9812DX

Low Frequency Noise Measurement System

Introduction

9812DX is an enhanced version of the industry's defacto standard low frequency noise systems 9812D & 9812B, and sets new records for measurement speed, system resolution and coverage of different types of noise measurement requirements.

It includes a more than 10X increase in system resolution than previous systems, higher voltage supports up to 200V, and lower current support down to 10pA, providing extended capability to cover extreme conditions such as diode dark current noise.

9812DX is the only system on the market that supports a complete range of measurement conditions for both high and low impedance devices, with the range 10-10MΩ, and works with the most advanced technology nodes, e.g., 16/14/10/7/5nm and beyond.

9812DX also sets a high-speed record, with a typical noise measurement speed of 10 sec/bias, enabling fast and accurate noise characterization to meet the needs
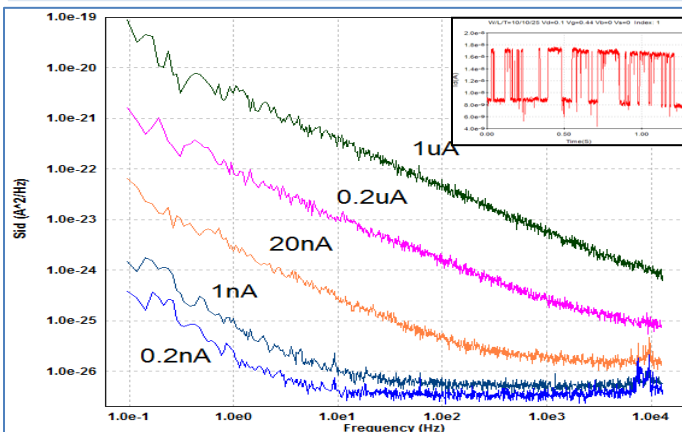
Key Benefits

Proven golden: all foundries & top IC companies

Highest resolution: multiple LNAs, wide impedance range

All device types: high voltage & extreme low current

Highest speed & throughput with parallel architecture

All technologies: inc. all advanced nodes, 16/10/7/5nm

Hardware Specifications

- Voltage LNA: <0.03-10M Hz, $0.65nV/\sqrt{Hz}$ (@5KHz)
- Current LNA: <0.03-1M Hz, $0.7pA/\sqrt{Hz}$ (@5KHz)
- Customizable high precision or wideband LNAs
- System noise resolution: $10^{-27}A^2/Hz$
- Gate/Base resistors (17 selections)
- Drain/Collector resistors (15 selections)
- Programmable bias filters
- Max. terminal voltage, current: 200V, 200mA
- DC current resolution: 10pA
- Impedance matching range: 10-10 MΩ
- Built-in 16bit ADC and DSA, built-in GPIB card
- RTN: max. 1G points, min DC current 0.1nA
- Full front-panel click-key control, changeable LNAs
- Support MOSFETs (FinFET, FD-SOI), BJTs, JFETs, various diodes, wide range of resistors, ICs, etc.
- Typical noise measurement speed: 10 sec/bias
- Parallel operation for up to 4X higher throughput

NoiseProPlus Features

- Support popular IV meters & Cascade/MPI probers
- Multi-mode/device/bias auto measurement control
- Simultaneous 1/f and RTN noise characterization
- Rich graphic and data analysis features

Applications

- Process quality monitoring and evaluation
- Noise characterization and model development

FS-Pro

All-in-One Semiconductor Parametric Analyzer

Introduction

The first All-In-One Semiconductor Parameter Analyzer driven by Machine Learning algorithms – FS-Pro™ Series, integrate high precision IV, CV, and 1/f noise test in a single box.

FS-Pro ™ semiconductor parameter analyzer is the industry's first fully integrated IV, CV, 1/f noise test instrument, certified by the National Electronic Standardization Institution, and its 1/f noise test function is fully calibrated with the industry's golden 1/f noise test instrument 9812 series. FS-Pro can be also seamlessly integrated to 9812 system, with its low noise feature and fast DC test speed, FS-Pro not only provides internal SMUs but also enable fast noise test speed for 9812.

FS-Pro™ provides a wide range of test applications on semiconductor devices, circuits, LED materials, two-dimensional devices, nano materials and devices, with support up to 100 channels, each with full functions of IV, CV and 1/f noise tests.
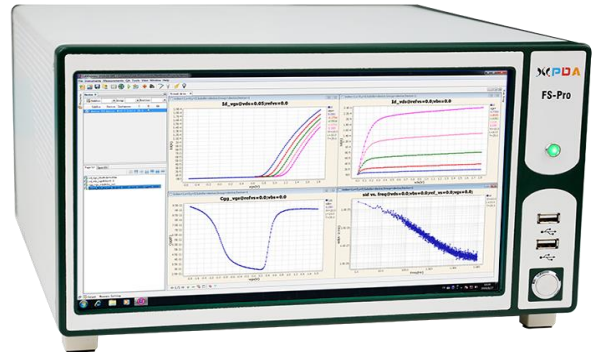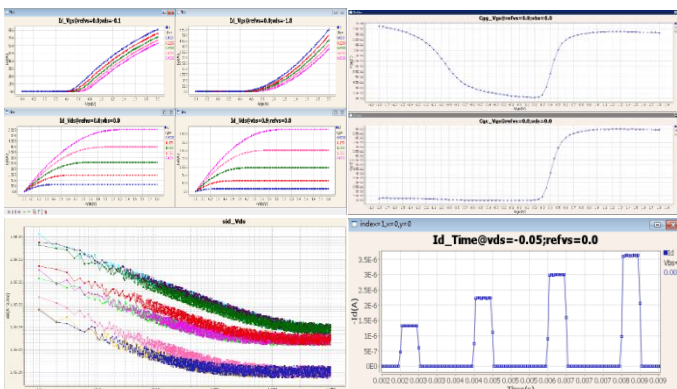
Key Benefits

All-in-One: One system for I-V, C-V and noise testing

Fast Speed: 10x faster than traditional parametric tester

All applications: both industry and academic research

Highest speed & throughput with 100+ channels

Modular Architect: expandable for WAT

Hardware Specifications

- High precision: 30fA accuracy, 0.1fA sensitivity
- Wide bias range: up to 200V, 1A max current
- Built-in Pulse IV : $\pm$200V, min pulse width: 50us
- System noise resolution: 2e10-28A2/Hz
- System noise bandwidth: 0.001Hz - 100kHz
- Ultra Low frequency: 0.001Hz
- DUT min impedance: 500Ω
- Measurement speed: <10sec/bias (f>0.5Hz)
- Internal CV max range: 10kHz
- Internal CV resolution: 100fF
- Extendable for 100+ channel in parallel

LabExpress Features

- Plug and play: easy measurement setup
- Built-in test templates: most of common devices
- GPIB interface: Support wafer mapping

Applications

- General modeling
- High-density automatic test
- LED/TFT devices
- Non-Volatile memory and material
- MEMS & Sensor
- 2-D material research
- Noise under ultra low temperature
- Photodetector
- Nano & molecular device
- Perovskite and solar cell battery

BSIMProPlus™

Advanced SPICE Modeling Platform

Macro Model — BSIMProPlus™ SPICE Modeling Platform — NanoSpice™ — RF Models

MOSFET: BSIM3, BSIM4, BSIM-BULK, PSP, HiSIM2, MOS11, MOS9, EKV

BJT/HBT: Gummel-Poon, Mextram, HICUM, VBIC

Reliability: AgeMOS, User-defined Model

HV Device: HiSIM_HV Level 101, LDMOS Level 66

Verilog-A Models

SOI/FinFET/TFT: BSIMSOI, BSIM-CMG, BSIM-IMG, UTSOI, BSIMPD, BTASOI, RPI a-Si, RPI p-Si

Introduction

BSIMProPlus™ is the industry leader in SPICE model extraction solutions for advanced semiconductor devices, adopted as the standard modeling tool by more than 100 leading semiconductor companies worldwide for over 20 years.

It provides the most comprehensive SPICE modeling functions with its built-in parallel SPICE engine, and offers full SPICE modeling capabilities from baseband to RF for all popular semiconductor devices, including characterization, auto model extraction and parameter optimization and model validation.

BSIMProPlus supports all public-domain compact models, and offers the most accurate and efficient model extraction, customization and validation solutions for advanced process development and integrated circuit designs, including 16/14/10/7/5nm and beyond.

Key Benefits

Standard tool used by all leading foundries & top IDMs

Powerful modeling functions accumulated for 20+ years

Proven track-record on accuracy, reliability & efficiency

One-stop solution for all types of modeling needs
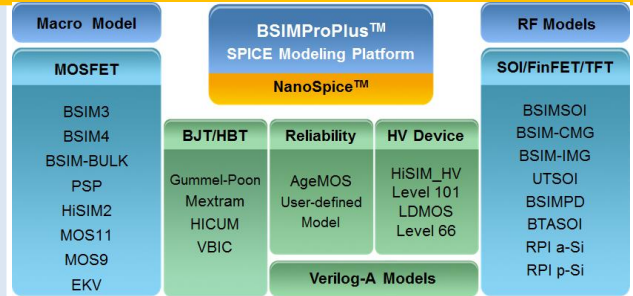
Specifications

• Most advanced model extraction flows
• All device types including advanced FinFET/SOI
• All public models, macro and Verilog-A models
• Device- or circuit-level target modeling
• Model auto extraction, parameter optimization
• Built-in full SPICE engine to meet any needs
• Advanced statistical/reliability/LDE modeling flows
• Rich graphic and data analysis features
• Full data characterization and analysis features
• Supports Keysight (Agilent)/Keithley instruments
• Supports Cascade/SUSS/MPI probe station

Applications

• Advanced semiconductor process development
• PDK/SPICE model library development
• SPICE model customization and validation

http://www.proplussolution.com