

Cust: FINEPITCH/A FLEXTRONICS CO		Total Layers: 12	
Part #: 140-0321002-A1	Rev A	Finished Thickness: 0.0660 +/- 0.0060	Finished Over: Soldermask
		Lam Thickness: 0.0610 +/- 0.0030	Material Type: Isola 370HR

Impedance Requirements:		Orig Line	Fin. Line	Ref Pln	2nd Ref Pln	Targeted Desired Impedance	Impedance Tolerance	Actual Calculated Impedance	Diff Line Centers	Diff Line Space	Original Coplanar Spacing	Finished Coplanar Spacing
1	DIF-Coated Microstrip Edg Cpld	.00325	.00340	2		100.00 Ω	+/- 10%	101.14 Ω	.00950	.00610		
1	SE-Coated Microstrip	.00430	.00450	2		50.00 Ω	+/- 10%	50.57 Ω				
3	DIF-Dual Stripline Edg Cpld	.00320	.00340	2	5	100.00 Ω	+/- 10%	102.88 Ω	.01050	.00710		
3	SE-Dual Stripline	.00370	.00390	2	5	50.00 Ω	+/- 10%	51.30 Ω				
4	DIF-Dual Stripline Edg Cpld	.00320	.00340	2	5	100.00 Ω	+/- 10%	102.88 Ω	.01050	.00710		
4	SE-Dual Stripline	.00370	.00390	2	5	50.00 Ω	+/- 10%	51.30 Ω				
9	DIF-Dual Stripline Edg Cpld	.00320	.00340	8	11	100.00 Ω	+/- 10%	102.88 Ω	.01050	.00710		
9	SE-Dual Stripline	.00370	.00390	8	11	50.00 Ω	+/- 10%	51.30 Ω				
10	DIF-Dual Stripline Edg Cpld	.00320	.00340	8	11	100.00 Ω	+/- 10%	102.88 Ω	.01050	.00710		
10	SE-Dual Stripline	.00370	.00390	8	11	50.00 Ω	+/- 10%	51.30 Ω				
12	DIF-Coated Microstrip Edg Cpld	.00325	.00340	11		100.00 Ω	+/- 10%	101.14 Ω	.00950	.00610		
12	DIF-Coated Microstrip Edg Cpld	.00410	.00425	11		90.00 Ω	+/- 10%	91.46 Ω	.01000	.00575		
12	SE-Coated Microstrip	.00430	.00450	11		50.00 Ω	+/- 10%	50.57 Ω				

Controlled Impedance Notes:

90 ohm .0041 TRACES DO NOT EXIST ON LAYER 1.

**REVISED STACKUP AS DISCUSSED WITH SZU ZHEN GOAY
PLEASE ADVISE IF WE ARE OK TO RELEASE WITH THIS STACK**

Lamination Stackup:		Thickness and Tolerances:		Base Material Rqmts:	
L#/Type	Description:	Cu+:	Laminate/PrePreg:	Type:	Description:
1 Mix	Foil (T oz)	.00053			
	Pre-Preg (1 x 1080)		.0029 +/- 0.0003		Isola 370HR
2 Pln	Core 0.0030 1/H	.00120	.0030		Isola 370HR
3 Mix		.00060			
	Pre-Preg (1 x 2113)		.0087 +/- 0.0009		Isola 370HR
	Pre-Preg (2 x 1080)				
4 Mix	Core 0.0030 H/1	.00060	.0030		Isola 370HR
5 Pln		.00120			
	Pre-Preg (1 x 1080)		.0026 +/- 0.0003		Isola 370HR
6 Pln	Core 0.0100 1/1	.00120	.0100		Isola 370HR
7 Pln		.00120			
	Pre-Preg (1 x 1080)		.0026 +/- 0.0003		Isola 370HR
8 Pln	Core 0.0030 1/H	.00120	.0030		Isola 370HR
9 Mix		.00060			
	Pre-Preg (2 x 1080)		.0087 +/- 0.0009		Isola 370HR
	Pre-Preg (1 x 2113)				
10 Mix	Core 0.0030 H/1	.00060	.0030		Isola 370HR
11 Pln		.00120			
	Pre-Preg (1 x 1080)		.0028 +/- 0.0003		Isola 370HR
12 Mix	Foil (T oz)	.00053			

Target Post-Lam Thickness: **0.0610 +/- 0.0030**

Copper Oz Legend: H=1/2oz T=3/8oz Q=1/4oz E=1/8oz S=1/16oz

Stackup Notes:

PLEASE RETURN APPROVED STACK-UP TO DDI WITH DATA SET PRIOR TO MANUFACTURING

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* The Controlled Impedance Stackup and tables were calculated utilizing ApsimRLGC from Applied Simulation Technology
 * Impedance value tolerances shall be +/- 10% or customer required tolerance.

Designed Artwork Spacing Requirements: (Based On Starting Copper Weight)

External Layers:

- * 1/4 oz. Copper = .003 Min.
- * 3/8 oz. Copper = .0035 Min.
- * 1/2 oz. Copper = .004 Min.
- * 1 oz. Copper = .005 Min.
- * 2 oz. Copper = .007 Min.

Internal Layers:

- * 3/8 oz. Copper = .00325 Min.
- * 1/2 oz. Copper = .0035 Min.
- * 1 oz. Copper = .004 Min.
- * 2 oz. Copper = .006 Min.

Note: Min. spacing outside of the parameters above will require DDI's engineering approval.

Finished Copper Thickness On External Layers:

Conductor thickness calculated in RLGC includes base copper and additional copper plating (*assuming hole plating requirement is .001 min.*) - Finished surface conductor thickness is as follows:

- * 1/4 oz. Base Copper + Copper Plating = .0016
- * 3/8 oz. Base Copper + Copper Plating = .0017
- * 1/2 oz. Base Copper + Copper Plating = .0019
- * 1 oz. Base Copper + Copper Plating = .0024
- * 2 oz. Base Copper + Copper Plating = .0036

Note: Soldermask thickness over the conductor calculated on RLGC is .8 mils.

* If written authorization is required, please sign below and Fax back to (408) 719-4175

Approved By: _____ Date: _____