FABS and LABS

Anritsu's Microelectronics Fabrication Center Offers Performance, Quality and Flexibility

Since being formed in 1895, almost a decade before the vacuum tube was invented, Anritsu has earned an enviable reputation as a major supplier of RF/microwave test equipment. Developing equipment to make precision measurements from DC to terahertz frequencies is not easy, often requiring unique designs and manufacturing processes. To maintain leadership, Anritsu has established its own hardware and software capabilities, particularly for the microelectronics components that comprise the broadband front-ends setting the performance of the company's instruments.

While the mantra for Anritsu's microelectronics components is "performance, quality and flexibility," the manufacturing volumes do not consume the company's capacity, which allows Anritsu to develop symbiotic relationships with other companies needing the same advanced microelectronics design and manufacturing capabilities. The Microelectronics Fabrication Center, part of Anritsu's U.S. operation, fabricates thin film circuits, MEMS structures, GaAs and InP optoelectronics devices and offers machining, microelectronics assembly and testing services. The microelectronics team is proud of the support it provides, from process engineering to rapid prototyping—often developing a prototype in half the time quoted by other contract manufacturers. For production programs, Anritsu can manage the supply chain for a product, simplifying the procurement of a customer's bill of materials.

Thin film circuits can be fabricated on a range of materials: alumina, aluminum nitride, fused silica, sapphire, glass and chemical vapor deposition (CVD) diamond, as well as silicon, GaAs and InP. Etching processes include reactive-ion etching, plasma and wet etching of metal, silicon, nitride and oxide. Sputtering, e-beam evaporation, selective Au and AuSn electroplating are available for metal deposition, and plasma-enhanced CVD is used for dielectric layers. The thin film networks can incorporate polyimide, BCB and silicon nitride capacitors; laser-trimmed resistors; wrap-arounds and filled and plated-through vias. The facility also has the capability to align double-sided circuits.

The Microelectronics Fabrication Center has a complete range of chip-and-wire assembly processes: epoxy and eutectic die attach, ball bonding, manual and automated wedge bonding, gap welding and tack bonding. Soldering processes include AuSn, In, SnPb and AuGe, with RoHS-compliant material options available. In-house scanning electron and acoustic microscopy support process development and quality assessment.

Not surprisingly, Anritsu's suite of test capabilities is unmatched, spanning DC to 145 GHz and encompassing S-parameters, noise figure, phase noise, IP3, harmonics and dynamic range. Anritsu also offers a full complement of reliability testing to support development and production: IC thermal imaging, die attach void assessment, highly accelerated life testing (HALT), highly accelerated stress screening (HASS), burn in, temperature cycling, power cycling, drop testing, shear and pull testing and EMC/EMI assessment.

Based in Morgan Hill, Calif., the Microelectronics Fabrication Center contains a 25,000 square foot RF/microwave assembly area, 8,000 square feet of class 100 and 10,000 clean room, a machining center and offices. Anritsu's capability is ISO9001/ISO17025 certified and ITAR compliant. In addition to supporting Anritsu's own test equipment, the center manufactures products for the telecommunications, automotive, civil aerospace, defense, medical, biotechnology and solar industries. While most of the center's customers are within the U.S., several are international.

The Microelectronics Fabrication Center lets customers tap into Anritsu's microelectronics technology, developed over decades, and reap the same "performance, quality and flexibility" found in Anritsu's high performance test equipment.

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