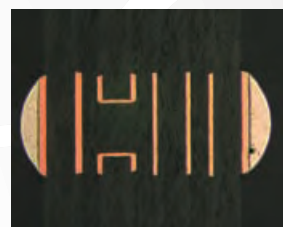
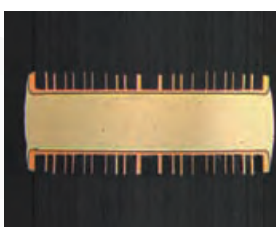
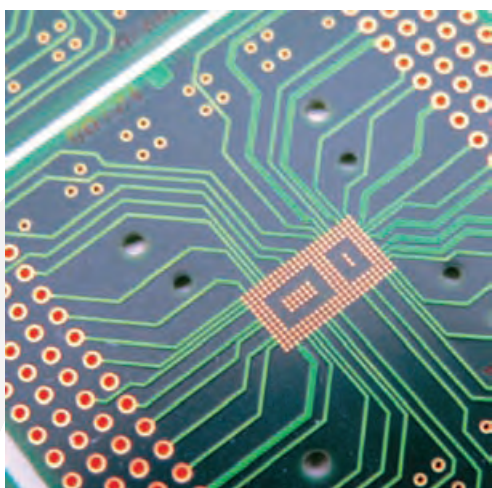


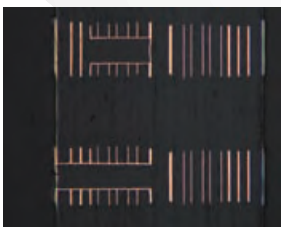
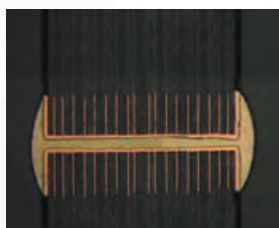


Technologies & Innovation
Strategies

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Double-sided PCBs

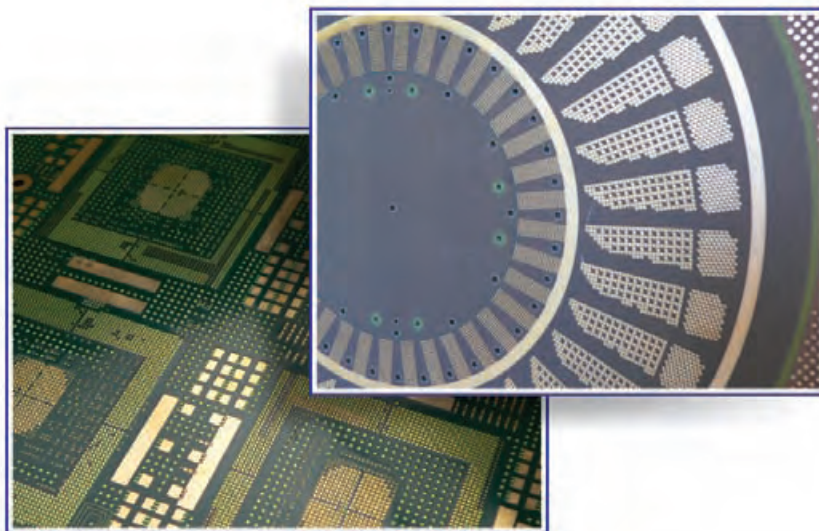


Double-sided PCBs

Production plants:
Elco China, Elco Europe (Spain)

Description:

Double-sided PCBs are used in many electronic device; they are composed by two layers, interconnected with metallized holes



Technical Data:

Base Material

FR4 Std Tg 135°
FR4 Medium Tg > 150°
FR4 Hi Tg > 175°
Polyimide
Teflon substrates
(Special materials on request)

Dimensions

Maximum pcb size: 640 x 570 mm

PCB Thickness

Maximum pcb thickness: 6.5 mm
Minimum pcb thickness: 0.1 mm
Thickness tolerance:
according to MIL Cl. II, III

Surfaces Finishing

- Organic copper-passivation
 - Hot air levelling (HASL)
(depends on thickness and size)
 - Electroless nickel/gold (NiAu)
 - Electroplated nickel/gold (NiAu)
 - Tin Lead reflow
- Other surfaces on request

Solder Masks

- Photo-imageable solder
(max. pcb thickness 3.5 mm)
- Peelable solder mask

Special Printings

- Carbon
(contacts and resistance tracks)
- Marking print

Track Width/Space

Standard: 100 µm
High Tech: 75 µm
Next Step: 50 µm

Drill Diameter

(mechanical, drill-tool-diameter)
Standard : 200 µm
High-Tech: 150 µm
Next step: 75 µm

Contour Processing

- Milled
- Scored (contour or perforation)

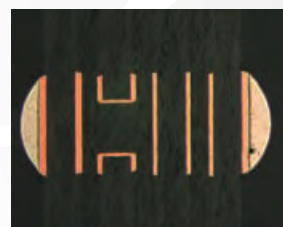
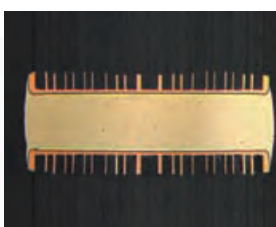
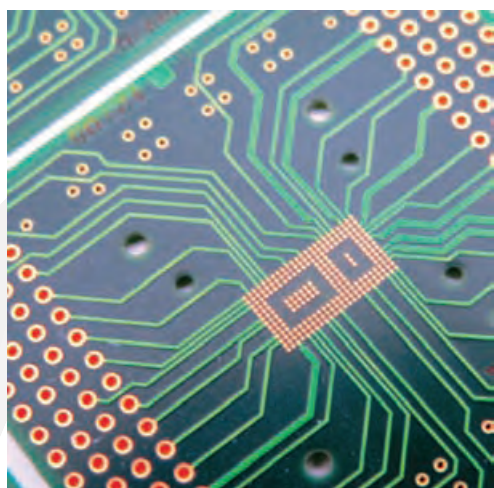
Tests

- Automatic-Optical-Inspection
(depending on layout and surface)
- 100 % electrical test
- Special check on request
- Visual inspection

Quality Controls

- Guarantee of custom-designed quality standards and production according to international guidelines:
- Vision 2000 - CNES - AS9100B
- EN9100:2003/S1 - JISQ9100:2004
- UL Certified: 94V-0 up to 130°

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Multilayer PCBs



Multilayer PCBs

Production plants:

Elco Italy, Elco France,
Elco Europe (Spain), Elco China

Description:

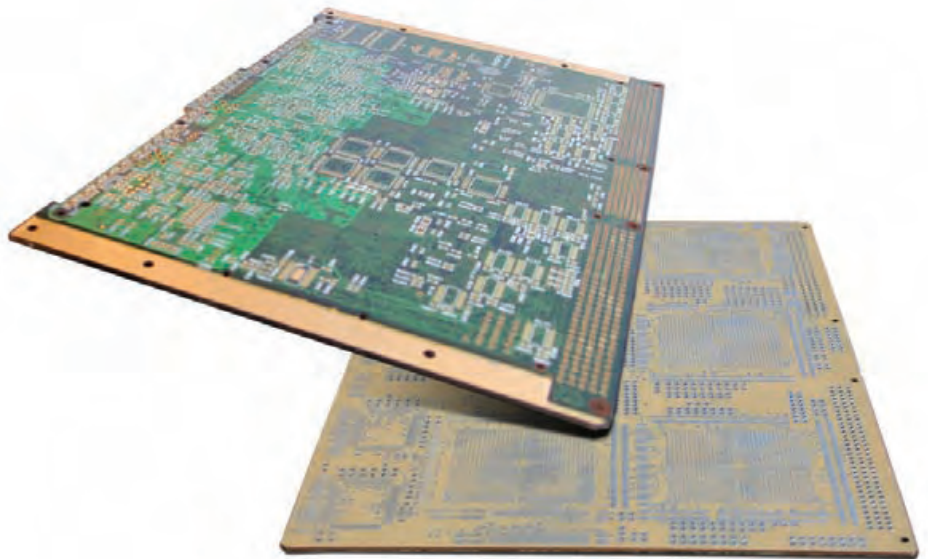
Homogeneous and
Composite Rigid Multilayer circuit boards:

(Homogeneous) :

Rigid multilayer circuit boards composed
of the same base material

(Composite) :

Rigid multilayer circuit boards composed
of different base materials



Technical Data:

Construction

Up to 38 layers (under consideration
of the maximum pcb thickness)
Standard base copper thickness:
18 μm , 35 μm , 70 μm , 105 μm

Base Material

FR4 Std Tg 135°
FR4 Medium Tg > 150°
FR4 Hi Tg > 175°
Polyimide
Teflon substrates
(Special materials on request)

Dimensions

Maximum pcb size: 640 x 570 mm

PCB Thickness

Maximum pcb thickness: 6,5 mm
Minimum pcb thickness: 0.3 mm

Surfaces Finishing

- Organic copper-passivation
 - Hot air levelling (HASL)
(depends on thickness and size)
 - Electroless nickel/gold (NiAu)
 - Electroplated nickel/gold (NiAu)
 - Tin Lead reflow
- Other surfaces on request

Solder Masks

- Screen printing of solder mask
(uv-drying)
- Peelable solder mask

Special Printings

- Carbon
- Marking print

Track Width/Space

Standard: 100 μm
High Tech: 75 μm
Next Step: 50 μm

Drill Diameter (mechanical)

Standard : 200 μm
High-Tech: 150 μm
Next step: 75 μm

Microvia Technology

(laser drilled blind via)
Standard Drill Diameter: 75 μm
Aspect ratio: ≤ 1

Contour Processing

- Milled
- Scored (contour or perforation)

Impedance Check

- On request
- Tolerance of impedance: $\pm 10\%$

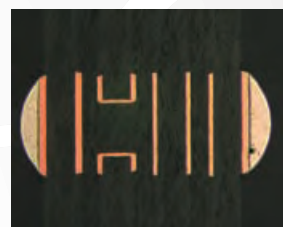
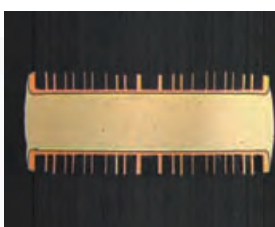
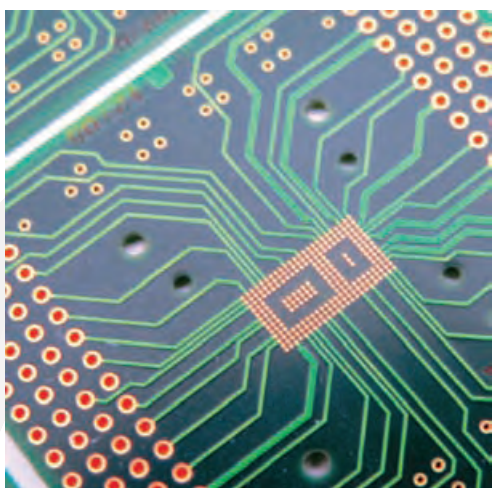
Tests

- Automatic-Optical-Inspection
(depending on layout and surface)
- 100 % electrical test
- Special check on request
- Visual inspection

Quality Controls

- Guarantee of custom-designed quality
standards and production according
to international guidelines:
- Vision 2000 - CNES - AS9100B
- EN9100:2003/S1 - JISQ9100:2004
- UL Certified: 94V-0 up to 130°

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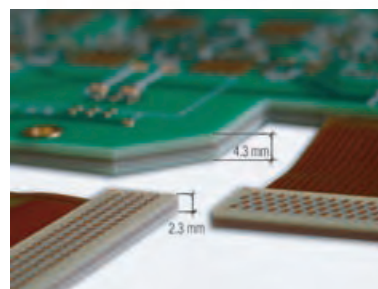
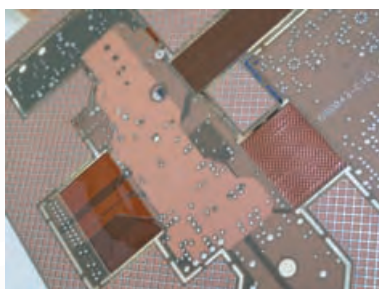
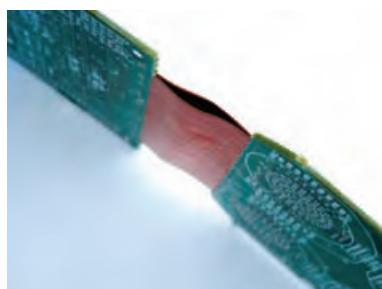
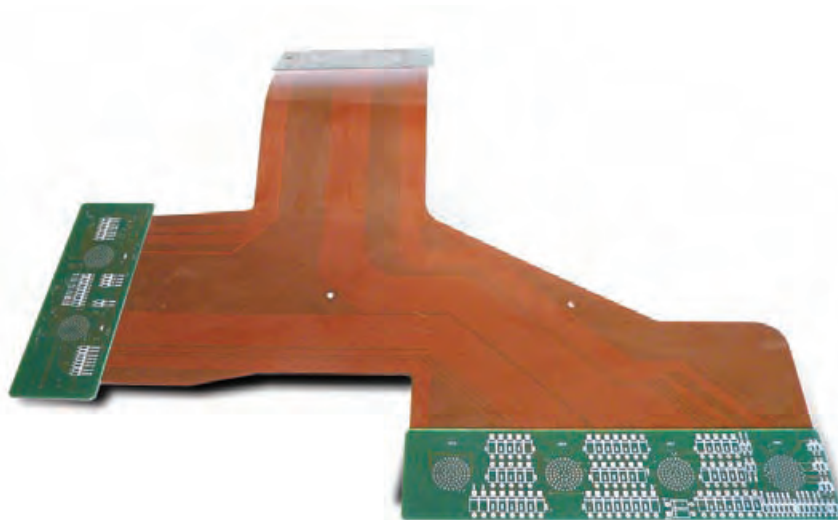


Rigid-flexible PCBs

Production plants:
Elco Italy

Description:

The process technologies implemented and the in-depth product knowledge have allowed Elco to increasingly make its name in the production of rigid-flex printed circuitboards of up to 24 layers.



Technical Data:

Construction

- FR4 Std Tg 135°
- FR4 Medium Tg > 150°
- FR4 Hi Tg > 175°
- Polyimide
- Insulation Polyimide:
- 25 µm, 50 µm, 70 µm

Dimensions

- Maximum pcb thickness: 6.5 mm
- Maximum board Dimension:
- 640 x 570 mm

Surfaces finishing

- Organic copper passivation
- Hot air levelling (HASL)
- Electroless nickel/gold
- Electroplated nickel/gold
- Other surfaces on request

Solder Masks

- Screen printing of solder mask (uv-drying)
- Peelable solder mask

Special Printings

- Carbon
- Marking print

Track Width/Space

- Standard: 100 µm
- High Tech: 75 µm
- Next Step: 50 µm

Drill Diameter (mechanical)

- Standard : 200 µm
- High-Tech: 150 µm
- Next step: 75 µm

Contour Processing

- Milled
- Scored (contour or perforation)
- frame possible (delivery in rigid form)

Impedance Check

- On request
- Tolerance of impedance: ± 10%

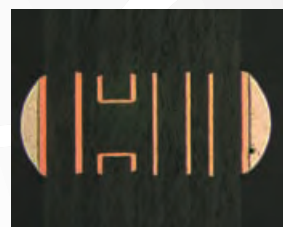
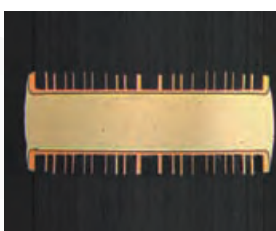
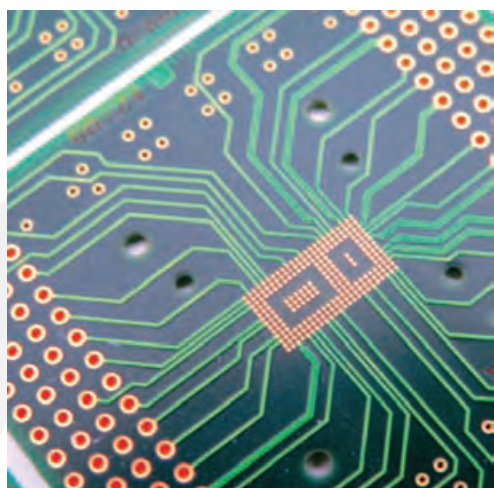
Tests

- Automatic-Optical-Inspection
- 100 % electrical test
- Special check on request
- Visual inspection

Quality Controls

- Guarantee of custom-designed quality standards and production according to international guidelines:
- Vision 2000 - CNES - AS9100B
- EN9100:2003/S1 - JISQ9100:2004
- UL Certified: 94V-0 up to 130°

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Heat Sink PCBs

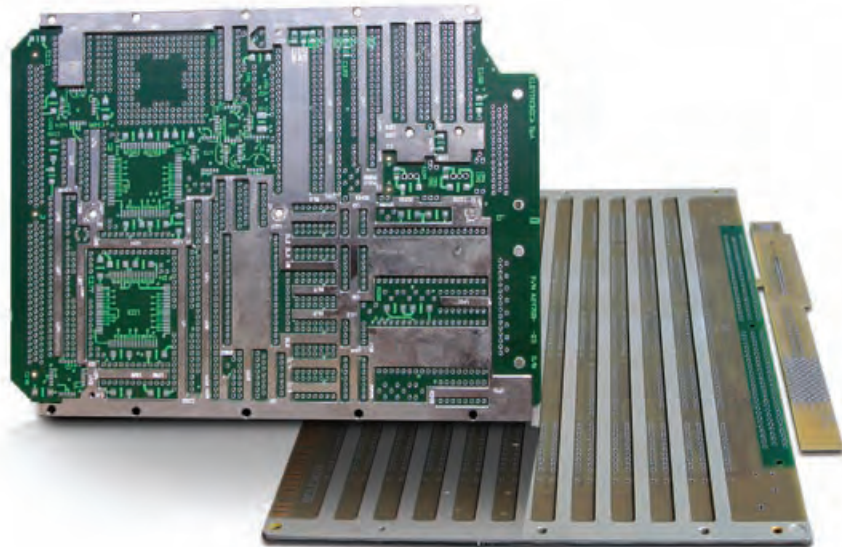


Heat Synk PCBs

Production plants:
Elco Italy, Elco France

Description:

PCB with heat synk technologies applied
(Invar: Internal - Aluminium/Copper: External)



Technical Data:

Construction

Up to 32 layers
(under consideration of the maximum pcb thickness)
or double-sided copper-claded material for 2 layer boards
standard copper-claddings:
18 µm, 35 µm, 70 µm, 105 µm

Base Material

FR4 Std Tg 135°
FR4 Medium Tg > 150°
FR4 Hi Tg > 175°
Polyimide
(Special materials on request)

Heatsink

- Thermal conductive materials (metals, preferably copper, aluminium) in heatsink form (on pcb) or metal core (in pcb)

Dimensions

Maximum pcb size
(multilayer): 640 x 570 mm

PCB Thickness

Maximum pcb thickness: 6.5 mm
Minimum pcb thickness: 0.1 mm

Heatsink Thickness 0.1 - 4 mm

(referring to the solid thickness)

Drill Diameter (mechanical)

Standard : 200 µm
High-Tech: 150 µm
Next step: 75 µm

Surfaces Finishing

- Organic copper-passivation
- Hot air levelling (HASL)
- Electroless nickel/gold (NiAu)
- Electroplated nickel/gold (NiAu)
- Tin Lead reflow

Other surfaces on request

Solder Masks

- Screen printing of solder mask (uv-drying)
- Peelable solder mask

Special Printings

- Carbon
- Marking print

Contour Processing

- Milled
- Scored (contour or perforation)

Impedance Check

- On request
- Tolerance of impedance: ± 10 %

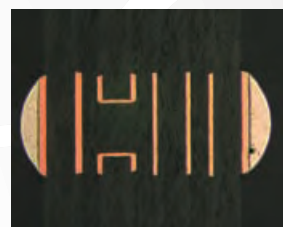
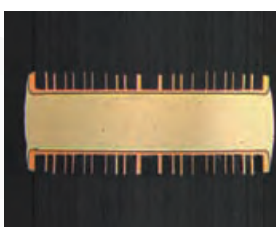
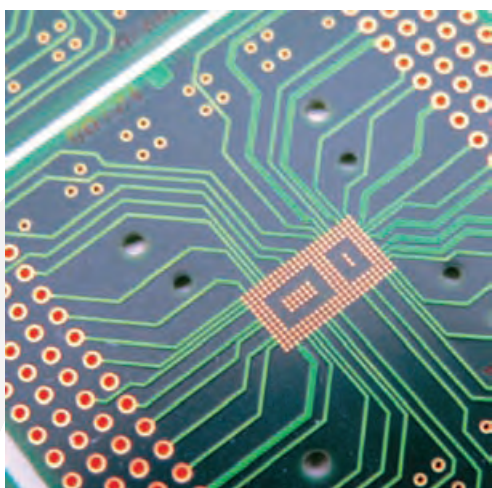
Tests

- Automatic-Optical-Inspection
- 100 % electrical test
- Special check on request
- Visual inspection

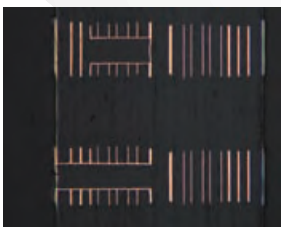
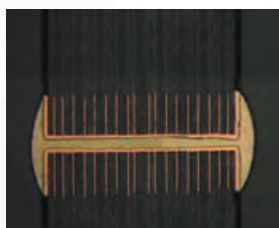
Quality Controls

- Quality standards and according to international guidelines:
- Vision 2000 - CNES - AS9100B
- EN9100:2003/S1 - JISQ9100:2004
- UL Certified: 94V-0 up to 130°

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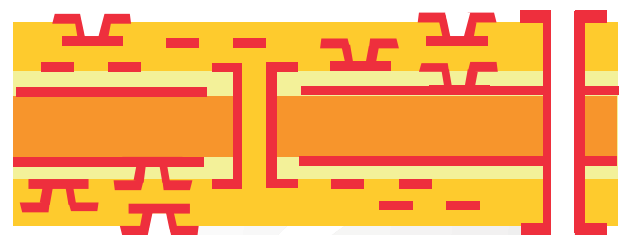
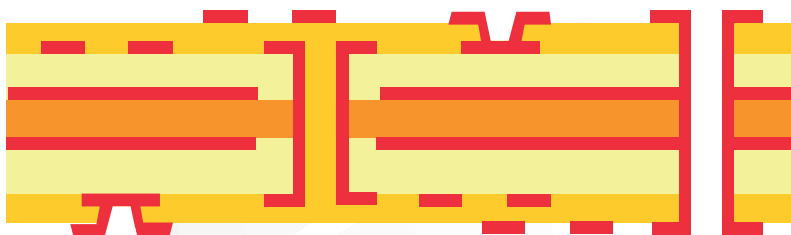
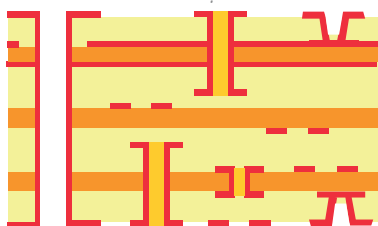
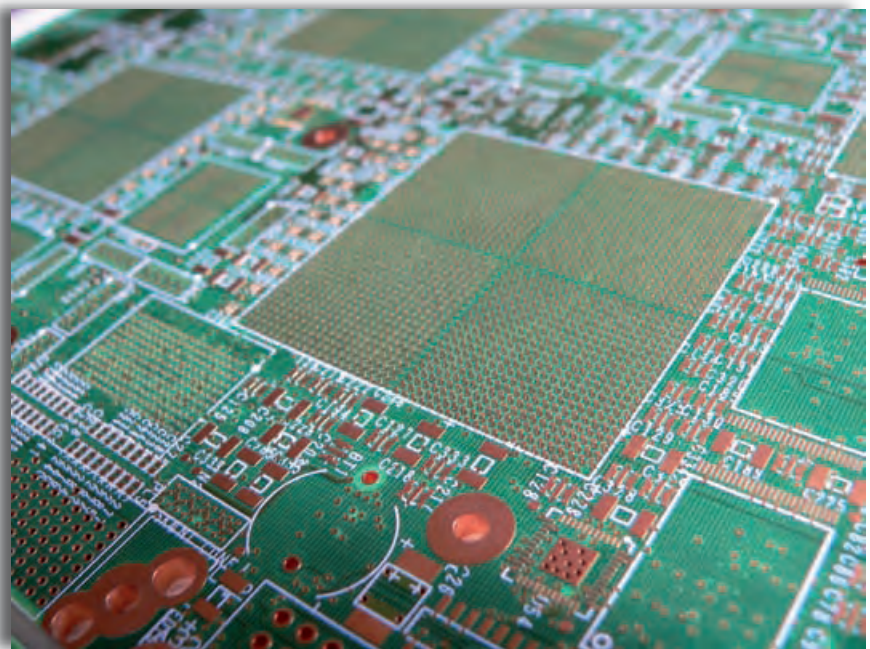
SBU PCBs



SBU PCBs

Production plants:
Elco Italy, Elco France

Description:
A technological solution for High-Density PCB.



Technical

Construction

Up to 32 Layers
Sequential multilayers
Base copper thickness :
5 μ , 9 μ , 12 μ , 18 μ , 35 μ , 70 μ , 105 μ

Dimensions

Maximum PCB size : 478 x 592 mm
Maximum thickness : 5 mm

Base material

- High Tg epoxy (Tg>175°C) compatible RoHS
- Materials for high frequencies (4 to 15 Ghz)
- Polyimide
- ROGER 4350
- Green material (halogen free)

Surfaces finishing

- Electroless Nickel/Gold (ENIG)
- Electroplated Nickel/Gold
- Immersion tin
- Tin Lead reflow
- OSP

Line & Spacing

External standard : 60 μ /75 μ
Internal standard : 50 μ /75 μ
Internal advanced : 40 μ /60 μ

Blind vias (mechanical)

Drilling diameter : 100 μ

Thru hole

Min drilling diameter : 150 μ
Aspect ratio : 16:1

Laser vias

- Sequential multilayers (3 levels)
- Stacked microvias
- Via copper filling
- Drilling diameter : 75 μ

BGA

- Up to 1980 I/O
- Pitch : 1, 0.8, 0.65, 0.5, 0.4, 0.3 mm

Flip Chip

< 250 μ pitch

Impedance Check

- Tolerance of impedance: \pm 10%
- Reflectometer Polar

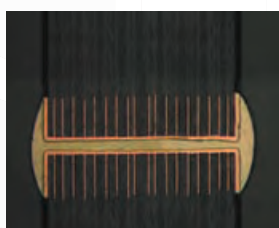
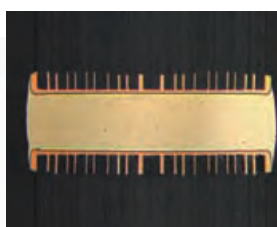
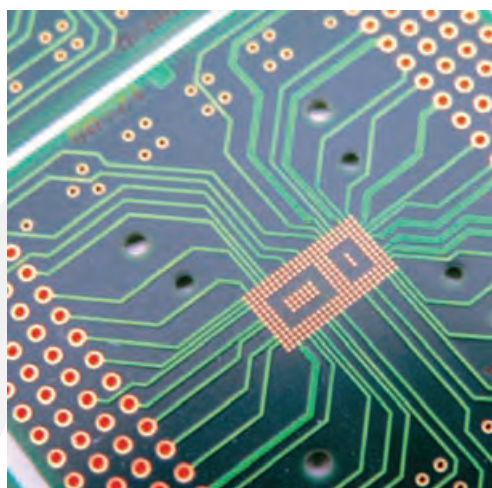
Tests

- 100% Automatic-Optical-Inspection
- 100% electrical test
- Visual inspection

Quality Controls

- Guarantee of custom-designed quality standards and production according to international guidelines:
 - Vision 2000 - CNES - AS9100B
 - EN9100:2003/S1 - JISQ9100:2004
 - UL Certified: 94V-0 up to 130°
- Process including reliability tests (daisy chain board)
- State of the art Laboratory

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Capabilities

Specifications:	Standard	High-Tech			Next Step		
Base Material Used	FR4 – FR4 HiTg°	BT Epoxy - Polyimide - Teflon - INVAR - Halogen Free - Hi Frequency			BT Epoxy - Polyimide - Teflon - INVAR - Halogen Free - Hi Frequency		
PCB Type	Rigid	Rigid	Rigid (hybrid)	Rigid/Flex	Rigid	Rigid (hybrid)	Rigid/Flex (Teflon+Kapton)
Maximum Number of Layers	16	36	32	24	40	40	32
Maximum Board Dimension	22.4" x (570 x 449 mm)	640x570 mm					
Maximum Board Thickness	3.2 mm	6.5 mm					
Minimum core Thickness	0.1 mm	0.05 mm - 0.025 (Flex)					
Base Copper Thickness	18 - 35 - 70 µ	9-12-18-35-70-105-140-210-305 µ					
Aspect Ratio	8:1	24:1			30:1		
Minimum Diameter Hole (Mechanical)	0.2 mm	0.15 mm			0.1 mm		
Minimum Diameter Hole (Laser)	100 µ	75 µ			60 µ		
Nickel Thickness on the Connector	> 4 µ	> 4 µ					
Gold Thickness on the Connector	> 0.8 µ	> 0.8 µ					
Holes Position Tolerance	± 0.1 mm (from the board edge)	± 0.07 mm on PCB with diagonal < 300 mm (from the board edge)					
Minimum Trace	100 µ	75 µ			50 µ		
Minimum Space	100 µ	75 µ			50 µ		
Plated Hole Tolerance	-0.05 ÷ + 0.1 mm	-0.05 ÷ + 0.05 mm					
Unplated Hole Tolerance	0 ÷ + 0.1 mm	0 ÷ + 0.1 mm					
Conformity Certificate	On demand	On demand					
Test Certificate	On all delivery	On all delivery					
Controlled Impedance Certification	On demand	On demand					
Production Date (week and year)	On solder mask On copper (on demand)	On solder mask On copper (on demand)					
Certification	Vision 2000 - ISO TS 16949-2002 UL Certified: 94V-0 up to 130°	Vision 2000 - CNES - AS9100B EN9100:2003/S1 - JISQ9100:2004 UL Certified: 94V-0 up to 130°			ISO 14000		
Routing Tolerance	± 0.2 mm	± 0.15 mm					
Surface Finishes	H.A.S.L. - Lead Free H.A.S.L. Electroless Gold Electroless Tin - OSP	Electrolytic Ni - Electrolytic NiAu					
Solder Mask Types	Photographic	Photographic					
Legend	White	Different Colours					
Electrical Test (short and open)	100%	100%					

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