

# PCB Fabrication Tolerances and Process Information

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<i>Parameter</i>	<i>Milled (New Mill)</i>	<i>In-House Etched</i>	<i>Professionally Manufactured (APC Basic Prototype)</i>
<b>Minimum Trace Width</b>	20 mil	15 mil <sup>1</sup>	7 mil
<b>Trace-to-Trace Spacing</b>	11 mil	15 mil <sup>1</sup>	7 mil
<b>Text on Signal Layers</b>	No: deleted	Yes	Yes
<b>Hole Sizes</b>	7 sizes: 1. 18 mil 2. 36 mil 3. 40 mil 4. 45.3 mil 5. 61 mil 6. 67 mil 7. 125mil	Drilled by you: limited by availability of drill bits.	10 sizes (specified before plating): 1. 20 mil 2. 28 mil 3. 35 mil 4. 38 mil 5. 42 mil 6. 52 mil 7. 60 mil 8. 86 mil 9. 125 mil 10. 152 mil
<b>Number of Signal Layers</b>	1 (2 with approval by manufacturing technician) isolation routing only; approval by technician required for removal of extra material	1, 2 with some effort on your part	2
<b>Plate-Through Holes</b>	No	No	Yes
<b>Maximum board size</b>	Approximately 11" x 11"	7" x 7" (limited by printer page size and etching tank)	14" x 17"
<b>Minimum board size</b>	N/A	N/A	1/4" x 1/4"
<b>Ground Plane</b>	Use fill	Use fill	Use fill
<b>Minimum Number of Boards</b>	1	1	2
<b>Cost</b>	\$10 for an Eagle-Lite sized board	\$10 for an Eagle-Lite sized board	Shipping + Setup + Approx \$2 per square inch <sup>2</sup>

<sup>1</sup> These figures are a guideline: you may be able to do better with some testing.

<sup>2</sup> Boards are panelized by course staff to reduce shipping and setup charges: these costs are shared by all groups on a panel in an area-based manner. For a more accurate price estimate, use the price estimator at <http://www.apcircuits.com>.