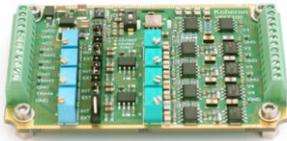


VREF100 - Quad-channel bipolar voltage source



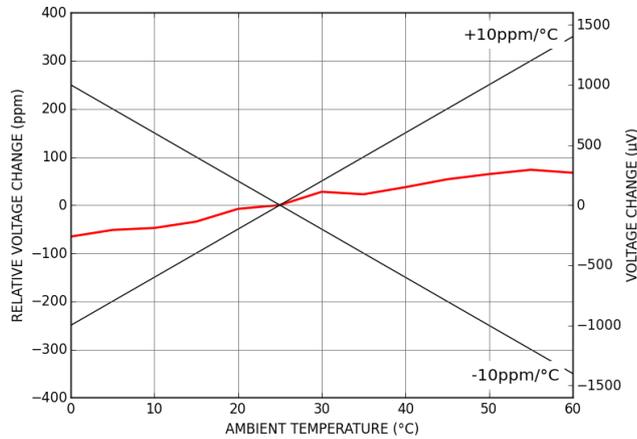
Koheron VREF100 is a quad-channel voltage source that can be adjusted between -5 V and +5 V. It can source or sink up to 40 mA on each channel. Each channel has a coarse and a fine trimmer with a settability of 20 μV . Thanks to its low wideband noise and high stability, the VREF100 can be used to bias sensitive devices such as VCOs or Mach-Zehnder modulators.

Specifications

	VREF100-50
Number of channels	4
Output voltage range	+/- 5 V
Current driving capability	40 mA (source or sink)
Voltage noise density (10 kHz)	1.3 nV / $\sqrt{\text{Hz}}$
RMS noise (10 Hz - 1 MHz)	2 μV
24 h stability	50 μV
Load regulation	35 μV / mA
Temperature coefficient	5 ppm / $^{\circ}\text{C}$
Fine adjustment range	+/- 50 mV
Other	
Dimensions	75 mm x 50 mm x 16 mm
Weight	34 g
Supply voltage	+/- 9 V
Operating temperature	0 $^{\circ}\text{C}$ - 40 $^{\circ}\text{C}$

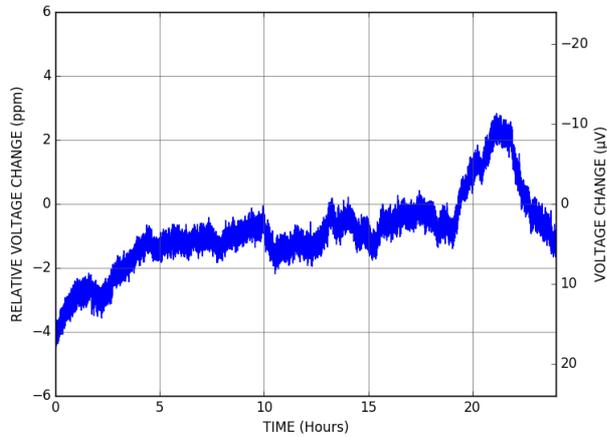
Temperature coefficient

The graph below shows the variation of the output voltage of the VREF100 (set to -4 V) when the temperature varies from 0 to 60 °C. Temperature coefficient is about 10 $\mu\text{V}/^\circ\text{C}$.

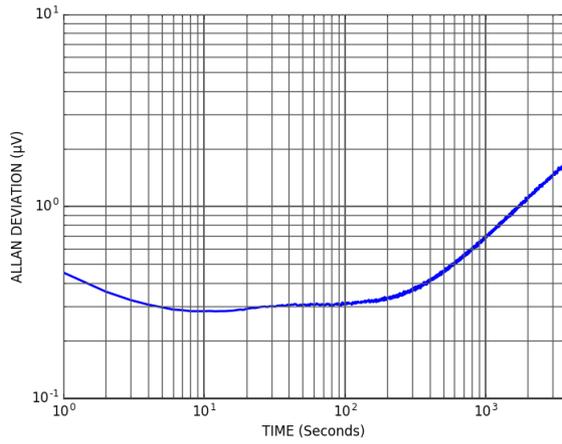


Voltage stability

Voltage stability of the VREF100 has been measured at a temperature of 25 $^\circ\text{C}$ and an output voltage of -4 V over 24 hours:

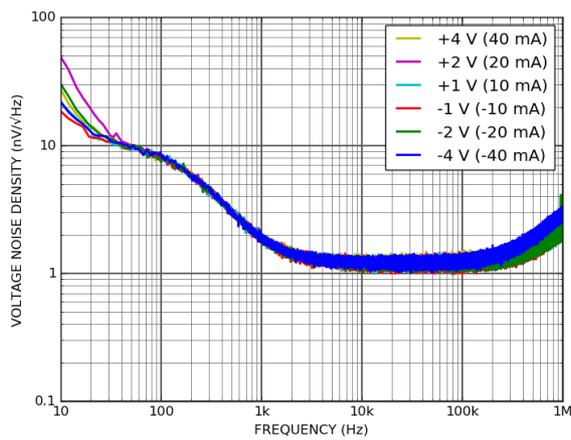


The corresponding Allan deviation is shown below. A minimum Allan deviation of 300 nV is seen between 5 and 100 seconds.



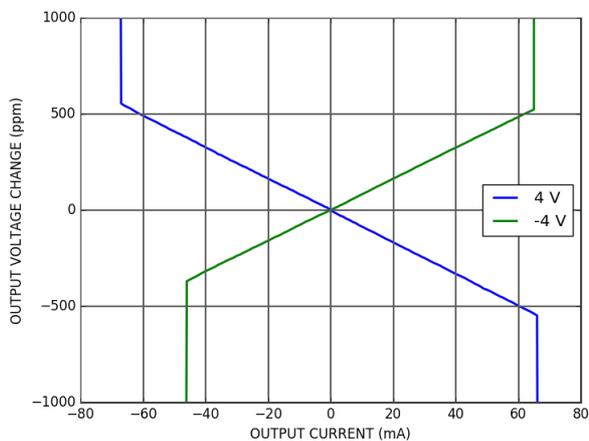
Voltage noise density

The graph below shows the output voltage noise density of the VREF100 when driving a 100 Ω load at different output voltages.



Current driving capability

At 4 V output voltage, the VREF100 sources up to 60 mA. At -4 V output voltage, it sinks up to 40 mA and sources up to 60 mA.



Application: Voltage Controlled Oscillator (VCO) control

We used the VREF100-50 to control a Minicircuits ROS-2500 Voltage Controlled Oscillator. The VCO is controlled with 4 V, which gives a VCO output frequency of 1.7 GHz.

