

22 layers Class 2			GND			POSSIBLE VIAS 1808 (.018 PAD .008 HOLE) 2010 (.020 PAD .010 HOLE)			
1	copper	0.0005	.008 hole 1-2 u .018 pad	.008 hole 1 thru 9 .018 pad	.012 hole 1 thru 22 .020pad	1	SURFACE		
	dielectric	0.003							
2	copper	0.0007				2	GND /PWR PLANE		
	dielectric	0.005							
3	copper	0.0007					3	Pair Layer 1 (3.5trace---5.5 space)	
	dielectric	0.005							
4	copper	0.0007					4	PLANE	
	dielectric	0.005							
5	copper	0.0007					5	Pair Layer 2 (3.5trace---5.5 space)	
	dielectric	0.005							
6	copper	0.0007					6	PLANE	
	dielectric	0.005							
7	copper	0.0007					7	Pair Layer 3 (3.5trace---5.5 space)	
	dielectric	0.005							
8	copper	0.0007					8	PLANE	
	dielectric	0.005							
9	copper	0.0007					9	Pair Layer 4 (3.5trace---5.5 space)	
	dielectric	0.005							
10	copper	0.0007					10	PLANE	
	dielectric	0.005							
11	copper	0.0007					11	Pair Layer 5 (3.5trace---5.5 space)	
	dielectric	0.005							
12	copper	0.0007					12	GND /PWR PLANE	
	dielectric	0.005							
13	copper	0.0007					13	Pair Layer 6 (3.5trace---5.5 space)	
	dielectric	0.005							
14	copper	0.0007					14	PLANE	
	dielectric	0.005							
15	copper	0.0007					15	Pair Layer 7 (3.5trace---5.5 space)	
	dielectric	0.005							
16	copper	0.0007				.004 hole 16 thru 22 .014 pad required for 1/2 mm pitch bga on sec side	16	PLANE	
	dielectric	0.005							
17	copper	0.0007					17	Pair Layer 8 (3.5trace---5.5 space)	
	dielectric	0.005							
18	copper	0.0007						18	PLANE
	dielectric	0.005							
19	copper	0.0007						19	Pair Layer 9 (3.5trace---5.5 space)
	dielectric	0.005							
20	copper	0.0007						20	PLANE
	dielectric	0.004							
21	copper	0.0007						21	other layer
	dielectric	0.003							
22	copper	0.0005						22	SURFACE/GND

thk

0.119

0.0357

0.004 ***plus plating (.001)x4 places on lyrs 2, 6, 7, 11

20 layers Class 2			GND					POSSIBLE VIAS (.018 PAD .008 HOLE) (.020 PAD .010 HOLE)		1808 2010
1	copper	0.0005	.008 hole 1-2 u .018 pad	.008 hole 1-3u .018 pad	.008 hole 1 thru 7 .018 pad	.008 hole 1 thru 9 .018 pad	.008 hole 1 thru 20 .018 pad	1	SURFACE	
	dielectric	0.003								
2	copper	0.0007						2	GND /PWR PLANE	
	dielectric	0.005								
3	copper	0.0007						3	Pair Layer 1 (3.5trace---5.5 space)	
	dielectric	0.005								
4	copper	0.0007						4	PLANE	
	dielectric	0.005								
5	copper	0.0007						5	Pair Layer 2 (3.5trace---5.5 space)	
	dielectric	0.005								
6	copper	0.0007						6	PLANE	
	dielectric	0.005								
7	copper	0.0007						7	Pair Layer 3 (3.5trace---5.5 space)	
	dielectric	0.005								
8	copper	0.0007						8	PLANE	
	dielectric	0.005								
9	copper	0.0007						9	Pair Layer 4 (3.5trace---5.5 space)	
	dielectric	0.005								
10	copper	0.0007						10	PLANE	
	dielectric	0.005								
11	copper	0.0007						11	Pair Layer 5 (3.5trace---5.5 space)	
	dielectric	0.005								
12	copper	0.0007						12	GND /PWR PLANE	
	dielectric	0.005								
13	copper	0.0007						13	Pair Layer 6 (3.5trace---5.5 space)	
	dielectric	0.005								
14	copper	0.0007						14	PLANE	
	dielectric	0.005								
15	copper	0.0007						15	Pair Layer 7 (3.5trace---5.5 space)	
	dielectric	0.005								
16	copper	0.0007						16	PLANE	
	dielectric	0.005								
17	copper	0.0007						17	Pair Layer 8 (3.5trace---5.5 space)	
	dielectric	0.005								
18	copper	0.0007						18	PLANE	
	dielectric	0.004								
19	copper	0.0007						19	other layer	
	dielectric	0.003								
20	copper	0.0005						20	SURFACE/GND	

thk

0.1076

0.0357 0.0471

0.004 ***plus plating (.001)x4 places on lyrs 2, 6, 7, 11

Notes: 6=99.5 diff 5=93 diff
Maximum number of lamination cycle for any set of laminate to experience is 4 times.
we can do up to three on two halves and the final will be the fourth for both halves and we can split it anywhere
4 mil drill requires 12 mil pad size (minimum); can drill and plate through a maximum 0.040” total board/copper thickness.
6 mil drill requires 14 mil pad size (minimum); can drill and plate through a maximum 0.060” total board/copper thickness.
8 mil drill requires 18 mil pad size (minimum); can drill and plate through a maximum 0.080” total board/copper thickness.
10 mil drill requires 20 mil pad size (minimum); can drill and plate through a maximum 0.110” total board/copper thickness.
You will have to use 12 mil or larger drill if you need make the board thick than the proposed 20-layer, 0.107” thick board.
Diff pair to pair should be three times dielectric (15)
PART # TLK2711JR-ZQE) VIA IN PADS .006 HOLE .011 PADS (CELL=BGA80) .01969 PITCH 1/2 MM (16 TIMES)
45 vs radial

copper	0.0007
dielectric	0.005

every layer we add requires one copper and one dielectric for a totalof .0057" thicker
0.0057

Each set of two connectors has 2 gnds for a total of 8

Test Board
-Any suggested input

- Placement
- Differential pair speeds and groups
 - Differential pair layer jumping on slower signals
 - Resistors on pairs
 - Pin swapping
 - mirrored half
 - layer stack up

Part

Nested Cells

P301 - DF18C-100DS

Editable

New location

X:

Y:

Rotation:

-10,741.81

1,448.07

(th)

270

(deg)

Absolute

Delta

Lock status:

None

Other:

Part

Nested Cells

P300 - DF18C-100DS

Editable

New location

X:

Y:

Rotation:

-10,349.18

1,447.66

(th)

270

(deg)

Absolute

Delta

Lock status:

None

	x	y
p201	-9,757.70	1,447.04
p200	-9,363.31	1,448
p401	-11,726.70	1,447.92
p301	-10,741.81	1,448.07
p100	-8,379.20	1,446.97