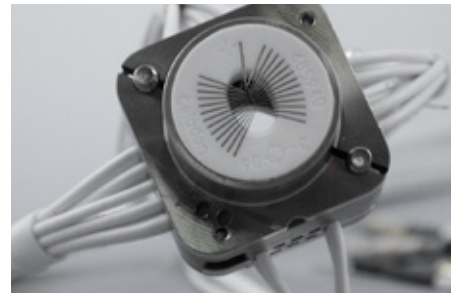


Celadon VersaTile™ & MiniTile™ Probes

Application Note 1

New miniature probe cards enable you to contact up to 25 pads of a test structure at once using a single positioner



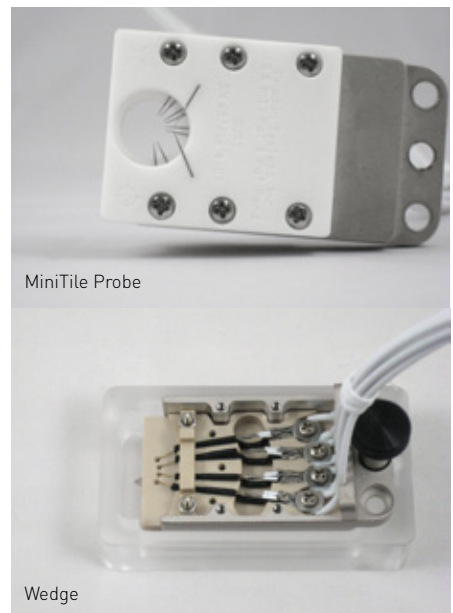
VersaTile™ and MiniTile™ Probes from Celadon Systems offer a better alternative for low leakage and wide temperature range DC parametric measurements. These new miniature probe cards mount directly to a planarizing positioner for testing to fA levels and over a -65°C to +300°C temperature range, contacting up to 25 pads of a test structure at once using a single positioner.

Now you can significantly reduce the time it takes to gather data on one device, as well as the switchover time for RF and DC modeling. With Celadon's innovative probes, you can keep RF positioners in place, and use either a VersaTile™ or MiniTile™ on an RF positioner mount. You enjoy better equipment utilization, reduced loss of parts, less stress on cables and easier sharing of probe stations between users.

VERSATILE™ AND MINITILE™ PROBE ADVANTAGES

- Mounts on a positioner for quick and easy setup
- Eliminates the need for a rectangular probe card holder for many PCM test applications
- Contacts up to:
 - 25 pads at once to automate data gathering on VersaTile™
 - 22 pads at once on MiniTile™ Probe Low Leakage
 - 4 pads on a MiniTile™ AttoFast™ probe
- Provides ultra low leakage to fA level for measuring off currents
- Direct connects to a low leakage triaxial DC cross-point matrix or parameter analyzer

- Expansion matched ceramic tile technology for contacting small pads over a wide temperature range (-65°C to +300°C)
- Use several VersaTiles™ or MiniTiles™ for multi-site wafer level reliability (WLR)
- MiniTile™ is available in Regular low leakage (5 Femto amps per Volt) and AttoFast™ versions. AttoFast™ provides guarded tips for 2 femto amp per volt settling time, high accuracy capacitance measurements and low probe to probe capacitance for device characterization and modeling.
- Increased Return on investment on prober, test equipment and engineering due to lower switchover times and higher use times.



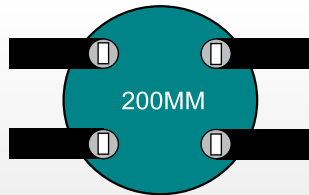
MiniTile Probe

Wedge

USE MORE THAN ONE TILE TO INCREASE WLR THROUGHPUT

Celadon VersaTile™ probes are an economical solution for increasing test throughput during wafer level reliability tests such as HCI, NBTI, TDDDB, BTS, etc.

Rigid micro-positioners are available today with x, y, z, theta, and planarity adjust. This makes this approach ideal for small volume testing with many different wafer die pitches. Once aligned, each of the four positioners shown in the illustration can be quickly and independently adjusted to match a different reticle pattern die pitch.



Four positioners are mounted on a 200mm wafer to stress similar devices on four test patterns simultaneously to increase data output.

RECOMMENDATIONS

- **Celadon VersaTile™** – Rigid ceramic and metal chassis with integrated cable strain reliefs. -65° to 300°C operating temperature range. 1 to 25 pins per site. Includes standard 0.0125mm diameter polished round tungsten rhenium probe tip (other tips available), Low leakage, low noise coax.
- **VersaTile™ Positioner Mount** – Narrow profile chassis for mounting one VersaTile™ to a standard 3-hole mount positioner.
- **Cable Harness for the Keithley 707 and Agilent E5250 opt 001 matrix** – 25 Three lug triax plug connectors, 3.0 meters ultra high performance low noise low leakage triax cables, 26 pin microcoax connector.
- **Celadon MiniTile™ Probe** – Rigid ceramic and metal chassis with integrated cable strain reliefs. - 65° to 300°C operating temperature range. 1 to 25 pins per site. Includes standard 0.0125mm diameter polished round tungsten rhenium probe tip (other tips available). Low leakage, low noise coax.

MINIMIZE TEST COSTS FOR PROBING IN-LINE DEVICES

With multi-site applications, total pin count can quickly exceed the maximum channel count of a DC matrix. For WLR applications it may be practical to just connect a subset of the total possible pads in each test structure. There may be a common substrate connection which could be probed top side, or with a separate chuck connection.



Hot Carrier Injection test (HCI) could be accomplished with only 3 probes per device, as shown

PROBE AT TEMPERATURE

Celadon provides the complete solution for probing multiple devices at temperature. Each Celadon Probe is designed for wide temperature ranges and is designed so that the probe expansion characteristics are closely matched to the wafers expansion characteristics. This allows the user to take a fast measurement while a system is in a settling or thermal stabilization mode and helps compensate for wafer expansion.

THE TOTAL SOLUTION FROM CELADON

Celadon provides the complete solution including chassis for mounting the VersaTile™ to your positioner, and cabling which direct connect to a low leakage matrix. Our experienced representatives can assist you with recommendations for your specific applications including positioner mounts, cable harnesses and more.

Patents

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