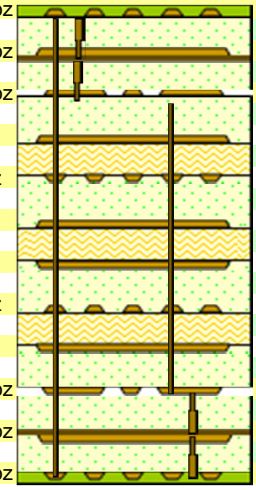
Date: Oct.10.2018

TTM Technologies
Time-To-Market Interconnect Solutions

Customer : einfochips
Internal P/N: SAE_20180907-121

Layer	Cu Thick. (mils)	Cu Foil wt (oz)	Lam. Thick. (mils)	Description
1	1.80	.333 oz		Foil .333 oz
			3.63	Prepreg 185HR 1080(72)
2	1.20	.333 oz		Foil .333 oz
			3.71	Prepreg 185HR 1080(72)
3	0.80	.333 oz		Foil .333 oz
			4.95	Prepreg 185HR 2116(57)
4	1.15	1 oz		
			4.00	Core 185HR 4.00mils 1x3313 0.5 oz / 1 oz
5	0.55	0.5 oz		
			5.55	Prepreg 185HR 106(72)/1080(72)
6	1.15	1 oz		
			4.00	Core 185HR 4.00mils 1x3313 1 oz / 1 oz
7	1.15	1 oz		
			5.55	Prepreg 185HR 1080(72)/106(72)
8	0.55	0.5 oz		
			4.00	Core 185HR 4.00mils 1x3313 0.5 oz / 1 oz
9	1.15	1 oz		
			4.95	Prepreg 185HR 2116(57)
10	0.80	.333 oz		Foil .333 oz
			3.71	Prepreg 185HR 1080(72)
11	1.20	.333 oz		Foil .333 oz
			3.63	Prepreg 185HR 1080(72)
12	1.80	.333 oz		Foil .333 oz



* The outer finished copper thickness showed on the stack-up is nominal thickness instead of minimum value. The nominal value is used to simulate stack-up . The minimum value will follow the spec or IPC 6012 which specified.

Layer	Drill Type
1 - 12	PTH
3 - 10	PTH
1 - 2	Micro Via
2 - 3	Micro Via
12 - 11	Micro Via
11 - 10	Micro Via
2 - 11	PTH

57.37	Thickness over Laminate
60.97	Thickness over Copper
61.97	Thickness over Soldermask

Impedance Table

Layer	Structure Type	Coated Microstrip	Target Impedance (ohms)	Impedance Tolerance (ohms)	Target Linewidth (mils)	Edge Coupled Pitch * (mils)	Reference Layers	Modelled Linewidth (mils)	Modelled Impedance (ohms)	CoPlaner Space (mils)
1	Single Ended	Yes	42.00	+/-5	8.25	/	(2)	8.25	41.96	
1	Single Ended	Yes	50.00	+/-5	5.90	/	(2)	5.90	49.89	
1	Edge Coupled Differential	Yes	85.00	+/-8.5	5.00	9.00	(2)	5.00	84.74	
1	Edge Coupled Differential	Yes	90.00	+/-9	4.55	9.00	(2)	4.55	90.00	
1	Edge Coupled Differential	Yes	100.00	+/-10	4.10	10.00	(2)	4.10	99.42	
1	Single Ended	Yes	50.00	+/-5	14.20	/	(3)	14.20	50.12	12.00
1	Edge Coupled Differential	Yes	120.00	+/-12	4.60	11.00	(3)	4.60	119.59	
3	Single Ended	---	42.00	+/-5	5.25	/	(2, 4)	5.25	42.10	
3	Single Ended	---	50.00	+/-5	3.75	/	(2, 4)	3.75	50.25	
3	Edge Coupled Differential	---	85.00	+/-8.5	4.40	9.00	(2, 4)	4.40	85.13	
3	Edge Coupled Differential	---	90.00	+/-9	4.00	9.00	(2, 4)	4.00	90.16	
3	Edge Coupled Differential	---	100.00	+/-10	3.50	10.20	(2, 4)	3.50	99.41	
5	Single Ended	---	42.00	+/-5	6.15	/	(6, 4)	6.15	41.04	
5	Single Ended	---	50.00	+/-5	4.40	/	(6, 4)	4.40	49.43	

5	Edge Coupled Differential	---	85.00	+/-8.5	4.90	9.00	(6, 4)	4.90	84.03	
5	Edge Coupled Differential	---	90.00	+/-9	4.45	9.00	(6, 4)	4.45	89.46	
5	Edge Coupled Differential	---	100.00	+/-10	3.90	10.00	(6, 4)	3.90	99.09	
8	Single Ended	---	42.00	+/-5	6.15	/	(7, 9)	6.15	41.04	
8	Single Ended	---	50.00	+/-5	4.40	/	(7, 9)	4.40	49.43	
8	Edge Coupled Differential	---	85.00	+/-8.5	4.90	9.00	(7, 9)	4.90	84.03	
8	Edge Coupled Differential	---	90.00	+/-9	4.45	9.00	(7, 9)	4.45	89.46	
8	Edge Coupled Differential	---	100.00	+/-10	3.90	10.00	(7, 9)	3.90	99.09	
10	Single Ended	---	42.00	+/-5	5.25	/	(11, 9)	5.25	42.10	
10	Single Ended	---	50.00	+/-5	3.75	/	(11, 9)	3.75	50.25	
10	Edge Coupled Differential	---	85.00	+/-8.5	4.40	9.00	(11, 9)	4.40	85.13	
10	Edge Coupled Differential	---	90.00	+/-9	4.00	9.00	(11, 9)	4.00	90.16	
10	Edge Coupled Differential	---	100.00	+/-10	3.50	10.20	(11, 9)	3.50	99.41	
12	Single Ended	Yes	42.00	+/-5	8.25	/	(11)	8.25	41.96	
12	Single Ended	Yes	50.00	+/-5	5.90	/	(11)	5.90	49.89	
12	Edge Coupled Differential	Yes	85.00	+/-8.5	5.00	9.00	(11)	5.00	84.74	
12	Edge Coupled Differential	Yes	90.00	+/-9	4.55	9.00	(11)	4.55	90.00	
12	Edge Coupled Differential	Yes	100.00	+/-10	4.10	10.00	(11)	4.10	99.42	
12	Edge Coupled Differential	Yes	120.00	+/-12	4.60	11.00	(10)	4.60	119.59	

* Edge Coupled Pitch is measured from the center line of one differential trace to the center line of the other.