

STI3000 Wafer Probe Test System

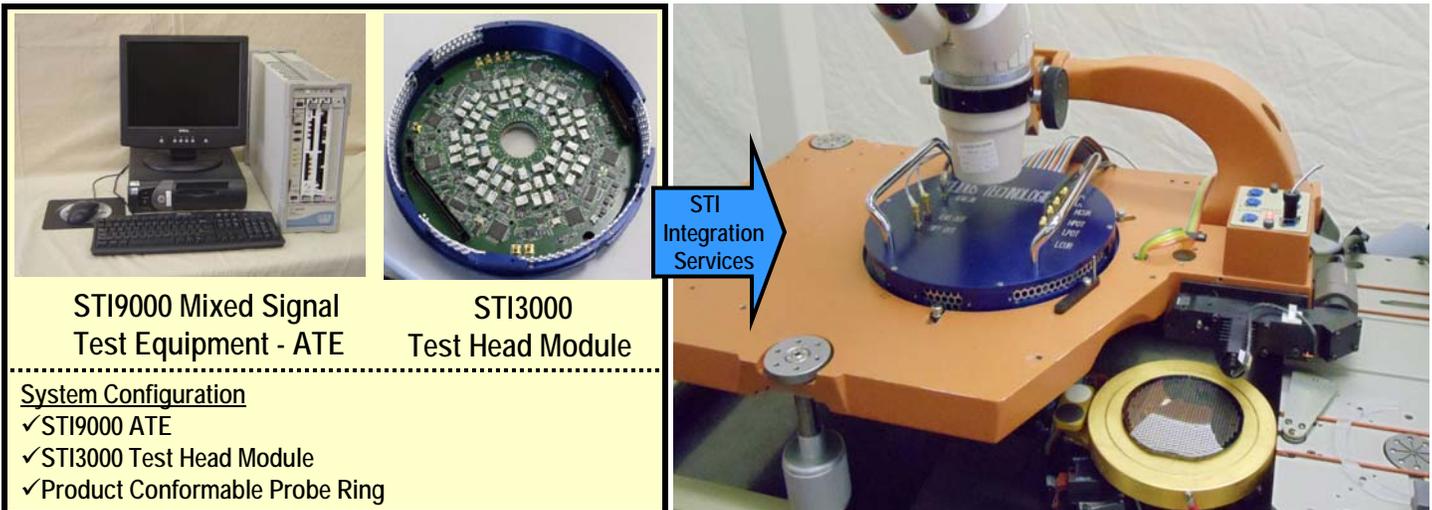
For MEMS and ASIC Products

Applications Sheet

from Solidus Technologies, Inc.

STI3000 Wafer Probe Test System

The STI3000 is a wafer-level MEMS and mixed signal ASIC probe test system that provides high throughput with dynamic test coverage for testing gyros, accelerometers, IMU's, microphones, micro-mirrors, pressure sensors and mixed signal ASICs. At the core of the test system is STI's proprietary Drive Sense Technology (DST). DST is the technology that combines innovative circuitry, software and test methods that produce the most representative measurements of MEMS sensor dynamic behavior at the fastest test times in comparison to traditional MEMS probe test methods. The STI3000 produces measurements at the wafer level that include resonant frequency, quality factor, stiction, quadrature error, hysteresis, spring rate, f3dB frequency, capacitance and leakage. The MEMS dynamic behavior can be used to validate MEMS designs, monitor MEMS fabrication processes and drive product quality improvements, resulting in increased wafer-level and package-level test yields and lower manufacturing costs. This results in the highest return on investment.



STI3000 System Configuration

STI3000 Wafer Probe Test System

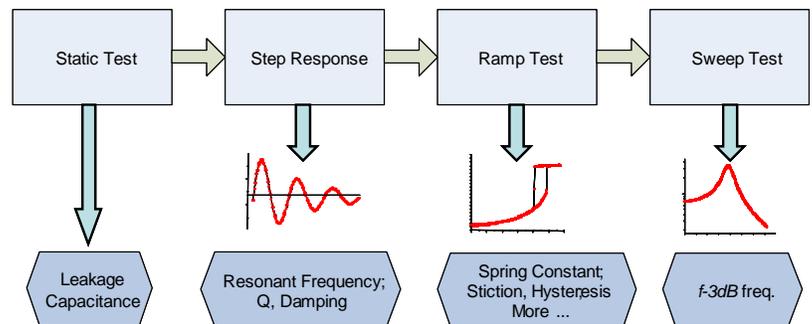
STI3000 Results

- ✓ Wafer Fabrication Process Validation
- ✓ Wafer Fabrication Process Monitoring
- ✓ Sensor Element Design Validation
- ✓ Drive Product Quality Improvements

STI3000 Benefits

- ✓ Faster Product Development Cycles
- ✓ Improved Product Test Yields
- ✓ Improved Product Quality
- ✓ High Return on Investment
- ✓ Lower Manufacturing Costs

Example Test Flow



Example Test Output

STI3000 Example Test Flow and Test Data



For more information, contact your Solidus Technologies, Inc. Representative

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STI3000E Wafer Probe Test Head

For

MEMS Dynamic Probe Testing

Featured Product

from Solidus Technologies, Inc.

STI3000 Wafer Probe Test Head

The STI3000 is a wafer level test head module that is a component of the STI3000 test system containing a variety of configurable mixed signal tester resources for dynamic testing gyros, accelerometers, pressure sensors, microphones, resonators, and mixed signal ASICs. A product conformable 70-pin probe ring insert connects into the test head module and contains the device probe pins and configurable signal pins. This probe ring insert is the only component that is specific to the product or wafer under test, resulting in utmost product test flexibility and significantly lowering the overall system replacement cost. The STI3000 is scalable for increased capacity from single site to multi site probe testing. The standard test configuration results in low maintenance and support for cost-sensitive product development and manufacturing organizations.

STI3000 Wafer Probe Test Head



STI3000 Test Head Configuration

Measurement Resources

- ✓ 8 STI Drive Sense Technology Resources
- ✓ 8 Parametric Measurement Units
- ✓ 8 Digitizers
- ✓ 8 Direct Digital Synthesis Resources
- ✓ 4 Capacitance Measurement Resources
- ✓ I²C Communications Bus

Configuration

- ✓ 9" Diameter Round Test Head
- ✓ 70-Pin Ring Insert Probe Card
- ✓ Cable Set
- ✓ Prober Platform Independent

Direct Digital Synthesis Resource

Parameter	Specification
Frequency Range	0.1 to 12MHZ
Frequency Resolution	28-bit
Voltage Range	0 to 2V
Voltage Resolution	8-bit

Parametric Measurement Units

Parameter	Specification
Forcing Voltage	0 to 5.0V, 12-bit Resolution
Measure Output	1mV per pA
Sensitivity	1pA
Full Scale Output	10nA
Settling Time	15mS (to 100fA)

Digitizers

Parameter	Specification
Sample Rate	Up to 1MHz, 16-bit Resolution
Buffer Depth	256K Words
Analog Input Range	+/-2.5V F.S.
Anti-Aliasing Filters	8 th order low pass, 10kHz to 150kHz, 10kHz step
Gain Stage	1 to 16, 1V/V steps, user-selectable

Capacitance Measurement Resources

Parameter	Specification
Measure Capacitance	Up to 4 Capacitors in Parallel
Capacitance Resolution	24-bit



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