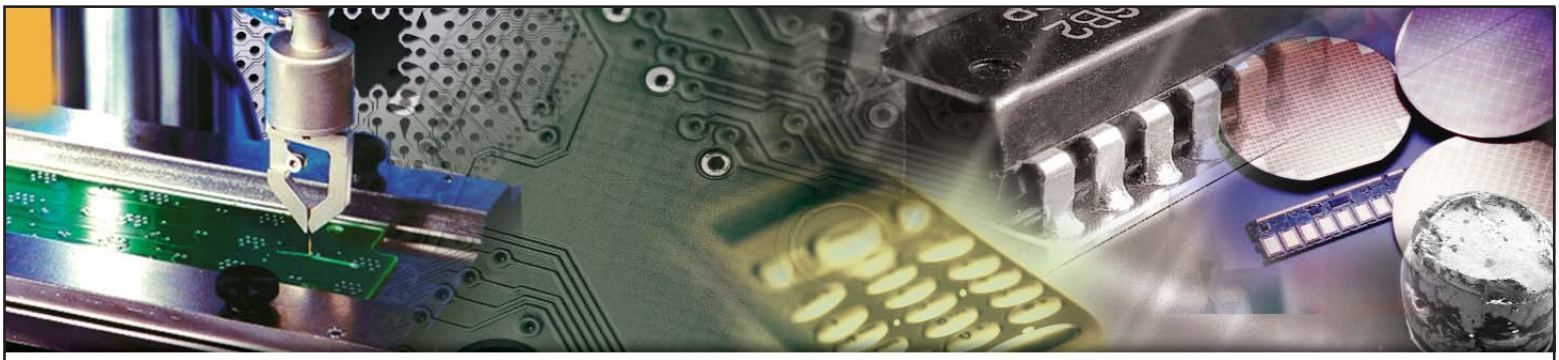


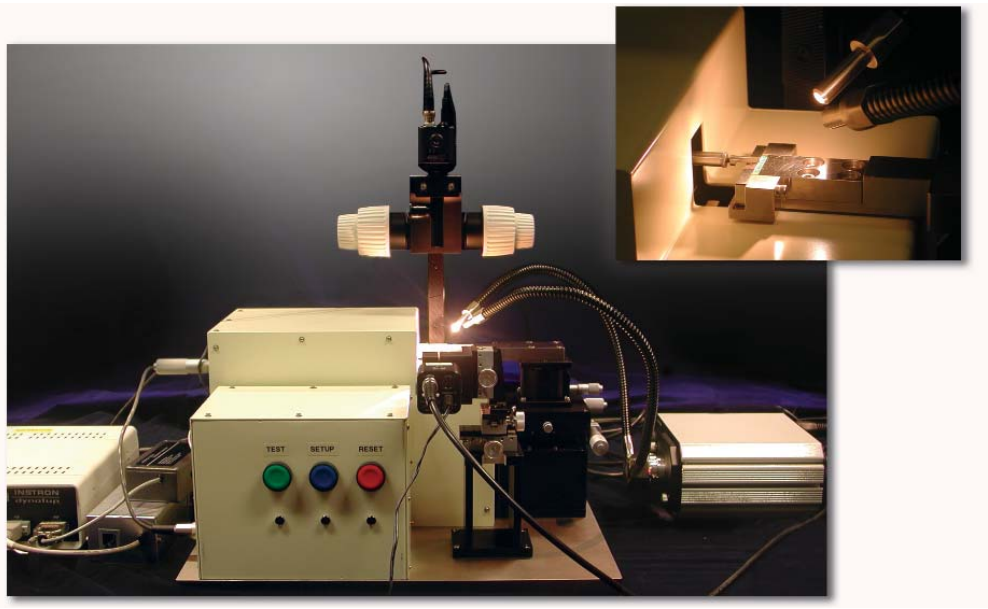
MicroImpact Test System for the Electronics Industry

Overview

Instron• has developed a unique solution for the electronics industry to simulate drop impact conditions and characterize the performance of materials and microstructures at high strain rates. Designed for R&D or process quality control applications, Instron's new MicroImpact test system precisely strikes a specimen at a high rate of speed while simultaneously measuring force and displacement. It combines a unique instrument design (patent pending) with Instron's proven Impulse™ technology for acquiring and analyzing impact performance data. Unlike existing test methods that provide only a qualitative assessment, the MicroImpact test system precisely measures and calculates impact strength parameters including:

- Maximum failure load
- Energy to maximum load
- Total energy
- Displacement
- Velocity

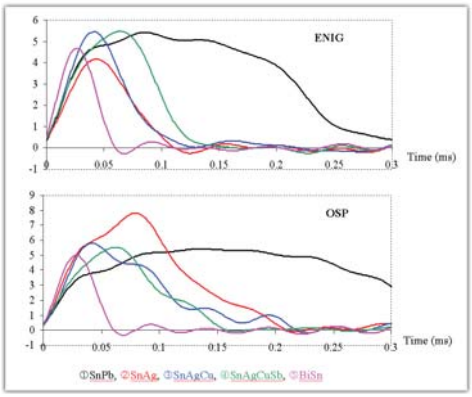
With unparalleled ease-of-use and quality of results, Instron's MicroImpact test system is the next generation tool for measuring and comparing the impact performance properties of microelectronics materials and structures.



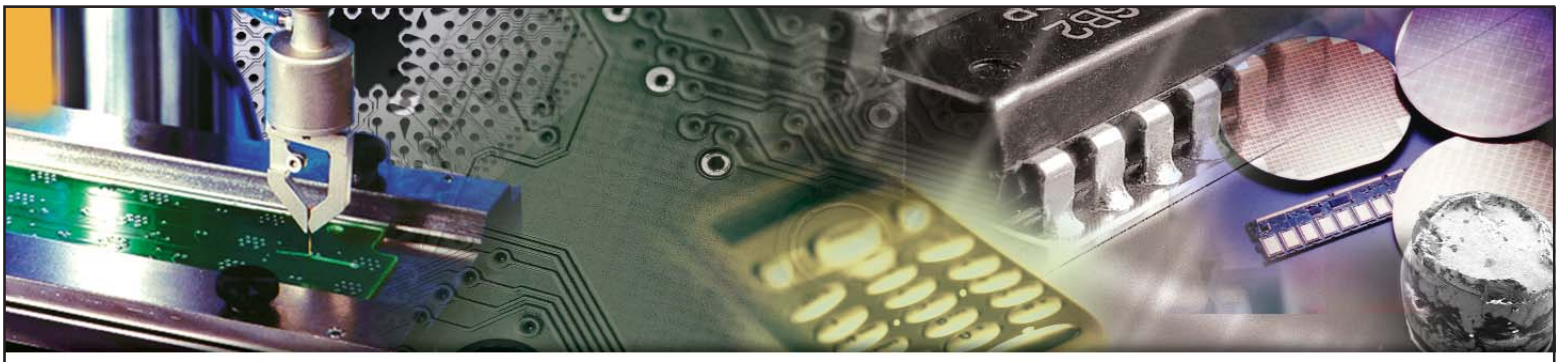
▲ **Instron's MicroImpact test system**

Applications

The MicroImpact test system can be used to distinguish between different solder compositions to assess suitability for use in portable microelectronic devices. It performs solder ball shear testing at speeds of up to 1000 mm/sec. The system obtains specimen fracture characteristics similar to those found in drop impact testing using JEDEC board-level testing method JESD22-B111, but without the added complexity of preparing specialized boards. Instron's MicroImpact test system performs tests directly on microelectronics with minimal specimen preparation.



▲ **Force-time impact performance characteristics of various solder compositions**



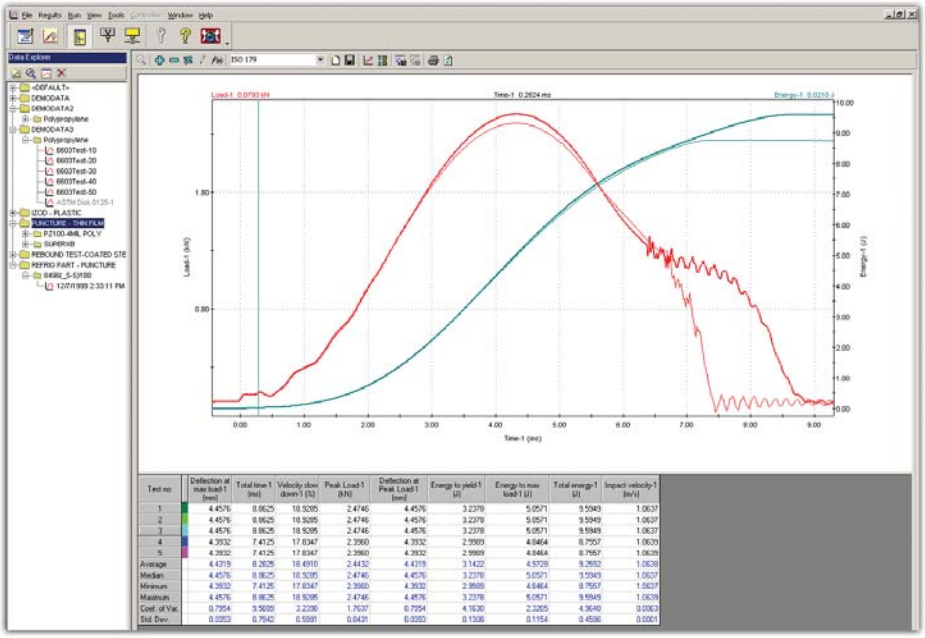
MicroImpact Test System for the Electronics Industry

Impulse™ Data Acquisition and Analysis

The Impulse system is a fully integrated electronics and software package that increases impact testing productivity through automated data acquisition, analysis, and reporting. Impulse works with a force transducer and velocity or signal triggering mechanism to capture load vs. time information from instrumented impact tests. An inclusive signal conditioning unit performs signal amplification, electronic shielding, and direct transducer conditioning to improve the performance and reliability of the measurement system.

Data collected by the Impulse system can be organized, analyzed, and displayed both graphically and numerically using intuitive Windows• based PC software. The software pairs a built-in library of standard test methods and calculations with the flexibility to create custom methods, calculations, and reports for application-specific needs. Analysis options include automatic yield and failure point calculations as well as digital filtering to screen out load cell resonances and noise. Test data can be exported to a spreadsheet or database for further analysis.

For a whitepaper demonstrating application of Instron•'s MicroImpact test system, please visit us at:
www.instron.com/links/microimpact_tester.ashx



▲ **Impulse data acquisition, analysis and reporting software**

Specifications – MicroImpact Test System

Speed Range	100 mm/sec to 1000 mm/sec
Standard Load Cell Capacity	45 N
Camera Configuration	Dual CCD – plan and side view of specimen
Camera FOV	3 mm x 2 mm
Operation	3 button operation – set-up, test, reset
Specimen Mounting	Manual X-Y-Z stage
Displacement Measurement Range	±1.0 mm
Data Acquisition And Analysis	PC based Impulse data acquisition system

Specifications – Impulse Data Acquisition and Analysis System

A/D Converter Resolution	12-bits per channel
Sampling Rate	Up to 1.17 MHz
Data Points	8192 points for 2 channels
Bandwidth	500 kHz
Acquisition Time	7 ms to 100 ms
Trigger	Load level
Voltage	110 VAC, 120 VAC, 220 VAC, 240 VAC ±10%, single phase, 47 Hz to 63 Hz

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