

Multilayer high precision PCB's with impedance control

JLCPCB can produce High-precision multilayer board with capabilities listed in below table.

Min. Trace width/Spacing	Min. Via	Min. BGA
3.5mil	0.2mm	0.25mm

It is very convenient for customers to conduct an impedance matching design, according to JLCPCB's laminated structure and related parameters. The PCB will be stric following stackup.

Controlled Impedance PCB Parameters and Stackup

1.Prepreg dielectric constant:

Prepreg type	Dielectric constant
7628	4.4
3313	4.1
1080	3.91
2116	4.16

2.Solder mask Parameters

Coating Above Substrate C1	Coating Above Trace C2	Coating Between Traces C3	Coating Dielectric CER
1.2mil	0.6mil	1.2mil	3.8

3. Core dielectric constant

Core dielectric constant
4.6

For your convenience, we have designed an [Impedance Calculator](#) to help you calculate the impedance and the trace width you require.

4-Layer Impedance Control Stackup

Thickness

0.8mm

1.0mm

1.2mm

1.6mm

2.0mm

Outer Copper Weight

1oz

2oz

inner Copper Weight

0.5oz

1oz

2oz

1) No requirement Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	7628*1	0.2104mm	
inner Layer	Copper	0.0152mm	1.1mm (with copper core)
Core>	Core	1.065mm	
inner Layer	Copper	0.0152mm	
Prepreg	7628*1	0.2104mm	
Layer	Copper	0.035mm	

2) JLC04161H-7628 Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	7628*1	0.2104mm	
inner Layer	Copper	0.0152mm	1.1mm (with copper core)
Core>	Core	1.065mm	
inner Layer	Copper	0.0152mm	
Prepreg	7628*1	0.2104mm	

Layer	Copper	0.035mm	
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3) JLC04161H-3313 Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	3313*1	0.0994mm	
inner Layer	Copper	0.0152mm	1.3mm (with copper core)
Core>	Core	1.265mm	
inner Layer	Copper	0.0152mm	
Prepreg	3313*1	0.0994mm	
Layer	Copper	0.035mm	

4) JLC04161H-1080 Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	1080*1	0.0764mm	
inner Layer	Copper	0.0152mm	1.3mm (with copper core)
Core>	Core	1.265mm	
inner Layer	Copper	0.0152mm	
Prepreg	1080*1	0.0764mm	
Layer	Copper	0.035mm	

5) JLC04161H-7628A Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	7628*1	0.218mm	
Prepreg	1080*1	0.0764mm	
inner Layer	Copper	0.0152mm	0.9mm (without copper core)
Core>	Core	0.865mm	
inner Layer	Copper	0.0152mm	
Prepreg	1080*1	0.0764mm	
Prepreg	7628*1	0.218mm	
Layer	Copper	0.035mm	

6) JLC04161H-7628B Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	7628*1	0.218mm	
Prepreg	7628*1	0.218mm	
Prepreg	2116*1	0.1164mm	
inner Layer	Copper	0.0152mm	0.4mm (without copper core)
Core>	Core	0.4mm	
inner Layer	Copper	0.0152mm	
Prepreg	2116*1	0.1164mm	
Prepreg	7628*1	0.218mm	
Prepreg	7628*1	0.218mm	
Layer	Copper	0.035mm	

7) JLC04161H-3313A Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	

Prepreg	3313*1	0.107mm	
Prepreg	3313*1	0.0994mm	
inner Layer	Copper	0.0152mm	1.1mm (without copper core)
Core>	Core	1.065mm	
inner Layer	Copper	0.0152mm	
Prepreg	3313*1	0.0994mm	
Prepreg	3313*1	0.107mm	
Layer	Copper	0.035mm	

8) JLC04161H-1080A Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	1080*1	0.084mm	
Prepreg	1080*1	0.0764mm	
inner Layer	Copper	0.0152mm	1.1mm (without copper core)
Core>	Core	1.065mm	
inner Layer	Copper	0.0152mm	
Prepreg	1080*1	0.0764mm	
Prepreg	1080*1	0.084mm	
Layer	Copper	0.035mm	

9) JLC04161H-2116A Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	2116*1	0.124mm	
Prepreg	7628*1	0.218mm	
Prepreg	2116*1	0.1164mm	
inner Layer	Copper	0.0152mm	0.6mm (without copper core)
Core>	Core	0.6mm	
inner Layer	Copper	0.0152mm	
Prepreg	2116*1	0.1164mm	
Prepreg	7628*1	0.218mm	
Prepreg	2116*1	0.124mm	
Layer	Copper	0.035mm	

10) JLC04161H-2116B Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	2116*1	0.124mm	
Prepreg	7628*1	0.2104mm	
inner Layer	Copper	0.0152mm	0.9mm (with copper core)
Core>	Core	0.865mm	
inner Layer	Copper	0.0152mm	
Prepreg	7628*1	0.2104mm	
Prepreg	2116*1	0.124mm	
Layer	Copper	0.035mm	

11) JLC04161H-2116C Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	

Prepreg	2116*1	0.124mm	
Prepreg	1080*1	0.0764mm	
inner Layer	Copper	0.0152mm	1.1mm (with copper core)
Core>	Core	1.065mm	
inner Layer	Copper	0.0152mm	
Prepreg	1080*1	0.0764mm	
Prepreg	2116*1	0.124mm	
Layer	Copper	0.035mm	

6-Layer Impedance Control Stackup

Thickness

1.2mm

1.6mm

2.0mm

Outer Copper Weight

1oz

2oz

inner Copper Weight

0.5oz

1oz

2oz

1) No requirement Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	3313*1	0.0994mm	
inner Layer	Copper	0.0152mm	0.55mm (with copper core)
Core>	Core	0.55mm	
inner Layer	Copper	0.0152mm	
Prepreg	2116*1	0.1088mm	
inner Layer	Copper	0.0152mm	0.55mm (with copper core)
Core>	Core	0.55mm	
inner Layer	Copper	0.0152mm	
Prepreg	3313*1	0.0994mm	
Layer	Copper	0.035mm	

2) JLC06161H-3313 Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	3313*1	0.0994mm	
inner Layer	Copper	0.0152mm	0.55mm (with copper core)
Core>	Core	0.55mm	
inner Layer	Copper	0.0152mm	
Prepreg	2116*1	0.1088mm	
inner Layer	Copper	0.0152mm	0.55mm (with copper core)
Core>	Core	0.55mm	
inner Layer	Copper	0.0152mm	
Prepreg	3313*1	0.0994mm	
Layer	Copper	0.035mm	

3) JLC06161H-7628 Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	7628*1	0.2104mm	
inner Layer	Copper	0.0152mm	0.4mm (with copper core)
Core>	Core	0.4mm	
inner Layer	Copper	0.0152mm	
Prepreg	7628*1	0.2028mm	
inner Layer	Copper	0.0152mm	

Core>	Core	0.4mm	0.4mm (with copper core)
inner Layer	Copper	0.0152mm	
Prepreg	7628*1	0.2104mm	
Layer	Copper	0.035mm	

4) JLC06161H-1080 Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	1080*1	0.0764mm	
inner Layer	Copper	0.0152mm	0.5mm (with copper core)
Core>	Core	0.5mm	
inner Layer	Copper	0.0152mm	
Prepreg	7628*1	0.2028mm	
inner Layer	Copper	0.0152mm	0.5mm (with copper core)
Core>	Core	0.5mm	
inner Layer	Copper	0.0152mm	
Prepreg	1080*1	0.0764mm	
Layer	Copper	0.035mm	

5) JLC06161H-2116A Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	2116*1	0.1164mm	
inner Layer	Copper	0.0152mm	0.13mm (without copper core)
Core>	Core	0.13mm	
inner Layer	Copper	0.0152mm	
Prepreg	2116*1	0.1164mm	
Core		0.7mm	
Prepreg	2116*1	0.1164mm	
inner Layer	Copper	0.0152mm	0.13mm (without copper core)
Core>	Core	0.13mm	
inner Layer	Copper	0.0152mm	
Prepreg	2116*1	0.1164mm	
Layer	Copper	0.035mm	

6) JLC06161H-3313A Stackup

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	3313*1	0.0994mm	
inner Layer	Copper	0.0152mm	0.55mm (without copper core)
Core>	Core	0.55mm	
inner Layer	Copper	0.0152mm	
Prepreg	2116*1	0.1088mm	
inner Layer	Copper	0.0152mm	0.55mm (without copper core)
Core>	Core	0.55mm	
inner Layer	Copper	0.0152mm	
Prepreg	3313*1	0.0994mm	
Layer	Copper	0.035mm	

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