VXI Instruments
the test solutions provider

STS8760neo
Advanced Static Parameter Power Semiconductor Test System

→ Cost-Efficient Testing

→ High Precision

→ Modular Flexibility

→ Front End | Back End | Laboratory



Features

- Output voltage up to 10 000 V
- Output current up to 2 400 A
- 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

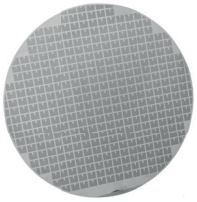
System Overview

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

- Module level (e.g. TO, SOT, and other IPC or custom packages)
- DCB level
- Wafer level / bare die
- Discrete
- KGD
- Laboratory / Characterization

Testing Capability

- **MOSFET (e.g.):**
  $R_{DS(on)}$
  DS-leakage
  GS-leakage
  DS-breakdown voltage
  according to IEC 60747-8 standards
- **IGBT (e.g.):**
  CE-ON voltage
  CE-leakage
  GE-leakage
  CE-breakdown voltage
  according to IEC 60747-9 standards
- **Freely programmable and expandable: the tests listed are examples only**
- 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 2 400 A, 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

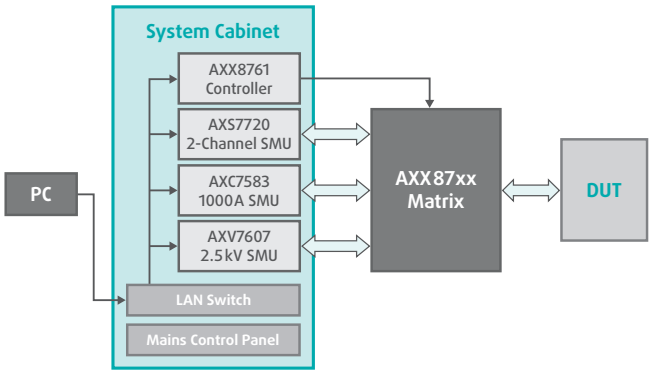
- Designed for medium to high-power semiconductor devices.
- Suitable for testing diodes, MOSFETs, and IGBTs.
- Capable of handling low to high current DUTs.
- From single die (KGD) to B2 and B6 modules, including parallel testing.

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



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

- Extremely low noise with linear output stage
- Output voltage up to 2 500 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

- Extremely 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



AXX8763 Switching Matrix

- Up to 18 IGBT/MOSFETs per DUT
- High Current design up to 2 400 A
- High Voltage design up to 3 000 V
- Zero-leakage technology due to complete guarding up to the prober
- High flexibility through individually configurable matrix cards
- Custom design of matrix cards

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