

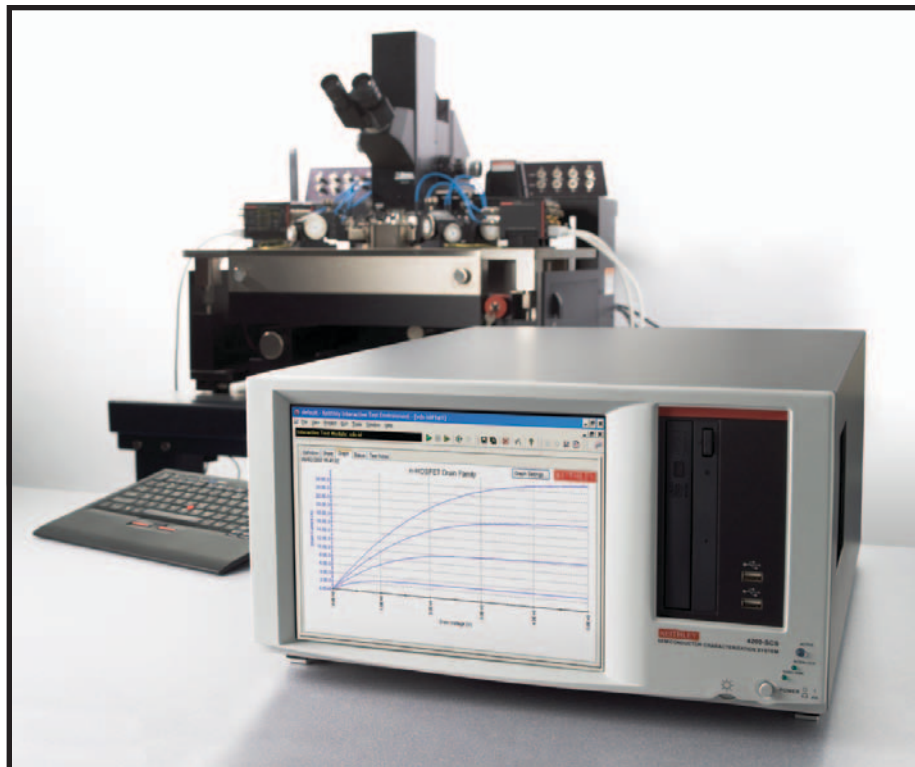
# 4225-PMU 4225-RPM 4220-PGU

- Provides voltage outputs with programmable timing from 60ns to DC in 10ns steps
- Measure I and V simultaneously, at acquisition rates of up to 200 megasamples/second (MS/s)
- Choose from two voltage source ranges ( $\pm 10V$  or  $\pm 40V$ ) and four current measurement ranges (800mA, 200mA, 10mA, 100 $\mu A$ )
- Each module provides two channels of integrated simultaneous I-V sourcing and measurement; plug in up to four modules in a single chassis for eight synchronized channels
- Model 4220-PGU Pulse Generator Unit offers a voltage-sourcing-only alternative to the 4225-PMU
- Optional Model 4225-RPM Remote Amplifier/Switch expands current ranges (10mA, 1mA, 100 $\mu A$ , 10 $\mu A$ , 1 $\mu A$ , 100nA), switches sourcing/measurement between the Model 4225-PMU, Model 4210-CVU, Model 4200-SMU, and 4210-SMU

## APPLICATIONS

- Ultra-fast general-purpose I-V measurements
- Pulsed I-V and transient I-V measurements
- Flash, PCRAM, and other non-volatile memory tests
- Isothermal testing of medium-sized power devices
- Materials testing for scaled CMOS, such as high- $\kappa$  dielectrics
- NBTI/PBTI reliability tests

## Ultra-Fast I-V Module for the Model 4200-SCS



The Model 4225-PMU Ultra Fast I-V Module is the latest addition to the growing range of instrumentation options for the Model 4200-SCS Semiconductor Characterization System. It integrates ultra-fast voltage waveform generation and signal observation capabilities into the Model 4200-SCS's already powerful test environment to deliver unprecedented I-V testing performance, expanding the system's materials, device, and process characterization potential dramatically. Just as important, it makes ultra-fast I-V sourcing and measurement as easy as making DC measurements with a traditional high-resolution Source-Measure Unit (SMU).

Three types of measurements are necessary to characterize a device, material, or process thoroughly. The first two are precision DC I-V measurements (usually made with the Model 4200-SCS's SMUs) and AC impedance measurements (which can be made with the Model 4210-CVU C-V Instrument). The Model 4225-PMU represents the last segment of this characterization triangle—ultra-fast I-V or transient I-V measurements. Now, all three measurement types can be integrated in a single, flexible, cost-effective test system.

Each plug-in 4225-PMU module provides two channels of integrated sourcing and measurement but occupies only a single slot in the Model 4200-SCS's nine-slot chassis. Unlike competitive solutions, each channel of the 4225-PMU combines high speed voltage outputs (with pulse widths ranging from 60 nanoseconds to DC) with simultaneous current and voltage



Each Model 4200-SCS chassis can accommodate up to four Model 4225-PMU modules to provide up to eight ultra-fast source and measure channels.

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