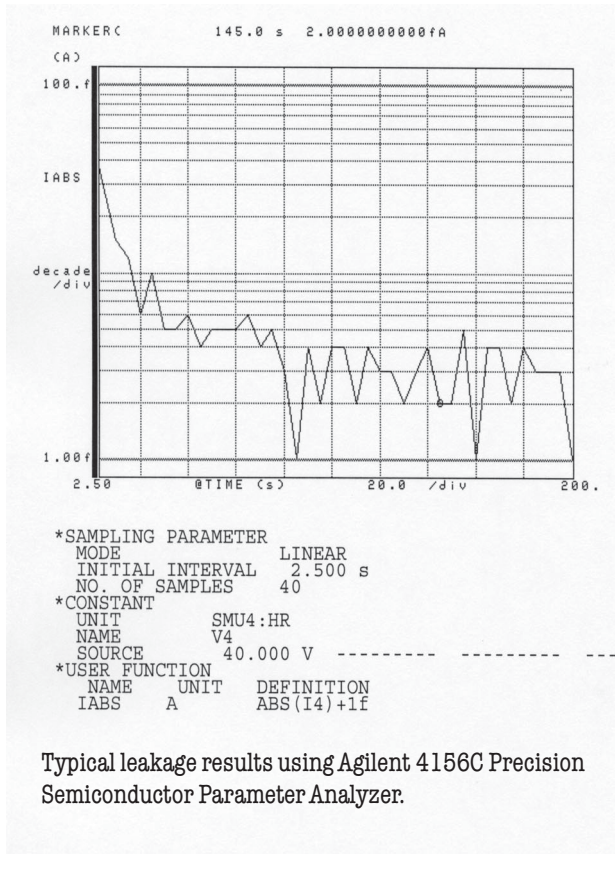


ISO-CHUCK SPECIFICATIONS



CONFIGURATIONS & MATERIALS

- Ultem 1000 is one of several materials available for the ISO-CHUCK series of wafer chucks. Contact American Probe & Technologies for details on the material and configuration which will result in superior electrical or mechanical properties for your custom application.
- American Probe & Technologies has built its success on products that are high quality, and tested at our facility to meet or exceed the specifications requested. APT has a complete test and measurement laboratory and can provide a certificate of compliance.
- APT offers a complete line of low current probes and test accessories to provide a turnkey system solution for your analytical test requirements.
- For a listing of other superior products offered by American Probe & Technologies', please refer to our web site at www.americanprobe.com

ISO-CHUCK INFORMATION USING ULTEM

Mechanical Properties:

Materials:
 Base: Ultem 1000
 Base Plating: Copper (0.003"-0.005")
 Finish Plating: Gold (type II) (0.0015")
 with nickel base coat (0.002")

Specifications of Ultem:
 Specific Gravity: 1.27
 Tensile Strength: 15,200 psi @73°C
 Tensile Modulus: 430,000 psi
 Flexural Strength: 21,000 psi
 Hardness, Rockwell: M105 @73°C
 Water absorption, Immersion (24 hours): 0.25%
 Deflection Temperature: 264 psi@392°F
 Excellent chemical resistance to acid/base

Wafer Chuck Flatness: within 0.0008"
 Wafer Chuck Parallelism: within 0.001"
 Deflection: TBD

Electrical Properties:

Dielectric Strength: 831 volt/mil
 Volume Resistivity: 1.0×10^{17} ohm/cm
 Dielectric Constant: 3.15@1kHz:
 Dissipation Factor: 0.0013@1kHz:

Current Leakage: < 50fA @ 100 VDC
 Settle Time: < 15 seconds (typical)
 Contact Resistance: < 1 milli-ohm (typical)

Capacitance @ 30 VDC (top to guard/ground):
 Typical configurations:
 6" with 0.5" thickness: < 50pF
 6" with 0.75" thickness: < 35pF

8" with 0.5" thickness: < 85pF
 8" with 0.75" thickness: < 60pF

12" with 0.75" thickness: < 120pF
 12" with 1.0" thickness: < 95pF

Contact:
 Kenneth Chabrava
 ph:(408)263-3366 fax:(408)263-3797
 471 Montague Expressway, Milpitas, CA 95035
 Email: kchabrava@americanprobe.com

The information contained in this document is preliminary and may change without notice.