Make Better Noise and Ripple Measurements on DC Voltage Rails

Greater Measurement Confidence

With the Keysight Infiniium MXR B-Series oscilloscope and Keysight N7020A power rail probe, you can easily identify whether your power rail performs within noise and ripple tolerances.

Gain More Insight to Your Signal

The MXR B-Series oscilloscope and N7020A power rail probe enable you to zoom in on power rails to look for and measure transients, ripple, and noise in greater detail to achieve greater power integrity.

Easy Noise and Transient Evaluation

Evaluate and understand high-frequency noise on your DC power rails more easily than ever with the MXR B-Series oscilloscope and N7020A power rail probe solution.

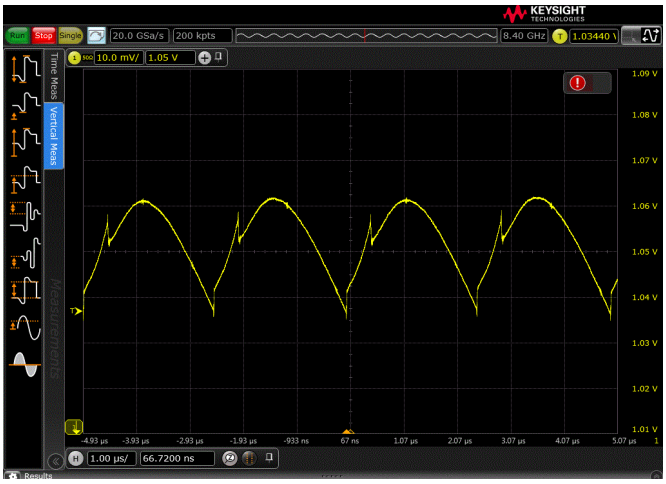
Power rail voltages and tolerances are decreasing. You need to measure the voltages to ensure they are within the tolerance band and analyze the potential adverse interactions between power rails and digital signal lines.

With traditional measurement systems whose noise approaches the tolerance levels of the power rails, accurately measuring periodic and random deviation on the DC voltages can be challenging.

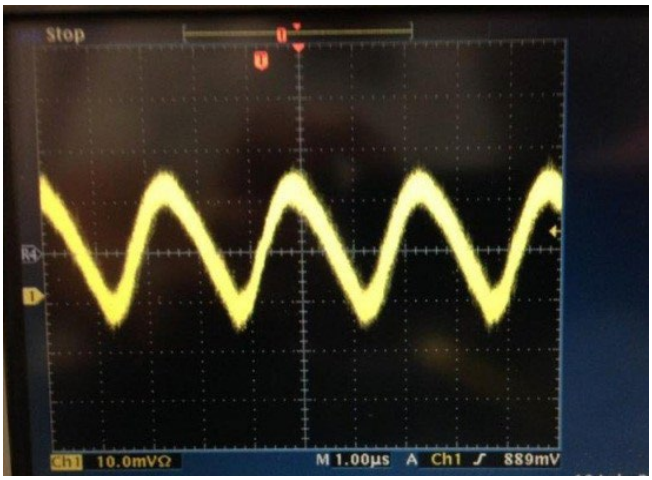
Want to Learn More?

How to Perform Power Integrity Analysis

KEYSIGHT



The MXR B-Series oscilloscope, with the N7020A power rail probe, enables highly accurate measurements, as it displays the subtle details of the trace from a DC power supply



Measuring the same signal on another brand of oscilloscope shows so much noise that the details of the signal become lost, negatively impacting the credibility of the data

See Your Signal Instead of Oscilloscope and Probe Noise

1

Identify whether your power rail is within tolerance

Measuring low noise is crucial to avoid confusing the noise of the probe and oscilloscope with the measurement of the noise and ripple of the DC supply. Additionally, any time you attach an oscilloscope or other measurement system, it adds loading and noise. Loading can affect DC supply behavior and can make measurements inaccurate.

Keysight's solution has extremely low noise. The N7020A power rail probe only increases the baseline noise of the oscilloscope by 10%. Combined with the Infiniium MXR B-Series oscilloscope, you have a high signal-to-noise ratio at small vertical settings and full 10-bit ADC support. Furthermore, the N7020A probe has extremely low DC loading due to 50 kΩ DC input impedance.

2

Zoom in on power rails to look for and measure transients, ripple, and noise

Without the ability to move the signal to the center of the screen, you need to have the oscilloscope set to large volts per division. This approach decreases the sensitivity and increases the oscilloscope's noise compared to the signal. Placing a DC blocking capacitor in the signal path eliminates the offset problem but can also eliminate important DC information such as DC supply compression or low-frequency drift.

With ±24 V of probe offset, Keysight's solution offers a large offset. This feature enables you to center the signal on the screen while placing the oscilloscope at its maximum vertical sensitivity. You can zoom in on the signal and confidently see any transients, ripple, or noise.

3

Evaluate and understand high-frequency noise and transients on DC power rails

Ripple, noise, and transients riding on DC supplies are a significant source of clock and data jitter in digital systems. Dynamic loading of the DC supply by the processor, memory, or similar components can occur at the clock frequency and create high-frequency transients and noise on the DC supply.

The N7020A power rail probe has 2 GHz of bandwidth, so you see the transients you need to measure, no matter where they come from.

The Infiniium MXR B-Series oscilloscopes with Keysight D9010POWA power integrity software and the N7020A power rail probe are solutions that give enable you to zoom in on signals so you can make accurate power rail measurements.

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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