

| 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

| 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 | .030"       | 2.00mm |
| .052"                                     | 1.30mm | .080"    | 2.15mm | .085"          | 2.15mm | .035"       | 2.15mm |
| .057"                                     | 1.40mm | .090"    | 2.30mm | .090"          | 2.25mm | .040"       | 2.30mm |
| .062"                                     | 1.50mm | .100"    | 2.50mm | .095"          | 2.35mm | .050"       | 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 |

| <b>Conversion Equivalent Chart for CHIP Components</b> |                                     |             |                                     |                      |
|--|-------------------------------------|-------------|-------------------------------------|----------------------|
| <b>METRIC</b>  | <b>Body Size<br/>Length x Width</b> | <b>INCH</b> | <b>Body Size<br/>Length x Width</b> | <b>Case<br/>Size</b> |
| 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"                       | <b>Z</b>             |
| 3216   | 3.2mm x 1.6mm                       | 1206        | .125" x .062"                       | <b>A</b>             |
| 3225   | 3.2mm x 2.5mm                       | 1210        | .125" x .098"                       |                      |
| 3528   | 3.5mm x 2.8mm                       | 1411        | .137" x .110"                       | <b>B</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"                       | <b>M</b>             |
| 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"                       | <b>N</b>             |
| 6032   | 6.0mm x 3.2mm                       | 2313        | .236" x .125"                       | <b>C</b>             |
| 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"                       | <b>D</b>             |
| 8530   | 8.5mm x 3.0mm                       | 3312        | .338" x .118"                       |                      |
| 9110   | 9.1mm x 1.0mm                       | 3640        | .358" x .039"                       |                      |

See [www.pcbstandards.com](http://www.pcbstandards.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](http://www.ansi.org/public/news/1999apr/measure_2.html)