E4727B Advanced Low-Frequency Noise Analyzer

30 mHz to 100 MHz, 200 V, 100 mA



Measure Semiconductor's Flicker(1/f) Noise and RTN with Wafer Mapping

The Keysight E4727B/W7802B is a turn-key solution to measure flicker (1/f) noise and RTN (Random Telegraph Noise) of semiconductor's device. The Keysight W7801B is bundle software to control Keysight B1530A (WGFMU). These solutions can control semi-auto probe station and get mass wafer mapping noise data automatically.

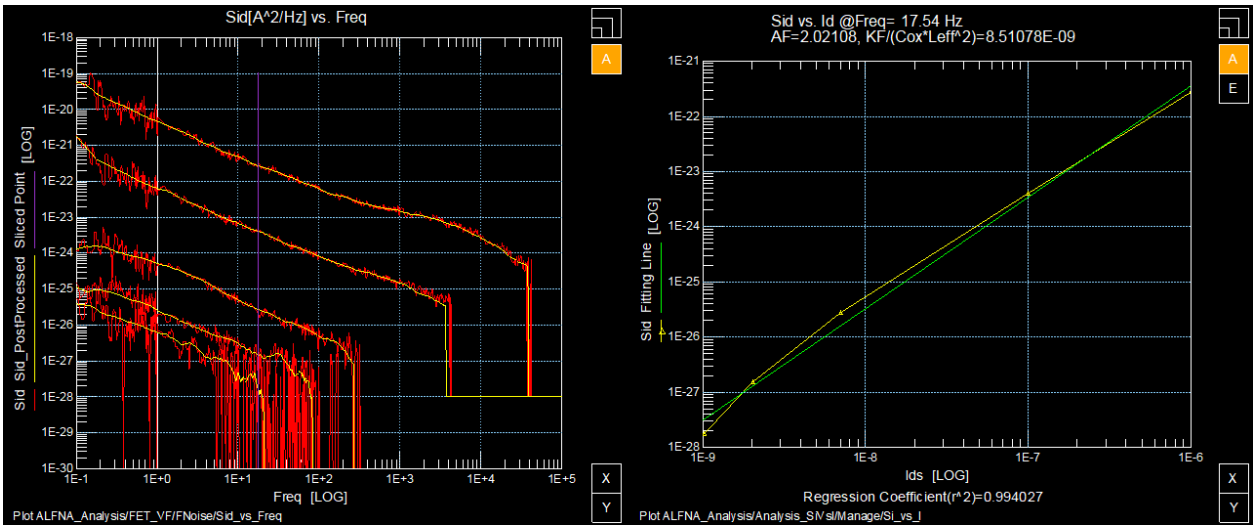
Applications

- Process design kit development
- Manufacturing statistical process control and reliability
- IC noise specification

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E4727B Key Features

- 1/f noise corner frequency measurement in very high frequency
- Extremely low device noise measurement such as transistor linear region noise by newly designed LNA
- State of the art new LNA also allows noise measurement in very low bias current
- High power device noise measurement even in the high current like 1A
- Improve measurement productivities by fast measurement speed even in the high accurate condition with number of averaging.



E4727B Hardware Specifications

Key Features	Specifications	Comments
Frequency BW	30 mHz to 100 MHz	
System noise floor	1E-28 A2 / Hz	Typical
Min measurable bias current	30 pA	Typical
Max drain bias current, voltage, power	0.1 A / 200 V / 10 W	
High power noise measurement	> 0.1 A current	Needs external power supply
RTN	2 ns min time step up to 16 M sample size	

W7802B: PathWave WaferPro Express A-LFNA Measurement and Programing Bundle Software

The A-LFNA software and user interface is built on top of the PathWave WaferPro Express measurement platform. The A-LFNA's built-in measurement routines make DC and noise measurements turnkey. For example, to measure noise on an N-Type MOSFET, the system automatically chooses the source and load impedances that will best expose the intrinsic device noise. The engineer can accept these recommended settings or make changes, and a noise measurement is initiated. The A-LFNA then measures noise power spectral density (1/f noise) and noise in the time domain (RTN). Resulting data is plotted using a "multiplot" data display window. Various windows tabs help facilitate common tasks such as evaluating device DC operating point and measuring the slope of the power spectral density curve.

Key features

- Seamless integration with PathWave WaferPro Express measurement platform
- Advanced data display and analysis, enabling noise data comparisons and modeling with respect to bias current
- Automated control of all major wafer probing systems
- A-LFNA module features DC measurements, 1/f noise, RTN and data analysis
- Flexible hardware averaging for throughput-accuracy tradeoffs
- Multiple built-in biasing schemes for flicker noise characterization
- Measured data compatible with Keysight device modeling software
- Guided system calibration procedure
- PEL and Python measurement routine language support

Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.

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