

## For the customer use only PI2EQX502TZHE SMA EVB User Guide

### Introduction

Pericom Semiconductor's PI2EQX502T is a low power, high performance 5.0 Gbps signal ReDriver specifically for the USB 3.0 protocol.

The device provides programmable equalization and De-Emphasis to optimize performance over a variety of physical mediums by reducing Inter-Symbol Interference.

PI2EQX502T supports two 100  $\Omega$  Differential CML data I/O's between the Protocol ASIC to a switch fabric, over cable, or to extend the signals across other distant data pathways on the user's platform.

This user guide describes how to use PI2EQX502TZHE SMA EVB for evaluation. Figure1 shows top view and bottom view of PI2EQX502TZHE SMA EVB.

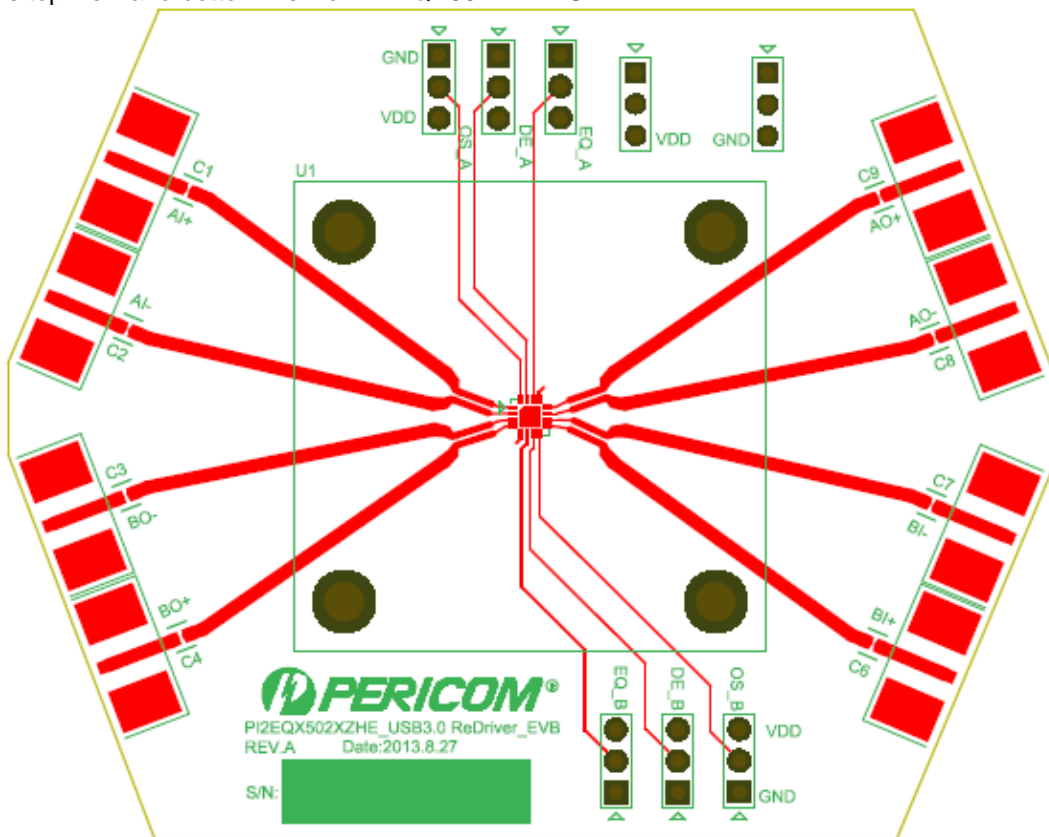


Figure1a. TOP view of PI2EQX502TZHE SMA EVB

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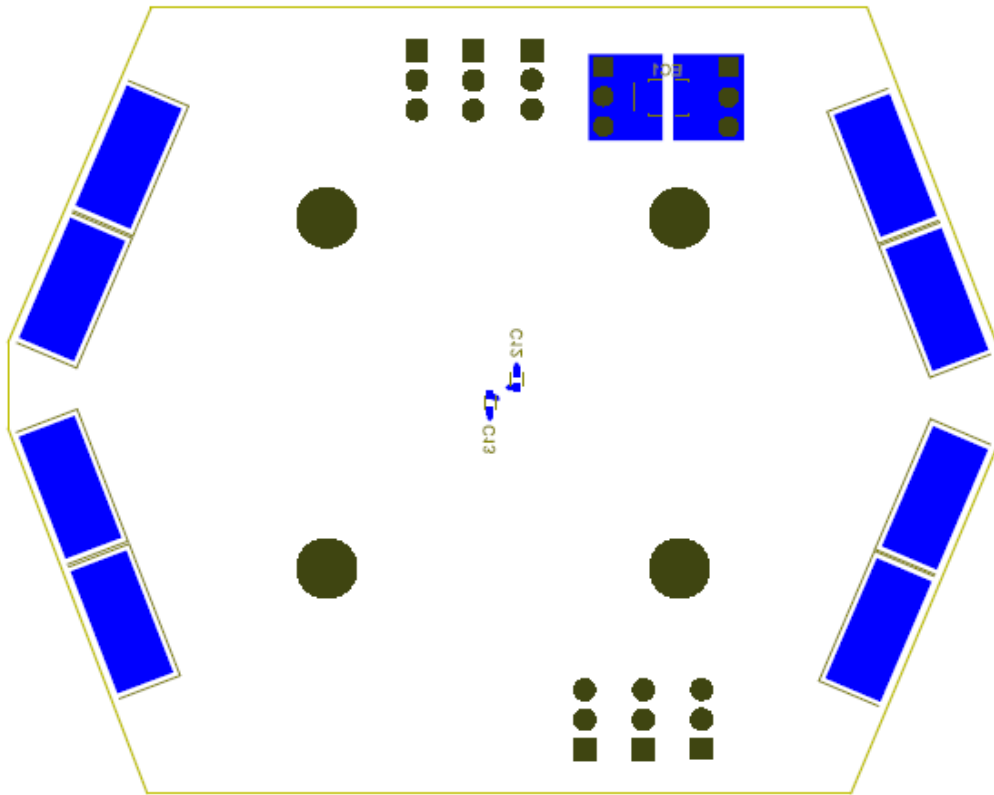


Figure1b. Bottom view of PI2EQX502TZHE SMA EVB

## Board Operation

### ● Logical Block Diagram

Figure2 shows the logical block diagram of PI2EQX502TZHE.

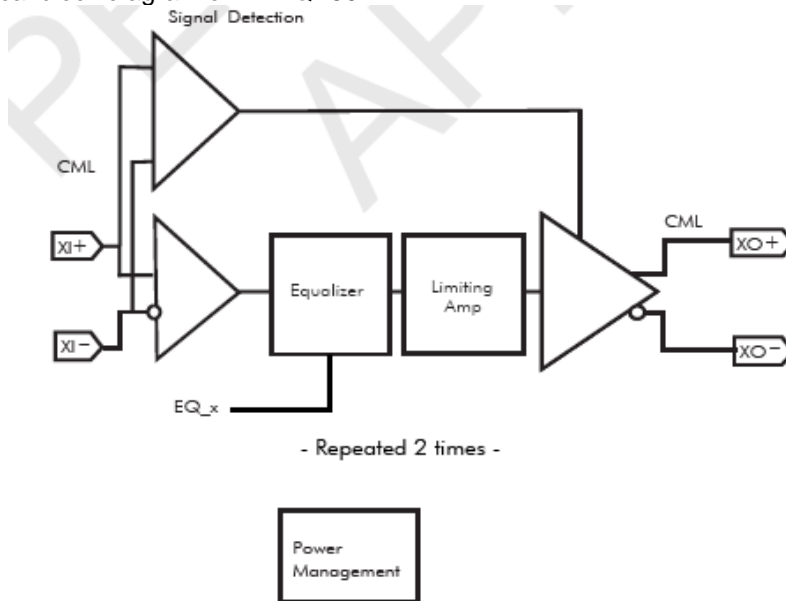


Figure2. Logical Block Diagram of PI2EQX502TZHE

## ● Board Setting and Operation

### 1) Power Supply

On the EV board, there is one way for the power supply below. Two 3-Pin headers are for this 3.3V power and ground input.

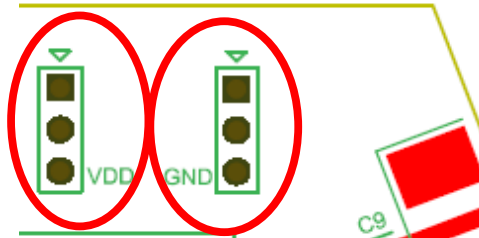


Figure3. Power Input for PI2EQX502TZHE SMA board

### 2) Configuration Control

PI2EQX502TZHE provides pin control for EQ\_A/B, DE\_A/B and OS\_A/B on EVB like in dark blue below.

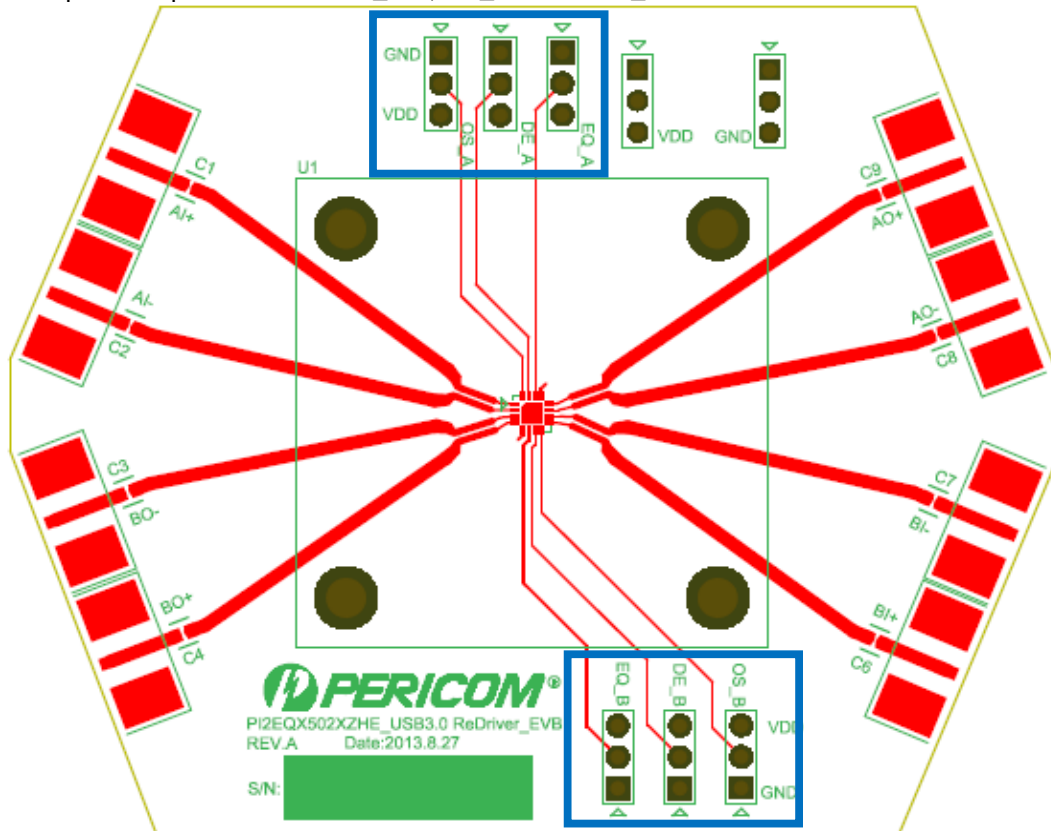


Figure4. Pin control for PI2EQX502TZHE SMA board

On PI2EQX502TZHE EVB, Below are description and configuration tables for equalization, de-emphasis and swing control setting.

#### Equalization Setting

EQ\_A and EQ\_B are the selection pins for the equalization selection for ChA and ChB in Table2 below. EQ\_A or EQ\_B can be selected by 3pin headers for 0, open and 1 option to separately 3dB, 6dB and 9dB. **Note for 12dB, the user needs to hand-solder one 48kohm resistor between EQ\_A/B and ground like Figure5.**

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EQ is the selection pin for the equalization.

Equalizer setting	
EQ	@ 2.5GHz
0 (Tie 0Ω to GND)	3 dB
Open (Leave open)	6dB (Default)
1 (Tie 0Ω to Vdd)	9dB
R (Tie 48kΩ to GND)	12dB

Table2. Equalizer Configuration Selection Table for PI2EQX502TZHE

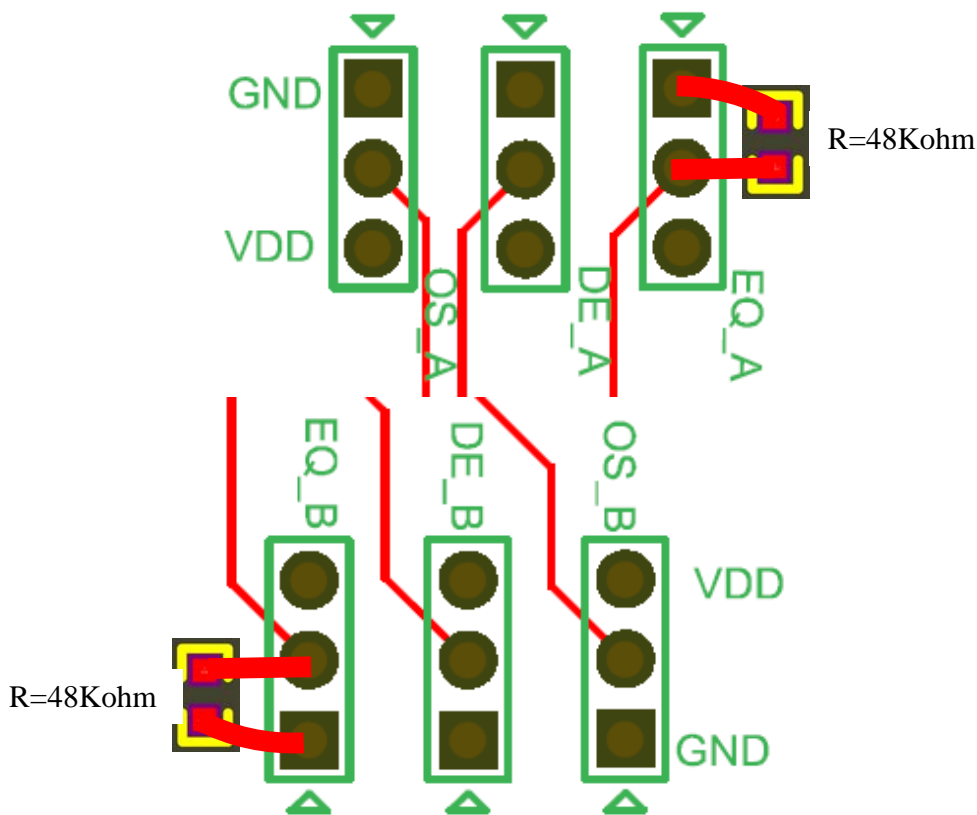


Figure5. 48Kohm Resistor hand-soldered for 12dB selection of EQ\_A/B on PI2EQX502TZHE SMA board

**De-emphasis Setting:**

DE\_A and DE\_B are the selection pins for the equalization selection for ChA and ChB in Table3 below. DE\_A or DE\_B can be selected by 3pin headers for 0, open and 1 option to separately 0dB, -3.5dB and -6dB.

DE is the selection pin for the de-emphasis.

Output de-emphasis setting	
DE	De-emphasis
0	0 dB
Open	-3.5 dB (default)
1	-6 dB

Table3. De-emphasis Configuration Selection Table for PI2EQX502TZHE

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**Swing Setting:**

OS\_A and OS\_B are the selection pins for the equalization selection for ChA and ChB in Table4 below. OS\_A or OS\_B can be selected by 3pin headers for 0(GND) and 1(VDD) option to separately 700mV and 1000mV. OS is the selection pin for the output swing.

Output swing setting	
OS	Output swing
0	700 mVppd
Open	1000 mVppd (default)

Table4. Swing Configuration Selection Table for PI2EQX502TZHE

**3) EVB Test Connection**

Figure6 is the test connection example for AI signal input and AO signal output.

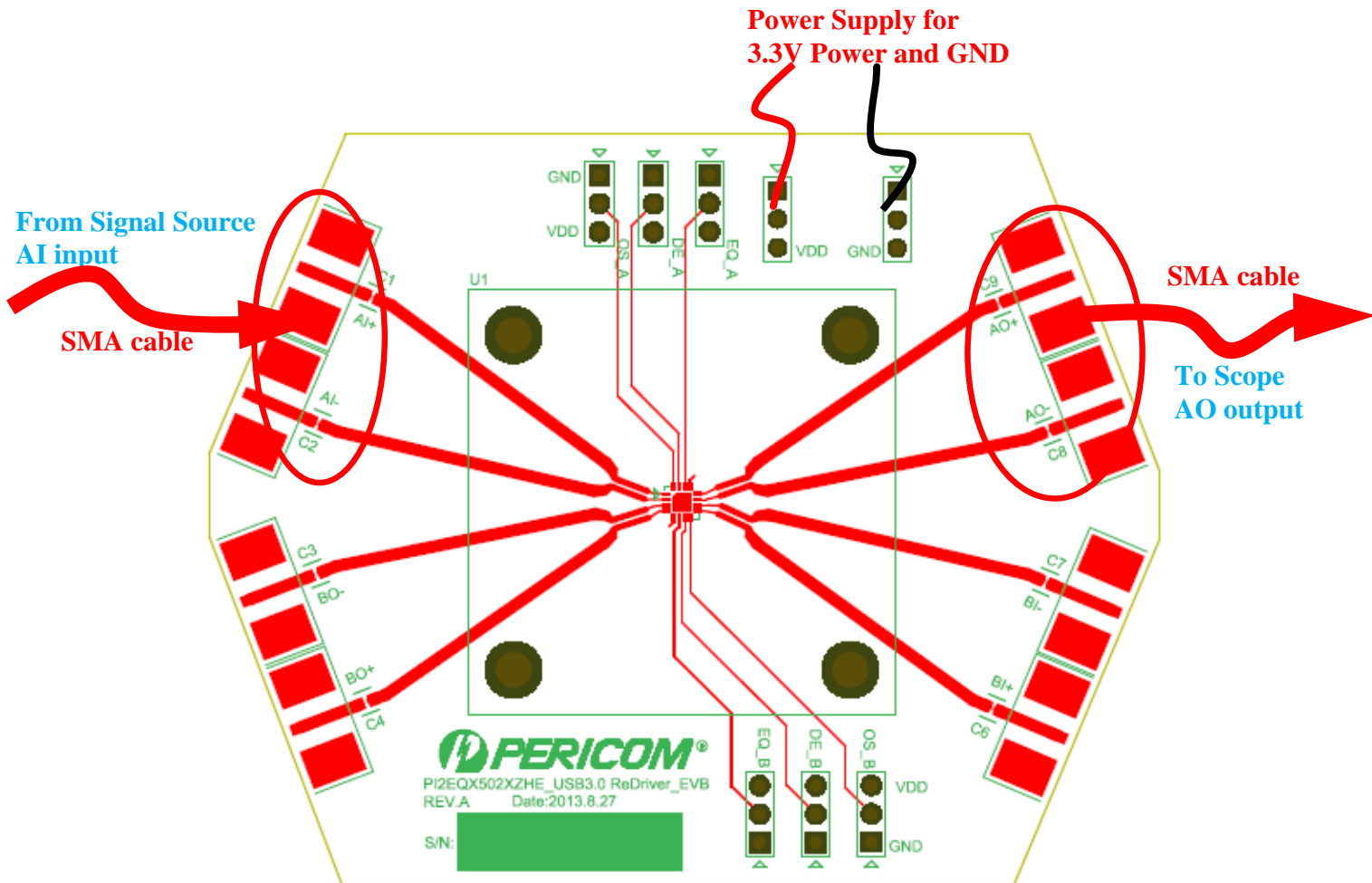
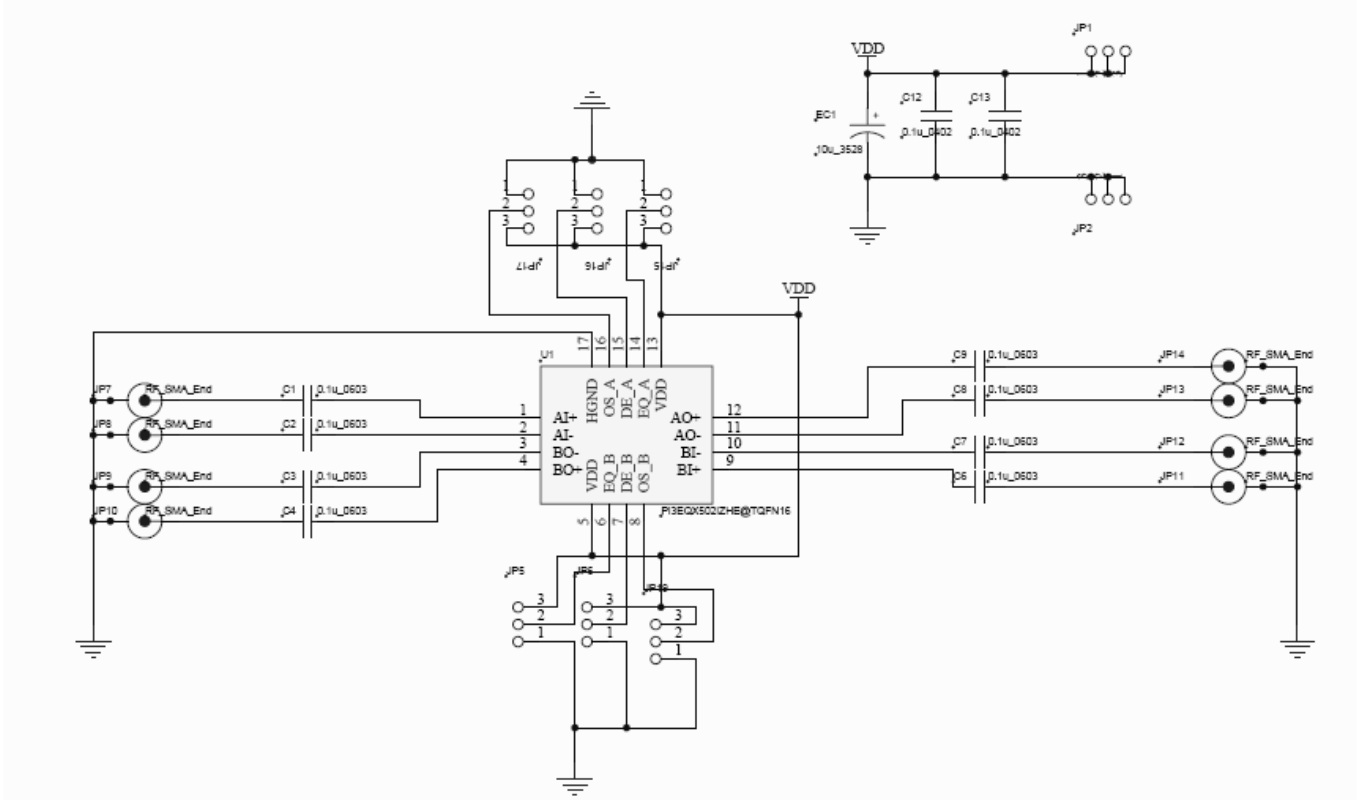


Figure6. Test connection with PI2EQX502TZHE SMA board

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## Appendix A: PCB Schematic



## Appendix B: PCB Stack-up

Layer #	Plane	Material Type	Refer Thickness	Unit: mil
	Solder Mask		0.4	
Layer 1/2	Signal/GND	RO4350	21	
	Prepreg	Prepreg 2116 Prepreg 7628 Prepreg 2116	16.26	
Layer 3/4	Power/Signal	RO4350	21	
	Solder Mask		0.4	

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## History

Version 1.0

Original Version

2014/1/27