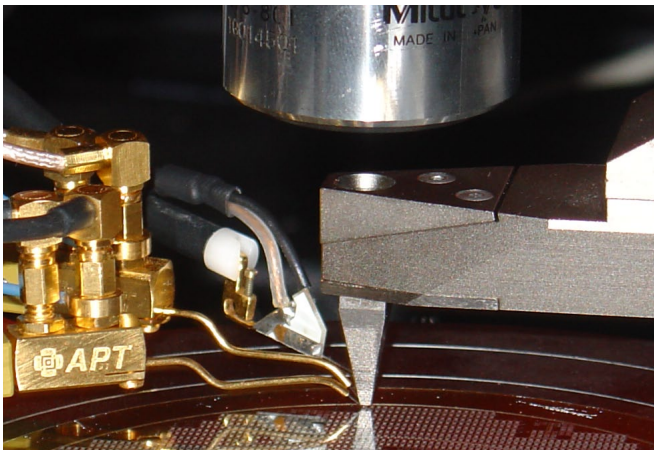
Cascade Microtech, Inc.

SPECIFICATION SHEET



Unique on-wafer pressure sensor test

Pressure Probe Module

MEMS Test Accessories

The Pressure Probe Module is the ideal solution for testing absolute and relative/differential pressure sensors at wafer level that work based on the piezoresistive or capacitive principle. Its patented design applies an air stream of up to 7 bar overpressure to the top side of the diaphragm. During test, the sensor is not mechanically in contact with the nozzle tip. The proximity is controlled to maintain a constant impact pressure. To compensate cooling effects due to gas expansion when using a thermal chuck, the air flow can be heated and temperature controlled as well.

An optical window is implemented in the upper part of the pressure head. This allows the user to have an unrestricted view of the device under test (DUT) with the microscope. As a result, the nozzle can be positioned accurately above the DUT, and additional optical measurements to detect the deflection or topology of the membrane can also be used.

The Pressure Probe Module can be used with semiautomatic and manual probe stations. Single probe tips or probe cards can be used to contact the sensor electrically. The shape of the nozzle is designed and manufactured to fit the DUT. The nozzle can be exchanged easily, and if necessary, a non-metallic nozzle can be provided.

The Pressure Probe Module's own software interface always displays the current status of the module. All necessary functions are accessible through the control panel. Additionally, the module can be controlled by an external program with the provided set of remote commands.

For relative/differential pressure measurements, Cascade Microtech offers special chuck add-ons to obtain atmospheric pressure on the wafer's bottom side while holding it securely via a small vacuum ring on the edge.

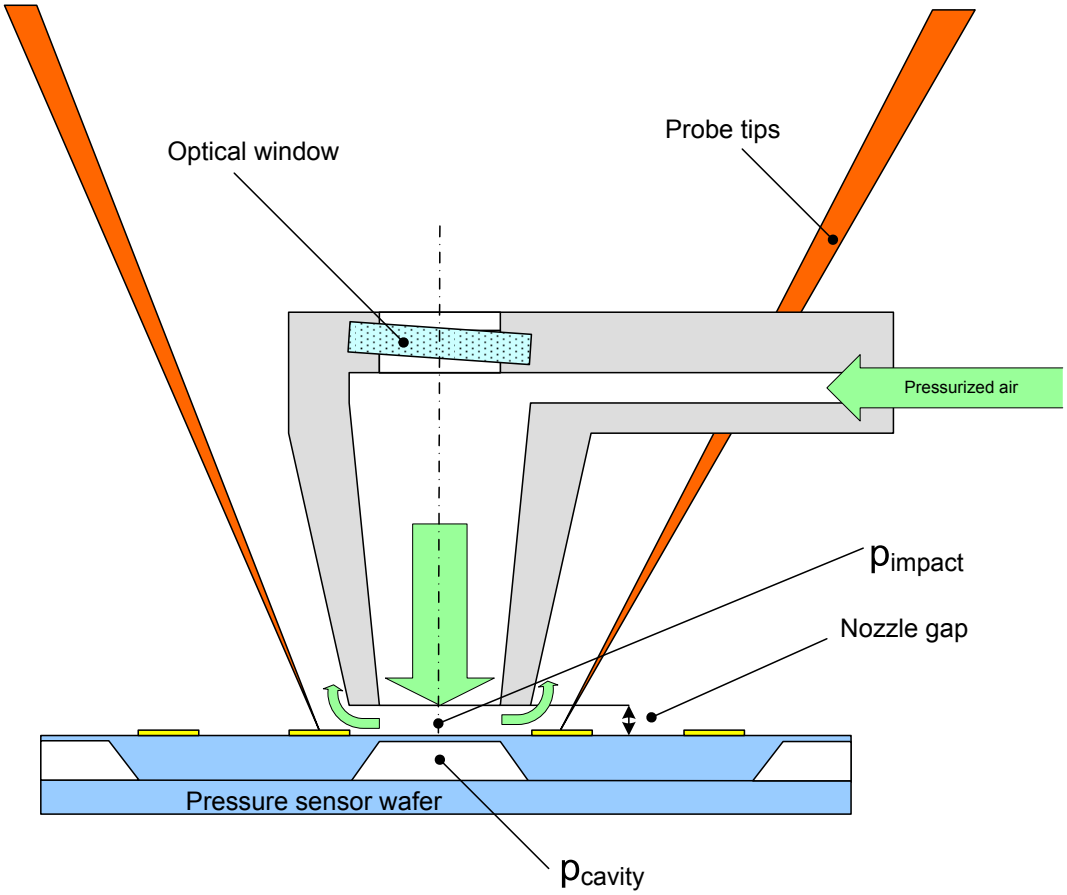
FEATURES AND BENEFITS

Unique pressure testing	Using non-contact, impact-pressure technique
	100 mbar to 7 bar (relative)
	Pressure Probe Module TC with heated air flow of up to 80°C
Accuracy	Calibration is possible at any time of the measurement process
	Use of external measurement standards possible
Automation	PC based software controlled platform
	Remote control thru ProberBench™ Operating Enironment
Flexibility	For wafer sizes up to 200 mm
	Absolute or relative/differential pressure measurements
	Exchangeable nozzle according to diaphragm size
	For use with single probes or probecards

SPECIFICATIONS*

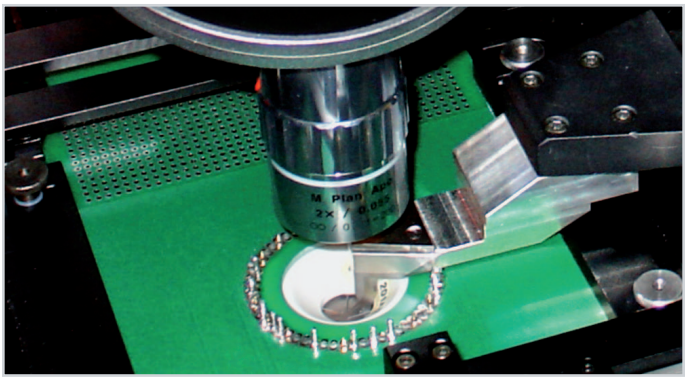
	Working pressure (Pw)	100 mbar to 7 bar (relative)
	Working distance (W.D.)	~ 40 µm
	Settling time	~ 0.5 s
Repeatability		
	Effective pressure	< 500 mbar: ± 5 mbar / > 500 mbar: 1%
Utilities		
	Media	Nitrogen or pressurised air, clean, dry, oil free
	Supply pressure	8 to 10 bar (relative)
	Media consumption	~ 6 l/min/bar (typical)
	Electrical supply	85 to 264 VAC / 50 to 60 Hz / 30 W
Platforms		
	Classic	Manual Z-axis control (recommended for semiautomatic probe stations)
	Motorized	Automated Z-axis control (suitable for manual probe stations)
	Temperature controlled	Automated Z-axis control, room temperature to 80° C

*Data, design and specification depend on individual process conditions and can vary according to equipment configurations.
Not all specifications may be valid simultaneously.

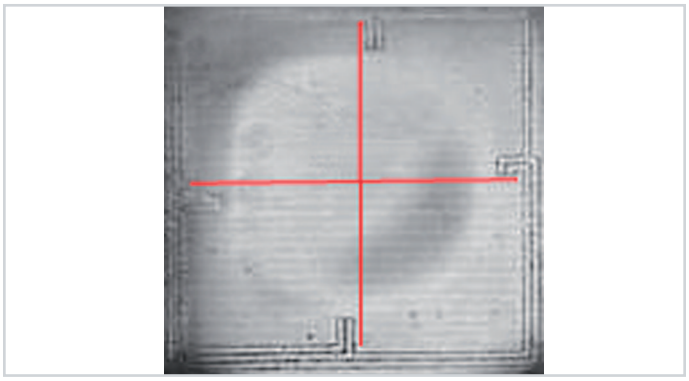


Principle of the Pressure Probe Module.
(Patent numbers: DE10000133C2 from 06/26/2003 and DE102005015335A1 from 10/05/2006)

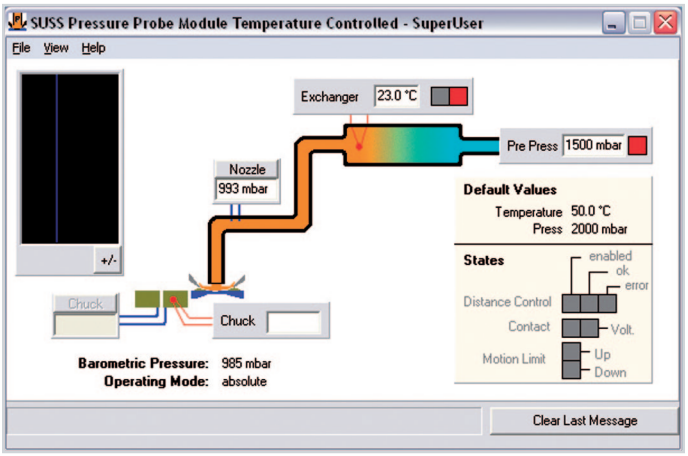
APPLICATIONS



The Pressure Probe Module can be used with probecards.



View through the optical window of the Pressure Probe Module onto the membrane of a pressure sensor. The deflection caused by the impact pressure can clearly be observed.



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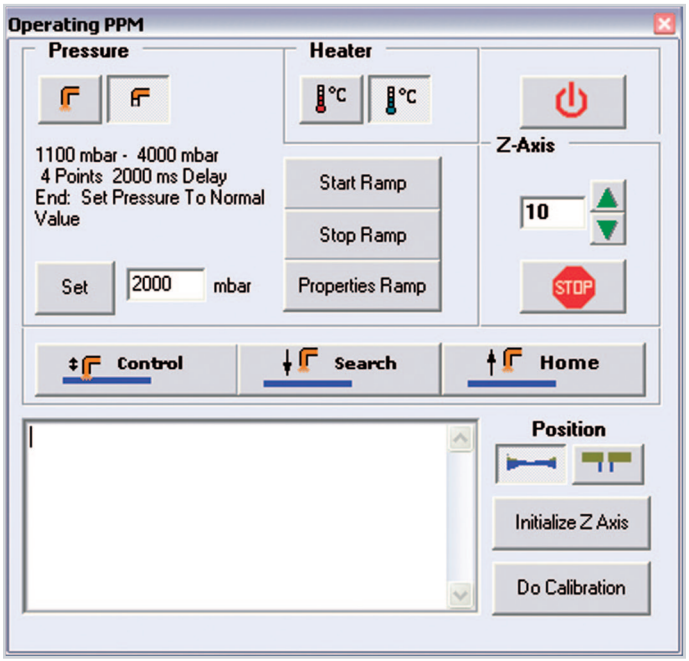

The necessary operation functions are accessible in the control panel.

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