

KEYSIGHT TECHNOLOGIES (AGILENT HP)

4155B

The Keysight (Agilent/HP) 4155B is a high-performance Semiconductor Parameter Analyzer designed for precise parametric characterization of semiconductor devices. Equipped with four Medium-Power SMUs (MPSMUs), two Voltage Source Units (VSUs), and two Voltage Monitor Units (VMUs), it offers exceptional sweep and sampling capabilities for laboratory research and production testing. Its built-in 8.4-inch color display and integrated IBASIC programming language enable independent and automated testing without requiring an external computer.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488), Parallel (Centronics), External Trigger, Keyboard (Mini-DIN)
Display	8.4-inch active-matrix color LCD, 640 x 480 pixels

Physical

Power Supply	90 V to 264 V AC, 47 Hz to 63 Hz, 450 VA maximum
Operating Temperature	10 °C to 40 °C °C

System Configuration

Number of Medium-Power SMUs (MPSMU)	4
Number of Voltage Source Units (VSU)	2
Number of Voltage Monitor Units (VMU)	2
Ground Unit (GNDU) Maximum Current	1.6 A
Expander Unit Support	Supports Agilent 41501A/B SMU/PGU Expander
Maximum SMU Channels (with Expander)	6 (4 built-in MPSMUs + 2 additional MPSMUs / HPSMUs via 41501B)
Pulse Generator Unit (PGU) Support	Up to 2 channels (via 41501B Expander)

SMU Voltage Performance

SMU Maximum Voltage Output Range	±2 V to ±100 V
SMU Maximum Voltage	100 V
SMU Voltage Programming Resolution (2 V Range)	100 µV
SMU Voltage Programming Resolution (20 V Range)	1 mV
SMU Voltage Programming Resolution (40 V Range)	2 mV
SMU Voltage Programming Resolution (100 V Range)	5 mV
SMU Voltage Measurement Resolution (2 V Range)	10 µV
SMU Voltage Measurement Resolution (20 V Range)	100 µV
SMU Voltage Measurement Resolution (40 V Range)	200 µV
SMU Voltage Measurement Resolution (100 V Range)	500 µV

SMU Current Performance

SMU Maximum Current Output	100 mA
SMU Current Ranges	1 nA, 10 nA, 100 nA, 1 μ A, 10 μ A, 100 μ A, 1 mA, 10 mA, 100 mA
SMU Minimum Current Range	1 nA
SMU Current Measurement Resolution (1 nA Range)	10 fA
SMU Current Measurement Resolution (10 nA Range)	100 fA
SMU Current Measurement Resolution (100 nA Range)	1 pA
SMU Current Measurement Resolution (1 μ A Range)	10 pA
SMU Current Measurement Resolution (10 μ A Range)	100 pA
SMU Current Measurement Resolution (100 μ A Range)	1 nA
SMU Current Measurement Resolution (1 mA Range)	10 nA
SMU Current Measurement Resolution (10 mA Range)	100 nA
SMU Current Measurement Resolution (100 mA Range)	1 μ A
SMU Current Programming Resolution (1 nA Range)	100 fA
SMU Current Programming Resolution (10 nA Range)	1 pA
SMU Current Programming Resolution (100 nA Range)	10 pA
SMU Current Programming Resolution (1 μ A Range)	100 pA
SMU Current Programming Resolution (10 μ A Range)	1 nA
SMU Current Programming Resolution (100 μ A Range)	10 nA
SMU Current Programming Resolution (1 mA Range)	100 nA
SMU Current Programming Resolution (10 mA Range)	1 μ A
SMU Current Programming Resolution (100 mA Range)	10 μ A
SMU Maximum Output Power	2 W

Voltage Source Unit (VSU)

VSU Output Channels	2
VSU Output Range	±20 V

Voltage Monitor Unit (VMU)

VMU Input Channels	2
VMU Voltage Measurement Range	±2 V, ±20 V

Sweep & Measurement Capabilities

Maximum Sweep Steps	1001
Hold Time Range	0 to 655.35 s
Delay Time Range	0 to 65.535 s
Integration Time Settings	Short, Medium, Long
Maximum Sampling Points	10001

User Interface & Software

Storage Drive Type	3.5-inch Floppy Disk Drive (FDD), 1.44 MB
Built-in Programming Language	HP Instrument BASIC (IBASIC)

Power & Environmental

Maximum Power Consumption	450 VA
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Rear Panel Connections

SMU Connector Type	Triaxial (3-axis)
VSU Connector Type	BNC
VMU Connector Type	BNC
GNDU Connector Type	Triaxial (3-axis)
Safety Interlock Terminal	Yes (rear panel)

Ground Unit (GNDU)

GNDU Output Voltage	0 V
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System Performance

Warm-Up Time	40 minutes
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TECHNOLOGY

Semiconductor Characterization

APPLICATIONS

Parametric Testing and Device Characterization

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