

Low Cost, Scope Based, TDR/PCB Tester

Solution Brochure

Time Domain Reflectometry (TDR) is the fastest method for verifying PCB trace, cable, and interconnect impedance

High-speed circuits depend on accurately matched source, interconnect, and receiver impedance to assure low Bit Error Rate (BER). This generally means evaluating the rise time, overshoot and undershoot of signal paths. Printed circuit boards generally include a controlled impedance trace or “coupon” for verifying the design and manufacture of the PCB stackup.



PerfectPulse turn-on/turn-off, 20ps/div

Interconnects including cable crimps and connector attachments also influence these high-speed measurements and the integrity of these connections needs to be verified on a regular, recurring basis. These measurements are often performed using a high-speed signal generator and a sampling oscilloscope often combined into a dedicated TDR instrument.

The Picotest portable, low-cost, and USB powered signal generator solutions meet the needs of many applications up to 10GHz

J2151A PerfectPulse® Signal Generator

The [J2151A](#) signal generator and included power splitter provide a 0V to -500mV pulse and 32ps typical rise/fall times to measure traces and cables with a resolution of 100 mils.

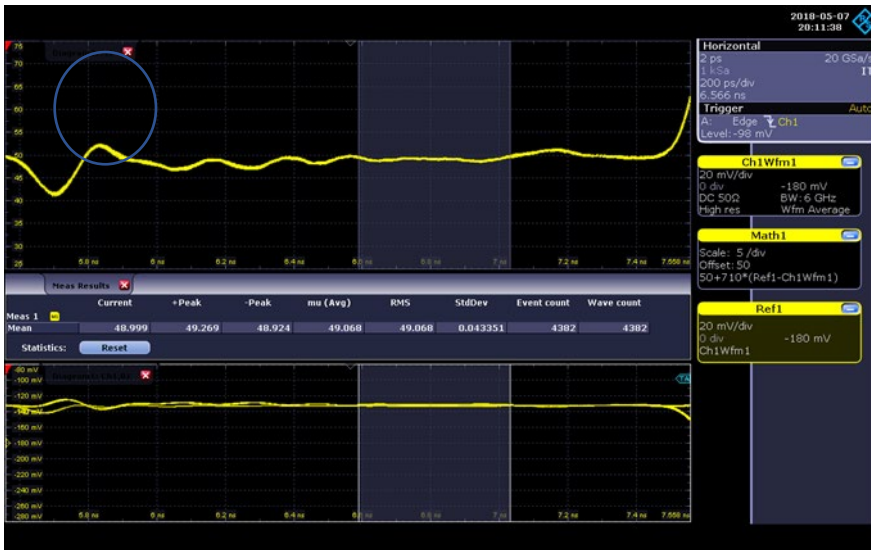


- TDR Applications and Measurements
- Low cost PCB coupon testing
- Verify characteristic impedance of traces and cables
- Measure trace and cable length and signal delay
- Measure signal path rise/fall time and overshoot/undershoot
- Support cable and trace loss modeling
- Verify integrity of cable crimps and connector launches
- Determine cable/PCB dielectric constant
- Measure frequency bandwidth, rise/fall time, and flatness of lab instruments and probes
- Compatible with sufficient bandwidth 50Ω probes



Coupon/Trace Test using the PerfectPulse® generator and the 1-port PDN probe.

TDR measurements



Lower window (scope raw trace data) and upper window (transformed impedance). The trace impedance of the third test coupon in the TDR PCB test standard (see right) is measured after the settling, using gated cursors to display the mean value between cursors. This cable measures 49 Ohms. The circled transient on the left of the screen reveals an imperfect connector SMA soldering.

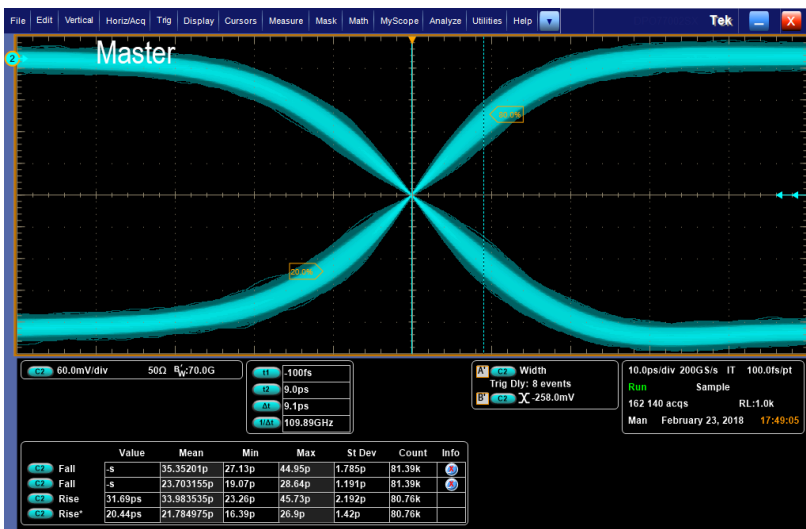


TDR PCB test standard demo board (included with the J2151A) includes 4 traces with precise structures and aberrations.

Products

PerfectPulse® - J2151A Includes TDR Power Splitter, Test Demo Board	Seven (7) Modes, DC – 10MHz 32ps R/F (typical) 10+GHz 6dB 2-port resistor splitter
P2104A	1-Port 50-ohm Transmission Line PDN Probe

To learn how this solution can address your specific needs please contact Picotest:
877-914-7426
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PerfectPulse® provides 32ps rise/fall times with a flat response.

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Picotest provides products that are designed to simplify measurements while providing the ultimate resolution and fidelity.

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