



**SPC**  
Standard Printed Circuits, Inc.  
building today for the needs of tomorrow

| DESCRIPTION                | PRODUCTION | PROTOTYPE | EXPERIMENTAL |
|----------------------------|------------|-----------|--------------|
| Minimum Laminate Thickness | .003"      | .002"     | .0005"       |
| Maximum Laminate Thickness | .250"      | .250"     | .265"        |
| Maximum Layer Count        | 14         | 24        | 24           |

|                            |       |       |       |
|----------------------------|-------|-------|-------|
| Minimum Conductor Width    | .005" | .004" | .004" |
| Minimum Spacing            | .005" | .005" | .004" |
| Minimum Annular Ring (PTH) | .005" | .005" | .004" |
| <b>HALF OUNCE COPPER</b>   |       |       |       |
| Minimum Conductor Width    | .005" | .005" | .003" |
| Minimum Spacing            | .005" | .005" | .004" |

|                                      |           |            |            |
|--------------------------------------|-----------|------------|------------|
| Minimum Annular Ring (PTH)           | .005"     | .005"      | .004"      |
| <b>ETCHING</b>                       |           |            |            |
| Line Width Tolerance                 | +/- .001" | +/- .0005" | +/- .0004" |
| Front to Back Registration Tolerance | +/- .002" | +/- .001"  | +/- .0005" |
| Max Copper Weight (with Solder Mask) | 3 ounce   |            |            |

|  |         |         |       |
|--|---------|---------|-------|
| Max Copper Weight (w/o Solder Mask)    | 5 ounce | 7 ounce |       |
| Etch Factor (per ounce of base copper) | 0.001"  |         |       |
| Minimum SMT pitch                      | .020"   | .015"   | .012" |
| Minimum Annular Ring (signal layer)    | .008"   | .006"   | .005" |

|                                  |       |       |       |
|----------------------------------|-------|-------|-------|
| Minimum Clearance Ring (pwr/grd) | .015" | .015" | .010" |
| <b>FABRICATION</b>               |       |       |       |
| Minimum Edge Clearance (routing) | .015" | .010" | .008" |
| Minimum Edge Clearance (scoring) | .030" | .025" | .020" |

|                                    |                               |           |  |
|------------------------------------|-------------------------------|-----------|--|
| On Routed Panels we typically add: | .500" waste area to all edges |           |  |
| Dimensional Accuracy (routing)     | +/- .005"                     | +/- .003" |  |
| Dimensional Accuracy (scoring)     | +/- .020"                     | +/- .020" |  |
| Minimum Score Thickness            | +/- .015"                     | +/- .010" |  |

|                                  |           |           |           |
|----------------------------------|-----------|-----------|-----------|
| Minimum Size for Routed Slot     | .020"     | .020"     |           |
| <b>DRILLING</b>                  |           |           |           |
| <b>Dicing</b> +/- .001           |           |           |           |
| Minimum Hole Size (PTH)          | .008"     | .007"     | .006"     |
| Drilled Hole Location Tolerance  | +/- .003" | +/- .002" | +/- .002" |
| Max Aspect Ratio (Dt : hole dia) | 8:01      | 10:01     | 12:01     |
| <b>SOLDERMASK / SILKSCREEN</b>   |           |           |           |

|                                   |  |  |  |
|-----------------------------------|--|--|--|
| Min Soldermask Annular Ring       | .003"  |  |  |
| Min LPI Feature                   | .004"  |  |  |
| Min Line Width (silkscreen)       | .005"  |  |  |
| Min Character Height (silkscreen) | .050"  |  |  |
| Copper in PTH                     | .001 - .0015"                                    |  |  |
| Tin Lead (solder)                 | 60 -100 micro inches                             |  |  |
| Electrolytic Nickel               | 150 - 200 micro inches                           |  |  |
| Electrolytic Gold                 | 30-50 micro inches                               |  |  |
| Electrolytic Tin                  | 150 - 200 micro inches                           |  |  |
| Electroless Tin                   | 40 micro inches                                  |  |  |
| Immersion Silver                  | 5-15 micro inches                                |  |  |
| Electroless Nickel                | 118-236 micro inches (per<br>IPC-4552 ENIG spec) |  |  |



|                |  |  |  |
|----------------|--|--|--|
| Immersion Gold | 1.97 (min) micro inches (per IPC-4552 ENIG spec) |  |  |
|----------------|--|--|--|

|                             |                                |                |  |
|-----------------------------|--------------------------------|----------------|--|
| <b>Desired File Formats</b> | AutoCAD (DWG or DXF)<br>Gerber | NC Drill Files |  |
|-----------------------------|--------------------------------|----------------|--|

**Outside Processes Available:**

|                    |  |  |  |
|--------------------|--|--|--|
| Laser Rout         |  |  |  |
| Electrical Testing |  |  |  |
| Via Fill           |  |  |  |