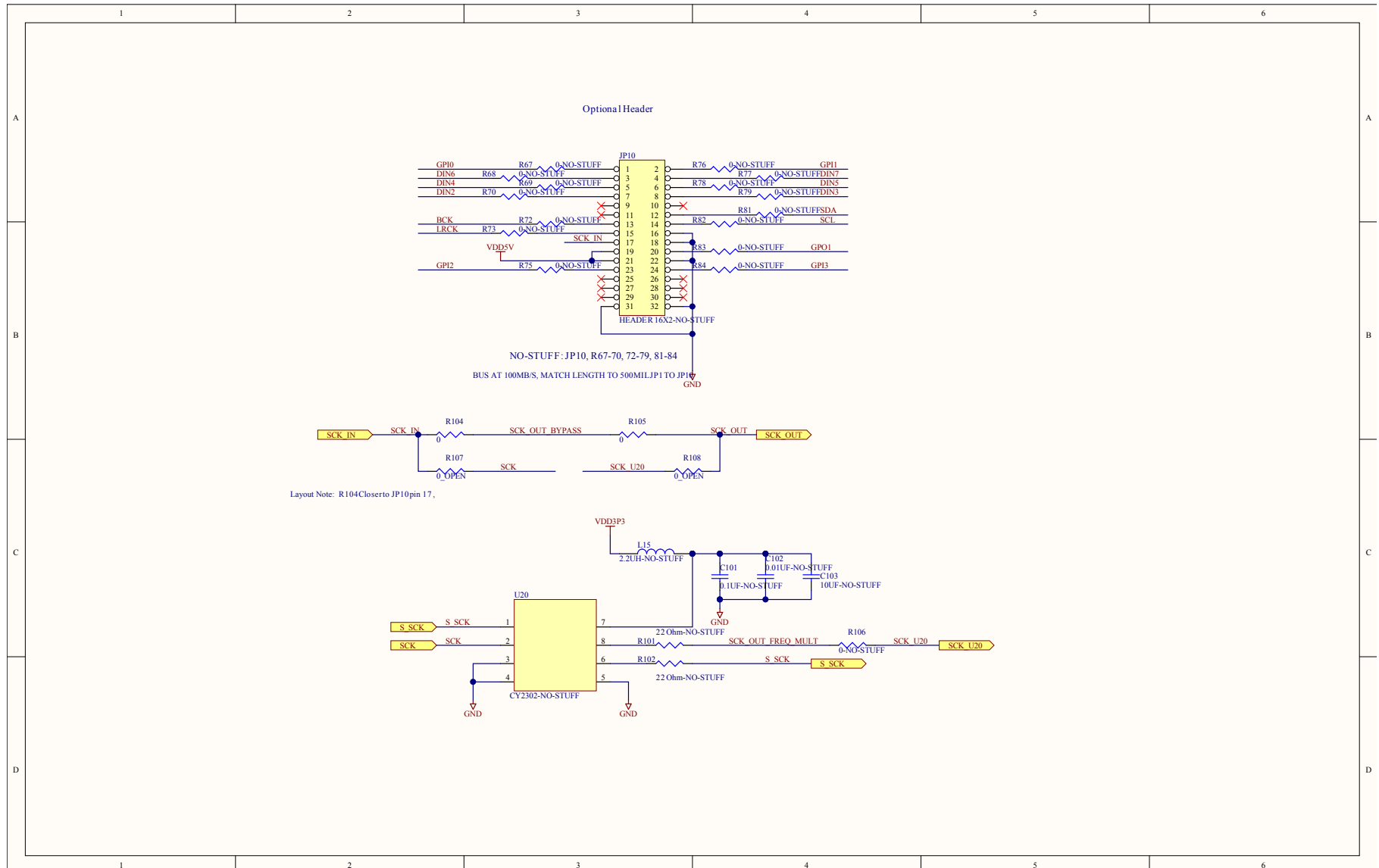


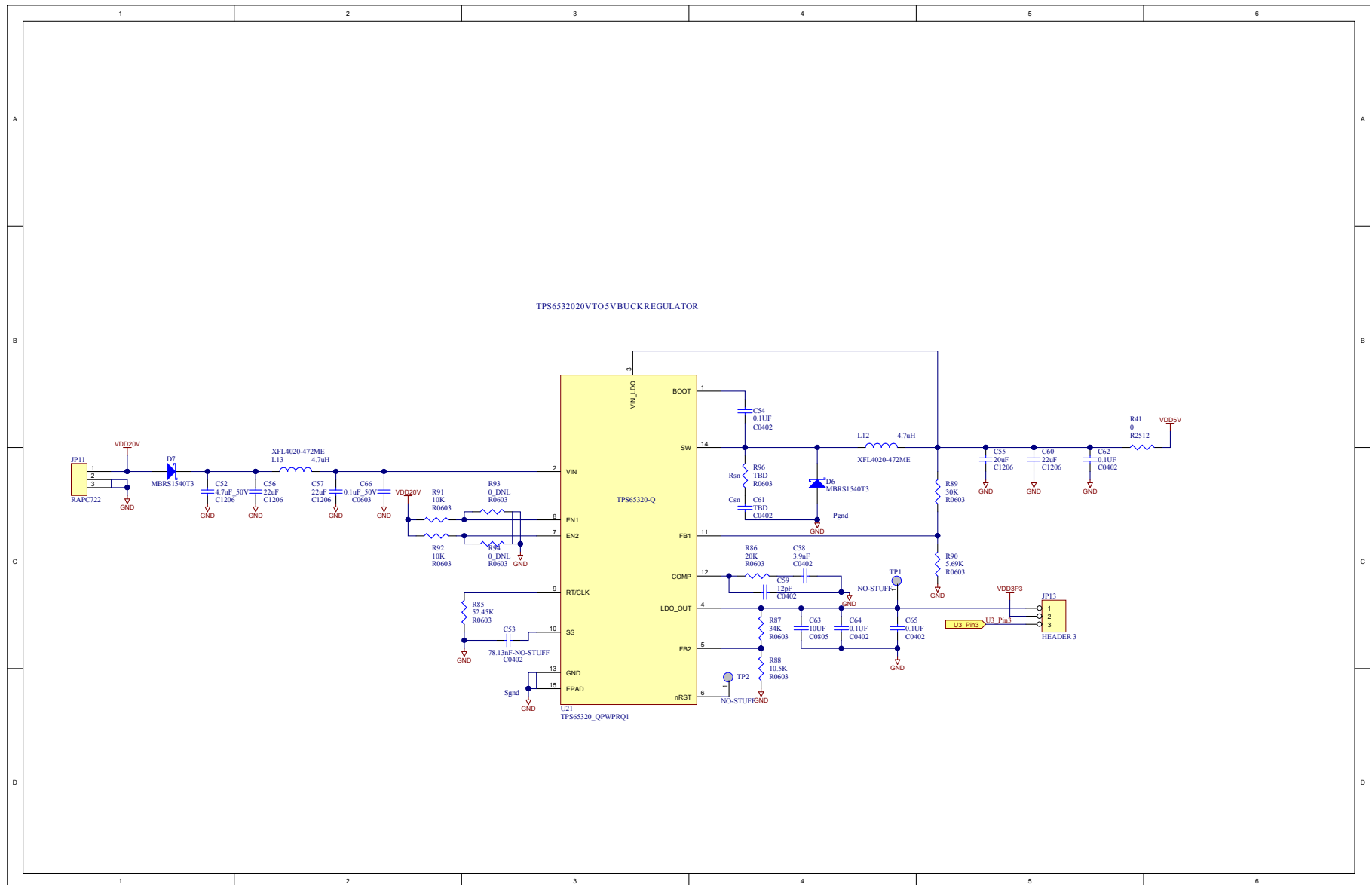
### A.1.2 Power to Serializer Board





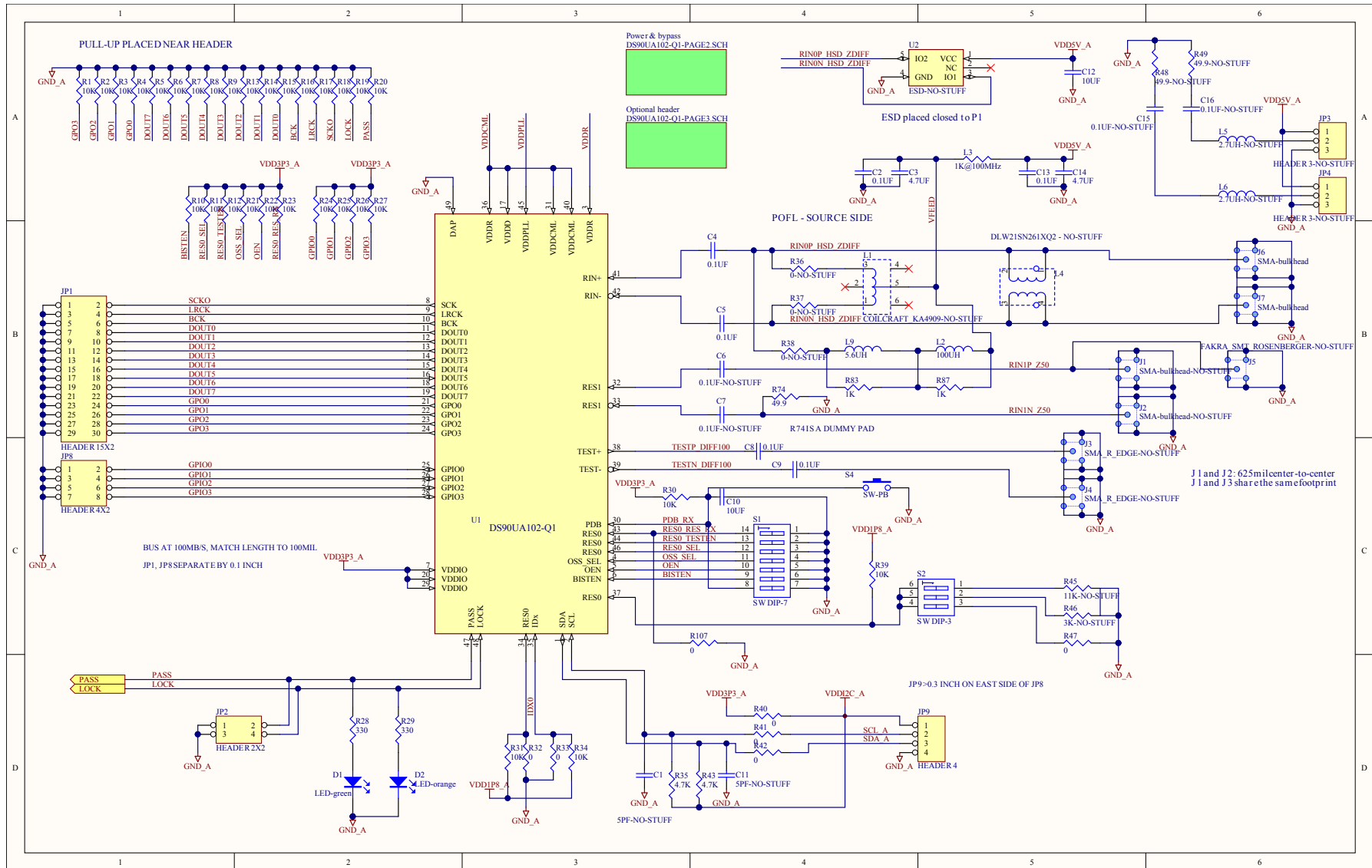
### A.1.3 Optional Header for Serializer Board



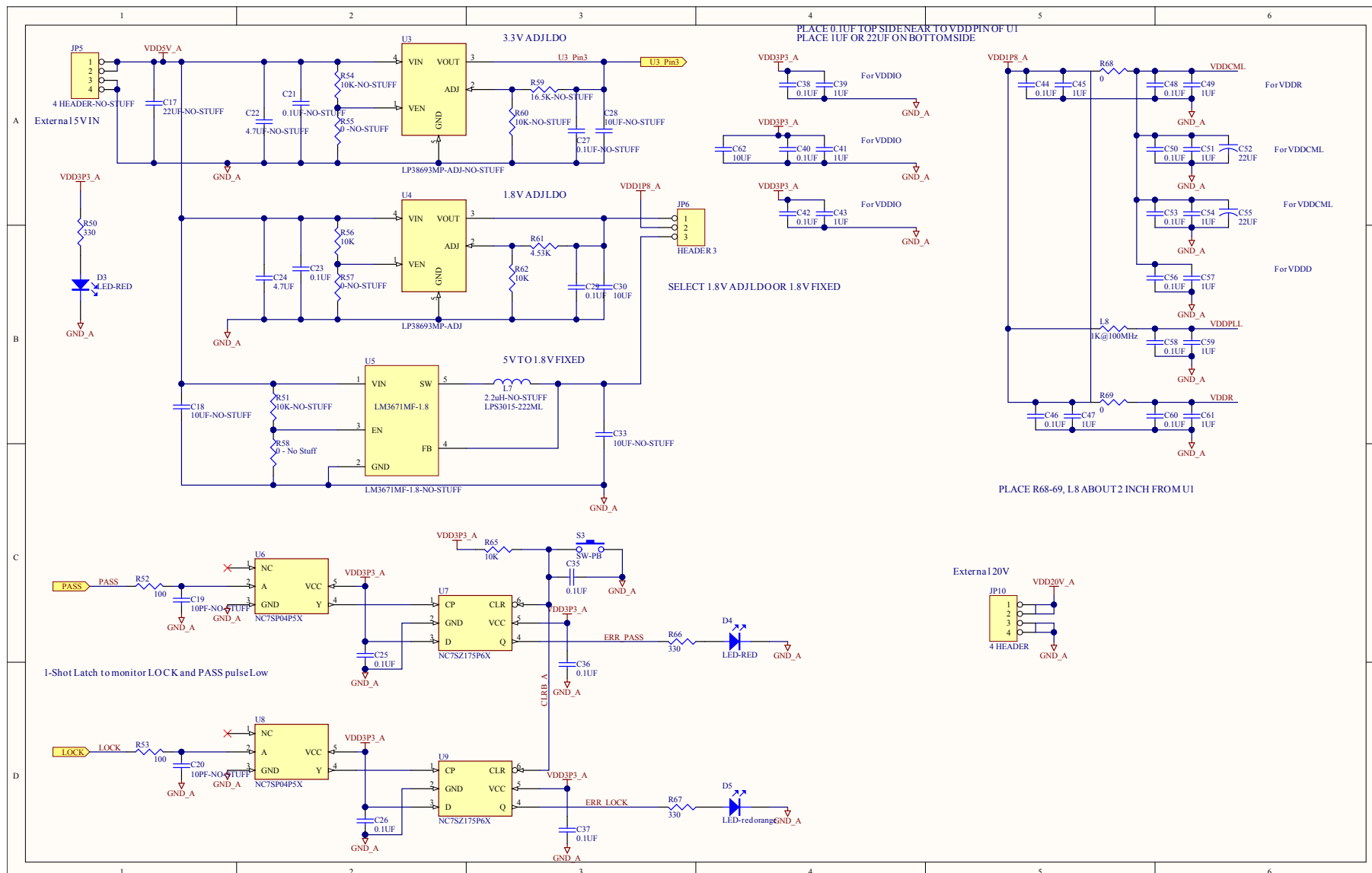
**A.1.4 Buck Regulator on Serializer board**


## A.2 DS90UA102-Q1EVM REV. E1 Deserializer Board Schematic

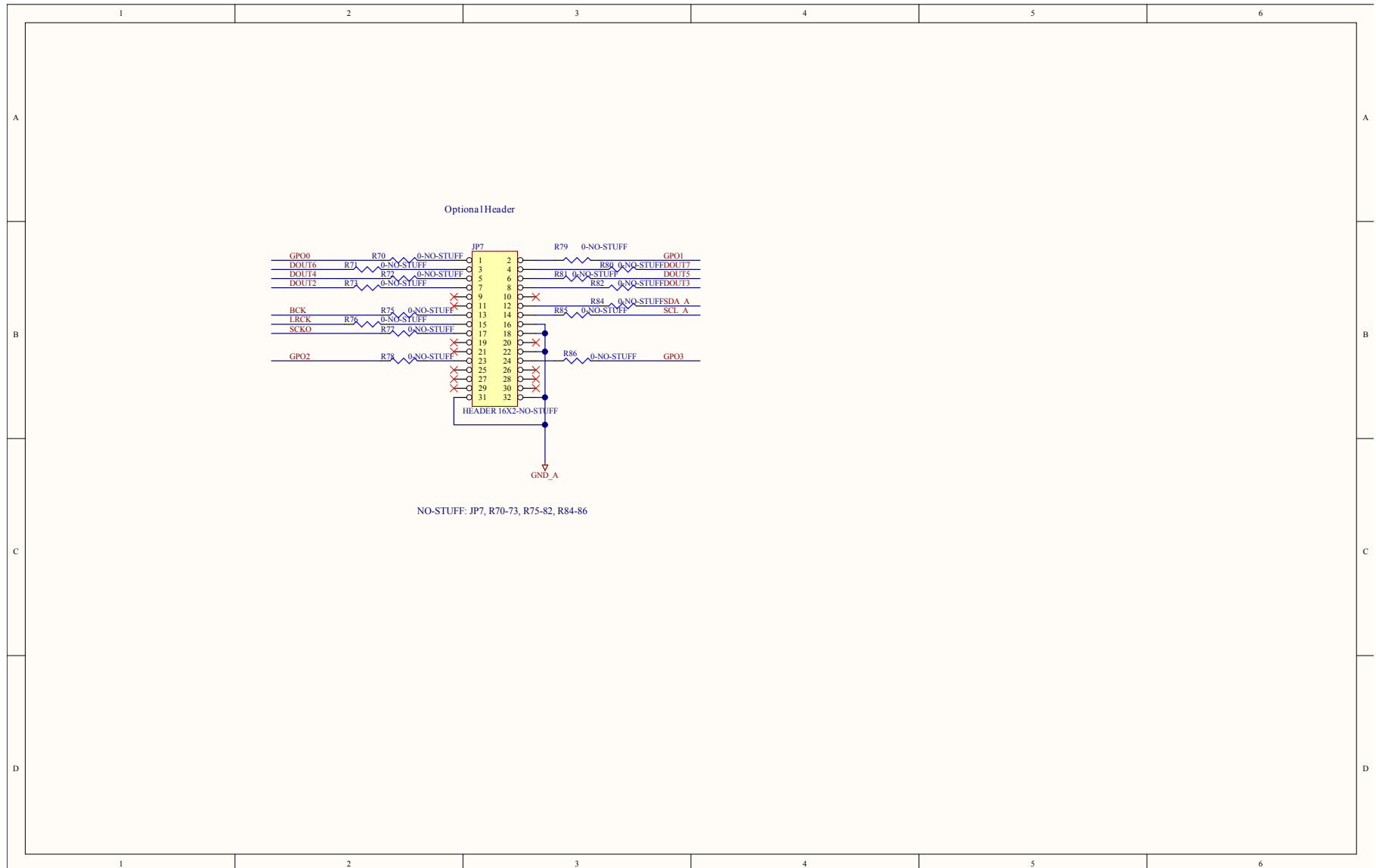
### A.2.1 DS90UA102-Q1 Deserializer



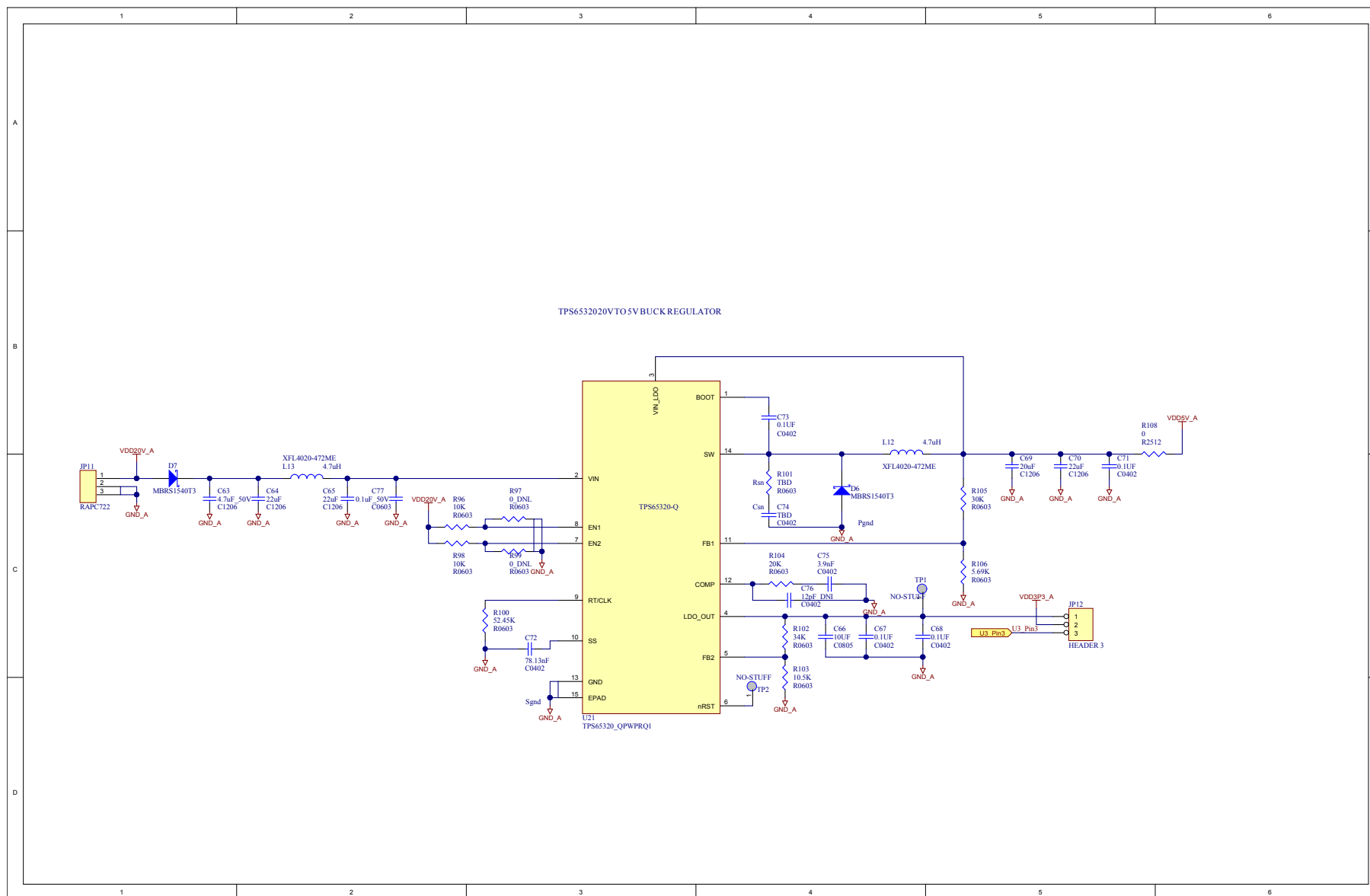
### A.2.2 Power to Deserializer Board



### A.2.3 Optional Header for Deserializer Board



### A.2.4 Buck Regulator on Deserializer Board



## **DS90UA101-Q1EVM & DS90UA102-Q1EVM REV. E1 Bill of Materials**

### B.1 DS90UA101-Q1 Serializer Board BOM

**Table B-1. DS90UA101-Q1 Serializer Board BOM**

Part Type	Reference Designator	Footprint	Description	Part Field	No-Stuff Designator
0-NO-STUFF	R82	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R81	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R79	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R84	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R68	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R83	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0	R35	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	
0	R25	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	
0-NO-STUFF	R10	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	No-Stuff
0	R54	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	
0-NO-STUFF	R78	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

0-NO-STUFF	R77	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R76	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R67	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
100K	R38	805	SMT R, +-1%	Panasonic ERJ-6ENF1003V, 100K ohm, 0.125W, 0805, Digikey P100KCCT-ND	
0-NO-STUFF	R73	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R69	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R70	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R75	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R72	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R31	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0-NO-STUFF	R30	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0-NO-STUFF	R53	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0-NO-STUFF	R29	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0	R36	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	
0	R37	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	



**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

0	R55	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	
0-NO-STUFF	R47	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0	R21	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	
0-NO-STUFF	R51	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0-NO-STUFF	R49	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0.1UF	C48	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C50	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF-NO-STUFF	C32	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	No-Stuff
0.1UF	C34	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C39	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF-NO-STUFF	C37	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	No-Stuff
0.1UF	C13	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C47	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

0.1UF	C30	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C10	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C4	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C23	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C1	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C7	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C6	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C3	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C36	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C49	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C51	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C27	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

0.1UF	C26	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	
0.1UF-NO-STUFF	C17	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	No-Stuff
0.1UF-NO-STUFF	C18	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	No-Stuff
1K@100MHz	L1	603	Ferrite Bead	Murata, Ferrite Bead, 1K @100MHz, BLM18AG102SN1D , 0603, DigiKey# 490-1015-1-ND	
1K@100MHz	L4	603	Ferrite Bead	Murata, Ferrite Bead, 1K @100MHz, BLM18AG102SN1D , 0603, DigiKey# 490-1015-1-ND	
1K@100MHz	L8	603	Ferrite Bead	Murata, Ferrite Bead, 1K @100MHz, BLM18AG102SN1D , 0603, DigiKey# 490-1015-1-ND	
1UF	C5	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	
1UF	C11	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	
1UF	C2	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	
1UF	C12	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	
1UF	C31	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

1UF	C9	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307-1-ND	
1UF	C14	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307-1-ND	
2.2UH-NO-STUFF	L9	LPS3015-222ML	SMT inductor	CoilCraft, LPS3015-222ML, 2.2UH+-10%	No-Stuff
5.6UH	L10		SMT inductor	CoilCraft, 1008PS-562KL, 5.6UH+-10%	
10UH-NO-STUFF	L7		SMT inductor	CoilCraft, 1008PS-103KL, 10UH+-10%	No-Stuff
10UH-NO-STUFF	L6		SMT inductor	CoilCraft, 1008PS-103KL, 10UH+-10%	No-Stuff
4.7K-NO-STUFF	R39	805	SMT R, +-1%,805	Panasonic ERJ-6GEYJ472V, 4.7K, 5%, 0.125W, DigiKey# P4.7KACT-ND	No-Stuff
4.7K	R27	402	SMT R, +-1%	Panasonic ERJ-2RKF4701X, 1%, 100ppm, 0.1W, DigiKey P4.70KLCT-ND	
4.7K	R26	402	SMT R, +-1%	Panasonic ERJ-2RKF4701X, 1%, 100ppm, 0.1W, DigiKey P4.70KLCT-ND	
4.7UF	C35	805	Chip cap, X7R, 0805	Murata GRM21BR71C475K A73L, 4.7UF, 16V, X7R, 0805, 10%, DigiKey# 490-4522-1-ND	
10UF-NO-STUFF	C29	805	Chip cap, X7R, 0805	Murata GRM21BR61C106K E15L, 10UF, 10%, 16V, X5R, 0805, DigiKey# 490-3886-1-ND	No-Stuff
4.7UF-NO-STUFF	C33	805	Chip cap, X7R, 0805	Murata GRM21BR71C475K A73L, 4.7UF, 16V, X7R, 0805, 10%, DigiKey# 490-4522-1-ND	No-Stuff
4.7UF	C24	805	Chip cap, X7R, 0805	Murata GRM21BR71C475K A73L, 4.7UF, 16V, X7R, 0805, 10%, DigiKey# 490-4522-1-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

4.7UF	C22	805	Chip cap, X7R, 0805	Murata GRM21BR71C475K A73L, 4.7UF, 16V, X7R, 0805, 10%, DigiKey# 490-4522- 1-ND	
4.53K	R58	603	SMT R, +-1%	Panasonic ERJ- 3EKF4531V, 1%, 100ppm, 0.1W, DigiKey P4.53KHCT-ND	
4 HEADER-NO- STUFF	JP4		4 Pin Header	Molex, 1x4 header pin, 0.1 pitch, DigiKey# WM2702- ND	No-Stuff
5PF-NO-STUFF	C21	402	Chip cap, X7R, 0402	Murata GRM1555C1H5R0C Z01D, 5pF+-0.25pF, 50V, NPO, DigiKey# 490-1274-1-ND	No-Stuff
5PF-NO-STUFF	C8	402	Chip cap, X7R, 0402	Murata GRM1555C1H5R0C Z01D, 5pF+-0.25pF, 50V, NPO, DigiKey# 490-1274-1-ND	No-Stuff
10K	R7	402	SMT R, +-1%	10K+-5%, +- 200ppm/C, Panasonic, ERJ- 2GEJ103X, 0402, Digikey P10KJCT- ND	
10K	R8	402	SMT R, +-1%	10K+-5%, +- 200ppm/C, Panasonic, ERJ- 2GEJ103X, 0402, Digikey P10KJCT- ND	
10K	R32	402	SMT R, +-1%	10K+-5%, +- 200ppm/C, Panasonic, ERJ- 2GEJ103X, 0402, Digikey P10KJCT- ND	
10K	R17	402	SMT R, +-1%	10K+-5%, +- 200ppm/C, Panasonic, ERJ- 2GEJ103X, 0402, Digikey P10KJCT- ND	
10K	R33	402	SMT R, +-1%	10K+-5%, +- 200ppm/C, Panasonic, ERJ- 2GEJ103X, 0402, Digikey P10KJCT- ND	
10K	R16	402	SMT R, +-1%	10K+-5%, +- 200ppm/C, Panasonic, ERJ- 2GEJ103X, 0402, Digikey P10KJCT- ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

10K	R14	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R46	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R15	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R13	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R9	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R11	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R12	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R3	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R19	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R20	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R2	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

10K	R34	805	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-6GEYJ103V, 0805, Digikey P10KACT-ND	
10K	R64	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R1	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R4	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R18	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R6	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R5	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R24	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R59	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	
10K	R50	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	
10K-No-Stuff	R48	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	No-Stuff

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

10K-NO-STUFF	R52	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	No-Stuff
10K-No-Stuff	R57	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	No-Stuff
10PF	C46	402	Chip cap, X7R, 0402	Murata GRM1555C1H100J Z01D, 10pF, 5%, COG, 50V, DigiKey# 490-1278-1-ND	
10PF	C45	402	Chip cap, X7R, 0402	Murata GRM1555C1H100J Z01D, 10pF, 5%, COG, 50V, DigiKey# 490-1278-1-ND	
10UF	C25	805	Chip cap, X7R, 0805	Murata GRM21BR61C106K E15L, 10UF, 10%, 16V, X5R, 0805, DigiKey# 490-3886-1-ND	
10UF	C20	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	
10UF-NO-STUFF	C43	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	No-Stuff
10UF-No-Stuff	C38	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	No-Stuff
10UF	C40	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	
16.5K-No-Stuff	R56	603	SMT R, +-1%	Panasonic ERJ-3EKF1652V, 1%, 100ppm, 0.1W, DigiKey P16.5KHCT-ND	No-Stuff
22UF-No-Stuff	C28	1210	Chip cap, X7R	Murata GCM32ER71C226K E19L, 22UF, 10%, 16V, X7R, 1210, DigiKey# 490-5242-1-ND	No-Stuff



**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

22UF	C15	1210	Chip cap, X7R	Murata GCM32ER71C226K E19L, 22UF, 10%, 16V, X7R, 1210, DigiKey# 490-5242- 1-ND	
48.000MHZ	X1		XTAL	ECS-3963-480-BN- TR, 48MHz, DigiKey# XC1039CT-ND	
49.9	R42	402	SMT R, +-1%	Panasonic ERJ- 2RKF49R9X, 1%, 100ppm, 0.1W, DigiKey P49.9LCT- ND	
49.9	R44	402	SMT R, +-1%	Panasonic ERJ- 2RKF49R9X, 1%, 100ppm, 0.1W, DigiKey P49.9LCT- ND	
100	R62	402	SMT R, +-1%	Panasonic ERJ- 2RKF1000X, 100 ohm, 1%, 0.1W, Digikey# P100LCT- ND	
100	R63	402	SMT R, +-1%	Panasonic ERJ- 2RKF1000X, 100 ohm, 1%, 0.1W, Digikey# P100LCT- ND	
100UH	L2		SMT inductor	CoilCraft, MSS7314T-104ML, 100UH+-20%	
330	R22	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
330	R23	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
330	R65	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
330	R45	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
330	R66	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
COILCRAFT_KA49 09-No-Stuff	L3		COILCRAFT DIFF CHOKE KA4909-AL	Coilcraft differential choke KA4909-AL	No-Stuff

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

CY25814-No-Stuff	U6	SOIC-8	CY25814 SPREAD SPECTRUM GEN	On Semi, P3P25814AG-08SR, SSC Gen, x4, DigiKey# P3P25814AG-08SROSCT-ND	No-Stuff
DLW21SN261XQ2-NO-STUFF	L5	Murata_DLW21	Murata common mode choke	Murata common mode choke, DLW21SN261XQ2	No-Stuff
DS90UA101TRTVR Q1	U1	LLP32	DS90UA101TRTVR Q1	*	
ESD-No-Stuff	U2	SOT-533	TI TPD2E001Q1 2-CH ESD	Digikey# 296-21883-1-ND	No-Stuff
FAKRA_SMT_ROS ENBERGER-No-Stuff	J2		FAKRA connector, SMT, Rosenberger	Rosenberger FAKRA SMT connector, 59S20X-40ML5-Y	No-Stuff
HDR_2-No-Stuff	JP5	SIP2	1x2 header, male	DigiKey# A26542-ND"	No-Stuff
HEADER 3-No-Stuff	JP6		1x3 header, male	Amp/Tyco, 0.1" pitch, DigiKey# A26545-ND	No-Stuff
HEADER 3-No-Stuff	JP2		1x3 header, male	Amp/Tyco, 0.1" pitch, DigiKey# A26545-ND	No-Stuff
HEADER 3-No-Stuff	JP3		1x3 header, male	Amp/Tyco, 0.1" pitch, DigiKey# A26545-ND	No-Stuff
HEADER 3-No-Stuff	JP9		1x3 header, male	Amp/Tyco, 0.1" pitch, DigiKey# A26545-ND	No-Stuff
HEADER 3-No-Stuff	JP7		1x3 header, male	Amp/Tyco, 0.1" pitch, DigiKey# A26545-ND	No-Stuff
HEADER 3	JP8		1x3 header, male	Amp/Tyco, 0.1" pitch, DigiKey# A26545-ND	
HEADER 16X2-No-Stuff	JP10		2x16 header, female	Use 2x30 female header, 0.1" pitch, CUT to FIT, DigiKey# A32952-ND	No-Stuff
HEADER 19X2	JP1		2x19 header, male	TE Connectivity, 0.1 pitch, 2x30 pin header, CUT to FIT, 3-87215-0, DigiKey# A26588-ND	
LED-RED	D3	603		Lite On Inc, 0603, Red LED, LTST-C191KRKT, DigiKey# 160-1447-1-ND	
LED-RED	D4	603		Lite On Inc, 0603, Red LED, LTST-C191KRKT, DigiKey# 160-1447-1-ND	
LED-green	D1	603		Lite On Inc, 0603, Red-Orange LED, LTST-C191GKT, DigiKey# 160-1443-1-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

LED-orange	D2	603		Lite On Inc, 0603, Red-Orange LED, LTST-C191KFKT, DigiKey# 160-1445-1-ND	
LED-red orange	D5	603		Lite On Inc, 0603, Red Orange LED, LTST-C191KAKT, DigiKey# 160-1444-1-ND	
LM3671MF-1.8/NOPB-NO-STUFF	U5	SOT-23-5	SOT-23-5 Step-Down DC-DC Converter	LM3671MF-1.8/NOPB, DC-DC Down converter, DigiKey# LM3671MF-1.8/NOPBTR-ND	No-Stuff
LP38693MP-ADJ	U4	SOT-223	LP38693MPADJ: 0.5A LDO REGULATOR	LP38693MP-ADJ, LDO, SOT223-5, DigiKey#LP38693MP-ADJCT-ND	
LP38693MP-ADJ-NO-STUFF	U3	SOT-223	LP38693MPADJ: 0.5A LDO REGULATOR	LP38693MP-ADJ, LDO, SOT223-5, DigiKey#LP38693MP-ADJCT-ND	No-Stuff
NC7SP04P5X	U8	SC70-5	NC7SP04P5X INVERTER	Fairchild Semi, Inverter, NZ7SP04P5X, DigiKey# NC7SP04P5XCT-ND	
NC7SP04P5X	U7	SC70-5	NC7SP04P5X INVERTER	Fairchild Semi, Inverter, NZ7SP04P5X, DigiKey# NC7SP04P5XCT-ND	
NC7SZ175P6X	U10	SC70-6	NC7SZ175P6X LATCH	Fairchild Semi, latch, NC7SZ175P6X, DigiKey# NC7SZ175P6XCT-ND	
NC7SZ175P6X	U9	SC70-6	NC7SZ175P6X LATCH	Fairchild Semi, latch, NC7SZ175P6X, DigiKey# NC7SZ175P6XCT-ND	
0.1UF	C16	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +-10%, 100V, X7R, DigiKey# 490-3285-1-ND	
0.1UF	C19	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +-10%, 100V, X7R, DigiKey# 490-3285-1-ND	
ROSENBERGER_H SD_CON-NO-STUFF	P1	ROSENBERGER_H SD_CON	Rosenberger HSD connector, D4S20D-40ML5-Y	Rosenberger HSD connector, D4S20D-40ML5-Y	No-Stuff

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

SMA-bulkhead	J1	sma-edge-round	SMA, PCB MOUNT	Johnson end launch, bulkhead, round contact, 142-0701-871, digikey# J610-ND	
SMA-bulkhead	J3	sma-edge-round	SMA, PCB MOUNT	Johnson end launch, bulkhead, round contact, 142-0701-871, digikey# J610-ND	
SW-PB	S3			Panasonic EVQ-PNF04M push switch, DigiKey# P13597SCT-ND	
SW DIP-2	S1		DIP Switch	Grayhill, 78B02ST, SWITCH DIP EXTENDED SEALED 2POS, DigiKey# GH7180-ND	
SW DIP-2	S2		DIP Switch	Grayhill, 78B02ST, SWITCH DIP EXTENDED SEALED 2POS, DigiKey# GH7180-ND	
Light Pipe				5-position light pipe, Lumex Opto LPF-C051303S, DigiKey# 67-1856-ND	No-Stuff
Header 4x1	JP12		4 Pin Header	Molex, 1x4 header pin, 0.1 pitch, DigiKey# WM2702-ND	
1K	R28	603	SMD R, +-1%, 0603	Panasonic ERJ-3EKF1001V, 1Kohm, 1%, 0603, DigiKey# P1.00KHCT-ND	
1K	R71	603	SMD R, +-1%, 0603	Panasonic ERJ-3EKF1001V, 1Kohm, 1%, 0603, DigiKey# P1.00KHCT-ND	
49.9	R80	603	SMD R, +-1%, 0603	Panasonic ERJ-3EKF49R9V, 49.9ohm, 1%, 0603, DigiKey# P49.9HCT-ND	
22-NO-STUFF	R101	402	SMD R, +-5%, 0402	Panasonic ERJ-2GEJ220X, 22 Ohm, 5%, 0402, DigiKey# P22JCT-ND	No-Stuff
22-NO-STUFF	R102	402	SMD R, +-5%, 0402	Panasonic ERJ-2GEJ220X, 22 Ohm, 5%, 0402, DigiKey# P22JCT-ND	No-Stuff

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

0	R104	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	
0	R105	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	
0-NO-STUFF	R106	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	No-Stuff
2.2UH-NO-STUFF	L15	1007	SMT inductor	Taiyo-Yuden, 2.2uH, 1A, 20%, BRL2518T2R2M, DigiKey# 587-1954-1-ND	No-Stuff
0.1UF-NO-STUFF	C101	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	No-Stuff
0.01UF-NO-STUFF	C102	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C103K A01D, Digikey 490-1313-1-ND	No-Stuff
10UF-NO-STUFF	C103	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	No-Stuff
CY2302-NO-STUFF	U20	CY2302_8SOIC	CY2302 Frequency Multiplier	Cypress, CY2302SXI-1, DigiKey# 428-2188-5-ND	No-Stuff
RAPC722X	JP11	RAPC722X	Power jack	Switchcraft, RAPC72 2X, CONNN POWERJACK MINI.08" RA PCMT, Digikey# SC1313-ND	
0_OPEN	R107	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey# P0.0JCT-ND	No-Stuff
0_OPEN	R108	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey# P0.0JCT-ND	No-Stuff
MBRS1540T3	D6	MBRS1540T3	Diode	On Semi, MBRS1540T3 G, DIODE SCHOTTKY 1.5A 40V SMB, Digikey# MBRS1540T3GOST R-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

MBRS1540T3	D7	MBRS1540T3	Diode	On Semi,MBRS1540T3 G,DIODE SCHOTTKY 1.5A 40V SMB,Digikey# MBRS1540T3GOST R-ND	
4.7UF_50V	C52	1206	Chip cap, X7R, 1206	TDK,C3216X7R1H4 75M160AC,CAP CER 4.7UF 50V 20% X7R 1206,Digikey# 445-8033-2-ND	
22UF	C56	1206	Chip cap, X5R, 1206	TDK,C3216X5R1E2 26M160AB,CAP CER 22UF 25V 20% X5R 1206,Digikey# 445-6000-2-ND	
22UF	C57	1206	Chip cap, X5R, 1206	TDK,C3216X5R1E2 26M160AB,CAP CER 22UF 25V 20% X5R 1206,Digikey# 445-6000-2-ND	
22UF	C60	1206	Chip cap, X5R, 1206	TDK,C3216X5R1E2 26M160AB,CAP CER 22UF 25V 20% X5R 1206,Digikey# 445-6000-2-ND	
0.1UF_50V	C66	603	Chip cap, X7R, 0603	TDK,C1608X7R1H1 04K080AA,CAP CER 0.1UF 50V 10% X7R 0603,Digikey# 445-1314-2-ND	
0.1UF	C62	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C64	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C65	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C54	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
TBD	C61	402			No-Stuff
20UF	C55	1206	Chip cap, X5R, 1206	TDK,C3216X5R1E2 26M160AB,CAP CER 22UF 25V 20% X5R 1206,Digikey# 445-6000-2-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

78.13nF-NO-STUFF	C53	402	Chip cap, X7R, 0402	KEMET,C0402C823 K4RACTU,CAP CER 0.082UF 16V 10% X7R 0402,Digikey# C0402C823K4RAC TU	No-Stuff
10UF	C63	805	Chip cap, X7R, 0805	TDK,C2012X7R1A1 06K125AC,CAP CER 10UF 10V 10% X7R 0805,Digikey# 445- 6857-2-ND	
3.9nF	C58	402	Chip cap, X7R, 0402	KEMET,C0402C392 K4RACTU,CAP CER 3900PF 16V 10% X7R 0402,DIGIKEY# C0402C392K4RAC TU-ND	
12pF	C59	402	Chip cap, NP0, 0402	KEMET,C0402C120 J3GACAUTO,CAP CER 12PF 25V 5% NP0 0402,DIGIKEY# 399-6829-2-ND	
XFL4020-472ME	L12	XFL4020-472ME	INDUCTOR	COILCRAFT,XFL40 20-472ME_,Power Inductors	
XFL4020-472ME	L13	XFL4020-472ME	INDUCTOR	COILCRAFT,XFL40 20-472ME_,Power Inductors	
10K	R91	603	SMT R,0603	Panasonic ERJ- 3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	
10K	R92	603	SMT R,0603	Panasonic ERJ- 3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	
0_DNL	R93	603	SMD R, +-1%, 0603	Panasonic ERJ- 3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0_DNL	R94	603	SMD R, +-1%, 0603	Panasonic ERJ- 3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
TBD	R96	603			No-Stuff
52.45K	R85	603		Vishay,PAT0603E5 302BST1,RES 53.0K OHM 0.15W 0.1% 0603,Digikey# PAT0603E5302BST 1-ND	
20K	R86	603	SMD R, +-1%, 0603	Panasonic,ERJ- 3EKF2002V,RES 20.0K OHM 1/10W 1% 0603 SMD,Digikey# P20.0KHTR-ND	

**Table B-1. DS90UA101-Q1 Serializer Board BOM (continued)**

10.5K	R88	603	SMD R, +-1%, 0603	Panasonic,ERJ-3EKF2002V,RES 20.0K OHM 1/10W 1% 0603 SMD,Digikey# P20.0KHTR-ND	
34K	R87	603	SMD R, +-1%, 0603	Panasonic,ERJ-3EKF3402V,RES 34.0K OHM 1/10W 1% 0603 SMD,Digikey# P34.0KHTR-ND	
30K	R89	603	SMD R, +-1%, 0603	Panasonic,ERJ-3EKF3002V,RES 30.0K OHM 1/10W 1% 0603 SMD,Digikey# P30.0KHTR-ND	
5.69K	R90	603	SMD R, +-0.1%, 0603	Panasonic,PAT0603 E5691BST1,RES 5.69K OHM 0.15W 0.1% 0603,Digikey# PAT0603E5691BST 1-ND	
Test point-NO-STUFF	TP1	TEST_POINT_TH			No-Stuff
Test point-NO-STUFF	TP2	TEST_POINT_TH			No-Stuff
TPS65320	U21	TPS65320_Q_PWP	TPS65320QPWPR Q1	TPS65320QPWPR Q1, Step Down Buck Regulator	
0	R40	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT- ND	
SW-PB	S4			Panasonic EVQ- PNF04M push switch, DigiKey# P13597SCT-ND	
0	R41	2512	SMT R, 2512	Vishay Dale,CRCW251200 00Z0EGHP,RES 0.0 OHM 1.5W 2512 SMD,Digikey# 541-0.0RBCT-ND	
HEADER 3	JP13		1x3 header, male	Amp/Tyco, 0.1" pitch, DigiKey# A26545-ND	
4 HEADER	JP14		4 Pin Header	Molex, 1x4 header pin, 0.1 pitch, DigiKey# WM2702- ND	



**B.2 DS90UA102-Q1 Deserializer Board BOM**
**Table B-2. DS90UA102-Q1 Deserializer Board BOM**

Part Type	Reference Designator	Footprint	Description	Part Field	No-Stuff Designator
0-NO-STUFF	R81	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R80	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R84	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R82	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R79	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0	R40	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	
0	R33	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	
0	R32	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.0 ohm, 0.1W, 0402, Digikey P0.0JCT-ND	
0-NO-STUFF	R85	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R75	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R78	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R76	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R72	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R73	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

0-NO-STUFF	R71	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R77	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R70	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R86	402	SMT R, +-1%	Panasonic ERJ-2GE0R00X, 0.1W, DigiKey P0.0JCT-ND	No-Stuff
0-NO-STUFF	R36	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0-NO-STUFF	R38	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0-NO-STUFF	R37	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0	R68	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	
0	R69	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	
0_No Stuff	R58	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0	R42	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	
0	R41	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	
0-NO-STUFF	R55	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0-NO-STUFF	R57	603	SMD R, +-1%, 0603	Panasonic ERJ-3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0.1UF	C42	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

0.1UF	C40	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C48	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C36	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C26	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C38	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C9	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C35	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C8	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C37	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C44	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C23	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C58	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF-NO-STUFF	C21	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	No-Stuff

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

0.1UF-NO-STUFF	C27	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	No-Stuff
0.1UF	C29	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C46	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C50	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C25	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C53	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C60	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C56	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C2	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF	C13	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490- 3261-1-ND	
0.1UF-NO-STUFF	C6	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	No-Stuff
0.1UF	C4	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

0.1UF	C5	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	
0.1UF-NO-STUFF	C16	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	No-Stuff
0.1UF-NO-STUFF	C15	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	No-Stuff
0.1UF-NO-STUFF	C7	603	Chip cap, X7R, 0603	Murata GRM188R72A104K A35D, 0.1UF, +- 10%, 100V, X7R, DigiKey# 490-3285- 1-ND	No-Stuff
1K@100MHz	L3	603	SMT FB	Murata, Ferrite Bead, 1K @100MHz, BLM18AG102SN1D , 0603, DigiKey# 490-1015-1-ND	
1K@100MHz	L8	603	SMT FB	Murata, Ferrite Bead, 1K @100MHz, BLM18AG102SN1D , 0603, DigiKey# 490-1015-1-ND	
1UF	C51	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	
1UF	C54	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	
1UF	C47	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	
1UF	C61	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	
1UF	C49	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307- 1-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

1UF	C45	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307-1-ND	
1UF	C57	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307-1-ND	
1UF	C59	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307-1-ND	
1UF	C43	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307-1-ND	
1UF	C39	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307-1-ND	
1UF	C41	603	Chip cap, X7R, 0603	Murata, GRM188R71E105K A12x, 1UF, 10%, 25V, -55 to 125C, DigiKey# 490-5307-1-ND	
2.2UH-NO-STUFF	L7	LPS3015-222ML	SMT inductor	CoilCraft, LPS3015-222ML, 2.2UH+-10%	No-Stuff
5.6UH	L9		SMT inductor	CoilCraft, 1008PS-562KL, 5.6UH+-10%	
10UH-NO-STUFF	L5		SMT inductor	CoilCraft, 1008PS-103KL, 10UH+-10%	No-Stuff
10UH-NO-STUFF	L6		SMT inductor	CoilCraft, 1008PS-103KL, 10UH+-10%	No-Stuff
4.7K	R43	402	SMT R, +-1%	Panasonic ERJ-2RKF4701X, 1%, 100ppm, 0.1W, DigiKey P4.70KLCT-ND	
4.7K	R35	402	SMT R, +-1%	Panasonic ERJ-2RKF4701X, 1%, 100ppm, 0.1W, DigiKey P4.70KLCT-ND	
4.7UF	C3	805	Chip cap, X7R, 0805	Murata GRM21BR71C475K A73L, 4.7UF, 16V, X7R, 0805, 10%, DigiKey# 490-4522-1-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

4.7UF	C14	805	Chip cap, X7R, 0805	Murata GRM21BR71C475K A73L, 4.7UF, 16V, X7R, 0805, 10%, DigiKey# 490-4522-1-ND	
4.7UF	C24	805	Chip cap, X7R, 0805	Murata GRM21BR71C475K A73L, 4.7UF, 16V, X7R, 0805, 10%, DigiKey# 490-4522-1-ND	
4.7UF-NO-STUFF	C22	805	Chip cap, X7R, 0805	Murata GRM21BR71C475K A73L, 4.7UF, 16V, X7R, 0805, 10%, DigiKey# 490-4522-1-ND	No-Stuff
10UF-NO-STUFF	C18	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	No-Stuff
4.53K	R61	603	SMT R, +-1%	Panasonic ERJ-3EKF4531V, 1%, 100ppm, 0.1W, DigiKey P4.53KHCT-ND	
4 HEADER-NO-STUFF	JP5		4 Pin Header	Molex, 1x4 header pin, 0.1" pitch, DigiKey# WM2702-ND	No-Stuff
5PF-NO-STUFF	C1	402	Chip cap, X7R, 0402	Murata GRM1555C1H5R0C Z01D, 5pF+-0.25pF, 50V, NPO, DigiKey# 490-1274-1-ND	No-Stuff
5PF-NO-STUFF	C11	402	Chip cap, X7R, 0402	Murata GRM1555C1H5R0C Z01D, 5pF+-0.25pF, 50V, NPO, DigiKey# 490-1274-1-ND	No-Stuff
11K-NO-STUFF	R45	805	SMT R, +-1%, 0805	Panasonic ERJ-6ENF1102V, 11K, 1%, 0.125W, DigiKey# P11.0KCCT-ND	No-Stuff
3K-NO-STUFF	R46	805	SMT R, +-1%, 0805	Panasonic ERJ-6ENF3001V, 3K, 1%, 0.125W, DigiKey# P3.0KCCT-ND	No-Stuff
10K	R25	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R2	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

10K	R19	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R3	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R65	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R27	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R26	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R20	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R1	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R24	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R15	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R14	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R16	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	



**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

10K	R5	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R17	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R13	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R34	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R6	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R7	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R9	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R8	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R23	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R18	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R22	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

10K	R21	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R31	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R12	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R39	805	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-6GEYJ103V, 0805, Digikey P10KACT-ND	
10K	R30	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R4	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R10	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K	R11	402	SMT R, +-1%	10K+-5%, +-200ppm/C, Panasonic, ERJ-2GEJ103X, 0402, Digikey P10KJCT-ND	
10K-NO-STUFF	R51	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	No-Stuff
10K	R62	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	
10K-NO-STUFF	R54	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	No-Stuff

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

10K-NO-STUFF	R60	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	No-Stuff
10K	R56	603	SMT R, +-1%	Panasonic ERJ-3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	
10PF-NO-STUFF	C20	402	Chip cap, X7R, 0402	Murata GRM1555C1H100J Z01D, 10pF, 5%, COG, 50V, DigiKey# 490-1278-1-ND	No-Stuff
10PF-NO-STUFF	C19	402	Chip cap, X7R, 0402	Murata GRM1555C1H100J Z01D, 10pF, 5%, COG, 50V, DigiKey# 490-1278-1-ND	No-Stuff
10UF-NO-STUFF	C33	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	No-Stuff
10UF-NO-STUFF	C28	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	No-Stuff
10UF	C30	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	
10UF	C10	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	
10UF	C12	805	Chip cap, X7R, 0805	Murata GRM21BR61C106K E15L, 10UF, 10%, 16V, X5R, 0805, DigiKey# 490-3886-1-ND	
16.5K-NO-STUFF	R59	603	SMT R, +-1%	Panasonic ERJ-3EKF1652V, 1%, 100ppm, 0.1W, DigiKey P16.5KHCT-ND	No-Stuff
22UF	C52	1210	Chip cap, X7R	Murata GCM32ER71C226K E19L, 22UF, 10%, 16V, X7R, 1210, DigiKey# 490-5242-1-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

22UF	C55	1210	Chip cap, X7R	Murata GCM32ER71C226K E19L, 22UF, 10%, 16V, X7R, 1210, DigiKey# 490-5242- 1-ND	
22UF-NO-STUFF	C17	1210	Chip cap, X7R	Murata GCM32ER71C226K E19L, 22UF, 10%, 16V, X7R, 1210, DigiKey# 490-5242- 1-ND	No-Stuff
49.9-NO-STUFF	R48	402	SMT R, +-1%	Panasonic ERJ- 2RKF49R9X, 1%, 100ppm, 0.1W, DigiKey P49.9LCT- ND	No-Stuff
49.9-NO-STUFF	R49	402	SMT R, +-1%	Panasonic ERJ- 2RKF49R9X, 1%, 100ppm, 0.1W, DigiKey P49.9LCT- ND	No-Stuff
100	R52	402	SMT R, +-1%	Panasonic ERJ- 2RKF1000X, 100 ohm, 1%, 0.1W, Digikey# P100LCT- ND	
100	R53	402	SMT R, +-1%	Panasonic ERJ- 2RKF1000X, 100 ohm, 1%, 0.1W, Digikey# P100LCT- ND	
0	R47	805	SMT R, +-1%,0805	PanasonicERJ- 6GEY0R00V,0ohm, 0805,DigiKey# P0.0ACT-ND	
100UH	L2		SMT inductor	CoilCraft, MSS7341T-104ML, 100UH+-20%	
330	R29	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
330	R28	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
330	R66	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
330	R67	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	
330	R50	402	SMT R, +-1%, 0402	Panasonic ERJ- 2RKF3300X, 330 ohm, 1%, 0.1W, 0402, DigiKey# P330LCT-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

COILCRAFT_KA4909-NO-STUFF	L1		COILCRAFT DIFF CHOKE KA4909-AL	Coilcraft differential choke KA4909-AL	No-Stuff
DLW21SN261XQ2 - NO-STUFF	L4	Murata_DLW21	Murata common mode choke	Murata DLW21SN261XQ2 cm choke	No-Stuff
DS90UA102	U1	LLP48	DS90UA102 DESERIALIZER	*	
ESD-NO-STUFF	U2	SOT-533	TI TPD2E001Q1 2-CH ESD	Digikey# 296-21883-1-ND	No-Stuff
FAKRA_SMT_ROS ENBERGER-NO-STUFF	J5		FAKRA connector, SMT	Rosenberger FAKRA SMT connector, 59S20X-40ML5-Y	No-Stuff
HEADER 2X2	JP2		2x2 header, male	Use CUT and FIT from JP1	
HEADER 3	JP6		1x3 header, male	Amp/Tyco, 0.1 pitch, 3-pin header, 87224-3, DigiKey# A26545-ND	
HEADER 3-NO-STUFF	JP4		1x3 header, male	Amp/Tyco, 0.1 pitch, 3-pin header, 87224-3, DigiKey# A26545-ND	No-Stuff
HEADER 3-NO-STUFF	JP3		1x3 header, male	Amp/Tyco, 0.1 pitch, 3-pin header, 87224-3, DigiKey# A26545-ND	No-Stuff
HEADER 16X2-NO-STUFF	JP7		2x16 header-MALE	CONN HEADER VERT DUAL 40POS GOLD, DigiKey# 3M9465-ND	No-Stuff
HEADER 15X2	JP1		2x15 header, male	CONN HEADER VERT DUAL 40POS GOLD, DigiKey# 3M9465-ND	
LED-RED	D4	603	LED	Lite On Inc, 0603, Red LED, LTST-C191KRKT, DigiKey# 160-1447-1-ND	
LED-RED	D3	603	LED	Lite On Inc, 0603, Red LED, LTST-C191KRKT, DigiKey# 160-1447-1-ND	
LED-green	D1	603	LED	Lite On Inc, 0603, Red-Orange LED, LTST-C191GKT, DigiKey# 160-1443-1-ND	
LED-orange	D2	603	LED	Lite On Inc, 0603, Red-Orange LED, LTST-C191KFKT, DigiKey# 160-1445-1-ND	
LED-red orange	D5	603	LED	Lite On Inc, 0603, Red Orange LED, LTST-C191KAKT, DigiKey# 160-1444-1-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

LM3671MF-1.8/NOPB-NO-STUFF	U5	SOT-23-5	SOT-23-5 Step-Down DC-DC Converter	LM3671MF-1.8/NOPB, DC-DC Down converter, DigiKey# LM3671MF-1.8/NOPBTR-ND	No-Stuff
LP38693MP-ADJ-NO-STUFF	U3	SOT-223	LP38693MPADJ: 0.5A LDO REGULATOR, NSC	LP38693MP-ADJ, LDO, SOT223-5, DigiKey#LP38693MP-ADJCT-ND	No-Stuff
LP38693MP-ADJ	U4	SOT-223	LP38693MPADJ: 0.5A LDO REGULATOR, NSC	LP38693MP-ADJ, LDO, SOT223-5, DigiKey#LP38693MP-ADJCT-ND	
NC7SP04P5X	U6	SC70-5	NC7SP04P5X INVERTER	Fairchild Semi, Inverter, NZ7SP04P5X, DigiKey# NC7SP04P5XCT-ND	
NC7SP04P5X	U8	SC70-5	NC7SP04P5X INVERTER	Fairchild Semi, Inverter, NZ7SP04P5X, DigiKey# NC7SP04P5XCT-ND	
NC7SZ175P6X	U7	SC70-6	NC7SZ175P6X LATCH	Fairchild Semi, latch, NC7SZ175P6X, DigiKey# NC7SZ175P6XCT-ND	
NC7SZ175P6X	U9	SC70-6	NC7SZ175P6X LATCH	Fairchild Semi, latch, NC7SZ175P6X, DigiKey# NC7SZ175P6XCT-ND	
SMA-bulkhead-NO-STUFF	J2	sma-edge-round	SMA, PCB MOUNT	Johnson end launch, bulkhead, round contact, 142-0701-871, digikey# J610-ND	No-Stuff
SMA-bulkhead-NO-STUFF	J1	sma-edge-round	SMA, PCB MOUNT	Johnson end launch, bulkhead, round contact, 142-0701-871, digikey# J610-ND	No-Stuff
SMA-bulkhead-NO-STUFF	J3	sma-edge-round	SMA, PCB MOUNT	Johnson end launch, bulkhead, round contact, 142-0701-871, digikey# J610-ND	No-Stuff
SMA-bulkhead-NO-STUFF	J4	sma-edge-round	SMA, PCB MOUNT	Johnson end launch, bulkhead, round contact, 142-0701-871, digikey# J610-ND	No-Stuff
SMA-bulkhead	J6	sma-edge-round	SMA, PCB MOUNT	Johnson end launch, bulkhead, round contact, 142-0701-871, digikey# J610-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

SMA-bulkhead	J7	sma-edge-round	SMA, PCB MOUNT	Johnson end launch, bulkhead, round contact, 142-0701-871, digikey# J610-ND	
SW-PB	S3			Panasonic EVQ-PNF04M push switch, DigiKey# P13597SCT-ND	
SW DIP-3	S2		DIP Switch	Grayhill Inc, 78B03ST, SWITCH DIP EXTENDED SEALED 3POS, DigiKey# GH7182-ND	
SW DIP-8	S1		DIP Switch	Grayhill Inc, 78B07ST, SWITCH DIP EXTENDED SEALED 7POS, DigiKey# GH7190-ND	
Light Pipe				5-position light pipe, Lumex Opto LPF-C051303S, DigiKey# 67-1856-ND	No-Stuff
Header 2x4	JP8		2x4 header, male	Use CUT-n-FIT remaining from JP1	
Header 1x4	JP9		1x4 header, male	Molex, 1x4 header pin, 0.1" pitch, DigiKey# WM2702-ND	
49.9	R74	603	SMD R, +-1%, 0603	Panasonic ERJ-3EKF49R9V, 49.9ohm, 1%, 0603, DigiKey# P49.9HCT-ND	
1K	R83	603	SMD R, +-1%, 0603	Panasonic ERJ-3EKF1001V, 1Kohm, 1%, 0603, DigiKey# P1.00KHCT-ND	
1K	R87	603	SMD R, +-1%, 0603	Panasonic ERJ-3EKF1001V, 1Kohm, 1%, 0603, DigiKey# P1.00KHCT-ND	
10UF	C62	805	Chip cap, X7R, 0805	Murata GRM21BR71A106K E51L, 10UF, 10%, 10V, X7R, 0805, DigiKey# 490-3905-1-ND	
RAPC722X	JP11	RAPC722X	Power jack	Switchcraft, RAPC72 2X, CONN POWERJACK MINI.08" RA PCMT, Digikey# SC1313-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

MBRS1540T3	D6	MBRS1540T3	Diode	On Semi,MBRS1540T3 G,DIODE SCHOTTKY 1.5A 40V SMB,Digikey# MBRS1540T3GOST R-ND	
MBRS1540T3	D7	MBRS1540T3	Diode	On Semi,MBRS1540T3 G,DIODE SCHOTTKY 1.5A 40V SMB,Digikey# MBRS1540T3GOST R-ND	
4.7UF_50V	C63	1206	Chip cap, X7R, 1206	TDK,C3216X7R1H4 75M160AC,CAP CER 4.7UF 50V 20% X7R 1206,Digikey# 445-8033-2-ND	
22UF	C64	1206	Chip cap, X5R, 1206	TDK,C3216X5R1E2 26M160AB,CAP CER 22UF 25V 20% X5R 1206,Digikey# 445-6000-2-ND	
22UF	C65	1206	Chip cap, X5R, 1206	TDK,C3216X5R1E2 26M160AB,CAP CER 22UF 25V 20% X5R 1206,Digikey# 445-6000-2-ND	
22UF	C70	1206	Chip cap, X5R, 1206	TDK,C3216X5R1E2 26M160AB,CAP CER 22UF 25V 20% X5R 1206,Digikey# 445-6000-2-ND	
0.1UF_50V	C77	603	Chip cap, X7R, 0603	TDK,C1608X7R1H1 04K080AA,CAP CER 0.1UF 50V 10% X7R 0603,Digikey# 445-1314-2-ND	
0.1UF	C71	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C67	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C68	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
0.1UF	C73	402	Chip cap, X7R, 0402	16V, 10%, X7R, Murata GRM155R71C104K A88D, Digikey 490-3261-1-ND	
TBD	C74	402			No-Stuff



**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

20UF	C69	1206	Chip cap, X5R, 1206	TDK,C3216X5R1E2 26M160AB,CAP CER 22UF 25V 20% X5R 1206,Digikey# 445- 6000-2-ND	
78.13nF	C72	402	Chip cap, X7R, 0402	KEMET,C0402C823 K4RACTU,CAP CER 0.082UF 16V 10% X7R 0402,Digikey# C0402C823K4RAC TU	
10UF	C66	805	Chip cap, X7R, 0805	TDK,C2012X7R1A1 06K125AC,CAP CER 10UF 10V 10% X7R 0805,Digikey# 445- 6857-2-ND	
3.9nF	C75	402	Chip cap, X7R, 0402	KEMET,C0402C392 K4RACTU,CAP CER 3900PF 16V 10% X7R 0402,DIGIKEY# C0402C392K4RAC TU-ND	
12pF_DNI	C76	402	Chip cap, NP0, 0402	KEMET,C0402C120 J3GACAUTO,CAP CER 12PF 25V 5% NP0 0402,DIGIKEY# 399-6829-2-ND	No-Stuff
XFL4020-472ME	L12	XFL4020-472ME	INDUCTOR	COILCRAFT,XFL40 20-472ME,	
XFL4020-472ME	L13	XFL4020-472ME	INDUCTOR	COILCRAFT,XFL40 20-472ME,	
10K	R96	603	SMT R,0603	Panasonic ERJ- 3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	
10K	R98	603	SMT R,0603	Panasonic ERJ- 3EKF1002V, 1%, 0.1W, 100ppm, Digikey P10.0KHCT-ND	
0_DNL	R97	603	SMD R, +-1%, 0603	Panasonic ERJ- 3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
0_DNL	R99	603	SMD R, +-1%, 0603	Panasonic ERJ- 3GEY0R00V, 0ohm, 0603, DigiKey# P0.0GCT-ND	No-Stuff
TBD	R101	603			No-Stuff
52.45K	R100	603		Vishay,PAT0603E5 302BST1,RES 53.0K OHM 0.15W 0.1% 0603,Digikey# PAT0603E5302BST 1-ND	

**Table B-2. DS90UA102-Q1 Deserializer Board BOM (continued)**

20K	R104	603	SMD R, +-1%, 0603	Panasonic,ERJ-3EKF2002V,RES 20.0K OHM 1/10W 1% 0603 SMD,Digikey# P20.0KHTR-ND	
10.5K	R103	603	SMD R, +-1%, 0603	Panasonic,ERJ-3EKF2002V,RES 20.0K OHM 1/10W 1% 0603 SMD,Digikey# P20.0KHTR-ND	
34K	R102	603	SMD R, +-1%, 0603	Panasonic,ERJ-3EKF3402V,RES 34.0K OHM 1/10W 1% 0603 SMD,Digikey# P34.0KHTR-ND	
30K	R105	603	SMD R, +-1%, 0603	Panasonic,ERJ-3EKF3002V,RES 30.0K OHM 1/10W 1% 0603 SMD,Digikey# P30.0KHTR-ND	
5.69K	R106	603	SMD R, +-0.1%, 0603	Panasonic,PAT0603 E5691BST1,RES 5.69K OHM 0.15W 0.1% 0603,Digikey# PAT0603E5691BST 1-ND	
Test point-NO-STUFF	TP1	TEST_POINT_TH			No-Stuff
Test point-NO-STUFF	TP2	TEST_POINT_TH			No-Stuff
TPS65320	U21	TPS65320_Q_PWP	TPS65320QPWPQ1	TI,TPS65320QPWP Q1, Step Down Buck Regulator	
0	R107	805	SMT R, +-1%,0805	PanasonicERJ-6GEY0R00V,0ohm, 0805,DigiKey# P0.0ACT-ND	
SW-PB	S4			Panasonic EVQ- PNF04M push switch, DigiKey# P13597SCT-ND	
0	R108	2512	SMT R, 2512	Vishay Dale,CRCW251200 00Z0EGHP,RES 0.0 OHM 1.5W 2512 SMD,Digikey# 541-0.0RBCT-ND	
HEADER 3	JP12		1x3 header, male	Amp/Tyco, 0.1 pitch, 3-pin header, 87224-3, DigiKey# A26545-ND	
4 HEADER	JP10		4 Pin Header	Molex, 1x4 header pin, 0.1" pitch, DigiKey# WM2702- ND	

## ***Document Revision History***

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**DS90UA101-Q1EVM REV. E1 Board**

- N/A

**DS90UA102-Q1EVM REV. E1 Board**

- N/A

## STANDARD TERMS AND CONDITIONS FOR EVALUATION MODULES

1. *Delivery:* TI delivers TI evaluation boards, kits, or modules, including any accompanying demonstration software, components, or documentation (collectively, an "EVM" or "EVMs") to the User ("User") in accordance with the terms and conditions set forth herein. Acceptance of the EVM is expressly subject to the following terms and conditions.
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2. *Limited Warranty and Related Remedies/Disclaimers:*
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  - 2.2 TI warrants that the TI EVM will conform to TI's published specifications for ninety (90) days after the date TI delivers such EVM to User. Notwithstanding the foregoing, TI shall not be liable for any defects that are caused by neglect, misuse or mistreatment by an entity other than TI, including improper installation or testing, or for any EVMs that have been altered or modified in any way by an entity other than TI. Moreover, TI shall not be liable for any defects that result from User's design, specifications or instructions for such EVMs. Testing and other quality control techniques are used to the extent TI deems necessary or as mandated by government requirements. TI does not test all parameters of each EVM.
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3. *Regulatory Notices:*
  - 3.1 *United States*
    - 3.1.1 *Notice applicable to EVMs not FCC-Approved:*

This kit is designed to allow product developers to evaluate electronic components, circuitry, or software associated with the kit to determine whether to incorporate such items in a finished product and software developers to write software applications for use with the end product. This kit is not a finished product and when assembled may not be resold or otherwise marketed unless all required FCC equipment authorizations are first obtained. Operation is subject to the condition that this product not cause harmful interference to licensed radio stations and that this product accept harmful interference. Unless the assembled kit is designed to operate under part 15, part 18 or part 95 of this chapter, the operator of the kit must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter.
    - 3.1.2 *For EVMs annotated as FCC – FEDERAL COMMUNICATIONS COMMISSION Part 15 Compliant:*

### CAUTION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### FCC Interference Statement for Class A EVM devices

*NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

## FCC Interference Statement for Class B EVM devices

*NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### 3.2 Canada

#### 3.2.1 For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210

##### **Concerning EVMs Including Radio Transmitters:**

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

##### **Concernant les EVMs avec appareils radio:**

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

##### **Concerning EVMs Including Detachable Antennas:**

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

##### **Concernant les EVMs avec antennes détachables**

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

### 3.3 Japan

3.3.1 *Notice for EVMs delivered in Japan:* Please see [http://www.tij.co.jp/lstds/ti\\_ja/general/eStore/notice\\_01.page](http://www.tij.co.jp/lstds/ti_ja/general/eStore/notice_01.page) 日本国内に輸入される評価用キット、ボードについては、次のところをご覧ください。  
[http://www.tij.co.jp/lstds/ti\\_ja/general/eStore/notice\\_01.page](http://www.tij.co.jp/lstds/ti_ja/general/eStore/notice_01.page)

3.3.2 *Notice for Users of EVMs Considered "Radio Frequency Products" in Japan:* EVMs entering Japan may not be certified by TI as conforming to Technical Regulations of Radio Law of Japan.

If User uses EVMs in Japan, not certified to Technical Regulations of Radio Law of Japan, User is required by Radio Law of Japan to follow the instructions below with respect to EVMs:

1. Use EVMs in a shielded room or any other test facility as defined in the notification #173 issued by Ministry of Internal Affairs and Communications on March 28, 2006, based on Sub-section 1.1 of Article 6 of the Ministry's Rule for Enforcement of Radio Law of Japan,
2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

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4.3.2 EVMs are intended solely for use by technically qualified, professional electronics experts who are familiar with the dangers and application risks associated with handling electrical mechanical components, systems, and subsystems. User assumes all responsibility and liability for proper and safe handling and use of the EVM by User or its employees, affiliates, contractors or designees. User assumes all responsibility and liability to ensure that any interfaces (electronic and/or mechanical) between the EVM and any human body are designed with suitable isolation and means to safely limit accessible leakage currents to minimize the risk of electrical shock hazard. User assumes all responsibility and liability for any improper or unsafe handling or use of the EVM by User or its employees, affiliates, contractors or designees.

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