

ACS Basic Edition Semiconductor Parametric Test Software for Component and Discrete Devices

Datasheet



KEITHLEY
A Tektronix Company

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 (not 2604B, 2614B, or 2634B), Series 2400, 2651A, and 2657A SourceMeter® SMU instruments.

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.

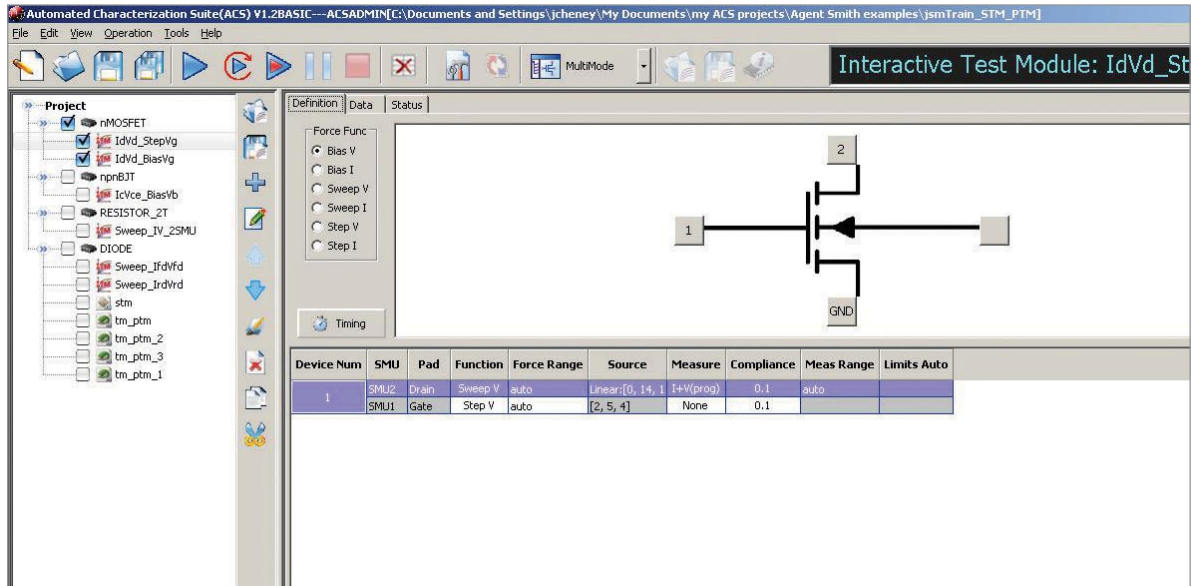
Key Features

- 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 Series 2600B (not 2604B, 2614B, or 2634B), Series 2400, 2651A, and 2657A System SourceMeter SMU instruments
- FREE optional off-line version for developing test setups on a different PC
- Windows 10 compatible

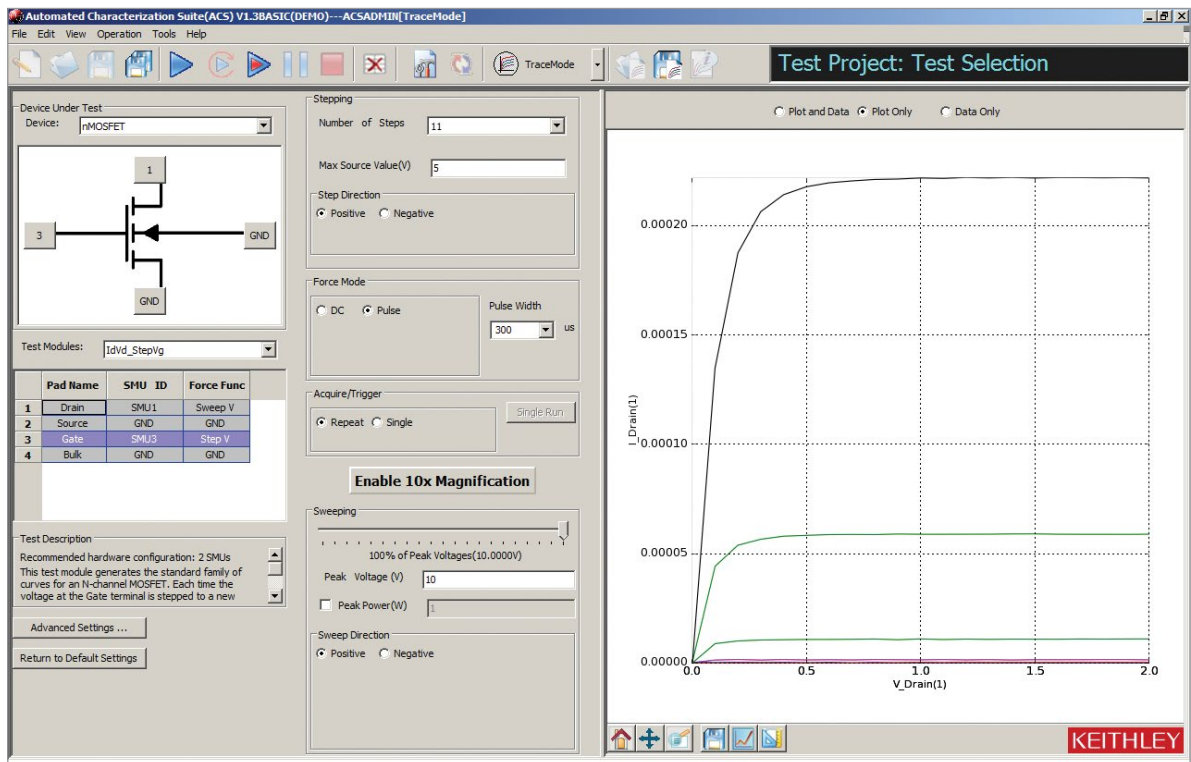
The built-in data analysis tools allow users to quickly analyze the parametric data. For example, place device curves developed from newly collected data over "golden" curves for fast comparisons. To perform specialized calculations on raw data, use the mathematical formulator tool to create customized 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



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



Trace Mode supports interactive testing of a device.

a sweep with a slide bar or the arrow keys on the PC keyboard.

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, prober 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 |
| 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, VTLINGM, 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 V2.1.5 Pre-installation Software Requirements

Minimum Configuration for a Computer

| | |
|----------------------------|--|
| Operating System | Windows 7 × 86 (32-bit), or Windows 7 × 64 (64-bit), Windows 10 × 86 (32 bit), or Windows 10 × 64 (64 bit) |
| CPU | 2 cores or higher, 1 gigahertz (GHz) or faster processor or System on a Chip (SoC) |
| System Memory (RAM) | 1 gigabyte (GB) for 32-bit or 2 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), or Windows 10 × 64 (64 bit) |
| CPU | 4 cores or higher, at least 2 gigahertz (GHz) or faster processor |
| System Memory (RAM) | 2 gigabyte (GB) for 32-bit or 4 GB 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

| | |
|---------------------|---|
| 2600-FIX-TRX | Grounded Phoenix-to-Triax Cable Adapter |
| 8101-4TRX | Leaded Component Test Fixture |
| ACS-COMP | PC for Installed and Bench-top ACS Systems |
| KUSB-488B | IEEE-488.2 USB-to-GPIB Interface Adapter for USB Port |

Ordering Information

| | |
|--------------------------|--|
| ACS-BASIC | Component Characterization Software |
| ACS-BASIC-UPGRADE | (available for existing ACS Basic customers) |

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