

## 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)

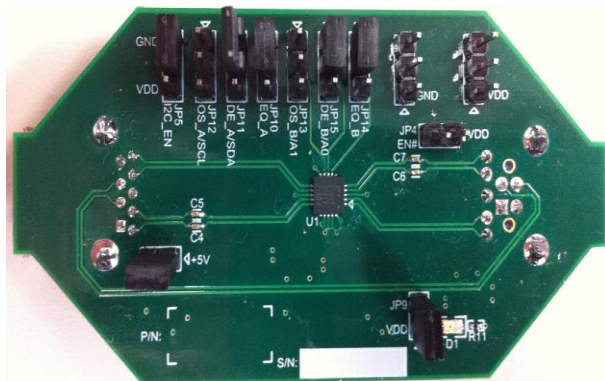


Figure 1(a) top view of PI3EQX7841 EVB



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

power on for EVB

Short to GND	
Switch status	
Open	
Open	

Switch status	
Open	
Open	

Open	
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Open	
Open	

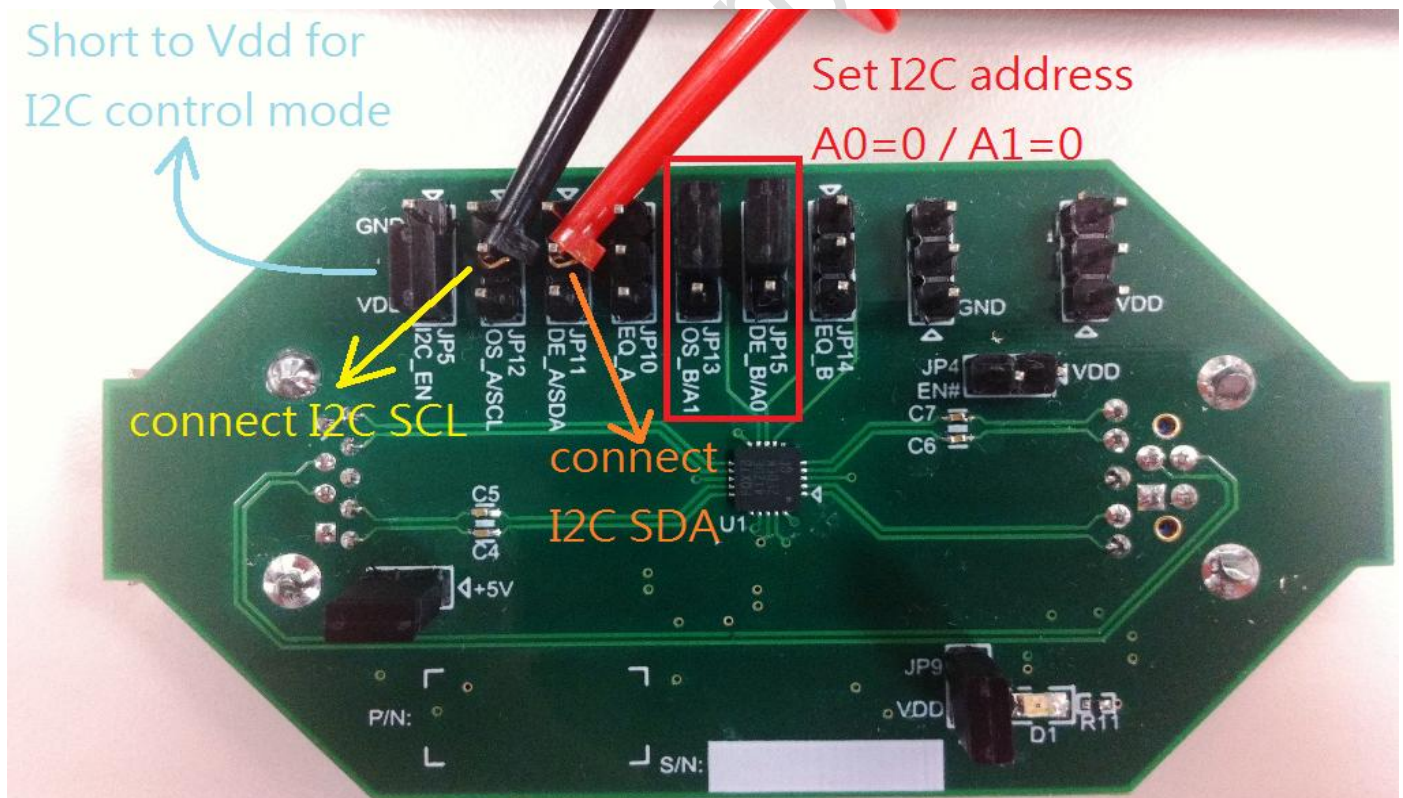
## Quick Start — For I2C control:

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 <b>I2C control mode→short to Vdd</b>
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

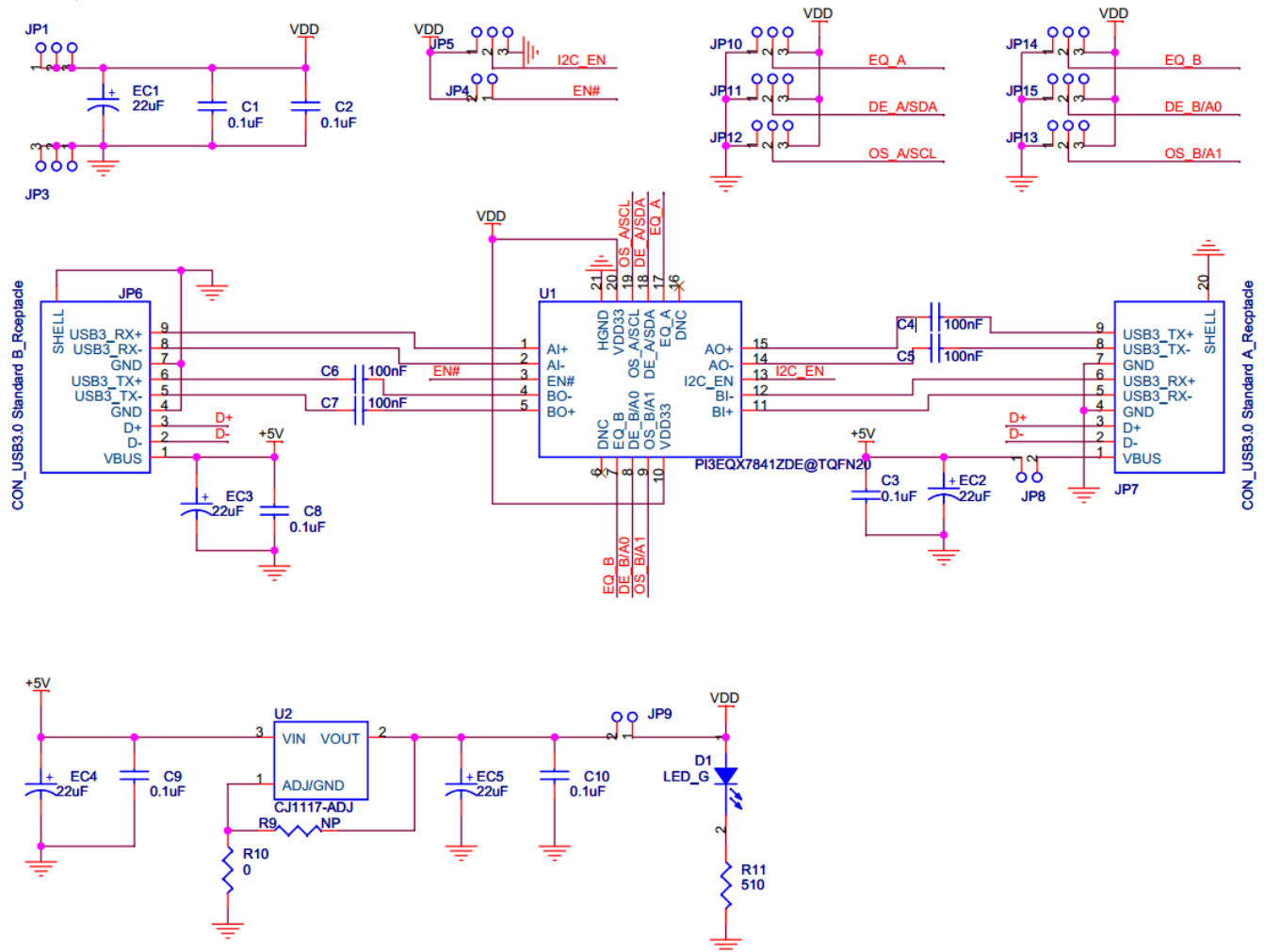




## 5. I2C control setting for Equalizer, De-emphasis and output Swing:

I2C control for Equalizer	<b>Equalization Setting through I<sup>2</sup>C Programming Interface:</b> <table border="1"> <thead> <tr> <th colspan="2">Equalizer setting</th></tr> <tr> <th>A/B_CH Byte Register [7:4]*</th><th>@ 2.5GHz</th></tr> </thead> <tbody> <tr><td>0000</td><td>0 dB</td></tr> <tr><td>0001</td><td>3.3 dB</td></tr> <tr><td>0010</td><td>4.5 dB</td></tr> <tr><td>0011</td><td>5.6 dB</td></tr> <tr><td>0100</td><td>6.8 dB</td></tr> <tr><td>0101</td><td>7.4 dB</td></tr> <tr><td>0110</td><td>8.1 dB (Default)</td></tr> <tr><td>0111</td><td>8.7 dB</td></tr> <tr><td>1000</td><td>9.3 dB</td></tr> <tr><td>1001</td><td>10 dB</td></tr> <tr><td>1010</td><td>10.8 dB</td></tr> <tr><td>1011</td><td>11.7 dB</td></tr> <tr><td>1100</td><td>12.5 dB</td></tr> <tr><td>1101</td><td>13.3 dB</td></tr> <tr><td>1110</td><td>14.2 dB</td></tr> <tr><td>1111</td><td>15 dB</td></tr> </tbody> </table> <p>Note: *Bits A/B_CH[3:0] are for other settings, see I<sup>2</sup>C register definition</p>	Equalizer setting		A/B_CH Byte Register [7:4]*	@ 2.5GHz	0000	0 dB	0001	3.3 dB	0010	4.5 dB	0011	5.6 dB	0100	6.8 dB	0101	7.4 dB	0110	8.1 dB (Default)	0111	8.7 dB	1000	9.3 dB	1001	10 dB	1010	10.8 dB	1011	11.7 dB	1100	12.5 dB	1101	13.3 dB	1110	14.2 dB	1111	15 dB
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## PI3EQX7841 EVB Schematic



PI3EQX7841ZDE\_U  
SB3.0 ReDriver\_EVB

## PCB Layout

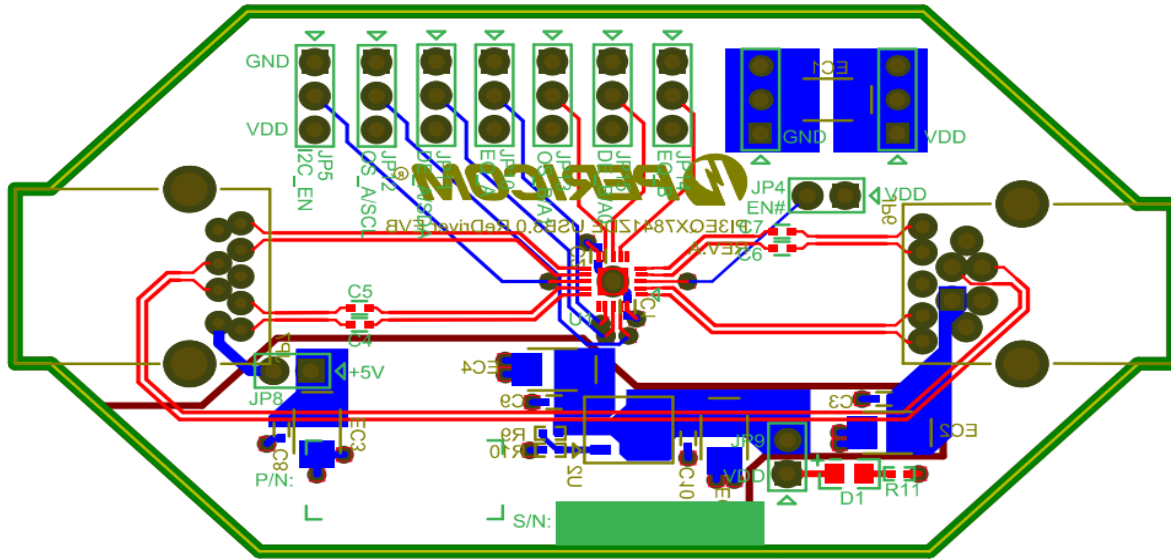


Figure 2, Top view of PI3EQX7841 EVB Layout

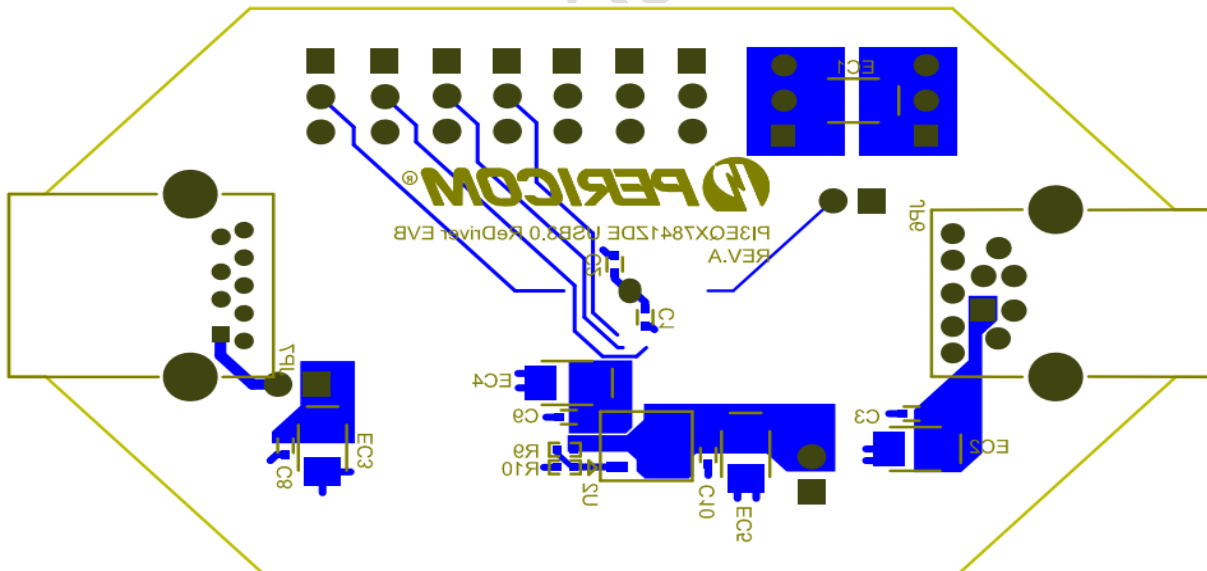


Figure 3, Bottom view of PI3EQX7841 EVB Layout



PI3EQX7841ZDE\_U  
SB3 ReDriver\_EVb R