

Impedance Controlled Layup Structure (12-Layer HDI PCB)

StackUp No : 2

Customer :	Model :	Rev :	Ctrl No :
Designed By :	Contact :	Memo :	
Material : FR408HR	Expected Thickness : 1.60mT +/-10%		

























Impedance Design No : 1 / 3

Layer	Lay-Up Structure	Expected Thick(μm)	Copper Ratio	Impedance Pattern Type	Pattern Width	Pattern Space	Distance from Gnd	Target Zo(Ω)	Impedance Pattern Type	Pattern Width	Pattern Space	Distance from Gnd	Target Zo(Ω)
01	1/2 Oz	45 μm	100%		254 μm			40 Ω		165 μm			50 Ω
	3313 55%	95.8 μm		Er : 3.7									
02	1 Oz	31 μm	80%										
	0.10T 1/H	100 μm		Er : 3.7									
03	1/2 Oz	15 μm	20%		149 μm			40 Ω		101 μm			50 Ω
	2116 55%	113.8 μm		Er : 3.7									
04	1 Oz	31 μm	80%										
	0.10T 1/H	100 μm		Er : 3.7									
05	1/2 Oz	15 μm	20%		149 μm			40 Ω		101 μm			50 Ω
	2116 55%	120 μm		Er : 3.7									
06	1 Oz	70 μm	80%										
	1080 65.5%	134 μm		Er : 3.7									
	1080 65.5%	134 μm		Er : 3.7									
07	1 Oz	70 μm	80%										
	2116 55%	120 μm		Er : 3.7									
08	1/2 Oz	15 μm	20%		149 μm			40 Ω		101 μm			50 Ω
	0.10T H/1	100 μm		Er : 3.7									
09	1 Oz	31 μm	80%										
	2116 55%	113.8 μm		Er : 3.7									
10	1/2 Oz	15 μm	20%		149 μm			40 Ω		101 μm			50 Ω
	0.10T H/1	100 μm		Er : 3.7									
11	1 Oz	31 μm	80%										
	3313 55%	95.8 μm		Er : 3.7									
12	1/2 Oz	45 μm	100%		254 μm			40 Ω		165 μm			50 Ω

Impedance Design No : 2 / 3

Layer	Lay-Up Structure	Expected Thick(μm)	Copper Ratio	Impedance Pattern Type	Pattern Width	Pattern Space	Distance from Gnd	Target Zo(Ω)	Impedance Pattern Type	Pattern Width	Pattern Space	Distance from Gnd	Target Zo(Ω)
01	1/2 Oz	45 μm	100%		190 μm	140 μm		80 Ω		178 μm	152 μm		85 Ω
	3313 55%	95.8 μm		Er : 3.7									
02	1 Oz	31 μm	80%										
	0.10T 1/H	100 μm		Er : 3.7									
03	1/2 Oz	15 μm	20%		140 μm	164 μm		80 Ω		127 μm	177 μm		85 Ω
	2116 55%	113.8 μm		Er : 3.7									
04	1 Oz	31 μm	80%										
	0.10T 1/H	100 μm		Er : 3.7									
05	1/2 Oz	15 μm	20%		143 μm	161 μm		80 Ω		130 μm	174 μm		85 Ω
	2116 55%	120 μm		Er : 3.7									
06	1 Oz	70 μm	80%										
	1080 65.5%	134 μm		Er : 3.7									
	1080 65.5%	134 μm		Er : 3.7									
07	1 Oz	70 μm	80%										
	2116 55%	120 μm		Er : 3.7									
08	1/2 Oz	15 μm	20%		143 μm	161 μm		80 Ω		130 μm	174 μm		85 Ω
	0.10T H/1	100 μm		Er : 3.7									
09	1 Oz	31 μm	80%										
	2116 55%	113.8 μm		Er : 3.7									
10	1/2 Oz	15 μm	20%		140 μm	164 μm		80 Ω		127 μm	177 μm		85 Ω
	0.10T H/1	100 μm		Er : 3.7									
11	1 Oz	31 μm	80%										
	3313 55%	95.8 μm		Er : 3.7									
12	1/2 Oz	45 μm	100%		190 μm	140 μm		80 Ω		178 μm	152 μm		85 Ω

Impedance Design No : 3 / 3

Layer	Lay-Up Structure	Expected Thick(μm)	Copper Ratio	Impedance Pattern Type	Pattern Width	Pattern Space	Distance from Gnd	Target Z ₀ (Ω)	Impedance Pattern Type	Pattern Width	Pattern Space	Distance from Gnd	Target Z ₀ (Ω)
01	1/2 Oz	45 μm	100%		152 μm	152 μm		90 Ω		115 μm	139 μm		100 Ω
	3313 55%	95.8 μm		Er : 3.7									
02	1 Oz	31 μm	80%										
	0.10T 1/H	100 μm		Er : 3.7									
03	1/2 Oz	15 μm	20%		112 μm	167 μm		90 Ω		89 μm	165 μm		100 Ω
	2116 55%	113.8 μm		Er : 3.7									
04	1 Oz	31 μm	80%										
	0.10T 1/H	100 μm		Er : 3.7									
05	1/2 Oz	15 μm	20%		115 μm	164 μm		90 Ω		91 μm	163 μm		100 Ω
	2116 55%	120 μm		Er : 3.7									
06	1 Oz	70 μm	80%										
	1080 65.5%	134 μm		Er : 3.7									
	1080 65.5%												
07	1 Oz	70 μm	80%										
	2116 55%	120 μm		Er : 3.7									
08	1/2 Oz	15 μm	20%		115 μm	164 μm		90 Ω		91 μm	163 μm		100 Ω
	0.10T H/1	100 μm		Er : 3.7									
09	1 Oz	31 μm	80%										
	2116 55%	113.8 μm		Er : 3.7									
10	1/2 Oz	15 μm	20%		112 μm	167 μm		90 Ω		89 μm	165 μm		100 Ω
	0.10T H/1	100 μm		Er : 3.7									
11	1 Oz	31 μm	80%										
	3313 55%	95.8 μm		Er : 3.7									
12	1/2 Oz	45 μm	100%		152 μm	152 μm		90 Ω		115 μm	139 μm		100 Ω

※ NOTE 1:

1. Prepreg thickness specified above are estimated by the loss of etching copper.
2. Final thickness, unless otherwise specified, is to be measured from top copper to bottom copper
3. Minimum data spacing is to be .0035mils(90μm) on inner layers and .004mils(100μm) on outer layer.
4. This stackup can be changed when it cannot be adaptable to your data.

※ NOTE 2: THIS STACKUP WILL NOT MEET THE MINIMUM .0035 INCHS DIELECTRIC THICKNESS REQUIRED BY IPC-6012. THE ACCEPTANCE OF THIS STACK IS UP TO THE CUSTOMER.