Inch to Metric Transition Tables for PCB Layout

VIA Technology							
Drill Size		Pad Size		Plane Clearance		Solder Mask	
INCH	METRIC	INCH	METRIC	INCH	METRIC	INCH	METRIC
.006”	.15mm	.016”	0.40mm	.030”	0.75mm	.000”	.00mm
.008”	.20mm	.018”	0.45mm	.032”	0.80mm	.000”	.00mm
.010”	.25mm	.020”	0.55mm	.035”	0.90mm	.000”	.00mm
.012”	.30mm	.024”	0.65mm	.037”	0.95mm	.000”	.00mm
.014”	.35mm	.028”	0.70mm	.040”	1.05mm	.000”	.00mm
.016”	.40mm	.030”	0.75mm	.043”	1.10mm	.022”	.55mm
.018”	.45mm	.033”	0.85mm	.045”	1.15mm	.024”	.60mm
.020”	.50mm	.035”	0.90mm	.047”	1.20mm	.026”	.65mm
.022”	.55mm	.040”	1.00mm	.050”	1.30mm	.028”	.70mm
.024”	.60mm	.043”	1.10mm	.053”	1.35mm	.030”	.75mm

Component Placement		
Placement Grids		Part Placement Uses & Sizes
INCH	METRIC	
.005”	0.10mm	Very Dense Parts
.025”	0.50mm	Discrete Parts
.050”	1.00mm	IC’s & Large Parts
.100”	2.00mm	Very Large Parts

Trace Width & Optimum Routing Grid Technology							
Trace Widths		Route Grid #1		Route Grid #2		Route Grid #3	
INCH	METRIC	INCH	METRIC	INCH	METRIC	INCH	METRIC
.004”	.10mm	.001”	.05mm	.000”	.10mm	.000”	.01mm
.005”	.125mm	.005”	.05mm	.001”	.125mm	.000”	.01mm
.006”	.15mm	.00625”	.05mm	.001”	.01mm	.000”	.00mm
.008”	.20mm	.00833”	.05mm	.005”	.10mm	.001”	.01mm
.010”	.25mm	.005”	.05mm	.001”	.01mm	.000”	.00mm
.012”	.30mm	.0125”	.05mm	.00625”	.10mm	.001”	.01mm
.015”	.40mm	.005”	.05mm	.001”	.10mm	.000”	.01mm
.020”	.50mm	.005”	.05mm	.001”	.10mm	.000”	.01mm
.030”	.75mm	.005”	.05mm	.001”	.10mm	.000”	.01mm
.040”	1.00mm	.005”	.05mm	.001”	.25mm	.000”	.10mm

Note: Routing grids should be evenly divisible into .100” for Inch Grid use and 1mm for Metric Grid

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PC Board Criteria

Board Thickness		Copper Thickness		Hole Type Description	Hole Tolerances	
INCH	**METRIC**	**INCH**	**METRIC**		**INCH**	**METRIC**
.020”	0.50mm	¼ OZ.	9um	Via < .35mm	**+0 – Hole Size**	**+0 – Hole Size**
.031”	0.80mm	½ OZ.	18um	Via > .35mm	±.003”	±.08mm
.040”	1.00mm	1 OZ.	35um	Plated Hole	±.003”	±.08mm
.062”	1.60mm	1 ½ OZ.	53um	Non-plated Hole	±.002”	±.05mm
.070”	1.80mm	2 OZ.	70um	Slotted Hole	±.005”	±.13mm
.093”	2.30mm	3 OZ.	105um	NPT Tooling Hole	±.001”	±.03mm

Common Plated Through Component Padstacks

Hole Size		Pad Size		Plane Anti-pad		Solder Mask	
INCH	**METRIC**	**INCH**	**METRIC**	**INCH**	**METRIC**	**INCH**	**METRIC**
.020”	0.50mm	.040”	0.85mm	.050”	1.25mm	.040”	0.85mm
.028”	0.70mm	.055”	1.15mm	.060”	1.50mm	.055”	1.15mm
.035”	0.90mm	.060”	1.50mm	.065”	1.70mm	.060”	1.50mm
.040”	1.00mm	.065”	1.65mm	.070”	1.80mm	.065”	1.65mm
.047”	1.20mm	.070”	2.00mm	.080”	2.05mm	.080”	2.00mm
.052”	1.30mm	.080”	2.15mm	.085”	2.15mm	.085”	2.15mm
.057”	1.40mm	.090”	2.30mm	.090”	2.25mm	.090”	2.30mm
.062”	1.60mm	.100”	2.50mm	.095”	2.35mm	.100”	2.50mm
.110”	2.80mm	.170”	4.60mm	.150”	3.80mm	.170”	4.60mm
.125”	3.20mm	.200”	5.25mm	.170”	4.25mm	.200”	5.25mm
.156”	4.00mm	.250”	6.60mm	.200”	5.10mm	.250”	6.60mm
.187”	4.80mm	.300”	7.90mm	.235”	6.00mm	.300”	7.90mm

Common Non-Plated Padstacks

Hole Size		Pad Size		Plane Anti-pad		Solder Mask	
INCH	**METRIC**	**INCH**	**METRIC**	**INCH**	**METRIC**	**INCH**	**METRIC**
.062”	1.60mm	.040”	1.00mm	.105”	2.60mm	.062”	1.60mm
.093”	2.40mm	.040”	1.00mm	.135”	3.40mm	.093”	2.40mm
.098”	2.50mm	.040”	1.00mm	.140”	3.50mm	.098”	2.50mm
.110”	2.80mm	.040”	1.00mm	.155”	3.90mm	.110”	2.80mm
.125”	3.20mm	.040”	1.00mm	.170”	4.30mm	.125”	3.20mm
.156”	4.00mm	.040”	1.00mm	.200”	5.10mm	.156”	4.00mm
.187”	4.80mm	.040”	1.00mm	.230”	5.90mm	.187”	4.80mm

Inch to Metric Transition Tables for PCB Layout

Conversion Equivalent Chart for CHIP Components				
METRIC	Body Size Length x Width	INCH	Body Size Length x Width	Case Size
0603	0.6mm x 0.3mm	0201	.023” x .012”	
1005	1.0mm x 0.5mm	0402	.039” x .019”	
1310	1.3mm x 1.0mm	0504	.051” X .039”	
1608	1.6mm x 0.8mm	0603	.062” x .031”	
2012	2.0mm x 1.2mm	0805	.078” x .047”	**Z**
3216	3.2mm x 1.6mm	1206	.125” x .062”	**A**
3225	3.2mm x 2.5mm	1210	.125” x .098”	
3528	3.5mm x 2.8mm	1411	.137” x .110”	**B**
4035	4.0mm x 3.5mm	1512	.157” x .137”	
4532	4.5mm x 3.2mm	1812	.177” x .125”	
4562	4.5mm x 6.2mm	1825	.177” x .244”	
4726	4.7mm x 2.6mm	1810	.185” x .102”	**M**
5025	5.0mm x 2.5mm	2010	.019” x .098”	
5038	5.0mm x 3.8mm	2015	.019” x .149”	
5650	5.6mm x 5.0mm	2119	.220” x .019”	
5663	5.6mm x 6.3mm	2225	.220” x .248”	
5750	5.7mm x 5.0mm	2220	.224” x .019”	
5846	5.8mm x 4.6mm	2318	.228” x .181”	**N**
6032	6.0mm x 3.2mm	2313	.236” x .125”	**C**
6332	6.3mm x 3.2mm	2512	.248” x .125”	
6350	6.3mm x 5.0mm	2520	.248” x .019”	
7343	7.3mm x 4.3mm	2817	.287” x .169”	**D**
8530	8.5mm x 3.0mm	3312	.338” x .118”	
9110	9.1mm x 1.0mm	3640	.358” x .039”	

See **www.PCBLibraries.com** for the latest updates to this file and all supporting files.

The main idea is not to convert but to adapt. Conversion creates long unnecessary numbers. If a PC design is created using Inch units then it should always stay in Inch units. Conversion is against all standard practices and should be avoided.

All EDA Standards Groups (JEDEC, IPC, IEC, EIA, NIST, IEEE and ANSI) promote the use of Metric Units for PCB Design Layout.

See NIST = National Institute for Standards & Technology
http://www.nist.gov/metric

See ANSI = American National Standards Institute
http://www.ansi.org/public/news/1999apr/measure_2.html