

# Power Supply Design Using TDS3000B Series Digital Phosphor Oscilloscopes



## One Tool, Many Tests

Today's typical power supply designers are working with switching power supplies. They must characterize power levels, output purity, and harmonic content, and must be prepared to measure high-frequency switching device outputs, noise levels, and more.

The TDS3000B Series is equipped to handle all of these measurements. Special-purpose probes are available for current, differential, and high-voltage readings.

## A New Level of Insight into Complex Signals

The TDS3000B's DPO waveform acquisition technology and WaveAlert™ waveform anomaly detection reveal signal characteristics unseen by other digital oscilloscopes. The DPO display intensifies the most frequently repeating trace areas, making it easy to distinguish the degree of modulation on a power supply control loop signal, for example.

WaveAlert can find those annoying and elusive transients that may imply (or cause) power circuit instability.

## Measuring line harmonics

Switching supplies must conform with standards such as IEC61000-3-2 to prevent damaging odd-order harmonics from "returning" to the power grid. The FFT feature provides optimized menus and DSP features to analyze the harmonic content of power supply outputs. This feature displays a harmonic spectrum, which is interpreted with the aid of the instrument's cursors. For proof of compliance, an attached TDS3PRT Plug-in Printer can print a copy of the screen.

## Measuring instantaneous power

Measuring instantaneous power dissipation on switching transistors requires simultaneous current and voltage readings. Moreover, the voltage test points are not referenced to ground. The TDS3000B Series' standard TekProbe® interface is compatible with the TCP202 Current Probe and the P5205 Differential Probe provides safe and accurate measurements on ungrounded circuits. When the TCP202 and P5205 are used together, the TDS3000B provides voltage, current, and power waveforms as well as scaled numerical readings in appropriate units.