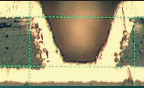


PCB Laser Services

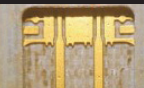
Microvia Drilling



Laser Routing



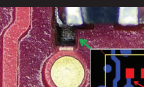
Laser Skiving



Laser Marking



PCB Laser Rework



Micron Laser Technology is a leading laser service provider for the printed circuit board industry.

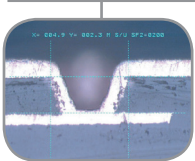
From single sided to multi-layer, rigid and flexible circuits, MLT's PCB laser services are a cost-effective, outsourced solution for circuit board manufacturers. As an integral manufacturing partner, MLT's advanced laser material processing enables product technology and a competitive edge.

Microvia Drilling

MLT provides microvia laser drilling processes for both copper clad and unclad laminates to IPC high density interconnect standards. Laser vias can be produced to a minimum diameter of 30um.

HDI Via Configurations:

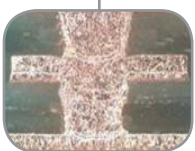
BLIND VIA



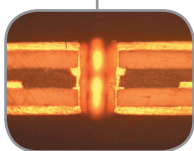
STEP VIA



STACKED VIAS



THRU VIA



Laser Routing

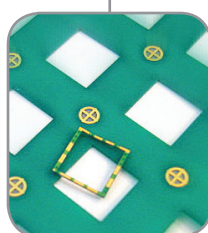
MLT's PCB laser routing services have a real cutting edge.

- 25um or better tolerances
- Minimal visual discoloration
- Radius-free internal edge profiles
- No mechanical stresses
- No expensive dies and punches

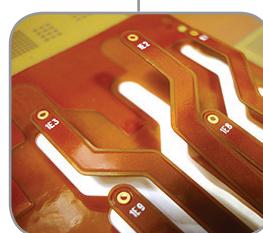
Applications:

Excising or depaneling
ZIF connectors
B-stage adhesives
Coverlay or coverfilm
Hold-in tabs, scoring
Thermal management preforms
Stencils and masks

RIGID



FLEX



Laser Skiving

MLT's PCB laser skiving services allow for controlled material removal to a limited depth or targeted layer.

Applications:

Cavity formation
Floating contacts (fingers)
Squeeze-out removal
Dryfilm or polyimide removal
Circuit formation and isolation
Buried wirebond pads
Selective soldermask removal

CONTROL DEPTH SKIVE

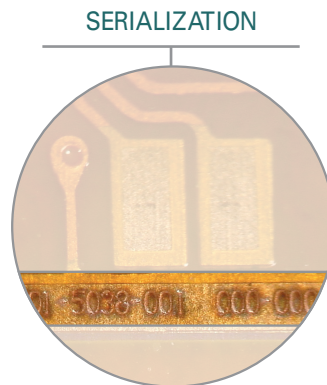
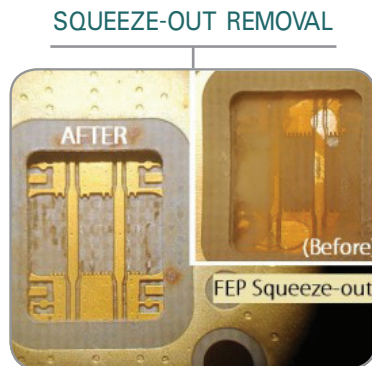
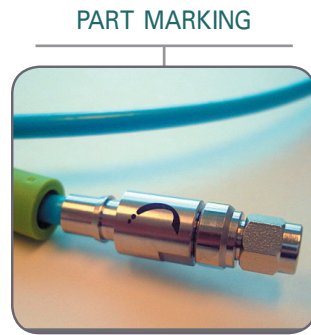
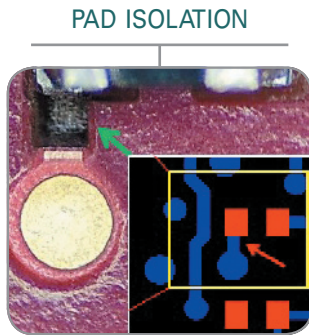


PCB Laser Rework

MLT offers a range of precision laser rework and recovery services of non-conforming product to minimize scrap and fulfill timely deliveries.

Applications:

Solder mask removal
Pad isolation
Coverlay / adhesive over SMT pads
Trace trimming
Gold plating shorts between SMT pads
BGA decapsulation
Squeeze-out removal



Laser Marking, Barcodes and Serialization

Utilizing both ultraviolet and infrared lasers, MLT produces permanent, high resolution, non-contact markings, logos, bar codes, and serialization.

Standards:

Markings are compliant to standards MIL-STD-130M for defense and SEMI M12/M13 for semiconductors.

PCB Materials for Laser Services

Dielectrics

FR4 all types	Soldermask
Isola	Rogers
Getek	Duroid
Nelco	Teflon
Hitachi	Glass
Gore	Silicon
Taconic	Kapton
Ceramics	ARLON CLTE

Reinforcements

Woven glass (106, 1080, 2213)
Aramid (Thermount[®])
Ceramic
Non-woven glass
PTFE

Chemistries

BCB	Polyester
PEEK	PPE
FEP	Cyanate ester
LCP	Polyimide
Epoxy	Acrylics
Epoxy blends	BT resins

Positional and Dimensional Tolerances

Infrared (CO₂): +/- .002" (50um)
Ultraviolet (UV): +/- .001" (25um)



Laser Service Advantages:

- ✓ Same day turns
- ✓ ITAR registered

- ✓ Optical alignment
- ✓ AS9100C / ISO9001

- ✓ Production overflow
- ✓ Up to 10um tolerances

503.439.9000

www.MicronLaser.com

AS9100 CERTIFIED AND ITAR REGISTERED