elco PCB

Advanced technology
for
Specific Needs (close to silicon devices)

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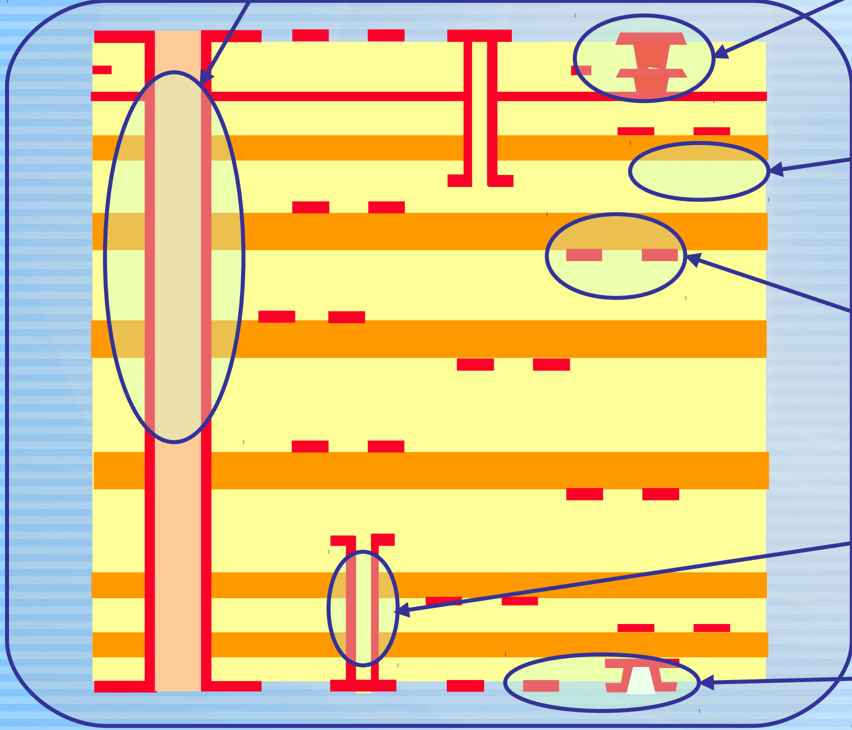

Thru hole :
- Aspect ratio =< 14
- Drilling diameter 150 µ

Laser vias :
- Sequential multilayers (3 levels)
- Stacked Microvias
- ➢ Laser Holes 75 µ

Materials (RoHS) :
- High Tg epoxy (Tg 175°C) completely compatible RoHS (Filler and phenolic hardener)
- Materials for high frequencies (4 to 15 GHz)
- Green materials (Halogen free)
- Low deformation materials (X,Y,Z)

Lines & spacing :
- AOI check
- Clean room class 100
- ➢ 40 µ lines / 60 µ spacing

Blind vias :
- ➢ drilling 100 µ

Finishes :
- Electroless nickel-gold
- Electroless tin - OSP
- HASL- Fused tin-lead
- ➢ Ionic contamination < 0.3 µg/cm2

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		Standard	Advanced	Emerging	Future
1. Line and Space	*Line Width* *Line Space*	100u 100u	75u 75u	50u 50u	20-35u 30u
2. Drilled Via Size	*Drill Size*	200u	150u	100u	75u
3. MicroVia Size	*Via Size*	100u	75u	60u	50u
4. Drilled Aspect	*Aspect Ratio*	12:1	18:1	24:1	30:1
5. MicroVia Aspect	*Aspect Ratio*	0.7:1	1:1	1.2:1	2:1
6. Microvia Stack-up	*# Layers* *Buried Sub* *Stacked Vias*	1+1 No No	3+3 Yes Yes	5+5 Yes Yes	Any layer Yes Yes
7. Hole Fill/Cap Plate	*Min Hole* *Aspect Ratio*	200u 12:1	100u 18:1	75u 12:1	<75u >24

High Density PCB's

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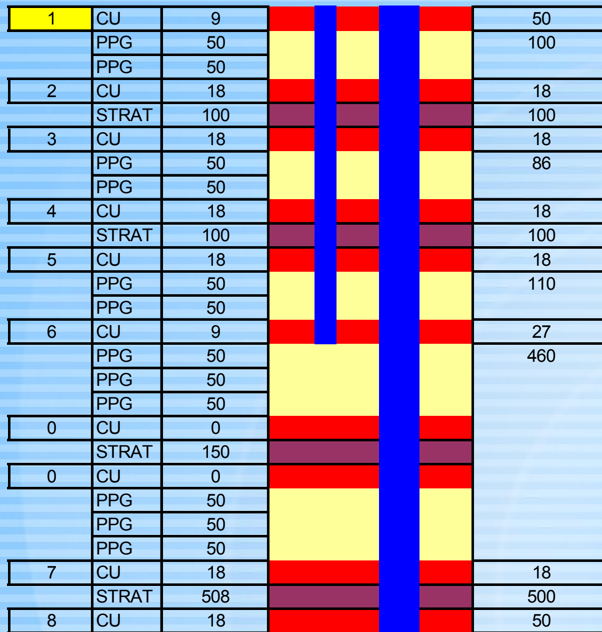
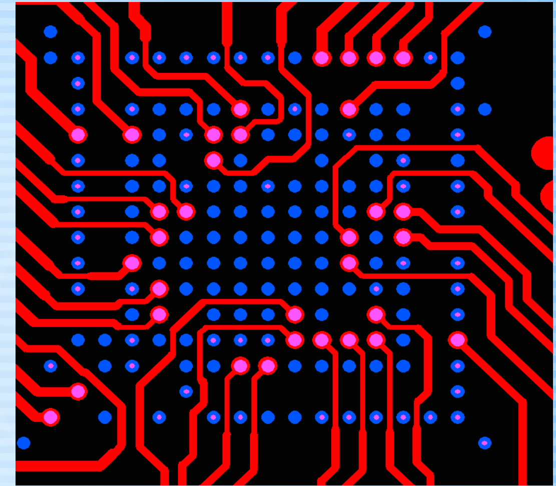
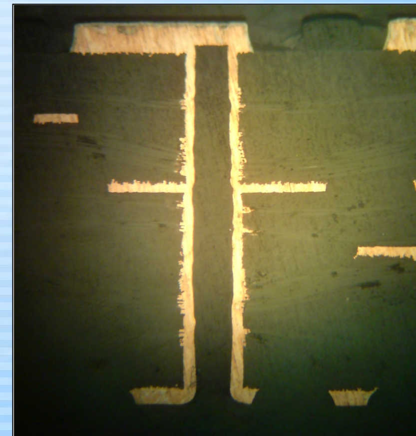


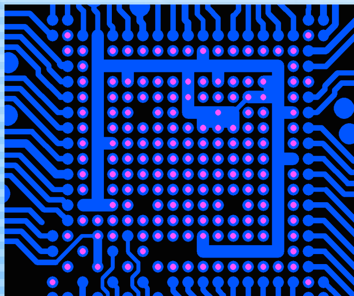
Layer	Material	Thickness		Value
1	CU	9		50
	PPG	50		100
	PPG	50		
2	CU	18		18
	STRAT	100		100
3	CU	18		18
	PPG	50		86
	PPG	50		
4	CU	18		18
	STRAT	100		100
5	CU	18		18
	PPG	50		110
	PPG	50		
6	CU	9		27
	PPG	50		460
	PPG	50		
	PPG	50		
0	CU	0		
	STRAT	150		
0	CU	0		
	PPG	50		
	PPG	50		
	PPG	50		
7	CU	18		18
	STRAT	508		500
8	CU	18		50

Pad layer 6: 250um drill 100um
Min line: 75 um (at base)
Min space: 75 um





DESIGN
BGA 500um pitch (17*17 = 289 balls)
External layer pad : 350 um drill 100um
External min line: 100 um



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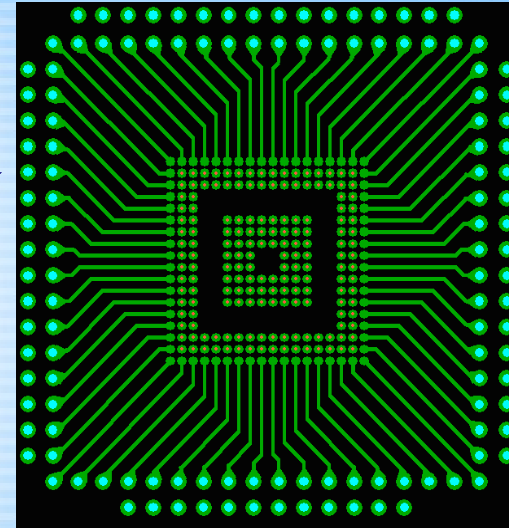
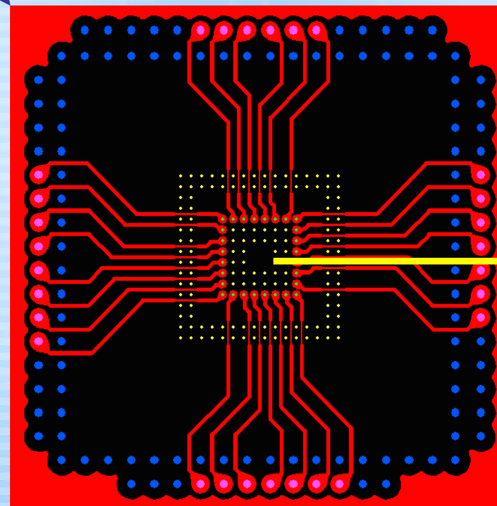
BGA at 0.5 mm pitch : one line between 2 pads
sequential board

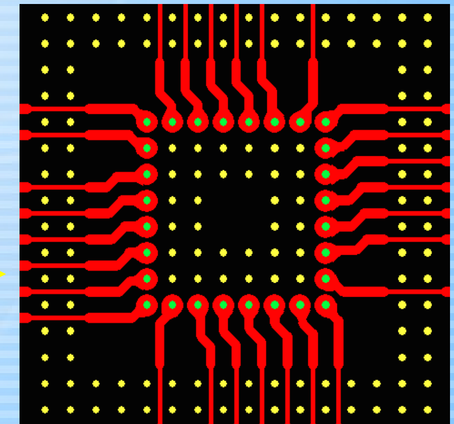
COUCHE TYPE CUIVRE (*)

COUCHE	TYPE	CUIVRE (microns)	
1	E	45	======
2	P	18	-------
3	L	18	-------
4	P	18	-------
5	L	18	-------
6	EP	25	======
	L	18	-------
	L	18	-------
7	EP	25	======
8	L	18	-------
9	P	18	-------
10	L	18	-------
11	P	18	-------
12	E	45	======

==== cuivre "externe"
------- cuivre "interne"







Drilled holes at 150µ
60 µ lines

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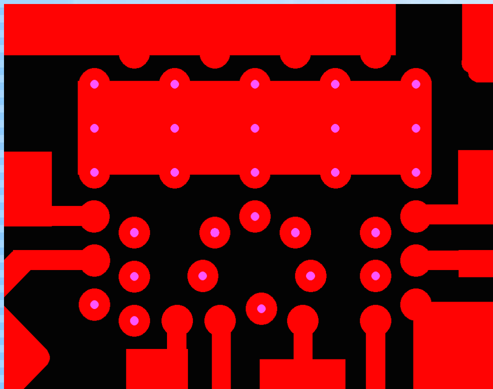
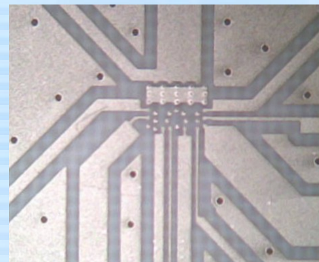
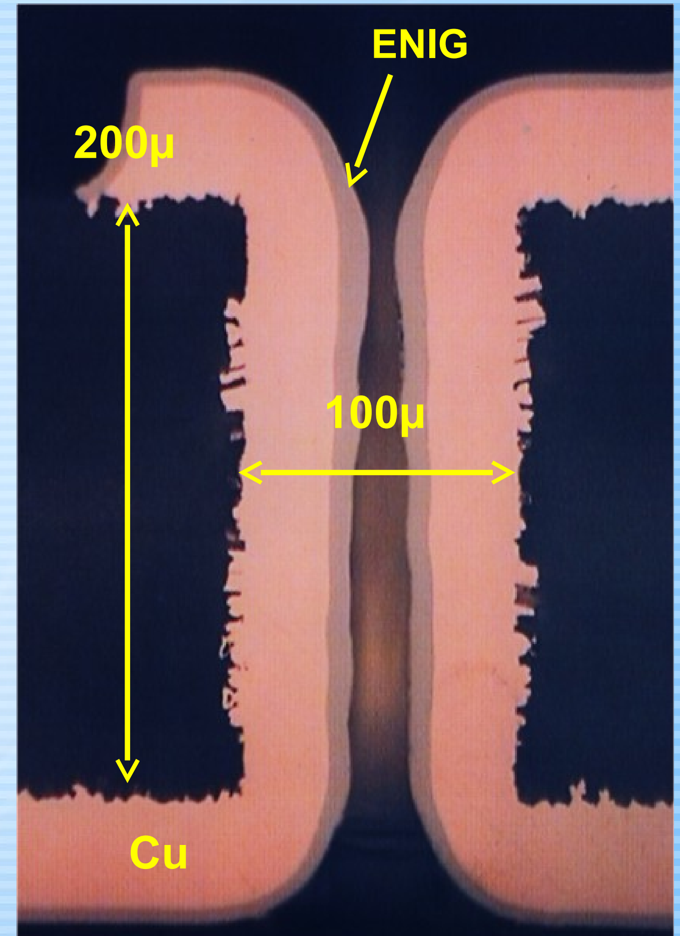
Double sided board :
- Flip-chip at 250 µ pitch
- 165 µ pad
- Drilling at 100 µ
- Base material : Hitachi 679F



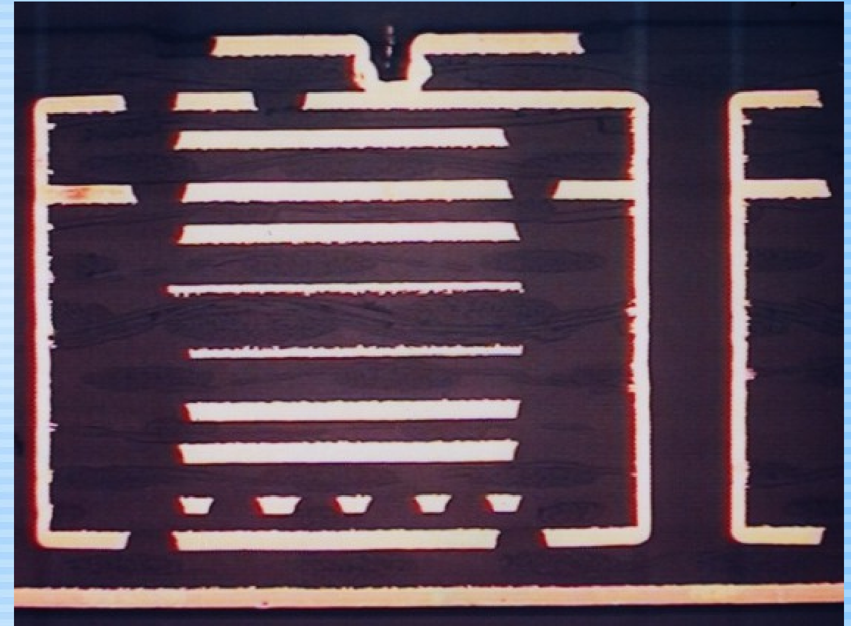


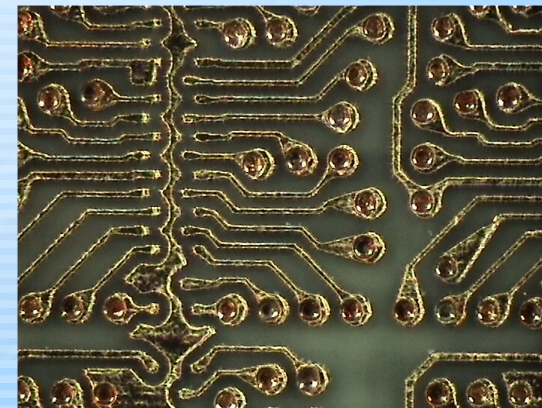


High Density PCB's

		(microns)		(microns)
1	E	45	======	32
				67
2	ELP	25	======	30
				38
3	ELP	25	======	30
				63
4	ELP	25	======	31
				43
5	ELP	25	======	30
				72
6	LP	12	--------	12
				100
7	LP	12	--------	13
				82
8	ELP	25	======	30
				43
9	ELP	25	======	32
				64
10	ELP	25	======	27
				36
11	ELP	25	======	31
				68
12	E	45	======	30

TOTAL		314		





==== cuivre "externe"

-------- cuivre "interne"

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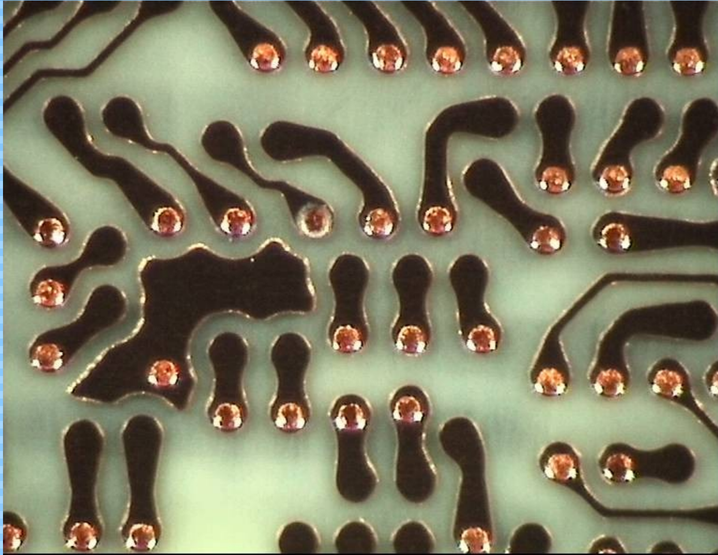
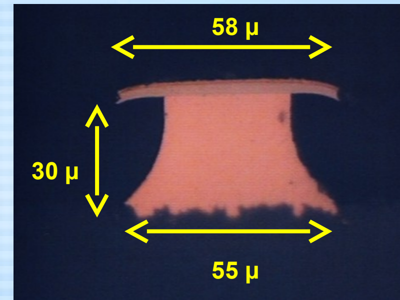
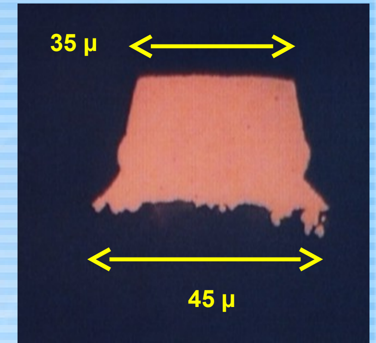
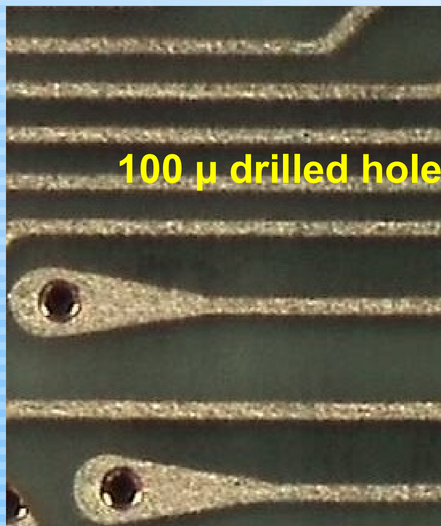


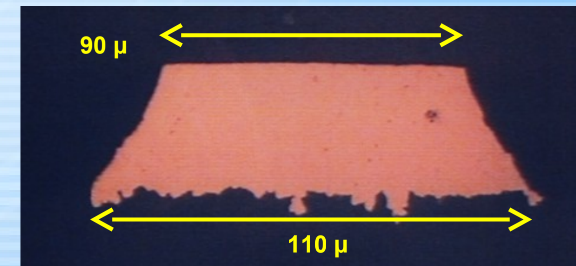


External line with Nickel & Gold



Inner line





Inner line

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Thank you!