

Introduction

C-V, or Capacitance-Voltage measurement, is a technique where the voltage is varied to measure the capacitance. Since 1970, The Micromanipulator Company has been supporting semiconductor professionals who perform C-V measurements.

Historically C-V has been used to detect mobile ion contamination in oxide. This contamination took the form of sodium ions. Sodium ions are particularly insidious because of their mobility. Devices, which pass final test in the factory, can fail in the field because sodium's mobility permits it to migrate within the device structure. This migration can cause electrical performance parameters to change, affecting timing, source and sink currents and threshold voltages. With the move toward copper, low-k, and shrinking geometries for CMOS, Micromanipulator developed a turnkey solution that provides a highly accurate test environment for C-V measurements. The model 8860 semi-automatic analytical test station provides the base or foundation for quality test results. The 8860's stage has $\pm 1.5\mu\text{m}$ repeatability and accuracy with a resolution of $0.1\mu\text{m}$

for the thin lines and small pads to be probed. User-friendly pcProbe II software with the pcSetup wizard permits complicated test routines to be developed with ease then stored for future tests.

Micromanipulator's H1000 Thermal System provides a single chuck with a temperature range from -65 degrees C to 400 degrees C.

Engineered specifically for use in a probe station, the thermal chuck is guarded to protect the station from heat radiated down into the body of the station. The chuck's plumbing is completely contained within the footprint of the 8860 and the hoses carrying the cooling fluid feature self sealing quick disconnects to prevent fluid leakage.

Choose between the standard LTE (light tight enclosure) which rests on the anti-vibration isolation table and

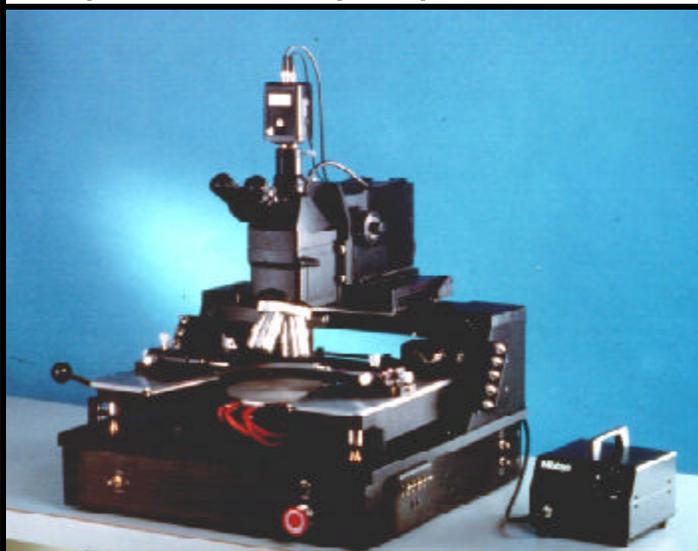
completely encompasses the test station or the integrated shielded environment, 8800-ISE, which rest on the station's base plate and is just high enough to cover the manipulators and microscope's revolving noise piece. The extremely lightweight 8800-ISE is easily removed then replaced by one individual making it ideal for labs that want the probe station isolated for some tests and completely open for other test situations.

Finally, Hewlett-Packard's 4156 is completely compatible with Micromanipulator's 8860 and supporting accessories.

This turnkey solution provides all the power and stability demanded by the leading semiconductor professionals with user-friendly software and compatible interfaces to satisfy the lab requirements of multiple users.

Contact your local technical representative or the factory for additional information on Micromanipulator's C-V solution.

8860 probe station shown with optional optics.



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A1012957 rev 2 © 5/03

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