

Device Parameter Analyzer

Introduction

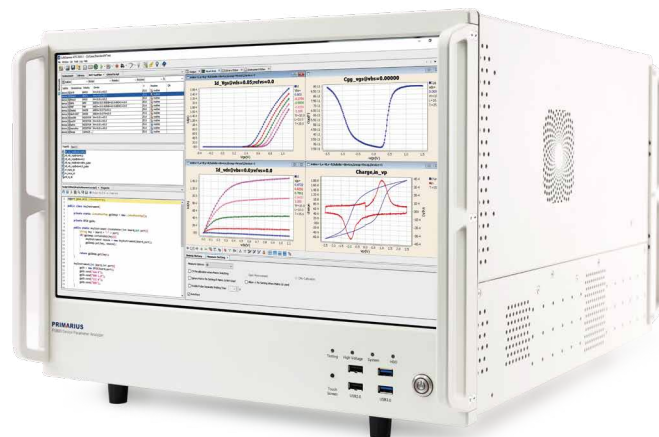
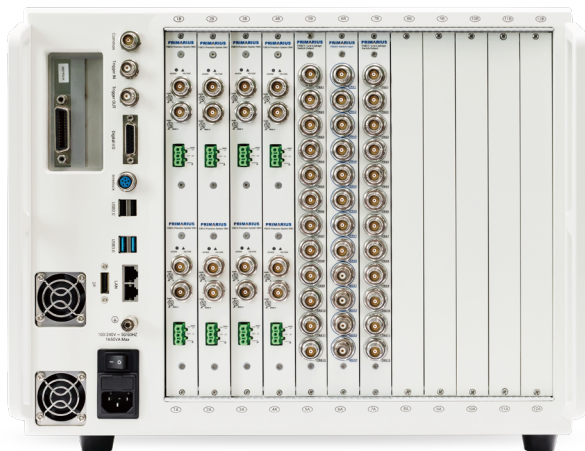
FS800 is a multi-functional device parameter analyzer, offering high precision IV testing, CV testing, fast waveform generation & measurement, low-frequency noise testing and high-speed time-domain signal acquisition with flexible configuration options. This instrument can be widely used but not limited in new material and device research, electrical parameter testing, device modeling, device reliability evaluation.

Featuring an intuitive 18.5-inch touch screen, FS800 adopts a flexible modular architecture, supporting high-precision SMU, switch matrix, and fast waveform generation/measurement kits and high-precision LCR modules. The system is capable of accommodating up to 24 SMUs, or 132-channel switch matrix, which provides a single-box solution for automated wafer-level electrical parametric testing. The built-in LabExpress software offers a rich ready-to-use library of application tests, facilitating efficient and coordinated control of Primarius hardware, third-party instruments, both semi-automatic and fully automatic probe stations.

FS800 can greatly accelerate innovation across research, development and production of new devices, processes and materials, meeting diverse application testing requirements from semiconductor laboratories to manufacture users.

Application Scenarios

- **CMOS parametric testing**
 - MOSFET and BJT transistor parametric testing
 - Diode and PN junction parametric testing
 - MEMS and sensor parametric testing
- **New material & device parametric testing**
 - Thin-film transistors and display device parametric testing
 - 2D materials and photodetector parametric testing
 - Non-volatile memory and material parametric testing
 - Neuromorphic devices and memristor parametric testing
 - Flexible electronics and wearable device parametric testing
- **Device characterization**
- **Device modeling**
- **Device reliability analysis**
- **Production test**



Specifications

- **Efficient & Extensible Semiconductor Device Analyzer Mainframe**
 - Flexible modular architecture which supports SMU and switch matrix modules in a single instrument, providing one-single-box solutions for wafer-level automated testing
 - Supports multi-channel and multi-site parallel testing
 - Optional GPIB interface
 - Optional PXI modular chassis
- **FS810 High Precision SMU**
 - Up to 0.1fA high current measurement resolution
 - Down to 15fA high precision
 - Up to 200V, 1A and 20W
 - Up to 1.5MS/s sampling rate
- **FS821 Low Leakage Switch Matrix Output Module**
 - 12 triaxial outputs
 - Up to 200V carry voltage and 1A carry current
 - Down to 100fA offset current
 - Up to 30MHz bandwidth
- **FK401B Fast Waveform Generation / Measurement Kit**
 - 2 fast IV channel of each module, up to 10V and 10mA
 - Up to 100MS/s sampling rate
 - Down to 130ns pulse width
 - Supports SMU pass-through
 - Expandable up to 5 modules (10 channels)
- **FS338/FS339 High Precision LCR Module**
 - 40V DC bias range
 - FS338 bandwidth: 20Hz~2MHz
 - FS339 bandwidth: 20Hz~10MHz

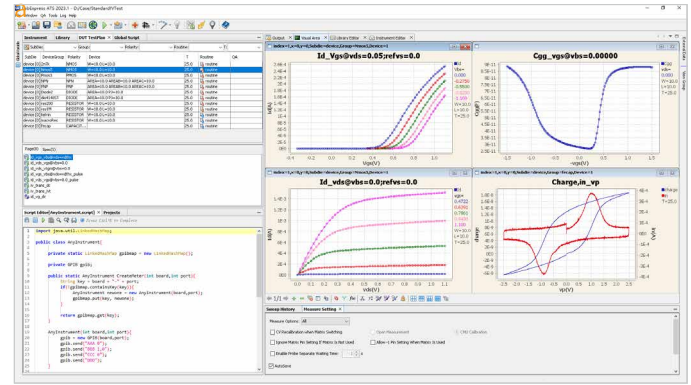
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Software Features

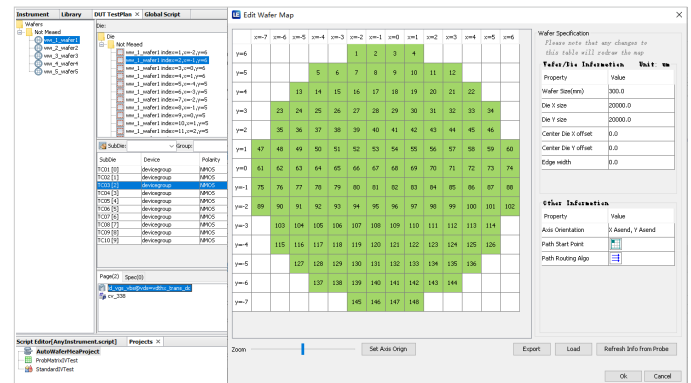
FS800 comes pre-installed the community version of LabExpress, which helps fully unleash the powerful performance of FS800 and accelerate characterization tasks at any stage in the process. LabExpress is a GUI based professional software for electrical parameter test applications across research, process evaluation and production of semiconductor devices. It supports a wide range of test instruments, powerful measurement and analysis functions, as well as flexible customization capabilities.

- IV, CV, Transient IV sampling, and high-speed waveform generation & measurement
- JEDEC standard reliability test, such as HCI, BTI, TDD, RAMP
- Rich ready-to-use library of application tests helps users to get started quickly and easily
- Built-in various signal generation algorithms and sweep functions enable users to acquire complex signal waveform graph images without programming
- Built-in powerful data analysis feature, which allows for immediate device characteristic analysis and comparison after testing
- Multiple data file formats enable users to process further analysis and import data to modeling tool
- Embedded script programming platform supports customizable algorithm, test flow and complex calculation
- The UPGRADED ATS version is optimized for wafer-level automated testing. For more information, please contact related Primarius sales representatives

Flexible Multi-Window Electrical Parameter Testing



User-Friendly Wafer-Level Testing Interface



Application Examples

Transfer Characteristics Testing

