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Data Sheet

August 13, 2026

KEITHLEY

Keithley S600

Keithley S600 Series Parametric Test System The Series S600 is Keithley's production parametric tester for wafer-level DC (and optional RF) CMOS characterization. A modular chassis holds up to eight SMUs. The test head places an amplifier on each probe pin centimeters from the wafer, then a high-speed solid-state matrix routes amplified signals to the instruments. 1996 literature cites 1 pA settling to within 5% in less than 100 ms at 0.1 V and a 100 MHz, 50 ohm matrix. SECS-II/GEM supports 200 mm and 300 mm fabs. S680 field upgrades add 64-pin per-pin electronics, 0.1 fA / 0.1 uV class, 1 A / 200 V, 40 GHz RF, and parallel test of multiple DUTs per touchdown. The Series S600 is Keithley's production parametric tester for wafer-level DC (and optional RF) CMOS characterization. A modular chassis holds up to eight SMUs. The test head places an amplifier on each probe pin centimeters from the wafer, then a high-speed solid-state matrix routes amplified signals to the instruments. 1996 literature cites 1 pA settling to within 5% in less than 100 ms at 0.1 V and a 100 MHz, 50 ohm matrix. SECS-II/GEM supports 200 mm and 300 mm fabs. S680 field upgrades add 64-pin per-pin electronics, 0.1 fA / 0.1 uV class, 1 A / 200 V, 40 GHz RF, and parallel test of multiple DUTs per touchdown. In-line PCM and WLR; deep-submicron CMOS DC parametrics; optional on-wafer s-parameters to 40 GHz (S630/S680)



MODEL

Keithley S600

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

S600

LISTING

<https://aumictechlabs.com/products/s600-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The Keithley S600 Series Parametric Test System is a modular, configurable platform for semiconductor device characterization designed to reduce cost of test across fabs and wafer foundries. Built on flexible architecture supporting per-pin electronics, the S600 delivers current and voltage source/measurement plus capacitance measurement on each DUT pin. Its high throughput and femtoamp-level sensitivity enable production testing of SoC, FeRAM, MRAM, PCRAM, and high-density devices while protecting test software investment through platform compatibility. Technical Specifications Measurement ranges: fA to 1 A (current); μ V to 200 V (voltage, all Kelvin) RF capability: On-wafer s-parameter testing to 40 GHz with integrated Vector Network Analyzer Per-pin architecture with bi-directional current scaling amplifiers on each probing pin S680 configuration features active electronics mounted directly on prober Key Features Per-pin source/measure units (SMUs) with full source/measure capability on all pathways and pins Superior DC measurement capability with broad testing flexibility Capacitance measurement on each pin RF option integrates DC and RF testing in single-insertion system Eliminates noise artifacts and second-order effects including leakage and parasitic capacitance S680 configuration supports femtoamp-level DC leakage characterization, ultra-thin gate dielectrics, SOI, and new materials Typical Applications Process control and equipment tuning/optimization Wafer acceptance testing and qualification Device modeling and characterization New technology device testing (SoC, FeRAM, MRAM, PCRAM, high-density devices) Compatibility & Integration Keithley Test Environment (KTE) software provides high platform-to-platform compatibility across S600 Series testers. KTE runs on Linux or Solaris/UNIX platforms, ensuring smooth migration paths and protecting test software investment during system upgrades.

Features & description

From manufacturer datasheet

Features

- Per-pin active electronics in the test head

S600 Characteristics / Specifications

PARAMETER	VALUE
Model	S600
Manufacturer	Keithley Instruments
Instrument Type	Automated parametric test system
Alias	S600; Series S600; S630; S680 related
SMU capacity	up to 8 source measure units
Settling 1 pA	to within 5% in less than 100 ms at 0.1 V (S600 1996)
Matrix	100 MHz, 50 ohm switching matrix (S600)
Wafer sizes	200 mm and 300 mm SECS/GEM
Automation	SECS-II/GEM
Test head	active amplifier per probing pin
Switch	high speed solid-state matrix after per-pin amps
S680 pins	64 pins with per-pin electronics
S680 resolution	0.1 fA and 0.1 uV class
S680 output	1 A and 200 V maximum
S680 parallel	up to nine devices in one touchdown class
RF option	on-wafer s-parameters to 40 GHz, 1 Hz resolution, 70 dB dynamic range class
RF VNA class	40 GHz (Anritsu self-cal VNA cited on S630DC/RF)
CG option	1 fF to 2 nF, ± 20 V p-p class (S680 brochure)
Pin matrix option	8 to 64 pins, guarded Kelvin low-current paths
Controller S6	integrated Sun/Solaris class
Reuse	field upgrades across process generations (S600 design goal)
Resolution RF news	100 aA and 100 nV class on high-frequency S630 system
Form	production parametric tester with prober-mounted test head
Not 4200 SCS	fab tester versus lab parameter analyzer

PARAMETER	VALUE
Related S5	later 2600-based parametric system Notes Specs from Keithley S600/S680 parametric test literature (1996 S600 article, S680 brochure, S630 40 GHz product news). Exact SMU count, pin count, and RF option are configuration-specific; read the system rack labels and probe-card map.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
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RF option	on-wafer s-parameters to 40 GHz, 1 Hz resolution, 70 dB dynamic range class
RF VNA class	40 GHz (Anritsu self-cal VNA cited on S630DC/RF)
CG option	1 fF to 2 nF, ± 20 V p-p class (S680 brochure)

Specifications

PARAMETER	VALUE
Pin matrix option	8 to 64 pins, guarded Kelvin low-current paths
Controller S680	integrated Sun/Solaris class
Reuse	field upgrades across process generations (S600 design goal)

Specifications

PARAMETER	VALUE
Resolution RF news	100 aA and 100 nV class on high-frequency S630 system
Form	production parametric tester with prober-mounted test head
Not 4200 SCS	fab tester versus lab parameter analyzer

Related S530: later 2600-based parametric system

Notes

Specs from Keithley S600/S680 parametric test literature (1996 S600 article, S680 brochure, S630 40 GHz product news). Exact SMU count, pin count, and RF option are configuration-specific; read the system rack labels and probe-card map.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.