

High Density Interconnect

Product Feature	Technology Roadmap		
	2017	2018	2019
Layer Count (Max)	18L	20L	20L
Laminate & Prepreg	FR-4, HFFR-4	FR-4, HFFR-4 High Speed / Low Loss Megtron 6	FR-4, HFFR-4 High Speed / Low Loss Megtron 6
Surface Finish	ENIG, OSP, Immersion Silver, Immersion Tin, Selective ENIG+OSP	ENIG, OSP, Immersion Silver, Immersion Tin, Selective ENIG+OSP	ENIG, OSP, Immersion Silver, Immersion Tin, Selective ENIG+OSP
HDI Level	1+N+1 2+N+2 3+N+3 Anylayer	1+N+1 2+N+2 3+N+3 Anylayer	1+N+1 2+N+2 3+N+3 Anylayer
Max Board Thickness mm(mil)	3.2 (126)	3.2 (126)	3.2 (126)
Min Board Thickness mm(mil)	0.4 (16)	0.4 (16)	0.4 (16)
Min Core Thickness mm(mil)	0.05 (2)	0.05 (2)	0.05 (2)
Min Dielectric Thickness mm(mil)	0.05 (2)	0.05 (2)	0.05 (2)
Min Micro-via Size mm(mil)	0.076 (3)	0.076 (3)	0.076 (3)
Min Microvia Pad Size mm(mil)	0.2 (8)	0.2 (8)	0.2 (8)
Min Mechanical Drill Hole Size mm(mil)	0.15 (6)	0.15 (6)	0.15 (6)
Press-fit Hole Tolerance (mm)	±0.05mm	±0.05mm	±0.05mm
PTH Hole Tolerance (excluding HASL) (mm)	±0.05mm	±0.05mm	±0.05mm
14 NPTH Hole Tolerance (mm)	±0.03mm	±0.03mm	±0.03mm
Hole Plating Aspect Ratio (max)	8:01	9:01	9:01
Micro-via Aspect Ratio	0.85 : 1	1 : 1	1 : 1
Min.Line Width & Spacing (mm) (Inner)	0.070mm	0.064mm	0.064mm
Min.Line Width & Spacing (Outer) (mm)	0.076mm	0.076mm	0.076mm
Min Mechanical Via Pad Size mm(mil)	0.2 (D+8)	0.2 (D+8)	0.2 (D+8)
Image to Hole Tolerance mm(mil)	±0.076 (3)	±0.064 (2.5)	±0.064 (2.5)
Hole to Edge Tolerance mm(mil)	±0.100 (4)	±0.076 (3)	±0.076 (3)
Min Solder Mask Bridge mm(mil)	0.076 (3)	0.076 (3)	0.076 (3)
Min Solder Mask Opening mm(mil)	0.05 (2)	0.05 (2)	0.05 (2)
Controlled Impedance	±8%	±8%	±7%
Min BGA Pitch mm(mil)	0.45 (18)	0.45 (18)	0.45 (18)
Min Pad to Pad Dimension Tolerance up to 16"	±0.05 (2)	±0.05 (2)	±0.05 (2)
Min Hole to Copper up to Max Layer Count mm(mil)	0.178 (7)	0.165 (6.5)	0.165 (6.5)
Max. Warpage (Bow&Twist)	0.40%	0.40%	0.40%