

Fast Dynamic Current Unveils True Device Characteristics

Challenges in Measuring Precision Dynamic Current with a Digital Multimeter

A digital multimeter (DMM) is a commonly used tool to measure the static current with high accuracy. New high-performance DMMs have a digitizing mode which enables you to capture the dynamic current.

However, since the static measurement only measures the average current in a specific period, you may miss the device's dynamic characteristics.

You cannot capture the fast transients in digitizing mode because of the limitations in the sampling rate and bandwidth. It takes too much time to capture and analyze the waveform data because of the limitations in display, trigger, and built-in waveform analysis capabilities.

CX3300 Series Reveals True Characteristics of Devices with Precise Dynamic Current Measurement

The Keysight CX3300 series device current waveform analyzer has a low noise floor, wide dynamic range, wide bandwidth, high sampling rate, and deep memory depth. You can view the waveform with the DMM using the digitizing mode (Figure 1). The CX3300 easily captures the fast inrush, spike, transition current, and small changes in sleep mode. You will never miss the unexpected or abnormal behavior of the devices.

DMM digitizing mode



Small changes in the sleep mode

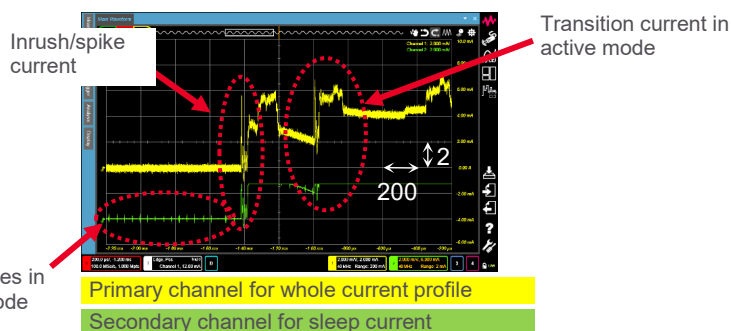


Figure 1. The CX3300 easily captures unexpected or abnormal behavior of your devices; with Keysight CX1102A dual channel current sensor



Applications and Benefits

- Characterize power rail current and voltage
- Optimize the circuit design against inrush current
- Achieve lower power consumption
- Validate the circuit in various temperature conditions
- Characterize the impedance for power integrity

CX3300 Series Device Current Waveform Analyzer

The CX3300 series is an all-in-one solution for power rail current and voltage characterization. It enables you to solve circuit power rail problems for devices such as IoT, mobile, medical, and automotive.

Precision scope

- ✓ Wide bandwidth
- ✓ Fast sampling rate



DMM

- ✓ High sensitivity
- ✓ Low noise



Data logger

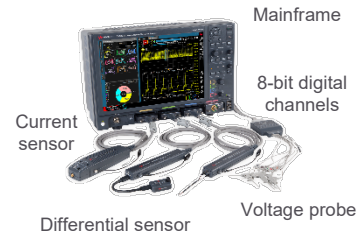
- ✓ Long measurement



**CX3300 series
device current waveform analyzer**

Key features

- Maximum 200 MHz bandwidth, 1 GSa/s, 256 Mpts/ch memory depth
- Clearly view the waveform with 14/16-bit high resolution
- Low noise and a wide dynamic range with high sensitivity from sub-nA and sub- μ V
- Long-duration measurement — up to 100 hours at 10 MSa/s maximum using a storage device
- Efficient analysis functions — current profiler, waveform playback, waveform analytics, and waveform trend analyzer



Additional Resources

- [CX3300 Series Device Current Waveform Analyzer - Product Fact Sheet](#)
- [Characterize, Validate, and Debug Advanced Devices with Precision Dynamic Current Measurements](#)

Learn more at: www.keysight.com

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