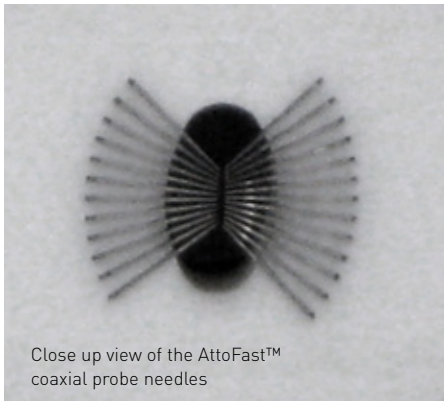
CELADON™

Celadon AttoFast™ & Coaxial Probe Technology

Application Note 2

Measure transistor capacitance near fF levels for accurate prediction of AC performance. Transistor capacitances must be monitored to accurately predict AC performance.



Close up view of the AttoFast™ coaxial probe needles

These capacitances are typically in the fempto Farad (fF) level or less. Test structures scaled by 100x or more are required to reliably measure capacitances high enough above measurement system noise accuracy levels.

To meet the need for super low stray capacitance probes, Celadon introduced AttoFast™ Coaxial Probe Technology. These probes are coaxial with a driven guard layer that extends to within 2 mm of the probe tip.

ATTOFAST™ ADVANTAGES

- Adjacent pin to pin stray capacitance is reduced below 30 fF. Up to 36 probes may be used for single touchdown high volume, automated data acquisition.
- Probes are held in place by a ceramic processing technology free of epoxy. This provides a temperature compensated low capacitance probing solution.
- Compatible with standard 4.5” wide edge card holders for ease of use
- Cable compatible with low leakage triaxial DC cross-point switch matrices
- Use over a very wide temperature range (-65°C to +300°C) with probe to probe pitches as small as 80 microns and on 40 micron pads.
- Depending on the layout and pitch, Celadon can provide new crash resistant probes.

REMOVING STRAY CAPACITANCES

When using precision semiconductor capacitance meters with proper open circuit calibration, the static stray capacitance can be removed. Repeatable measurements to +/- 1 fF are easily achievable using fully shielded enclosures or Faraday cages. Low level DC matrices are available so these fF level measurements are possible between arbitrary pads on a DC test structure.

The coaxial probes are directly connected to miniature Teflon® coated coaxial cables (white) as shown. The card is designed so that when the wafer is at +300°C (bottom side) all wiring remains below +200°C (top side) for safe continuous operation. No external cooling of the card is required. The card is designed to slide into a standard 4.5" rail card holding system. Consult with your probe station manufacturer to verify that maximum wafer (chuck) operating temperature compatible with the card holder.

Top side view of the rigid metal construction of the AttoFast™ card

THE TOTAL SOLUTION FROM CELADON

Celadon provides complete DC parametric test solutions. These include the AttoFast™ Card, heat shields and mounting brackets for probe stations, and cable harnesses that direct connect to low level DC cross point matrices. Our experienced representatives can assist you with recommendations for your specific applications.

AttoFast™ 40mm Tile with Low Profile Chassis – Fits a 4.5inch probe card holder. Includes Probe Tile Blank, 40 millimeters in diameter. Precision trimmed. -65 to 300°C operating temperature range. Up to 36 coaxial probe pin assemblies, includes polished round tungsten rhenium probe tip, low leakage, low noise microcoax connector pigtails. Less than 1 fA per volt pin to pin leakage at 20°C. Max Voltage 200V RMS. Requires probe card holder and probe station.

ACCESSORIES

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. One ground pin.

Quick Release Cable brackets (Quantity two) and heat shield – For the Cascade High rigidity Probe Card Holder.

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