

ACS Basic Edition

Semiconductor Parametric Test Software for Component and Discrete Devices

DATA SHEET



Optimized for parametric testing of component and discrete (packaged) semiconductor devices, ACS Basic Edition maximizes the productivity of technicians and engineers in research and development. The versatile architecture of this software allows it to meet the wide ranging and ever changing requirements of semiconductor device testing. It supports Keithley's source and measure instrument products, including Series 2600B, Series 2400, and Series 2400 Touchscreen SourceMeter® Source Measure Unit (SMU) instruments, 2651A and 2657A SourceMeter SMU instruments, DMM6500 and DMM7510 Digital Multimeters, and 4200A-SCS SMUs and capacitance-voltage units (CVUs).

This powerful, yet cost effective solution includes Keithley's rich set of proven parametric libraries. Simply choose the desired test and begin running it to immediately start gathering data and analyzing it. Users also have the option of customizing any test with the embedded script editor.

Key Features

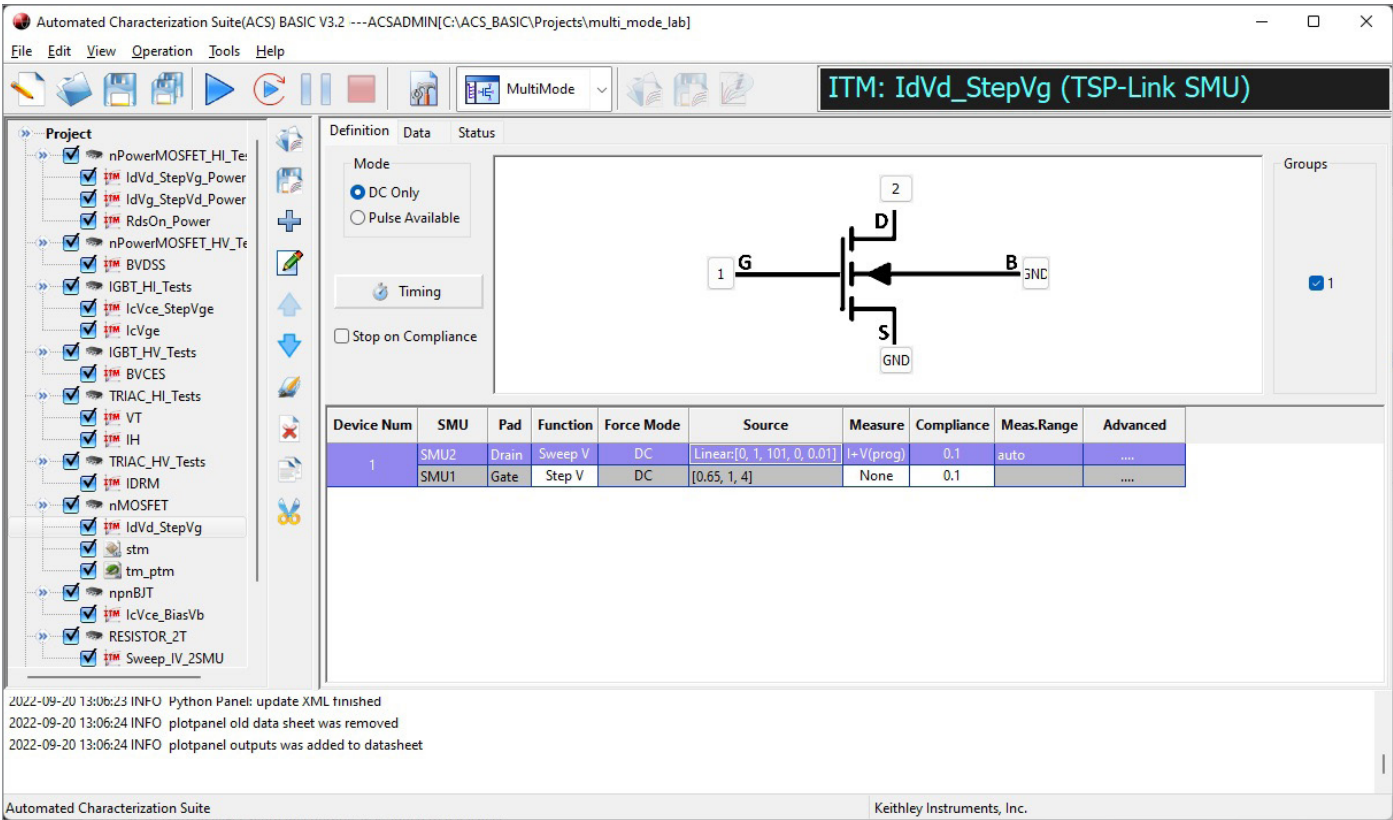
- Designed for packaged devices (MOSFETs, BJTs, IGBTs, diodes, resistors, etc.)
- Rich set of test libraries for fast and easy test setup and execution without programming
- Built-in data analysis tools for quick analysis of parametric data
- Supports Keithley's DMM6500 and DMM7510 Digital Multimeter instruments for measuring current or voltage at a device terminal
- Supports Keithley's Sensitive 6200 Series Current Source and 2182A Nanovoltmeter instruments for Delta Mode measurements
- Supports Keithley's Series 2600B, Series 2400, and Series 2400 Touchscreen SourceMeter® Source Measure Unit (SMU) instruments and 2651A and 2657A System SourceMeter SMU instruments
- Simplified instrument configuration using the automated hardware management tool
- Windows 11 and 10 compatible

Powerful Parameter Extraction formulators and customizable open formula to add flexibility

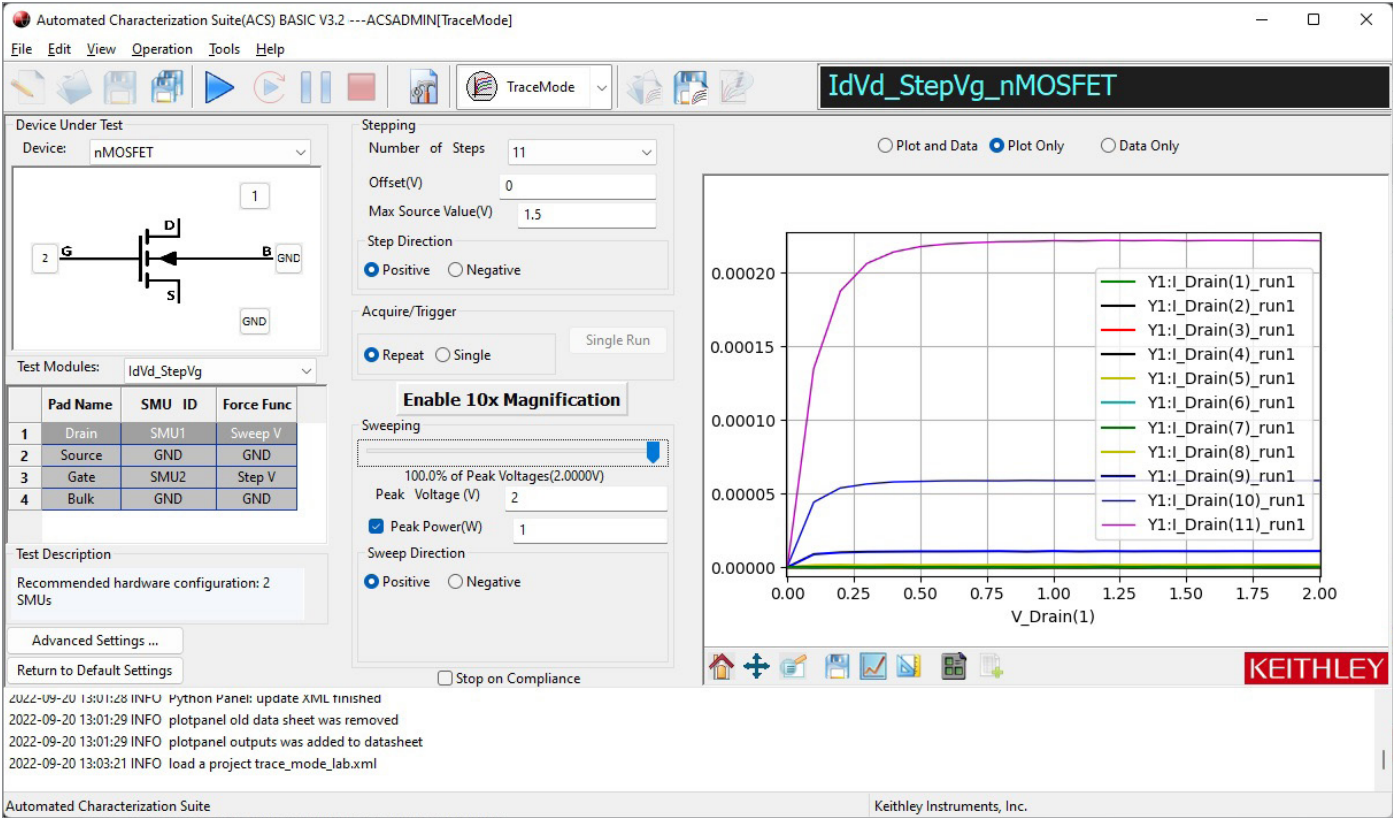
The built-in data analysis tools allow users to quickly analyze the parametric data. For example, place device curves developed from newly collected data over "golden" curves for fast comparisons. To perform specialized calculations on raw data, use the mathematical formulator tool to create customized parameter calculations. Data can be easily saved in graphical and/or tabular formats.

ACS Basic offers three modes of operation:

- Single Test Mode—for single device, single test operations
- Multi Test Mode—for multiple test operations on a single device
- Trace Mode—for mapping out the operating range and characteristics of a semiconductor device while minimizing the risk of damage to it. This mode offers an interactive method of controlling the voltage level of a sweep with a slide bar or the arrow keys on the PC keyboard.



Multi Test Mode allows multiple tests to be performed on a device.



Trace Mode supports interactive testing of a device.

Key Applications

- Materials and device development
- Quality assurance
- Device inspection

Related Products

For applications requiring wafer level testing, use ACS Integrated Test Systems or ACS Wafer Level Reliability Systems. These systems supply a wafer map, probe automation capabilities, and analysis options for yield monitoring as well as related statistical calculations for maximizing productivity in wafer level test environments.

Summary of Typical Tests

Device	Leakage	Breakdown	Gain	On-State
Bipolar Junction Transistor	IEBO, IECO, IEVEB, ICVCB	BVCBO, BVCEI, BVCEO, BVCEV, BVEBO, BVECO	HFE	IBCO, IBEO, IBICVBE, IBVBE, ICBO, ICEV, ICVCE_BiasIB, ICVCE_BiasVB, ICVCE_StepIB, ICVCE_StepVB, VBCO, VCE
MOSFET	IDL, IDS_ISD, IGL, ISL	BVDSS, BVDSV, BVGDO, BVGDS, BVGSO	GM	IDVD_BiasVG, IDVD_StepVG, IDVG_BiasVD, IDVG_StepVD, IDVG_StepVSUB, IGVG, VTCI, VTEXT, VTEXT_IISQ
IGBT	ICES, IGESF, IGESR,	BVCES	NA	VceSAT, VgeON, IcOn, IcVce_StepVge, IcVge, VGETH, VF
Diode	IRDVRD	VBRIRD	NA	DYNAMICZ, IFDVFD, VFDIFD, VRDIRD
Resistor	NA	NA	NA	IV
Capacitor	IV		NA	

Formulator Function Summary

Type	
Math	ABS, AVG, DELTA, DIFF, EXP, LN, LOG, LOG10, SQRT
Parametric Extractions	GMMAX, RES, RES_4WIRE, RES_AVG, SS, SSVTCI, TTF_DID_LGT, TTF_LGDID_T, TTF_DID_T, TTF_LGDID_LGT, VTCI, VTLLINGM, VTSATGM
Fitting	EXPFIT, EXPFITA, EXPFITB, LINFIT, LINFITSLP, LINFITXINT, LINFITYINT, REGFIT, REGFITSLP, REGFITXINT, REGFITYINT, REGFIT_LGX_LGY, REGFIT_LGX_Y, REGFIT_X_LGY, TANFIT, TANFITSLP, TANFITXINT, TANFITYINT
Manipulation	AT, FINDD, FINDLIN, FINDU, FIRSTPOS, JOIN, LASTPOS, MAX, MAXPOS, MIN, MINPOX, POW, SMOOTH

ACS Basic Pre-installation Software Requirements

Minimum Configuration for a Computer

Operating System	Windows 7 × 86 (32 bit), Windows 7 × 64 (64-bit), Windows 10 × 86 (32 bit), Windows 10 × 64 (64 bit), or Windows 11 × 64 (64 bit)
CPU	2 cores or higher, 1 gigahertz (GHz) or faster processor or System on a Chip (SoC)
System Memory (RAM)	8 GB for 32-bit or 16 GB for 64-bit
Hard Disk	16 GB for 32-bit OS 32 GB for 64-bit OS
Graphics Card	DirectX 9 or later with WDDM 1.0 driver
Screen Display	1024 × 768, 32-bit True Color

Recommended Configuration for a Computer

Operating System	Windows 10 × 86 (32 bit), Windows 10 × 64 (64 bit), or Windows 11 × 64 (64 bit)
CPU	4 cores or higher, at least 2 gigahertz (GHz) or faster processor
System Memory (RAM)	8GB for 32-bit or 16GB for 64-bit
Hard Disk	32 GB for 32-bit OS 64 GB for 64-bit
Graphics Card	DirectX 9 or later with WDDM 1.0 driver
Screen	1280 × 1024, 32-bit True Color

Available Accessories

KUSB-488B IEEE-488.2 USB-to-GPIB Interface Adapter for USB Port

Ordering Information

ACS Basic Edition

ACS-BASICFL	ACS Basic Edition Instrument Control Software; Perpetual Floating License*
ACS-BASICFL-3MO	ACS Basic Edition Instrument Control Software; 3 month Subscription Floating License Option**
ACS-BASICFL-AN	ACS Basic Edition Instrument Control Software; 1 year Subscription Floating License Option**
ACS-BASICFL-UP	Annual Maintenance License for extending support of Perpetual Floating License

* Perpetual Licenses: The software can be used indefinitely; license does not expire but updates/support only available for the first 12 months. Support can be extended by purchasing a maintenance license. If a perpetual license goes out of support, all features will be frozen to the last released version before the support expired. The software will continue to work, but you cannot get any updates newer than the support expiration date.

- Maintenance Licenses – Apply to perpetual licenses only. Maintenance license is an extension license that extends the period of support of an original perpetual license for 12 months.

**Subscription Licenses: The software can be used throughout the term of the license only. Software updates and support through the term of the license are included. When the Subscription license expires, all features will no longer work, but a new Subscription license may be purchased.

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