VXI Instruments
the test solutions provider

STS8760NEO Advanced Static Parameter Power Semiconductor Test System

NEW

Cost-Efficient Testing

High Precision

Modular Flexibility

Features

- Output voltage up to 3000V
- Output current up to 2400A
- Pulse length down to 100 µs
- Accuracy down to pA-resolution
- Optimized for high-speed production testing with ready-to-run sequencing software
- High-speed instrument interfacing with reduced thermal effects on DUT and cabling
- Very low noise levels due to isolated measurement technology and high-side measurements
- Zero-leakage current technology ensures precision with complete guarding

2 System Overview

The STS8760NEO Static Parameter Power Semiconductor Test System is built for high-speed and precise testing of medium to high-power semiconductor components, such as diodes, MOSFETs, and IGBTs, across a wide voltage range. Designed by VX Instruments, this system supports a comprehensive suite of static parameter tests and includes a modular PXI platform with an open interface, allowing for additional testing options, including DUT-specific resistor networks and temperature sensors.

- **Cost-Efficient Testing:** Fast, high-volume multi-station capability lowers test costs.
- **High Precision:** 6-wire and zero-leakage design ensure accurate, repeatable results.
- **Modular Flexibility:** Adaptable for high-voltage and high-current testing needs.

Target DUTs include

- IGBTs
- MOSFETs (SiC & GaN)
- Diodes

Test Levels

- Molded module level (e.g., TO, SOT, and other IPC or custom packages)
- DCB level
- Wafer level / bare die

Testing Capability

- **MOSFET:**
  $R_{DS(on)}$
  DS-leakage
  GS-leakage
  DS-breakdown voltage
  according to IEC60747-8 standards
- **IGBT:**
  CE-ON voltage
  CE-leakage
  GE-leakage
  CE-breakdown voltage
  according to IEC60747-9 standards

- Easy test sequence programming with GTS Test Sequencing Software and GTB Test Builder
- Compatible with market-available test sequencers
- Customer-defined tests are supported via open C-DLL API, compatible with Source Measurement Units and Matrix

Measurement Parameters

- Forward voltage
- Reverse current
- Threshold voltage
- Static resistance

Key Features

- Complete guarding for reduced leakage and improved precision
- Sensing to DUT ensures low noise levels
- Short test times due to very short pulsed currents (up to 2400A, 100 µs)
- High-speed switching matrix design minimizes test times
- Low power consumption with reduced thermal effects on DUT and connections
- Isolated measurement units allow high-side measurements with exceptional precision

Additional Features

- Multisite and multistation test capability
- Low parasitic inductance from instruments to the DUT
- Separate Source Measurement Units tailored for high-current and high-voltage needs
- Expandable measurement equipment options via PXI
- Optional insulation tests and dynamic parameter tests (e.g., avalanche, multi-pulse, short circuit tests)

Applications:

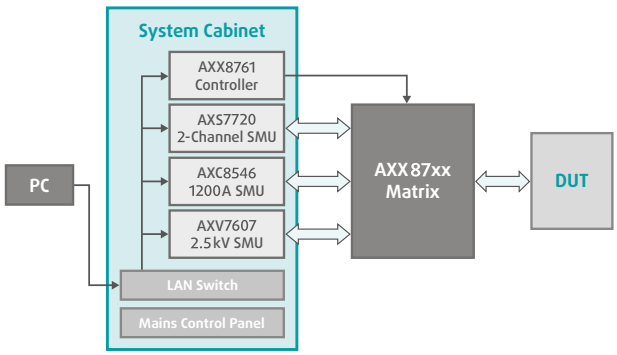
- Designed for medium to high-power semiconductor devices.
- Suitable for testing diodes, MOSFETs, and IGBTs.
- Capable of handling low to high current DUTs.

Benefits

- Low Initial Investment: Cost-effective solution for high-volume testing needs.
- Rapid Market Readiness: Accelerated test system configuration and application development lower time-to-market.
- Modular Flexibility: Easily reconfigurable with modular instrument options for diverse testing requirements.
- High Accuracy & Repeatability: Ensures consistent, precise measurements.
- User-Friendly Software: Features self-checking capabilities and is designed for intuitive operation.
- Scalable Testing: Multi-station and multi-site capabilities enable expanded testing coverage.

Schematic Overview

Example Configuration



4 Test System Main Components

Example Configuration

AXC8546 High Current SMU

- Extremely low noise with linear output stage
- Output current up to 1.200 A pulse mode
- Programmable output voltage up to 50 V
- Programmable current pulse
- separated current and voltage measurement unit
- Integrated digitizer and waveform generation function

AXV7607 High Voltage SMU

- Extreme low noise with linear output stage
- Output voltage from -500 V up to 2500 V
- Very fast rise and fall times
- Output current in pulse mode max ±30 mA
- Output current in continuous mode max ±8 mA
- Integrated voltage measurement unit
- Integrated current measurement unit
- Integrated voltage and current monitor
- Integrated digitizer and waveform generation function

AXS7720 Multi Channel SMU

- Extreme low noise with linear output stage
- Fully isolated design, isolated input and outputs
- Fast measurement of current in nA range
- Especially designed for automatic test equipment and high throughput testing
- Fast rise and fall times due to integrated sink capability
- Integrated matrix and digital I/Os
- Auto sensing
- Integrated digitizer and waveform generation function

AXX8762 Switching Matrix

- Up to 24 IBGT/MOSFETs per DUT
- High Current design up to 2400 A
- High Voltage design up to 3000 V
- Zero-leakage technology due to complete guarding up to the prober
- High flexibility through individually configurable matrix cards
- Custom design of matrix cards

For further information please contact

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