Abbreviated Printed Circuit Board Capability

For full capability information please consult Merlin Manufacturing Capabilities document QA-03-45 Latest Edition

Parameter			
	IMPERIAL	METRIC	
Panel Sizes	24 ″ x 18 ″	610mm x 457mm (preferred)	
	18 ″ x 16 ″	457mm x 406mm (preferred)	
Active Board Area	22.5 ″ x 16.5 ″	570mm x 417mm (preferred)	
	16.5 ″ x 14.5 ″	417mm x 366mm (preferred)	
Number of Layers	32 Layers maximum		
	Standard	**Advanced**	**Development**
Parameter	**Metric**	**Metric**	**Metric**
General			
Minimum Board Thickness	300um	300um	300um
Maximum Board Thickness	5.00mm	5.00mm	5.00mm
Material Tolerance +/-	10%	10%	5%
Minimum Core Thickness	100um	75um	50um
Inner Layers			
Min Line (0.5oz start Copper)	75um	65um	50um
Min Space (0.5oz start Copper)	75um	75um	50um
Outer Layers			
Min Line (12µm start Copper)	75um	65um	50um
Min Space (12µm start Cu)	75um	75um	75um
Holes			
Minimum Hole Size (drilled)	200um	#150um	100um
Min Annular Ring Radial Inner*	125um	100um	75um
Min Ann - Ring Radial Outer*	100um	75um	75um
NPTH Hole Size Tolerance +/-	25um	25µm	25um
PTH Hole Size Tolerance +/-	50um	50µm	100um
Positional Tolerance ≥ 1.00 +/-	75um	75um	75um
Positional Tolerance ≤ 0.95 +/-	100um	100um	100um
Maximum Aspect Ratio	8.5 **:** 1 (1.60mm thick laminate)		
Side to Side Alignment			
Laser Direct Imaging	25um	20um	20um
UV Expose with Phototools	40um	40um	20um
Core to Core Alignment			
Laser Direct Imaging	65um	65um	65um
UV Expose with Phototools	80um	80um	80um
HDI (High Density Interconnect)			
Number of Layers (maximum)	16	24	32
Minimum Microvia Hole Drilled	120um	100um	100um
Minimum Land to Drilled Hole	125um	100um	75um

*Depends on IPC Class requirement Class 3 may require more land – See technical or QA.

__PLEASE NOTE**__: **Any parameter that falls within development metric, will require the part to be taken on under a Technical project. This may incur additional cost with no guaranteed yield**

Based 1.00mm Panel thickness

Parameter	Standard Metric	Advanced Metric	Development Metric
Solder Resist (Photoimageable)			
Min Dam (Green resist only)	75um	75um	75um
Min Dam (Red & Blue resist)	100um	100um	100um
Min Dam (Black resist)	100um	100um	100um
Min Dam (White resist)	125um	125um	125um
Minimum designed clearance	50um	50um	50um
Notation Inkjet (White only)			
Minimum Gap to features	100um	100um	100um
Minimum Line Width	125um	125um	125um
Notation P/I (various colours)			
Minimum Gap to features	100um	90um	75um
Minimum Line Width	125um	125um	125um
Peelable Resist			
Maximum Tentable Hole Size	1.80mm	1.80mm	1.80mm
Via Hole Plugging			
Maximum Hole Diameter(finished)	0.450mm	0.450mm	0.450mm
Via Hole Filling			
Maximum Board Thickness	1.60mm	2.40mm	3.20mm
Maximum Hole Diameter(finished)	1.00mm	1.00mm	1.00mm
Minimum Hole Diameter(finished)	0.200mm	0.300mm	0.450mm
Microviva Hole Diameter Min(drilled)	0.120mm	0.120mm	0.120mm
Copper filled Vias			
% Via filled with copper* see full capability manual	To meet the requirements of IPC 6012E	To meet the requirements of IPC 6012E	To meet the requirements of IPC 6012E

Parameter	Standard Metric	Advanced Metric	Development Metric
Routing			
Minimum Cutter Diameter	0.80mm	0.80mm	0.50mm
Profile Tolerance +/-	0.125mm	0.100mm	0.100mm
Edge to Hole Tolerance +/-	0.125mm	0.100mm	0.075mm
Copper to Edge	0.200mm	0.200mm	0.150mm
Copper Feature (fiducial) to Edge	0.200mm	0.150mm	0.150mm
"Z" Axis Routing Tolerance +/-	0.050mm	0.050mm	0.050mm
V Scoring			
Minimum Board Thickness	0.80mm	0.80mm	0.80mm
Maximum Board Thickness	2.40mm	2.40mm	2.40mm
AOI			
Minimum track & gap * Thin start Cu	75um	62um	0.050mm50um
Electrical Test (Flying Probe)			
Min Board Thickness Horizontal	0.800mm	0.600mm	0.600mm
Min Board Thickness Vertical	0.250mm	0.250mm	0.250mm
Maximum Board Size	610x457	610x457	610x457
Maximum Test Voltage	500 V	500 V	500 V
Minimum Value Ohms	1 Ohms	1 Ohms	1 Ohms
Maximum Value Ohms	10M Ohm	10M Ohm	10M Ohm
Impedance			
Tolerance	10%	5%	2%
Flatness			
Percentage Bow and Twist	0.5%	0.5%	0.5%

Any boards using development tolerances must have prior agreement of the Technical department.