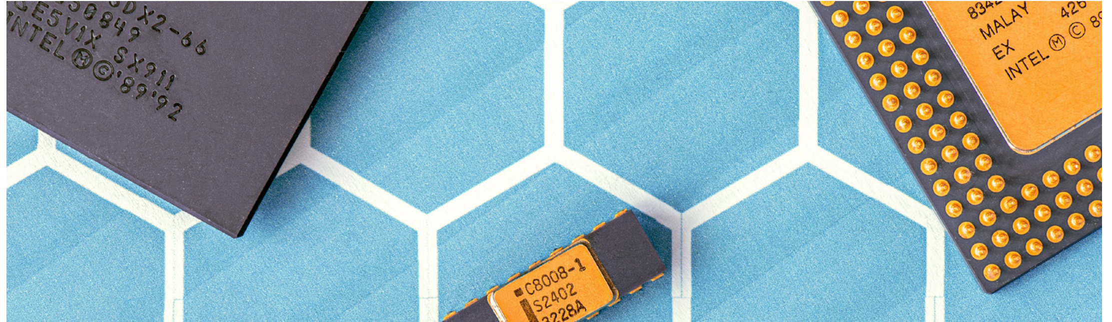
CUSTOMER SUCCESS STORY

EFFICIENT OXIDE ETCH SYSTEMS WITH AN ALL-IN-ONE MKS REMOTE RF PLASMA SOURCE



About the Customer

The customer is a large Asian OEM (Original Equipment Manufacturer) of semiconductor and display manufacturing equipment. They offer a broad line of specialized equipment for application in the semiconductor and display industry, including automated wet cleaning stations, display patterning systems, varied single wafer processing tools, and, plasma-based oxide etch tools.

THE CHALLENGE

The customer was using RF (Radio Frequency) generators from a number of different suppliers to produce the required plasma environment in oxide etching applications. To avoid ion-induced damage to the devices on the substrate, oxide etch systems employ a remote plasma source configuration to produce the reactive chemical species that etch the oxide films. RF modules employed in this application require high speed impedance matching networks, pulsing capability, and stable operation to produce the etch performance needed to create the small geometries in DRAM (Dynamic Random Access Memory) and 3D flash memory manufacturing processes.

The RF generators currently in use in its oxide etch equipment did not have true pulsing capability or high speed impedance matching. Also, the use of various suppliers for RF generators greatly complicated technical support for the company's oxide etch tools, both in-house and in the field. The customer could achieve significant benefits by shifting to a single supplier of products with effective high speed impedance matching and pulsed operation.

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THE SOLUTION

The customer selected the MKS all-in-one RF remote plasma source solution after seeing a successful demonstration of the technology at both their site and at one of their device manufacturing facilities. The MKS RF plasma source solution delivered true pulsing capability, high speed impedance matching, and rapid response to plasma load changes that the customer required for their DRAM and 3D flash applications.

THE BENEFITS:

The customer significantly improved the impedance matching performance of their RF power supplies and the efficiency of power transfer into the plasma as compared with the systems previously in use. Additionally, the process capability of the customer's oxide etch systems were improved and extended due to the pulsed plasma capability of the RF power source in the MKS solution. With the adoption of MKS technology, the customer also gained a dependable and local single source for technical support. These factors combined to produce significant productivity gains for the customer.

LEARN MORE

To learn more about how MKS remote RF power supplies can help you improve productivity in your process operations, go to: www.mksinst.com/c/rf-power-generators