PI3EQX7841

PI3EQX7841 EVB Rev.A User Manual

By YT Tso and Anne Wu

* **Introduce:**

PI3EQX7841 is a low power high performance 5.0Gbps signal ReDriver designed for USB3.0 protocol. The device provides programmable Equalization (EQ) and De-Emphasis (DE) to optimize performance over a variety of physical mediums by reducing Inter-Symbol Interference (ISI)

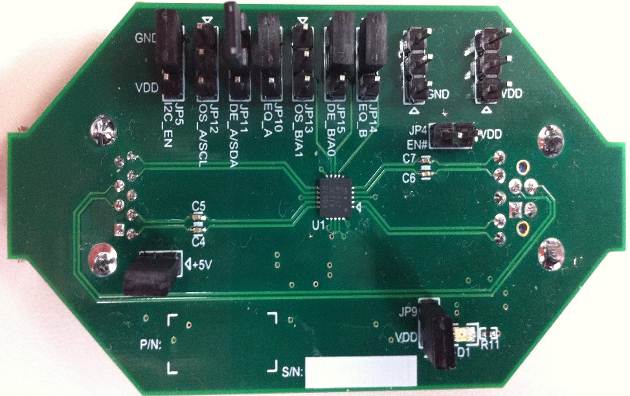
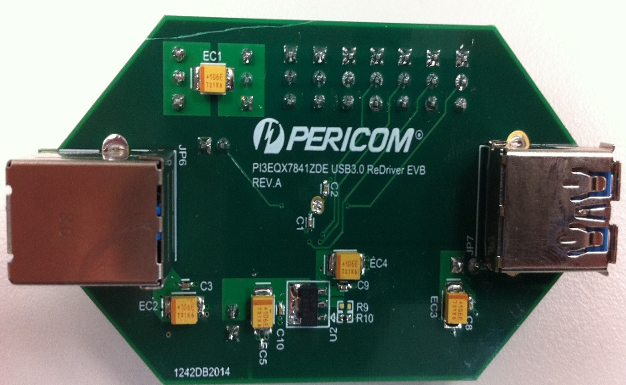
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Figure 1(a) top view of PI3EQX7841 EVB Figure 1(b) bottom view of PI3EQX7841 EVB

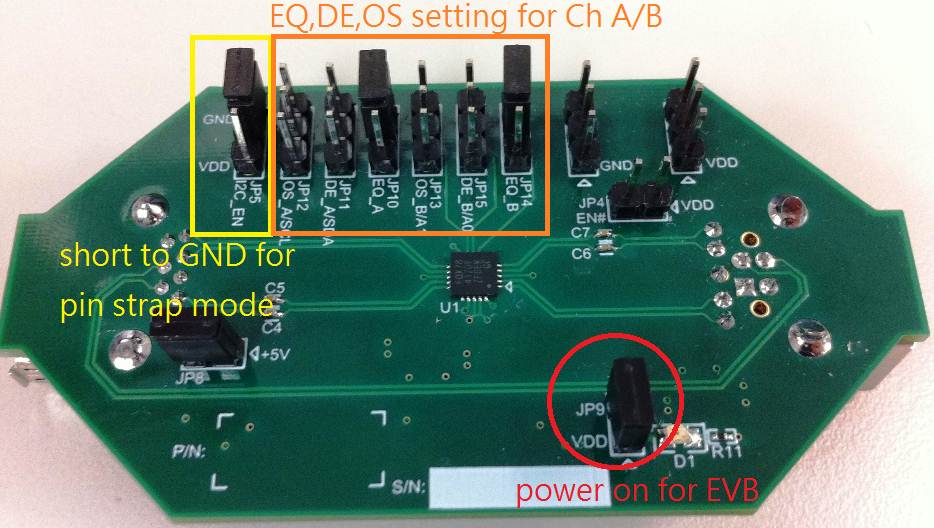
* **Quick Start — For Pin Strap control:**

To start-up the PI3EQX7841 EVB, complete the following steps:

1. Short JP9 for power on EVB
2. Check the head pin status setting follow Table 1
3. Connect the JP6 on EVB to PC’s USB3.0 port through a USB3.0 Type A to B cable.
4. Plug the USB3.0 device into EVB USB Type-A connector JP7 through USB3.0 cable

Table 1 Header pin is set as defaulted on EVB

|  |  |  |  |
| --- | --- | --- | --- |
| **Header pin #** | **Pin name for PI3EQX7841** | **Switch status** | **Remark** |
| JP4 | EN# | Open | **Chip Enable🡪 open**  Chip Disable🡪 short to Vdd |
| JP5 | I2C\_EN | Short to GND | **Pin strap control mode🡪short to GND**  I2C control mode🡪short to Vdd |
| JP8 | +5V | Short | Device Vbus 5V output |
| JP10 | EQ\_A | Short to GND | Equalizer setting on Channel A = 3.3dB |
| JP11 | DE\_A | Open | De-emphasis setting on Channel A = -3.5dB |
| JP12 | OS\_A | Open | Output Swing setting on Channel A= 1000mVppd |
| JP13 | OS\_B | Open | Output Swing setting on Channel B= 1000mVppd |
| JP14 | EQ\_B | Short to GND | Equalizer setting on Channel B = 3.3dB |
| JP15 | DE\_B | Open | De-emphasis setting on Channel B = -3.5dB |

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Equalizer setting:

|  |  |  |  |
| --- | --- | --- | --- |
| **Header pin #** | **Pin name for PI3EQX7841** | **Switch status** | **Remark** |
| JP10 | EQ\_A | Short to GND |  |
| JP14 | EQ\_B | Short to GND |

De-emphasis setting:

|  |  |  |  |
| --- | --- | --- | --- |
| **Header pin #** | **Pin name for PI3EQX7841** | **Switch status** | **Remark** |
| JP11 | DE\_A | Open |  |
| JP15 | DE\_B | Open |

Output swing setting:

|  |  |  |  |
| --- | --- | --- | --- |
| **Header pin #** | **Pin name for PI3EQX7841** | **Switch status** | **Remark** |
| JP12 | OS\_A | Open |  |
| JP13 | OS\_B | Open |

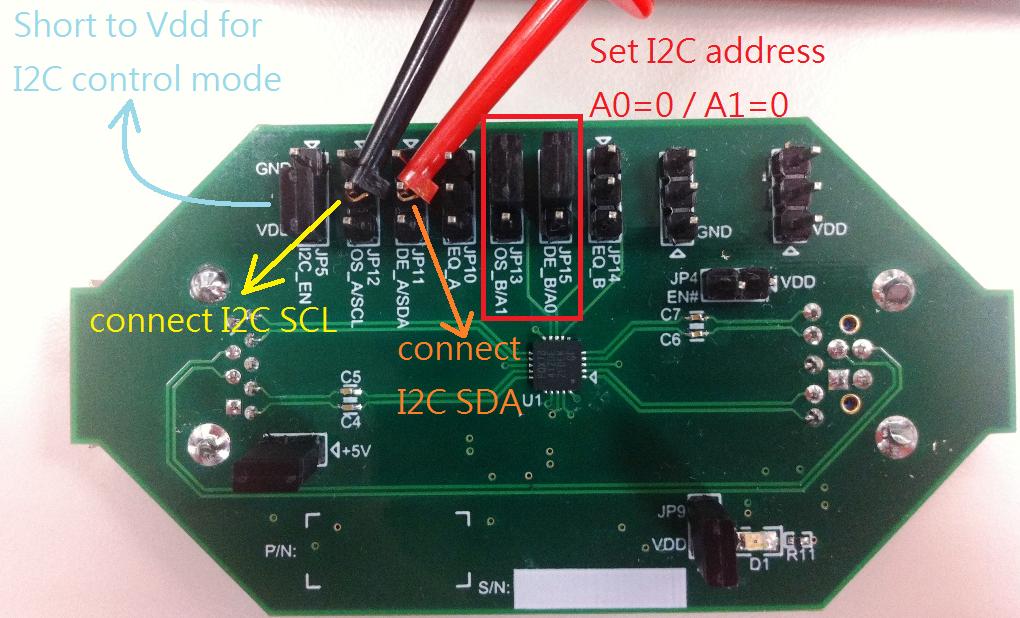
* **Quick Start — For I2C control:**

To start-up the PI3EQX7841 EVB, complete the following steps:

1. Short JP9 for power on EVB
2. Check the head pin status setting follow Table 1
3. Connect the JP6 on EVB to PC’s USB3.0 port through a USB3.0 Type A to B cable.
4. Plug the USB3.0 device into EVB USB Type-A connector JP7 through USB3.0 cable

Table 2 Header pin is set as defaulted on EVB

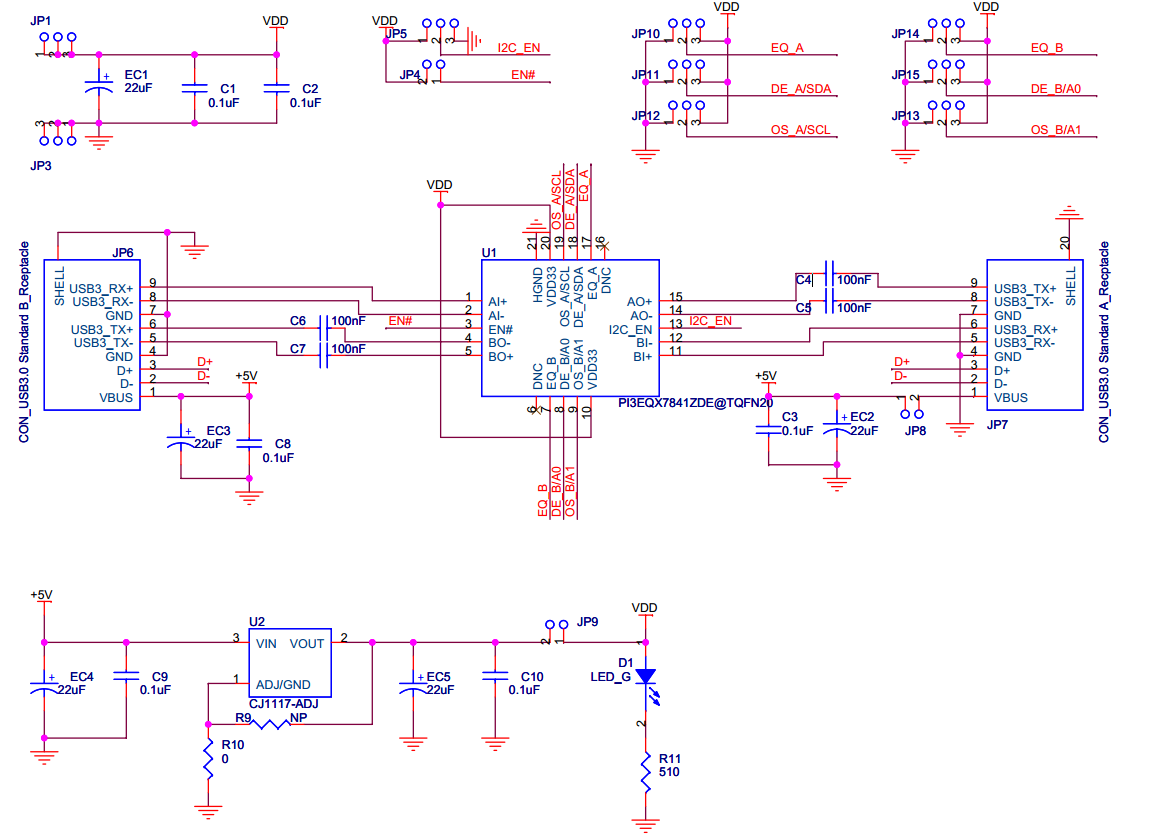
|  |  |  |  |
| --- | --- | --- | --- |
| **Header pin #** | **Pin name for PI3EQX7841 (I2C mode)** | **Switch status** | **Remark** |
| JP4 | EN# | Open | **Chip Enable🡪 open**  Chip Disable🡪 short to Vdd |
| JP5 | I2C\_EN | Short to VDD | Pin strap control mode🡪short to GND  **I2C control mode🡪short to Vdd** |
| JP8 | +5V | Short | Device Vbus 5V output |
| JP10 | EQ\_A | Open | Equalizer setting on Channel A  Programming by I2C |
| JP11 | SDA | Open | Connect to I2C SDA |
| JP12 | SCL | Open | Connect to I2C SCL |
| JP13 | A1 | Short to GND | For I2C addressing A1=0 |
| JP14 | EQ\_B | Open | Equalizer setting on Channel B  Programming by I2C |
| JP15 | A0 | Short to GND | For I2C addressing A0=0 |



1. I2C control setting for Equalizer, De-emphasis and output Swing:

|  |  |
| --- | --- |
| I2C control for Equalizer |  |
| I2C control for De-emphasis |  |
| I2C control for Output Swing |  |

**PI3EQX7841 EVB Schematic**

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**PCB Layout**

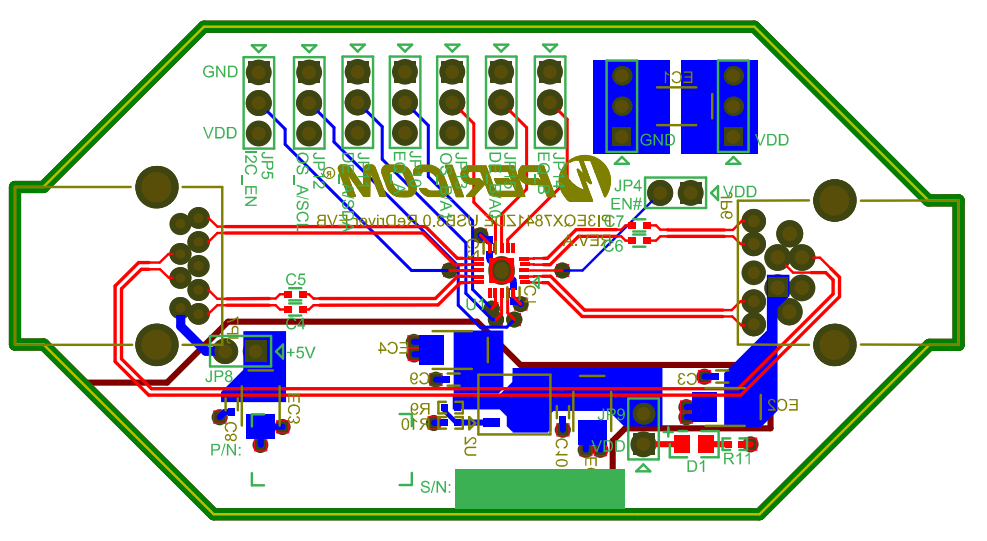
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Figure 2, Top view of PI3EQX7841 EVB Layout

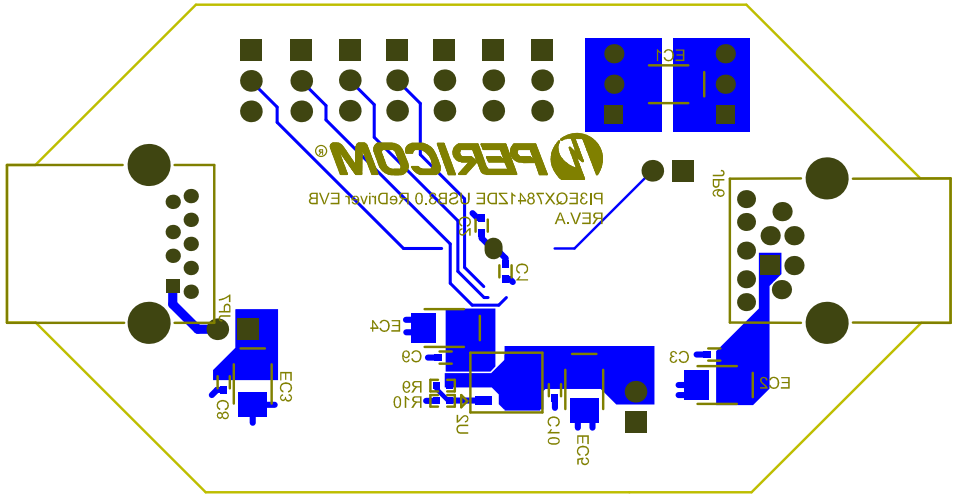


Figure 3, Bottom view of PI3EQX7841 EVB Layout

