



# PCB Universe Rigid PCB Manufacturing Capabilities

| PCB Types                                   |                                 |
|---|---------------------------------|
| CAP or Foil Construction                    | Controlled Impedance            |
| Blind/Buried via                            | Mixed Inner Copper Weights      |
| Flex  | Mixed Materials                 |
| Rigid-Flex                                  | (HDI) High Density Interconnect |
| Aluminum Core (single sided to multi-layer) | Via-In-Pad Process              |

| Item   | English   | Metric                |
|--|---|-----------------------|
| <b>LAMINATE</b>  |   |                       |
| Max Board Thickness  | 314.96 mil  | 8.00 mm               |
| Min Board Thickness (2 Layers)   | 10 mil  | .254 mm               |
| Min Board Thickness (4 Layers)   | 11.8 mil  | 0.3 mm                |
| Min Core Thickness <i>(Not including copper)</i>                                     | 2 mil   | 0.05 mm               |
| Largest Panel Size   | 23.62" x 39.37"   | 599.95 mm x 999.99 mm |
| Min Pre-Preg Thickness   | 2.3 mil   | 0.051 mm              |
| Board Thickness Tolerance (Standard)   | +/- 10%   |                       |
| Board Thickness Tolerance (Upon Request)   | +/- 5%  |                       |
| <b>COPPER</b>  |   |                       |
| Max Inner Layer Copper Thickness   | 6oz   | 0.20 mm               |
| Min Inner Layer Copper Thickness   | 0.3 oz  | 0.01 mm               |
| Max Outer Layer Copper Thickness   | 11oz  | 0.383 mm              |
| Min Outer Layer Copper Thickness (no plating in holes)                               | 0.25oz  | 0.009 mm              |
| <b>DRILL</b>   |   |                       |
| Min Mechanical Drill Size  | 6 mil   | 0.15mm                |
| Min Laser Drill Size   | 3 mil   | 0.076 mm              |
| Min Mechanical Aspect Ratio <i>(Laminate / Drill)</i>                                | 12/1  |                       |
| <b>TRACES / SPACES</b>   |   |                       |
| Min Line Width/Spacing (Outer Layer)   | 3 / 3.5 mil   | 0.072 mm/0.089 mm     |
| Min Line Width/Spacing (Inner Layer)   | 3 / 3.5 mil   | 0.072 mm/0.089 mm     |
| Min Copper Space to outline CNC Rout / Score   | 10 / 12 mil   | 0.25 mm / 0.3 mm      |
| <b>SOLDER MASK COLORS</b>  |   |                       |
| Green, Matte Green, Light Green, Black, Matte Black, White, Yellow, Red, Blue, Clear | <b>SILK SCREEN COLORS</b><br>White, Black, Yellow, Red, Blue, Green |                       |
| <b>CONTROLLED IMPEDANCE</b>  |   |                       |
| Controlled Impedance (Standard)  | +/- 10%   |                       |
| Controlled Impedance (Upon Request)  | +/- 7%  |                       |
| <b>SURFACE FINISHES</b>  |   |                       |
| Lead Solder (HASL)   | OSP (Entek)   |                       |
| Lead Free Solder (HASL)  | Deep/Hard/Flash Gold (Electrolytic Nickel Gold)                     |                       |
| Immersion Gold (Electroless Nickel Gold - ENIG)                                      | Wire Bondable Gold (99.99% Pure Gold)                               |                       |
| Immersion Silver   | Carbon Ink  |                       |
| Immersion Tin (White Tin)  | Gold Finger (Hard Gold)   |                       |
| <b>MATERIALS</b>   |   |                       |
| FR4 RoHS (135°C Tg)  | Flex  |                       |
| FR4 RoHS (170°C-180°C Tg)  | Rigid-Flex  |                       |
| Aluminum   |   |                       |

***If you do not see your spec above please contact your sales person for review.  
Our capabilities are continuously evolving!***