

# S470

The New Cost-Per-Pin Standard  
*for Production Parametric Test*



**KEITHLEY**

A GREATER MEASURE OF CONFIDENCE



*Cost-effective parametric tester for 130nm node*

**Proven in production worldwide**

*Testing at up to 40GHz with RF option*

**RF as easy as DC**

*Adaptive test option*

**Automates first-level process diagnostics**

*SECS/GEM option for 200mm*

**Integrated factory automation**



## Complete parametric test capabilities for the 130nm node and beyond

Finally, there's a comprehensive, low cost-per-pin, parametric test solution designed for use in both technology development and production process monitoring. Keithley's S470 tester configuration, the latest extension of the popular S400 Series line, offers all the tools needed for DC and RF parametric testing of 130nm CMOS processes on 200mm wafers. It's also ideal for parametric testing of analog bipolar, automotive, GaAs, telecom, and LCD devices. With excellent current measurement resolution and the ability to measure high currents, the S470 tester is an economical choice for testing the most common types of ICs now in high volume production on 200mm wafers.

The S470 combines powerful, yet uncomplicated software tools for test code development and modification, wide measurement ranges, high throughput, exceptional measurement integrity, and advanced data analysis tools to provide a complete parametric test solution that's as easy to use as it is to afford.

Like all recent S400 Series testers, the S470 is based on a flexible UNIX platform, and it's easy to upgrade your system to handle new measurement needs due to shift in your product mixes, including RF s-parameter measurements at up to 40GHz.

## Choose Keithley's bundled parametric test configuration for the industry's best cost-per-pin

The basic S470 bundle is a complete, fully operational 24-pin system that's optimized for 200mm wafer test at the 130nm node. Selling the S470 as a bundled system has made it economically possible to provide the best cost-per-pin system in the parametric test industry. The system's exceptional ease of use increases its overall test value by speeding and simplifying both test programming and day-to-day operation.

The standard S470 configuration includes:

- Four DC Source-Measure Units.
- A 100kHz capacitance/conductance meter.
- A picoammeter unit that can provide 10fA resolution for measuring small currents with confidence.
- A high performance switch matrix comparable to the popular Keithley models 707A/7174A matrix.
- Probe card adapter and interface for automated 200mm prober.
- A UNIX controller with Solaris Operating System, 17-inch monitor, and C language compiler.
- Keithley Test Environment v5.1 software. KTE provides a family of powerful integrated tools for test development, recipe selection, test execution, and data analysis. Standard CMOS and BiCMOS measurement libraries are included.
- On-site installation and a one-year warranty.

## Discover high application and execution flexibility without the high price

A variety of economical hardware and software options are available to tailor the standard S470 bundle to your specific application or test environment.

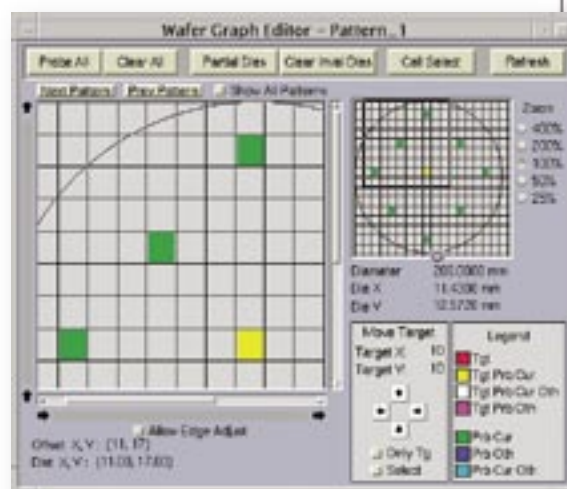
Additional DC Source-Measure units can be included, and the S470 can be expanded to 48-pins. For testing advanced dielectrics, choose an optional multi-frequency capacitance meter or the RF option. Keithley's micro-voltmeter option supports making high resolution measurements on copper processes. A choice of pulse generators is available for use in conjunction with either a frequency counter or a spectrum analyzer for measuring ring oscillators.

Keithley offers software options that build on the programming, execution, and analysis capabilities in the standard KTE package. The Keithley Recipe Manager option lets you generate valid test plans quickly by making it easy to modify and reuse existing test plans. Version control tools prevent unintentional, undesired, or undocumented code changes, so only approved test sequences are released to production, providing ISO-9001 traceability for recipes. The AdapTest option automates first-level process diagnostics.

The RF option combines DC and RF testing in a single system that's equally practical for technology development and process monitoring environments. It supports full automation of calibration, de-embedding, RF parameter extraction, probe contact resistance compensation, consumables tracking, data analysis, and revision control.

## Be confident with a production-proven, high reliability solution

You can forget about system reliability and uptime problems. The S470 is based on a production-proven test platform, with more than 450 similar Keithley testers installed in leading fabs around the world. It is backed by Keithley's worldwide spares and support infrastructure.



## Condensed Specifications

<b>DC current-voltage capability</b>	<ul style="list-style-type: none"> <li>• 10fA and 15<math>\mu</math>V measurement resolution</li> <li>• 0.2A and 200V output</li> <li>• All channels Kelvin and fully guarded to probe tip</li> </ul>
<b>Capacitance/conductance meter</b>	<ul style="list-style-type: none"> <li>• 10fF–1nF measurement range</li> <li>• 100kHz frequency, 45mV AC bias</li> </ul>
<b>RF option</b>	<ul style="list-style-type: none"> <li>• 40GHz (non-extrapolated)</li> <li>• Uses standard production prober</li> </ul>
<b>Micro-voltmeter option</b>	<ul style="list-style-type: none"> <li>• 100nV resolution based on Keithley Model 2001 DMM</li> </ul>
<b>Medium current Voltage source option</b>	<ul style="list-style-type: none"> <li>• Voltage pulses down to 20<math>\mu</math>S</li> <li>• Measure current up to 2A maximum</li> </ul>
<b>Multi-frequency capacitance meter option</b>	<ul style="list-style-type: none"> <li>• 1pF–100nF measurement range</li> <li>• 1kHz, 10kHz, 100kHz, and 1MHz frequencies</li> </ul>
<b>Spectrum analyzer option</b>	<ul style="list-style-type: none"> <li>• 9kHz–1GHz frequency range</li> <li>• &lt;100mV noise level (typical)</li> </ul>
<b>Frequency counter option</b>	<ul style="list-style-type: none"> <li>• 1MHz–30MHz measurement range (AC coupled)</li> </ul>
<b>Pulse generator option</b>	<ul style="list-style-type: none"> <li>• 50ns–999ms pulse width</li> <li>• 20ns–200ms fall/rise time</li> <li>• 20V output amplitude (20V peak-to-peak)</li> </ul>
<b>Standard Reference Unit</b>	<ul style="list-style-type: none"> <li>• NIST-traceable calibration</li> </ul>
<b>Switching matrix (24 pins standard)</b>	<ul style="list-style-type: none"> <li>• Based on the well-accepted Keithley models 707A/7174A air matrix</li> <li>• Fast settling</li> <li>• Up to 36 or 48 pins, optional</li> </ul>
<b>Probe card</b>	<ul style="list-style-type: none"> <li>• Standard Kelvin probe card adapter</li> <li>• Familiar ceramic blade technology</li> </ul>

**Call Keithley at 1-888-KEITHLEY (534-8453) or visit [www.keithley.com](http://www.keithley.com) for more detailed specifications on the Model S470 or to request a price quote on a system tailored to your applications.**

Specifications are subject to change without notice.

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