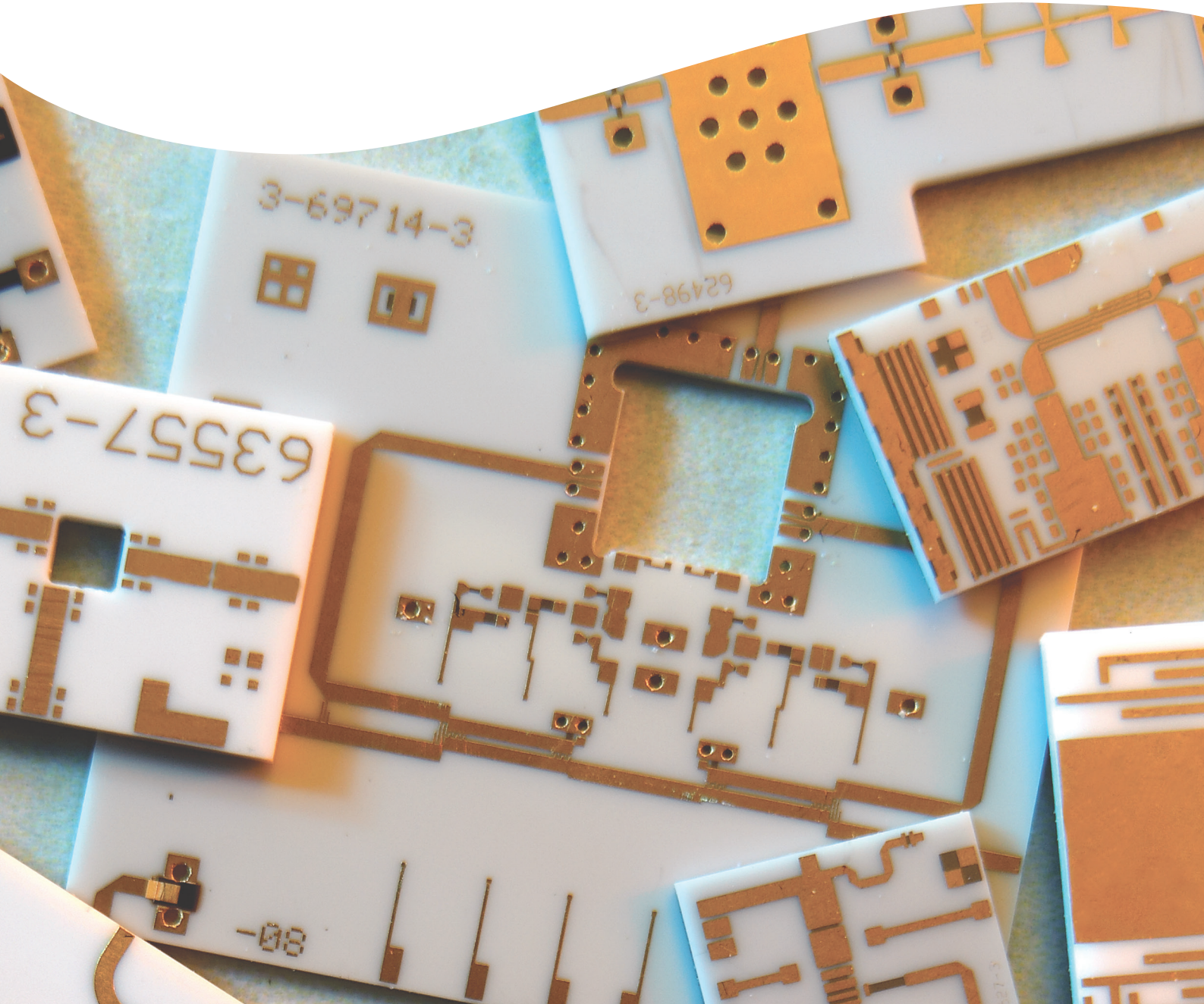


# Thin Film Fabrication Services

One Stop Shop • Rapid Prototyping • On Time Delivery • Competitive Pricing

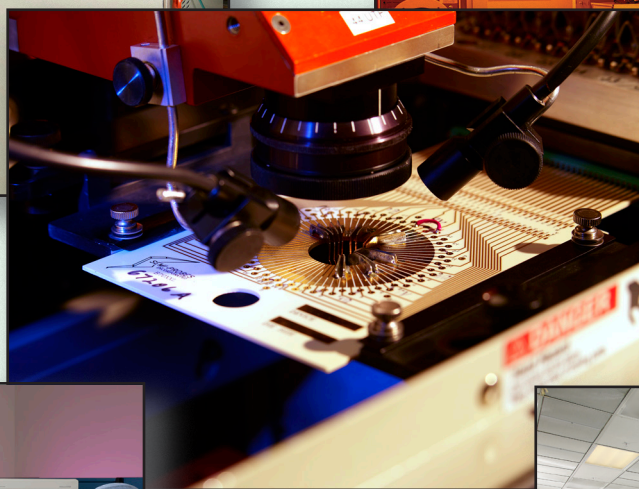
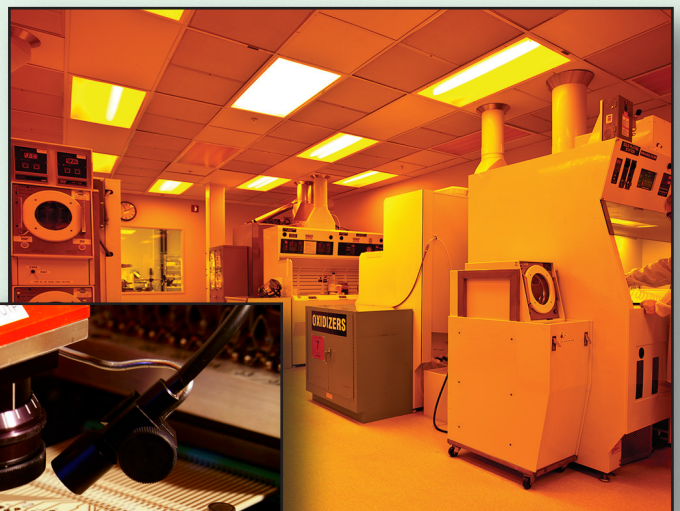


# Thin Film Processes and Services

*Anritsu Company is the United States subsidiary of Anritsu Corporation, a global provider of innovative communications test and measurement solutions for more than 110 years. Anritsu provides solutions for existing and next-generation wired and wireless communication systems and operators. Anritsu products include wireless, optical, microwave/RF, and digital instruments as well as operations support systems for R&D, manufacturing, installation, and maintenance. Anritsu also provides precision microwave/RF components, optical devices, and high-speed electrical devices for communication products and systems. With offices throughout the world, Anritsu sells in over 90 countries with approximately 4,000 employees.*

***The Anritsu Thin Film Fab is proud to be your partner for any of your thin film fabrication needs, whether it is a specific services, or the whole design cycle. We will help you along the way by working with the designer to choose and develop the optimal material and fabrication processes from the inception to layout, to first prototype, to a million units.***

Featuring a 6,000 square-foot class 100/1000 clean room, the Anritsu Thin Film Fab is equipped with a complete state of the art line of manufacturing and test equipment to fabricate a variety of thin film devices. Combined with our engineer's extensive expertise in circuit processing technologies, **we strive to provide total customer satisfaction by delivering the highest quality workmanship quickly and cost effectively.**



As technology continues to evolve, so does the need to create products with higher levels of performance. We are here to help you meet the challenges by providing innovative solutions that meet or exceed customer expectation in performance, delivery time, and price. We will build it precisely to your specifications.

### Process Design Services

Our experienced engineers are 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. Our staff and facilities stand ready to assist you in further optimizing your device performance and to bring your first prototypes to the manufacturing volume that you need.

### Substrate Materials and Sizes

The following substrate materials are available, but not limited to: Alumina, Aluminum Nitride, Beryllium Oxide, CVD Diamond, Ferrite, Fused Silica, Glass, Quartz, Sapphire, Silicon and Titanates. Our equipment can handle up to 5" square or round substrates with CD as small as 5  $\mu\text{m}$ . For large feature devices (> 50  $\mu\text{m}$ ), the substrate material can be as large as 12".

### Layout Design / Mask Production

Our talented team of CAD professionals are available to help layout your prototype arrays and work closely with the mask manufacturer to meet your needs in a timely manner.

### Laser Cutting, Drilling or Scribing

Our CO<sub>2</sub> laser system can create features of virtually any planar shape with positional accuracy of 0.001".



### Custom Thin Film Coatings

Metallization is done by sputtering or electroplating. We have over 30 different sputter deposition materials to select from. Our coatings are achieved under tight controls in a clean room environment using latest model thin film sputter equipment.



Multi-layer metal stacks can be achieved by using either subtractive processes (etch back) or semi-additive processes (pattern plating). Examples of metallization schemes include TaN/TiW/Au, TaN/TiW/Pd/Au, TaN/TiW/Pt/Au, TaN/TiW/Ni/Au, and TiW/Cu/Ni/Au, but other specialized schemes can be developed as well.

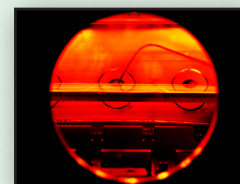
### Photolithography

We can routinely achieve accurate patterning of feature sizes down to 0.0001" (25  $\mu\text{m}$ ) and, on a custom basis, down to 0.0002" (5  $\mu\text{m}$ ).



### Resistor Films

Two resistive layer options are available: Tantalum Nitride (TaN) and Nickel/Chromium (NiCr). Each has a wide range of sheet resistivities available, with excellent temperature coefficients and long-term stability values.

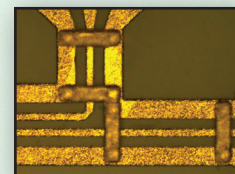


### Filled Vias and Plated Through Vias

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

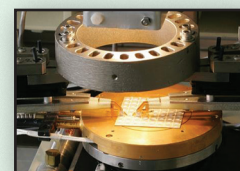
### Multilayer features

We offer a number of integrated solutions such as true air bridges, dielectric crossover, capacitor, solder dam, Gold/Tin selective deposition, inductors and insulation/passivation layers. The capacitor dielectric and passivation materials can be made from polyimide, BCB, and various oxides and nitrides.



### 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 saw and diamond based blades. Standard tolerance is  $\pm 0.001$ ".

### Quality Assurance

Our quality assurance program is ISO9001 certified and meets most existing military and aerospace requirements. Our inspection follows MIL-STD-883 for 100% visual inspections and MIL-STD-105D Level II sampling for final QA inspection.

# Value Proposition

**Anritsu Thin Film Fab offers full passive circuit prototyping and production service to serve a broad spectrum of application and markets.**

## Typical Manufactured Devices

Large coupler circuits  
Cross-overs  
Transitions  
Filters  
Divider & Combiners  
Slab-line & standoffs  
Source and Drain resistor network  
Discrete Tantalum Nitride thin-film resistor  
Tantalum Nitride Thermistor  
Spherical Inductors  
Multilayer systems (MCM-D)

## Markets Served

Telecommunications  
Defense  
Automotive  
Civil Aviation and Space  
Biotechnology and Medical  
Calibration Industry  
Solar

## Reasons for choosing Anritsu Thin Film Fabrication Services

### Quality and Reliability

We have a long track record for providing high quality and reliable thin film substrates for our corporate parent.

### Flexibility

We will work with your designers to adapt our processes to your device performance needs, from initial prototyping work to volume manufacturing.

### Price

We are able to offer very competitive pricing due to our status as a largely captive fab, providing all the Anritsu's thin film substrate requirements.

### Convenience

Our goal is to make the path from your CAD design to the final inspected devices as efficient as possible, as we are able to provide a one-stop solution from mask layout, to inspected thin film circuits and higher level assembly.

### Quick Delivery Time

We can routinely complete an order within 2 weeks of order acceptance. Hot lots cycle time can be as short as one week.

**For more information on Anritsu Thin Film Fabrication Services visit [www.anritsu.com/en-US/microwave-technology-center](http://www.anritsu.com/en-US/microwave-technology-center).**

**For quick response, contact us at 1-408-201-1298 or write to us at [thinfilm@anritsu.com](mailto:thinfilm@anritsu.com). We will help you to discover what is possible!**



Anritsu prints on recycled paper with vegetable soybean oil ink.



©Anritsu. All trademarks are registered trademarks of their respective owners. Data subject to change without notice. For the most recent specifications visit: [www.anritsu.com](http://www.anritsu.com)

# Anritsu

11410-00493, Rev. B Printed in United States 2012-09  
©2012 Anritsu Company. All Rights Reserved.