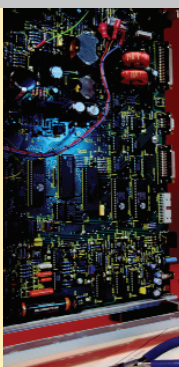


Thermo Scientific EX11000

Automated Simulator for ESD, Latch-Up, Transient Latch-Up, and EOS Testing

The Thermo Scientific EX11000 is an advanced ESD & Latch-Up component reliability tester designed for engineering studies and reliability testing. It is configured for 144 pins and is expandable up to 2016 pins. Its ESD pulse system uses a combination of robotic motion and relay matrix to deliver textbook quality ESD waveforms without parasitic effects common in automatic testers.



Features

- HBM/MM ESD testing per JEDEC and ESDA
- Latch-Up per JEDEC 78 and 78A
- Power supply sequence testing
- Multi-function Curve Trace
- User-defined pulse repetition rates down to 100ms
- Multiple socket DUT boards
- EvaluWave waveform verification software
- Low voltage HBM testing
- ESD pulse event detector
- Full vectoring, clocks and pin state verification

Flexible Automated ESD and Latch-Up Testing

Designed for engineering studies and reliability testing, the Thermo Scientific EX11000 base system includes one bias supply with a range of up to 200V/0.75A and options for up to seven supplies. The high accuracy curve trace capability is provided by a 200V/1A source meter with microvolt pica amp resolutions.

Failure criteria include single point and envelope methods based on user-defined values. The sophisticated operating software allows the user to operate the system in a manual mode, MIL-STD mode or create complex test routines as required for research and development work. The operating software also includes self test routines for the relay matrix section, high voltage and bias power supplies and other primary system functions.

ESD capability: HBM & MM

The ESD capability includes HBM (Human Body Model) waveform pulses of up to 8kV

or options to 12kV. The MM (Machine Model) pulse is up to 1kV or options to 2kV.

Testers are equipped with two dual (HBM & MM) pulse heads to allow switching from one test type to the other without changing pulse heads. Special waveform pulse heads are available (i.e.: ESD or induced Latch-Up). Waveform pulse networks are easily changed in minutes.

Latch-Up Test Capability

Fully compliant with the JESD78 or 78A test methods, the system offers all of the features required for testing the most complex device. The base system includes a clock synchronous with the vector rate and pin logic comparators to confirm the status of each pin. Logic vectors of up to 32K depth are applied to user-selected pins at defined rates of up to 2 MHz. In addition, the multiple bias supplies may be operated in a Power Supply Sequencing Mode with user defined turn on sequence and delay times. Special capabilities (i.e. Transient Latch-up) are available.

Thermo Scientific EX110000

ESD

Pin count	144 to 2016
Pulsers Discharge Distribution method	Hybrid of relay matrix and mechanical switching with pogo pin contacts. Typically one mechanical switching motion made for each 24 pins tested
Pulsers availability	Combination HBM/MM standard 12kV HBM, CDE and custom waveforms optional HBM from 50V to 8,000V in 10 Voltages, optional 12kV MM from 25V to 1,000V in 5 volt increments

Latch-Up

Testing capabilities	JEDEC 78 and 78A
Bias Supplies	Up to 7 bias supplies with on-off order sequencing and delays
Modular bias supply choices	8V at 16A to 200V at 0.75A
High speed parallel bias supply current	Measurements quickly determine LU state with auto-ranging or present scales
Preconditioning logic vector generation with individual pin drivers	
Standard logic level programmable	2V to 6V standard, or from 1 to 5V optional in 0.1 steps
Vector depth	32K with full monitoring for read-back verification at 1MHZ or 2MHz step rates
Real time verification	1MHz steps
Asynchronous clock	Up to 50MHz optional with direct test fixture board connection

Curve Trace

High accuracy	Keithley 2400 Source Meter Unit
Two ranges	0 to ± 20 at 1A and 0 to $\pm 200V$ at 0.1A
Five digit resolution	Measurements with automatic ranging
Current measurements	Down to 0.001 μA
User selectable failure modes	Open/short circuit Curve trace envelope User defines percentage shift at a selected leakage measurement points or just first and last
Stores all traces	
IDD measurements	Seven ranges from 0-35 μA , 0-300 μA , 0-3mA, 0-30mA, 0-300mA, 0-3A and >3A

Models

- ESD test system only
- Latch-Up (LU) test system only
- Combination ESD/LU test system

Options

- ESD-induced Latch-Up
- 12kV HBM
- EOS (Electrical Overstress testing)
- Wafer level HBM to 128 pins in 32 pin increments.

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