

Application Brief

Keysight Technologies

High-Current Ultra-Low Noise Filter Minimize B2961A/62A Power Source Noise Density

The Keysight Technologies, Inc. N1294A-020 High Current Ultra Low Noise Filter (HC-ULNF) reduces the voltage noise of the Keysight B2961A/62A to 10 μVrms in the frequency range of 10 Hz – 20 MHz, while still allowing it to source up to 21 V and 500 mA. When attached to the output channels of B2961A/62A, the HC-ULNF reduces the noise density to 1 $\text{Vrms}/\sqrt{\text{Hz}}$ at 10 kHz.

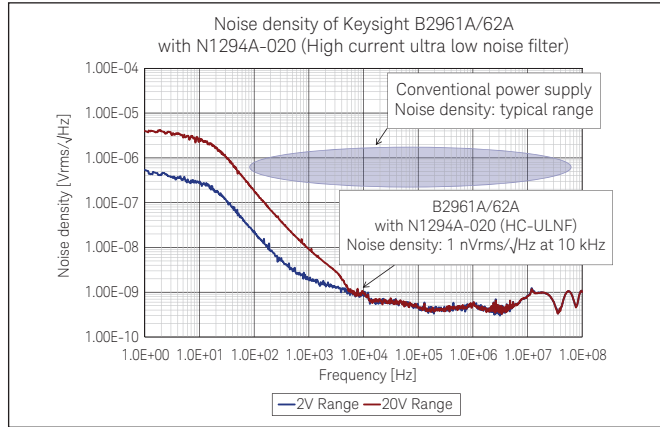


Supplemental characteristics			Values
Max. output	Voltage	DC	21 V
	Current	DC	500 mA
Noise	Voltage source	0.1 to 10 Hz	5 μVpp
		10 to 20 MHz	10 μVrms (1 $\text{nVrms}/\sqrt{\text{Hz}}$ @10 kHz)
	Current source	0.1 to 10 Hz	6 nApp
		10 to 1 MHz	8 μArms
Maximum capacitive load (4-wire)		50 μF	
Output/residual resistance	2-wire	10 Ω nominal	
	4-wire	0.3 Ω nominal	
Small signal bandwidth	2-wire	23 Hz nominal	
	4-wire	8 Hz nominal	

Please see B2961A/62A Data Sheet, literature number 5991-0663EN for more detail

Uncover More of the True Characteristics of Noise Sensitive Devices

Used together, the High-Current Ultra-Low Noise Filter (HC-ULNF) and the Keysight B2961A/62A provide outstanding low noise performance that can evaluate noise-sensitive devices and circuits such as A/D Converters as well as many other types of analog and RF ICs. In addition, this solution meets the noise density requirements for phase noise evaluation of oscillator circuits such as VCOs and crystal oscillators.



B2961A/62A 6.5 Digit Low Noise Power Source

The Keysight B2961A/62A is an advanced power supply/source. It can source either voltage or current with 6.5 digits of resolution while also monitoring both voltage and current. This makes it essential for a variety of measurement applications.



N1294A-021 Ultra-Low Noise Filter

An Ultra-Low Noise Filter (ULNF) is also available for the B2961A/62A. The ULNF lowers the B2961A/62A's noise floor and when used together the noise density of this solution is 1 nVrms/√Hz at 10 kHz for voltages and currents of up to 42 V and 100 mA. Please refer to literature number 5991-3884EN for more detail.



N1294A-022 Low Noise Filter

A Low Noise Filter (LNF) is also available for the B2961A/62A. It provides noise levels comparable to those of linear power supplies and also supports the B2961A/62A's wide bipolar voltage and current ranges (up to 210 V/3 A). Please refer to literature number 5991-3886EN for more detail.



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