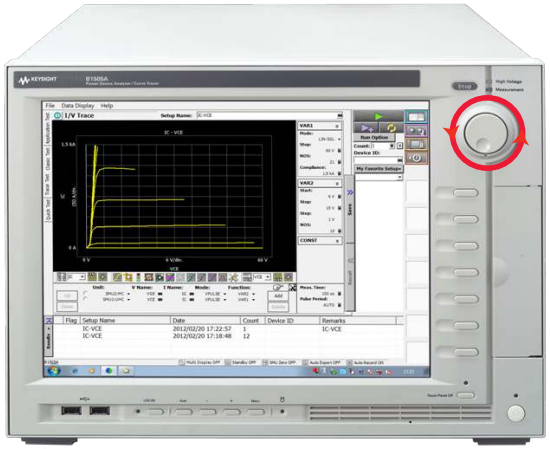
Product Fact Sheet

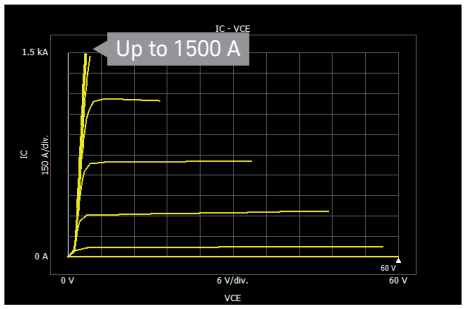
Keysight B1505A Power Device Analyzer/Curve Tracer 1500 A/10 kV, µΩ, sub-pA, 10 µs Pulse

The New Standard for Power Device Evaluation that Accelerates Your Innovation!

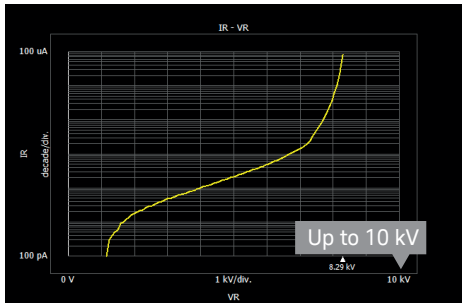


Keysight B1505A key features

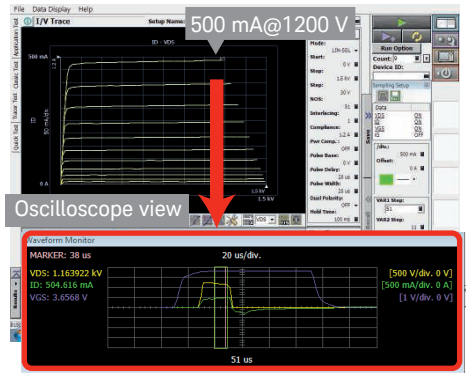
- Wide current/voltage range: 1500 A/10 kV
- Accurate leakage measurement (sub-pA capability)
- Precise on-resistance characterization (µΩ resolution)
- Pulsed measurements as fast as 10 µs
- Medium current measurement at high voltage bias: 500 mA @1200 V
- High power wafer probing support enables testing at > 200 A and 10 kV on-wafer
- True knob-sweep curve tracer functionality
- Integrated thermocouple inputs for temperature measurement
- Oscilloscope view (I/V) function supports output waveform monitoring
- Fully automated measurement & data analysis
- High current/voltage measurements traceable to international standards
- Scalable platform and architecture make it easy to add capabilities as needs change



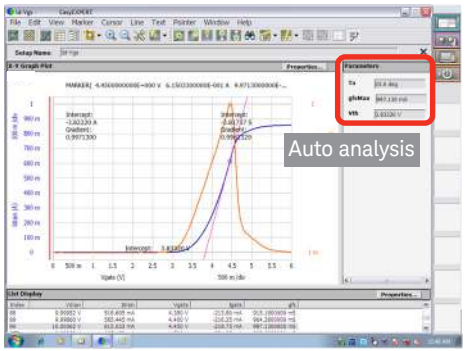
Ic-Vc characteristics of IGBT modules can be measured accurately at collector current levels up to 1500 A using the Ultra High Current Unit.



The Ultra High Voltage Unit can accurately measure both breakdown voltage at up to 10 kV and small leakage current at up to 10 kV with pA resolution.



The High Voltage Medium Current Unit can make Id-Vd curves (such as 500 mA at 1200 V) with unparalleled accuracy. The Oscilloscope view feature allows you to verify your measurement pulses and timings without an oscilloscope.



Powerful auto-analysis capability permits the easy and accurate extraction of device parameters such as power MOSFET transconductance (Gm) and threshold voltage.

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Key specifications

Resources	Required module/Expander	Main specification
High power SMU	B1510A HPSMU	Up to 200 V, 1 A force, 10 fA current resolution
Medium power SMU	B1511A MPSMU	Up to 100 V, 100 mA force, 10 fA current resolution
High current SMU	B1512A HCSMU	20 A/20 V (pulsed); 1 A/40 V (DC) [1]
High voltage SMU	B1513B HVCMU	1500 V/8 mA; 3000 V/4 mA (pulsed & DC)
Medium current SMU	B1514A MCSMU	1 A/30 V (pulsed); 100 mA/30 V (DC)
High voltage medium current unit	N1266A HVSMU Current Expander, B1513B HVSMU and two B1514A MCSMU/B1512A HCSMU modules	± 1500 V/2.5 A (pulsed), ± 2200 V/1.1 A (pulsed)
Ultra high current unit	N1265A Ultra High Current Expander/Fixture and two B1514A MCSMU/B1512A HCSMU modules	± 1500 A/60 V, 22.5 kW peak power
		± 500 A/60 V, 7.5 kW peak power
Ultra high voltage unit	N1268A Ultra High Voltage Expander and two B1514A MCSMU modules or a combination of a B1512A HCSMU and a B1514A MCSMU	10 kV/10 mA (DC); 10 kV/20 mA (pulsed)
Multi frequency capacitance measurement unit	B1520A MFCMU	1 kHz to 5 MHz
		0 to ± 25 V, using MFCMU internal DC bias
		0 to ± 3000 V, using HVSMU and high voltage bias-tee

1. The current ranges can be increased to 40 A/20 V (pulsed) and 2 A/40 V (DC) using two HCSMUs with the Dual HCSMU Adapter.

Typical applications/devices

Application
- Power device evaluation
- Incoming inspection
- Failure analysis
- GaN current collapse evaluation

Device
- SiC/GaN devices
- IGBT
- Power MOSFET
- Bipolar transistor
- Thyristor
- Power management IC
- High voltage diode

Keysight B1505AP pre-configured package (B1505A with modules/fixture)

Keysight B1505AP pre-configured package are off-the-shelf solutions for various power device characterization requirements. Each option has all required B1505A hardware and software including mainframe, cables, test fixture etc. required to test discrete power devices.

Option	Max voltage	Max current	Capacitance	Description
H20	3 kV	20 A		3 kV/20 A/Fixture pack
H21	3 kV	20 A	Yes	3 kV/20 A/C-V/Fixture pack
H50	3 kV	500 A		3 kV/500 A/Fixture pack
H51	3 kV	500 A	Yes	3 kV/500 A/C-V/Fixture pack
H70	3 kV	1500 A		3 kV/1500 A/Fixture pack
H71	3 kV	1500 A	Yes	3 kV/1500 A/C-V/Fixture pack
U50	10 kV	500 A		10 kV/500 A/Fixture pack
U70	10 kV	1500 A		10 kV/1500 A/Fixture pack

Refer to Keysight.com website for product details, application notes and other information, visit
- www.keysight.com/find/b1505a
- www.keysight.com/find/b1505ap

Three-Year Warranty

www.keysight.com/find/ThreeYearWarranty
Keysight's commitment to superior product quality and lower total cost of ownership. The only test and measurement company with three-year warranty standard on all instruments, worldwide.

Keysight Assurance Plans

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Up to five years of protection and no budgetary surprises to ensure your instruments are operating to specification so you can rely on accurate measurements.

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