

KEYSIGHT TECHNOLOGIES (AGILENT HP)

4291B

The Keysight (Agilent/HP) 4291B is a high-precision RF Impedance and Material Analyzer operating from 1 MHz to 1.8 GHz. It provides an all-in-one solution for evaluating surface-mount components, electronic materials, and magnetic or dielectric substances. Featuring a basic impedance accuracy of $\pm 0.8\%$ and dedicated material measurement capabilities up to 1 GHz, the 4291B utilizes an external test station connected by an error-less 1.8-meter cable to maintain accuracy at the point of measurement.

SPECIFICATIONS

Measurement Parameters and Range

Measurement Parameters	$ Z $, θ_z , $ Y $, θ_y , R, X, G, B, Cp, Cs, Lp, Ls, Rp, Rs, D, Q, $ \Gamma $, θ_γ , Γ_x , Γ_y
Basic Impedance Accuracy	$\pm 0.8\%$
Equivalent Circuit Models	5 models (with automatic circuit constant calculation)
Material Evaluation Frequency Range	1 MHz to 1 GHz

Stimulus (Source) Characteristics

Frequency Range	1 MHz to 1.8 GHz
Frequency Resolution	1 mHz
Internal DC Bias Voltage Range	Up to 40 V (with option)

Sweep Capabilities

Measurement Channels	2 channels with independent parameter selection
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Data Storage and Operating System

Internal Programming Language	Instrument BASIC (IBASIC)
Storage Drive	Built-in 3.5-inch floppy disk drive

Supported Accessories and Options

Supported Component Test Fixtures	4 dedicated fixtures (supports DUT sizes from 0.5 mm to 20 mm)
Material Fixture Temperature Range	-55 °C to +200 °C

Measurement Performance

Measurement Range ($ Z $)	0.1 Ω to 50 k Ω
Averaging Factor	1 to 999

Source Characteristics

OSC Level Voltage Range	0.2 mV to 1 V rms
OSC Level Current Range	4 μ A to 20 mA rms
Internal Reference Frequency	10 MHz

Sweep Characteristics

Number of Measurement Points	2 to 801
Sweep Types	Linear, Log, List

Test Station

Test Station Connector Type	APC-7 (7 mm)
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TECHNOLOGY

RF Impedance & Material Analysis

APPLICATIONS

High-accuracy evaluation of surface-mount components, dielectric materials, and magnetic materials

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.