Lab grade DC device characterization

SOURCE AND MEASURE

4200-SCS

Semiconductor Characterization System

- Characterize devices with up to 8 source-measure units
- Sub-femtoamp resolution measurements with optional preamps
- New pulse and pulse I-V capabilities for advanced semiconductor testing
- New scope card provides integrated scope and pulse measure functionality
- Familiar, point-and-click Windows® environment and intuitive GUI
- Easy to use for both interactive and automated tests
- Real-time plotting and analysis allow users to view results before a test has completed and to take preemptive action as needed
- Embedded PC provides the additional benefits of a networked instrument including mapping network drives and making test results available to the corporate network
- Simultaneously acquires data, analyzes plots, and prints reports
- Ideal for device characterization, device modeling, reliability testing, and failure analysis
- Includes instrument and prober drivers as well as interfaces to popular modeling and circuit simulation software

APPLICATIONS:

Semiconductor Devices

- On-wafer parametric test
- Wafer level reliability
- Packaged device characterization
- C-V/I-V characterization with the Model 4200-SCS control of an external LCR meter
- High κ gate charge trapping
- Isothermal testing of devices and materials subject to self-heating effects
- Charge pumping to characterize interface state densities in MOSFET devices
- Resistive or capacitive MEMS drive characterization

Optoelectronic Devices

- Semiconductor laser diode DC/CW characterization
- DC/CW characterization of transceiver modules
- PIN and APD characterization

Technology Development

- Carbon nanotube characterization
- Materials research
- Electrochemistry

The easy-to-use Model 4200-SCS performs laboratory grade DC and pulse device characterization, real-time plotting, and analysis with high precision and sub-femtoamp resolution. It is the best tool available for interactive parametric analysis and device characterization. It offers the most advanced capabilities available in a fully integrated characterization system, including a complete, embedded PC with Windows XP operating system and mass storage. Its self-documenting, point-and-click interface speeds and simplifies the process of taking data, so users can begin analyzing their results sooner.

Its Keithley Interactive Test Environment (KITE) is so intuitive that even a novice can use the system with ease. This point-and-click software offers a full range of functionality, from managing tests, organizing results, and generating reports to creating user libraries. Sophisticated and simple test sequencing and external instrument drivers make it simple to perform automated testing with combined I-V, pulse, and C-V measurements.

The modular design of the Model 4200-SCS provides you with tremendous flexibility. It supports up to eight internal Source-Measure Units (SMUs) and optional Remote Pre-Amps that extend the resolution of any SMU from 100fA to 0.1fA. Its hardware options also include four switch matrix configurations, meters, pulse generators, and more.

Two new instruments can now be integrated into the Model 4200-SCS: a dual-channel pulse generator and a dual-channel digital oscilloscope. These instruments integrate directly into the Model 4200-SCS's chassis, making it simple and cost-effective to add pulsing and pulse signal observation capabilities into the Model 4200-SCS's test environment. This will allow you to easily perform pulse tests, such as charge trapping, charge pumping, AC stress testing, clock generation, and mixed signal device testing.

The exceptional low current performance of the Model 4200-SCS makes it the perfect solution for research studies of single electron transistors (SETs), molecular electronic devices, and other nanoelectronic devices that require I-V characterization. The 4200-SCS can also be used to make four-probe van der Pauw resistivity and Hall voltage measurements.

For more information on the Model 4200-SCS, see page 328.