GRUND TECHNICAL SOLUTIONS

Superior ESD Testing Solutions

PurePulse Very Fast Transmission Line Pulse 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 VF-TLP module provides very fast transmission line generated pulses (VF-TLP) with 1 to 10 nanosecond widths and 100 pico-second rising edges. Device characterization per the Electrostatic Discharge Association's Standard Test Method ANSI/ESD STM 5.5.2 with short duration VF-TLP pulses is accomplished by measuring both the current through and the voltage across the DUT during a sequence of user selected pulses.

All waveforms are saved and a pulsed I-V curve is produced. Excel® reports are automatically generated.

Typical VF-TLP data is used to evaluate CDM protection designs. However, CDM pulses are typically less than 1 ns in FWHM. Therefore, GTS offers a UF-TLP option of 500 ps pulse width to better match CDM stressing.

Advanced reflection control method using reflection cancelation allows accurate current failure level measurements for all devices including ESD protection diodes.

GRUND TECHNICAL SOLUTIONS

Superior ESD Testing Solutions

+1-408-216-8364

info@grundtech.com

© 2017 Grund Technical Solutions, Inc.
All rights reserved

PurePulse VF-TLP Advantages

High accuracy 1 to 10 nanosecond VF-TLP testing

- Fast dv/dt from 100 picosecond rise time
- Pulse steps of 0.1 V for high resolution I-V curves

Low noise and wideband current and voltage measurements

- Current measurement with cable mounted inductive probes
- Measurement *at the DUT* with a Kelvin voltage probe for best low voltage sensing

Compatible with microwave probes

- Pairs of GS/SG probes recommended for wafer DUTs, but non-Kelvin signal probe available for easy probing
- Optional cable connections for DUTs on test fixture boards

Corrections and Calibrations

- Reference waveforms are stored and real time corrections are made to provide the most accurate measurements

Patent pending "Ekho" pulse reflection control

- Eliminates reverse voltage reflections and the resulting DUT stressing that can cause false failure measurements

Member of the GTS PurePulse family of products

- Maestro control and analysis application software
- Easy to use graphical interface software
- Intelligent oscilloscope setting optimization with algorithms for noise reduction
- Microprocessor controlled high voltage supply for voltage stepping and pulse timing
- Network capable for data transfer and remote analysis
- Optional automation with probe stations and/or flying probes

Performance backed by the GTS team support

- Over 50 years of ESD test equipment design experience
- GTS engineers developed the first commercial systems providing Kelvin probing and have introduced several new reflection control techniques

PurePulse Very Fast Transmission Line Pulse Module

TECHNICAL DETAILS

The GTS PurePulse TLP module is a new design to generate short stress pulses which can be applied to wafers in a consistent and reproducible manner. Low noise measurements are made at the DUT for voltage and current during the pulse and these waveforms as a function of time are displayed. The traditional TLP current vs. voltage diagrams with multiple leakage measurements are generated from a user defined set of stress levels.

GTS employs an advanced reflected pulse cancelation method (patent pending, ESDA Symposium published research). This unique "Ekho" method removes the risk of DUT damage from re-reflected pulses that otherwise can produce false failures and erroneous measurements. Devices as simple as ESD clamping diodes have been shown to fail from reverse voltage pulses from other reflection controls.

GTS provides assistance with wideband voltage probes and fast oscilloscopes. Using fixed pitch probes with wideband cables and scopes is the major difference between VF-TLP and standard 100 ns TLP.

All scope raw waveforms are recorded and saved for future study. Data corrections are made in real time using the DUT data and previously recorded reference waveforms to provide improved accuracy. Flexible user selected data averaging and waveform correction algorithms provide high quality current vs. voltage (I-V) plots that describe the response of IC devices and ESD protection structures to the simulated ESD stresses.

SPECIFICATIONS

Pulse Rise Time	100 ps, -25%, +10 % (20% to 80% of 1 ns amplitude)
Pulse Widths	1, 2, 5 and 10 ns ± 100 ps, computer selected
Impedance	50 Ω delivery standard
TLP Style/Probes	TDR-S current probe measurement standard, with Kelvin TDR-O voltage probe measurement using Ground-Signal (GS/SG) or GSG high frequency probe pair
Current	15 A maximum into a short circuit, 7.5 A into a 50 Ω load
Voltage	Select positive or negative, 0.5 to 25 V in 0.1 V steps, 25 to 100V in 0.5 V steps, 100 to 750 V in 1 V steps (open circuit voltages)
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)

OPTIONS

Ultra-Fast TLP	Additional pulse width of 500 picoseconds, computer selected
Oscilloscopes	interfacing and supplying scopes; 6 GHz or faster scope recommended
Wafer Probe Kits	Probes and cables and micropositioners, standard and custom
Reflection Control	Attenuator reflection control can be used for DUTs on boards
Non-Kelvin Probes	Replacing the standard Kelvin probe pair with a single GS probe
Pulse Rise Times	Custom rise times greater than 100 ps, selectable through filters
Pulse Widths	Custom widths available, changeable manually or through automation

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

Grund Technical Solutions, Inc.
370 South Abbott Avenue
Milpitas, CA 95035
USA

Phone: 408-216-8364
Fax: 408-217-0160
Email: info@grundtech.com
Website: www.grundtech.com

© 2017 Grund Technical Solutions, Inc. All rights reserved. Specifications and prices subject to change