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Design Rules for PCB Fabrication

Properly designing your circuit board can help reduce your manufacturing cost. Many times designers used unnecessary tight tolerances that drive up the cost of their circuit boards. Below are design rule guidelines that will help you stay with in our tolerances. This will help save unnecessary redesign and manufacturing cost.

Tolerances	Standard	Premium
Drill to copper feature	.009	.007
Aspect Ratio	8:1	10:1
Annular ring over drill		
- inner layer	.005	.003
- outer layer	.005	.003
Clearance pad over drill	.020	.016
Copper feature to edge	.010	.005
True position drill	.002	.0015
True position of artwork	.003	.002
Route	+/- .005	+/- .002
Thickness (minimum +/- .003)	+/- 10%	+/- 8%
Etch tolerance	.001	.0007
Controlled Impedance	10%	5%
Soldermask thickness (LPI)	.0005-.0007	
Minimum silkscreen feature	.008	.006
Minimum character size legend	.050X.050	.040X.040

Technologies

- Maximum board size 18"x22"
- Multi-layers up to 32 layer
- 3 mil trace width
- 3 mil air gap
- Board thickness up to .250
- Lowest SMD pitch .006
- Core thickness .002
- Prepreg spacing .0018
- Smallest drill .006
- Slot size .020
- Copper wt 1/4-4oz
- Blind and Buried Vias
- BGA/Flip Chip Design
- Wireless/Microwave Products

Material

- FR-4
- Flex
- Rigid-flex
- Polyimide
- Arlon
- Taconic
- Polyflon
- Rogers
- TMM

Surface Finish

- Gold immersion
- Soft bondable gold
- Hard gold
- Tin immersion
- Solder (HASL) or lead-free HASL
- Silver immersion

Testing (Netlist)

- Dual Access
- Flying Probe
- AOI
- TDR

Silkscreen size:**Laser Ink Jet:**

4 mil width preferred with (3 mil width min but takes longer due to higher resolution needed)

15-20 mil height

Standard push Silkscreen:

5 mil width min

25-30 mil height