

# FAB\$ and LAB\$S

## Massachusetts Bay Technologies: Motivated by Performance; Focused on Reliability



The term “Massachusetts Bay” comes from what became known as the Massachusetts Bay Colony. The Massachusetts Bay Company, an English trading company, was tasked with colonizing and establishing trade in the area outside Boston. This effort began nearly 150 years before the American Revolutionary War, so the term has deep roots in the Massachusetts area and symbolizes the region’s perseverance, efforts and growth.

Massachusetts Bay Technologies (MBT), located in Stoughton, Mass., embodies those qualities. The privately held company was founded in 1999 by the Fallon brothers, Brian and Charlie. Having just celebrated MBT’s 26th anniversary, Brian holds the role of president, and Charlie serves as vice president of the company. Over the past 26 years, MBT has evolved into one of the leading manufacturers of RF and microwave semiconductors and passive components.

The evolution and growth of MBT have created several decision points for the company. Befitting a start-up company, MBT adopted a fabless manufacturing model from its inception in 1999. However, in 2008, the company recognized that the fabless model was not a reliable growth strategy. The best solution to enable the Fallon brothers’ growth vision for MBT was to build a wafer fab facility. Despite this being a herculean task, MBT’s 20,000+ sq. ft. state-of-the-art wafer processing fab was up and running in 2010, less than two years after the decision was made. The company maintains a value-added assembly capability, where it performs assembly, die attach, wire and ribbon bonding and packaging of various devices. They also provide reliability testing of devices up to and including space-level reliability. These capabilities, combined with the wafer processing fab, enable MBT to provide all fabrication, manufacturing and reliability testing under one roof.

The company boasts an impressive set of capabilities, including diffusion, LPCVD and oxidation furnaces. Fabrication starts with metalization, photolithography and etching capabilities. Once fabricated, MBT can plate, dice, laser trim, test and inspect its products. These standard and custom products, along with build-to-print efforts, can be tested to 40 GHz and environmentally screened in MBT’s in-house facilities. All these activities take place in the company’s ISO 9001:2015-certified and ITAR-compliant manufacturing facility.

As the company has grown, it has expanded its product portfolio both organically and through acquisitions. In 2016, MBT acquired MACOM Technology Solutions’ point-contact diode product line. These diode products support both commercial and mission-critical defense applications and devices. In January 2019, the company launched a thin film product line, producing both standard and custom products. Later that year, in October 2019, MBT began production of single-layer ceramic (SLC) capacitors. The addition of thin film and SLC capabilities complements and expands MBT’s existing semiconductor and passive product portfolio.

After 26 years of effort, perseverance and growth, MBT has evolved into a company specializing in the design and manufacture of current, obsolete and discrete silicon and GaAs RF and microwave semiconductor diodes, as well as passive components and thin film products. These products range from 100 Hz up into the mmWave frequency range. The MBT products are used in consumer, telecommunications, medical, industrial, space, aerospace and defense applications. The company prides itself on being a customer-service-oriented organization motivated by performance and focused on reliability.

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