GRUND TECHNICAL SOLUTIONS

Superior ESD Testing Solutions

PurePulse Human Body Model Module

PurePulse Foundation

"All Waveform" ESD System

A unified modular system that provides ALL 2-pin ESD testing for packaged parts, bare die, and wafer level devices.

Expandable **to provide** ***comprehensive testing*** **for Compliance to ESD Standards and Engineering Evaluation of design issues and new technologies.**

PurePulse HBM provides compliance testing to many industry standard HBM specifications, plus the ability to measure current and voltage during the ESD stress pulse. The 2-pin testing method is the most accurate possible as the parasitics are minimized and every pin pair combination receives identical stress.

Testing meets the latest JEDEC and ESD Association's Standard Test Method ANSI/ESDA/JEDEC ESD JS-001-2017.

The measurement of DUT current during the pulse provides verification of proper stress testing, while the DUT voltage measurement provides engineering insight to the operation of the ESD protection circuitry.

Using the GTS PurePulse foundation resources, both the current into the DUT and the voltage across the DUT are measured during each pulse. All waveforms are recorded and saved and a pulsed I-V curve is produced. Excel® reports are automatically generated.

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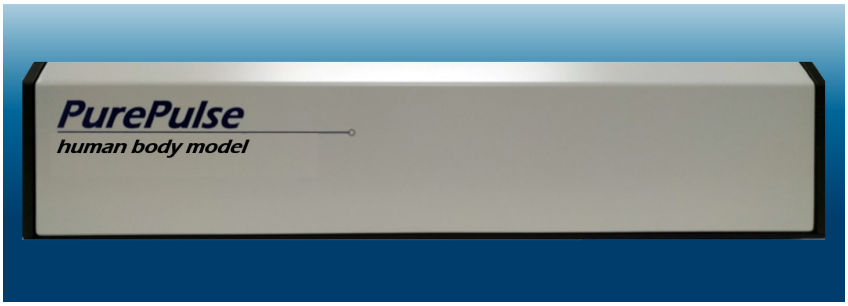

PurePulse HBM Advantages

Measure DUT current and voltage response to HBM stress

- Current measured with resistive probes
- Voltage measured at the DUT with a voltage pickoff probe
- All waveforms recorded to verify proper testing stress
- DUT pulse current vs. voltage displayed like a TLP I-V curve for quick engineering evaluation

Wafer, bare die, and packaged parts testing

- Flexible wafer probes connect to DUT pins with any package type and can be placed on wafer pads allowing HBM wafer testing
- Flying probes and Maestro stepping software performs automatic testing to JEDEC, ESDA and AEC standards
- Prober mechanical vise holds packages in inverted (dead bug) orientation, while vacuum chucks hold wafers
- No limitation on the number of DUT pins

Reduced tester parasitics eliminates false failures

- Removes capacitive loading, signal crosstalk and reflections from DUT, test fixture boards and tester wiring
- Eliminates the HBM pulse distortion commonly experienced with relay-based testers for improved stress accuracy

Test fixture boards, device sockets NOT required

- Saves cost and reduces test turn around time
- Maintaining a "library" of Test Fixture Boards is replaced by software

Member of the GTS PurePulse family of products

- Flexible multi-waveform testing supported
- Easy to use graphical interface software
- Maestro control of voltage stepping, pulse timing and analysis software
- Compact desktop system
- Network capable for data transfer

Performance backed by the GTS team support

- Over 50 years of combined ESD test equipment experience
- GTS engineers developed the first commercial flying probe automated HBM test system and have been championing the benefits of 2-pin HBM testing.

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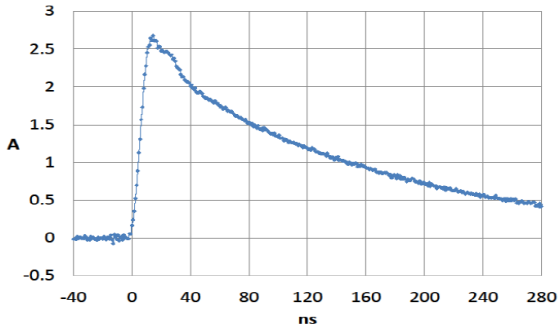
TECHNICAL DETAILS

PurePulse HBM Flying Probe automatic test system



Built-in current measurement of 4kV HBM pulse

The PurePulse HBM module has been carefully designed to test devices at wafer level and packages with any number of pins/balls. Relay matrices are replaced with accurate, automated mechanical positioning of probe needles for automated and verifiable two-pin testing. The two-pin architecture not only eliminates limitations associated with relay-based test systems, but also provides unprecedented testing flexibility. The PurePulse HBM module delivers exceptional pulse accuracy, while the unique measurement capabilities allow access to comprehensive and valuable device data.

SPECIFICATIONS

Rise/Decay Time	10% to 90% rise in 8 ± 2 ns, decay exponential time constant 150 ± 20 ns
Amplitude	667mA per kV ± 10%
Ringing	< 15% of peak current
Pulse Quality	No pre-pulse voltage ramp nor trailing pulse leakage current
DUT Pin/Pad Count	*Unlimited* number of pins, balls, bumps, or pads
Die or Pin Grids	Sizes up to 100 mm x 100 mm (*with FP-100 flying probe option*)
Voltage Range	125 V to 4kV, 1 volt resolution
Pulse Rate	< 1/3 second for positive and negative pulses at one voltage
Power and Control	Provided through GTS PurePulse platform (all-in-one PC with Maestro software, System Controller for high voltage, Gigabit Switch for PoE and 24V, and Smart Router)
Size and Weight	17.5”(w) x 14.5”(d) x 4”(h); 20 lbs

OPTIONS

Failure Detection	Programmable limits with DC leakage/curve tracing to detect device failure using any Keithley 2400/2600 series or Keysight B2901A SMU (K2400 standard)
Flying Probes	Up to 100 mm x 100 mm coverage area
Pulse Recording	Custom communication/control drivers for user’s oscilloscope

It’s not how fast you test, it’s how accurately you test fast!

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