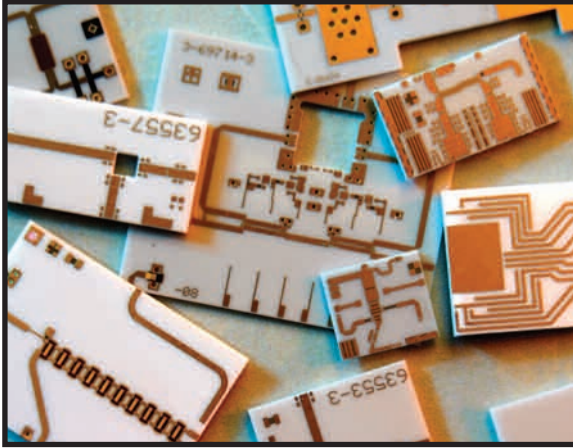


# THIN FILM FABRICATION SERVICES



## One Stop Shop • Rapid Prototyping • On Time Delivery • Competitive Pricing\*

The Anritsu-USA Company is a global provider of RF and Microwave solutions, wireless and digital components, and instruments for R&D, manufacturing, installation, and maintenance functions. The Anritsu Thin Film Fab has over a 20 year track record in meeting the thin film circuit needs of its corporate parent. The Anritsu thin film services are setup to fabricate thin film circuits to very precise requirements, and contribute to Anritsu's great success in the Wireless RF and Microwave fields.

We are proud to offer the Anritsu Thin Film Fabrication Services as your one-stop shop for any of your thin film fabrication needs. We offer customer specific services; including thin film depositions, resistor laser trimming, substrate laser drilling, photolithography patterning and device singulation services. We can also turn your CAD designs from the prototype level to high volume manufacturing within a very short period of time. Please refer to the Anritsu web site at [www.us.anritsu.com](http://www.us.anritsu.com), call Anritsu at 408-778-2000, ext 1298, or email [ThinFilm@anritsu.com](mailto:ThinFilm@anritsu.com) for more information.

### Process Design Services

Anritsu's engineers have extensive experience with circuit processing technologies, and will be available to work with your designers in coming up with the optimal fabrication processes to achieve your circuit design. In many cases, circuits can be fabricated and made ready for testing within five working days. Anritsu's staff and facilities stand ready to assist you in further optimizing your device performance, and bring your first prototypes to the manufacturing volume that you need.

### Substrate Materials

The following substrate materials are available: alumina, aluminum nitride, fused silica, glass, quartz, sapphire, and silicon.

### Layout Design / Mask Production

Our talented team of CAD professionals will help to layout your engineering and prototype arrays and work closely with the mask shop to quickly release the mask set to meet your needs.

### Metallization

The following metals are available for thin film deposition by sputtering or electroplating: Titanium, Titanium-Tungsten, Nickel, Gold, Copper, and Palladium.



### Photolithography

We can routinely achieve accurate patterning of feature sizes down to 0.001" (25.4  $\mu\text{m}$ ), and on a custom basis, down to 0.0004 in. (10  $\mu\text{m}$ ). Two photolithography processes are available: subtractive process (Etchback) or semi-additive process (Pattern Plate).

\* Thin film fabrication services are available to U.S. customers only.



### Insulation / Passivation

Patterned polyimide and BCB films are available for use as a solder mask, thin film capacitor and insulating layer.

### Filled Vias and Plated Through-Holes

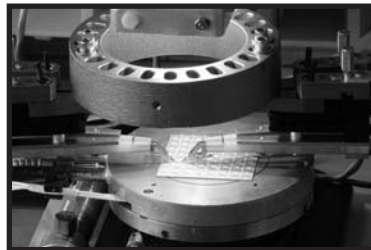
Option of solid filled vias, plated through-holes and edge wrap-around techniques are available.

### Laser Cutting and Drilling

Our CO2 laser system can create features of virtually any planar shape with positional accuracy of 0.001 in.

### Resistor Films

Our standard resistance layer is Tantalum Nitride. A wide variety of sheet resistivities is available, with excellent temperature coefficients and long-term stability values.



### Laser Trimming

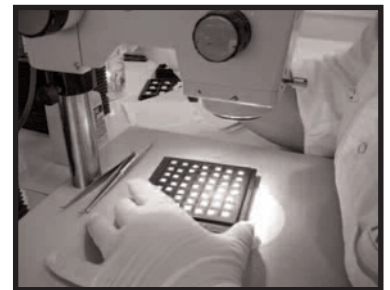
Our laser trimmer can adjust resistor values up to an absolute tolerance of 0.1%.

### Singulation

Singulation is done using fully automatic dicing saws and diamond based blades. Standard tolerance is  $\pm 0.001$  in. ( $2.5 \mu\text{m}$ ).

### Inspection and Testing

Our products are 100% DC tested and inspected to meet and exceed customer requirements. Our Quality Assurance program is ISO9001 certified and meet most existing military and aerospace requirements.



### Devices that we can manufacture include:

- *Circuits for microwave applications*
- *Multilayer systems (MCM-D)*
- *Thin film sensors*
- *Resistor networks*
- *Attenuator circuits for microwave applications*
- *Hybrid circuits and power hybrids*

### Markets we serve:

- *Telecommunications*
- *Defense*
- *Automotive*
- *Civil Aviation and Space*
- *Calibration Industry*
- *Biotechnology and Medical*

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