

manufacturing capabilities & services

Background

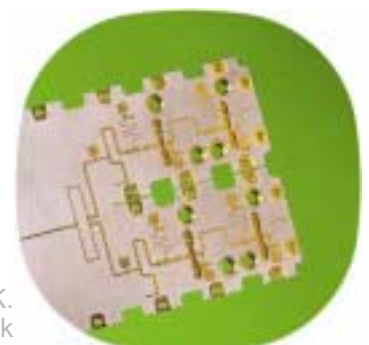
Labtech, established in 1984, has a wealth of experience in the manufacture of high frequency printed circuit boards and MMIC packaging techniques for the global microwave market. We actively seek ways in which we can handle all your PTFE circuit requirements.

Microwave circuits on offer

- **Metal backed PTFE circuits**
Aluminium, brass & copper carrier
Plated through hole from metal carrier to PTFE
In house machining facility
Pre-bonded materials
Post-bonded materials
- **Single sided & double sided soft PTFE circuits**
High tolerance softboard
Complete processing in house
- **Multilayer microwave circuits**
PTFE multilayers
Mixed dielectric multilayers
Fusion bonded multilayers
Metal backed multilayers
Metal core multilayers
Controlled impedance multilayers
Blind & buried vias
Tri-plate antennas
Conformal antennas
Assembly of embedded resistors

MMIC Packaging and MIC Assembly on offer

- Custom design for manufacturing service
- Single chip modules & MIC assemblies developed using PTFE circuit technology
- In house MMIC chip & wire assembly in class 10,000 ESD protected clean room
- Gold, ribbon and aluminium wire bonding onto a wide range of finishes
- Electrolytic pure gold universal finish (ni/pd/au)
High build electroless gold
- Microwave tests available on a project by project basis



Advanced PCB features and tolerances

Maximum Aspect Ratios -	Standard 6:1 Technical 8:1
Minimum Drilled-Hole diameters	Standard: 0.35mm(0.014") Technical: smallest 0.20mm (0.008") Aluminium backed - Std 1.00mm Tech 0.60mm Other metal backed - Std 0.80mm Tech 0.40mm
PTH Tolerances -	Standard – 0.10mm (– 0.004") Technical – 0.05mm (– 0.002")
NPTH Tolerance -	Standard – 0.05mm (– 0.002") Technical – 0.02mm (– 0.0008")
Positional Tolerance -	Hole to hole – 0.02mm (– 0.0008")
Tight tolerances - of track features	(– 0.0004" or – 10)
Fine track & gaps -	Standard: 0.15mm (0.006") Technical: 0.05mm (0.002")

Registration

Pad-to-Hole	Standard – 0.10mm (– 0.004") Outer Layer M/L – 0.10mm (– 0.004") Inner Layer M/L – 0.15mm (– 0.006") Pad-to-Hole repeatability – 0.05mm (– 0.002")
Pad-to-Hole Pin Registered	Standard – 0.10mm (– 0.004") Technical – 0.05mm (– 0.002")
Side to Side	Standard – 0.10mm (– 0.004") Technical – 0.05mm (– 0.002") N.B. Some grades of PTFE will stretch or shrink after cleaning and laminating.

Panel sizes

Maximum printable size	Standard 24" x 18" (610 x 457mm) Technical 24" x 41" (610 x 1041mm) (print and etch non PTH)
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Finishes

Tin Lead Plate:	Electrolytic, 60/40 Sn/Pb or 90/10 Sn/Pb Immersion tin (5n) 1 - 1.5 m
Bright Acid Tin:	Electrolytic. Thickness as required
Electroless Tin:	Thickness: 0.1 - 1.5 m
Brushed Tin Lead:	Thickness: 5 - 15 m. Brushed with fine glass-fibre brush
Gold:	Electrolytic, 99.5% pure (dependent on customer requirements) Thickness: 1 - 5 m
Gold (Pure/Soft):	Electrolytic (for Wire Bonding), 99.995% pure (dependent on customer requirements) Thickness: 1 - 5 m
Nickel & Gold:	Electrolytic Ni Thickness 1 - 10 m Electrolytic Au Thickness 1 - 5 m
Nickel & Gold:	Electroless Ni Thickness 2 - 10 m (or more) Immersion Au Thickness 0.05 - 0.15 m
Nickel, Palladium, Gold:	(Universal Finish) 3.5 m Nickel, 0.2 - 0.4 m Palladium, 0.05 - 0.1 m Gold Palladium also available.
Nickel:	Sulphamate Semi Bright. On copper, brass & aluminium.
Organic:	Entech
Silver:	Electrolytic Thickness 1 - 5 m (dependent on customer requirements)
Hot Air Levelling:	Vertical Hot Air Solder Levelling Thickness: 1 - 25 m (NB Not suitable on some PTFE materials)

Plating

Aspect Ratio:	Maximum: 6:1 (Standard), 8:1 (Technical), 4:1 (Aluminium Backed) NB: On metal backed circuits aspect ratios are more achievable by drilling or routing a recess into the backing (to encourage the flow of plating solution).
Area Ratio:	Side-to-Side rectification ensures good plating distribution for any configuration.
Pre-Treatments:	Sodium Naphthalene Etchant (PTFE) Plasma Desmear (PTFE/Multilayer)