

High-Voltage / High-Current Probe Cards

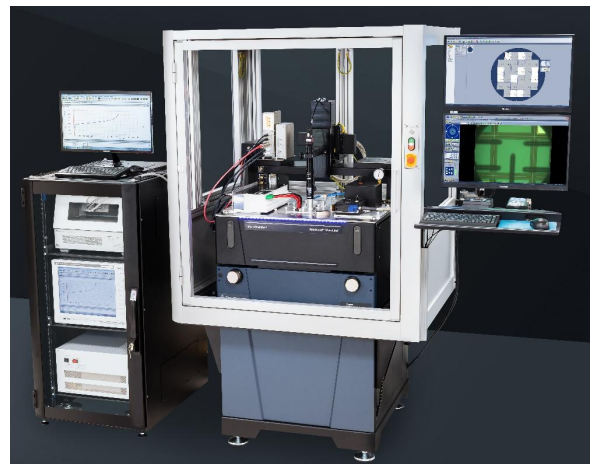
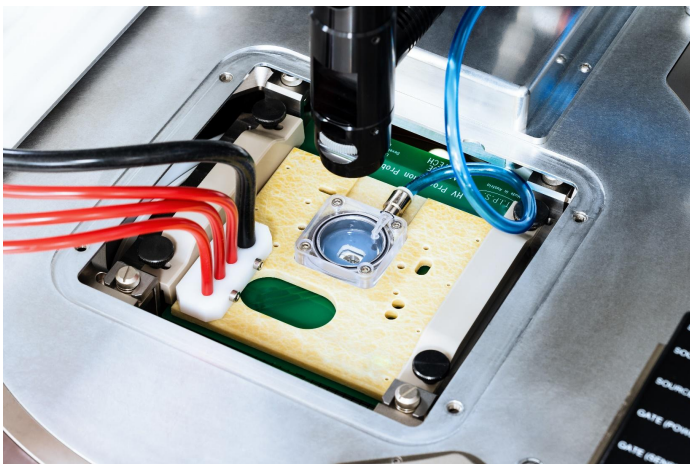
for  **FORMFACTOR™** Probe Stations

Wafer test of power semiconductor poses some quite specific challenges, with test currents of more than 1000 Amps and test voltages exceeding 10 Kilovolts. T.I.P.S.' patented high voltage arc suppression technology provides spark-free probing for high-voltage / high-current devices made with Si, SiC and GaN technology.

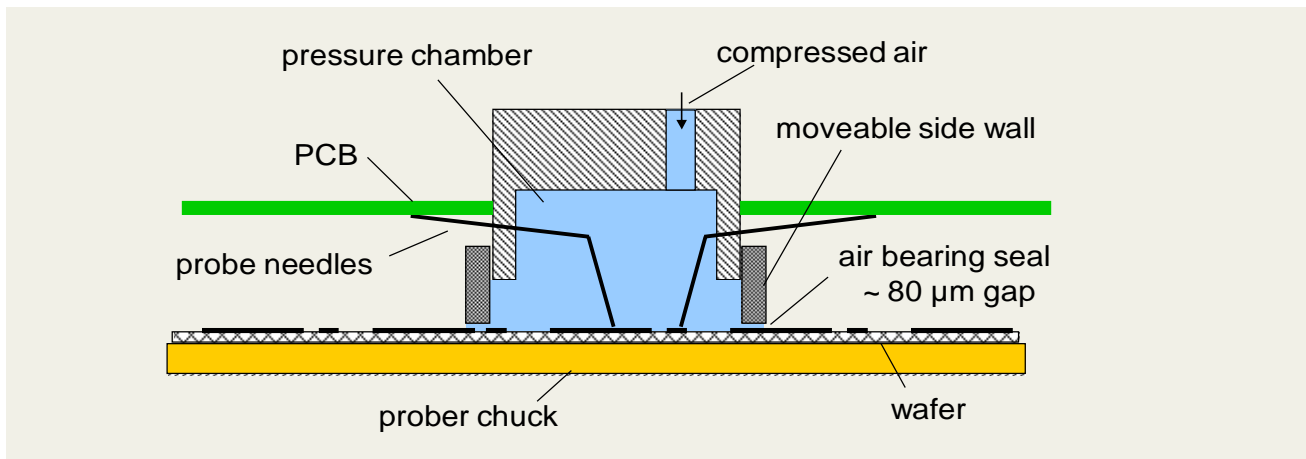
Analytical and engineering probing is a key factor in research and development for leading edge semiconductor technology.

∅ **High Voltage "LuPo" Probe Card:** a chip-scale pressure chamber allows for testing under compressed air atmosphere to avoid high-voltage flashovers at wafer test – by making use of the so-called "Paschen law" in physics. This pressure chamber technology can be paired with well-proven cantilever probes on a dedicated MeasureOne™ probe card platform tailored for FormFactor's analytical probe stations.

MeasureOne™ is a unique commitment between T.I.P.S. and FormFactor to deliver optimized solutions to address customers' applications. T.I.P.S. and FormFactor work together to configure and install solutions with validated performance and post-installation service and support.



T.I.P.S. high-voltage "LuPo" probe card as part of MeasureOne™ probing setup. The complete test cell solution is optimized to provide safe, accurate, and automated on-wafer testing of power devices.



T.I.P.S. high-voltage "LuPo" probe card with chip-scale pressure chamber.

Available Versions of T.I.P.S. "LuPo" Pressure Chambers for MeasureOne™

∅ **Non-touching ring seal to wafer surface (hovering LuPo ring):**

The pressure chamber seal (LuPo ring) does not touch the wafer surface, it is kept at a self-aligning distance of approx. 50 µm to the wafer surface by means of air bearing technology – independent of contact overtravel setting on the probe station.

Features:

- Non-touching to wafer surface, same technology as for high-volume production test probe cards

∅ **Touching seal to wafer surface (non-hovering LuPo ring):**

The pressure chamber seal touches the wafer surface by making use of a self-aligning mechanism – independent of contact overtravel setting on the probe station. This type of non-hovering LuPo ring is recommended for analytical and engineering probing only.

Features:

- Low compressed air consumption compared to hovering LuPo and low noise from escaping air
- Excellent for high-voltage / high-temperature characterisation: comparably small temperature drop from compressed air flow

∅ **High-current applications:**

All T.I.P.S. high-voltage probe cards are also available as high-current versions. Max. test currents range up to 1 kA depending on chip size.