

# 18 GHz 100 $\Omega$ Differential Impedance TDR Hand Probes

## P80318 • P80318X Data Sheet



### Features & Benefits

- 18 GHz Bandwidth
- Direct In-circuit TDR Testing
- Reliable and Repeatable Resolution of Impedance Variations to 0.12"
- Adjustable Probe Pitch from 0.5 mm to 4.2 mm
- Probing of Fully Balanced Differential Signals Without Ground Contact
- Double-cushioning Design Enables Probe Tips to Maintain Proper DUT Contact
- Protects Sampling Module from Static Damage when Used with Two 80A02 Modules

### Applications

- Circuit-board Controlled Impedance Testing (TDR)
- Loss Tangent Measurements for Differential Transmission Lines
- Failure Analysis of PCB With or Without Components Mounted
- Package Impedance Testing (TDR)

### P80318

The P80318 is an 18 GHz 100  $\Omega$  input impedance differential TDR hand probe. This probe enables high-fidelity impedance measurements of differential transmission lines. The adjustable probe pitch enables a wide variety of differential line spacing and impedances. The P80318 probe also includes two precision SMA cables with parallel control lines that provide the 80A02 the control for EOS/ESD protection.

### P80318X

The P80318X is designed for high-volume PCB impedance test applications. These applications require maximum manufacturing up-time. The P80318X includes everything in a P80318 plus a second probe body for use if the first probe body needs to be serviced due to normal wear.

The P80318 probe can be used as a standalone high-resolution probe, but it is specially designed to be used with two 80A02 EOS/ESD Protection Modules. To maximize testing up-time and minimize repair costs, protecting the sampling module from static damage is a requirement. Damage to the sampling module is typically due to electro-overstress (EOS) and electrostatic discharge (ESD) from large static charges stored in the DUT. Use of two 80A02 modules ensures proper probe grounding prior to switching signal to the sampling module.

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## Characteristics

Nominal Length with Cable – 1 meter

Attenuation – 1x

Probe-only Bandwidth – >20 GHz

Probe Pitch – 0.5 to 4.2 mm (signal tip to signal tip)

Connector Type – SMA

Measured Reflected TDR Fall Time – <39 ps

Impedance – 50 Ω odd mode, 100 Ω differential

Max  $V_{in}$  – 5.0 V

Probe-only Propagation Delay – 1.0 ns typical

TDR Control Activation Force – 150 to 200 grams each probe half

Note: Numeric values shown are typical

## Ordering Information

### P80318

18 GHz 100 Ω Differential TDR Hand Probe.

**Includes:** 18 GHz bandwidth 50 Ω odd mode input impedance (100 Ω differential impedance), differential passive handheld probe with one set of two precision SMA cables, soft storage case, user manual, and three replaceable ground shorting straps.

### P80318X

18 GHz 100 Ω Differential TDR Hand Probe for Manufacturing.

**Includes:** Two 18 GHz bandwidth 50 Ω odd mode input impedance (100 Ω differential impedance), differential passive handheld probes with one set of two precision SMA cables, soft storage case, user manual, and three replaceable ground shorting straps. Second probe body is provided as a backup to the first to maximize manufacturing up-time if the first probe body needs to be serviced due to wear.

### Recommended Accessories

**P8018** – 18 GHz Single-ended 50 Ω TDR Probe. To compliment TDR probing for single-ended applications.

**80A02** – ESD/EOS TDR protection module.

**External probe power cable** – To reduce module acquisition slot consumption the 80A02 modules can run off this probe power cable (p/n 174-3896-xx).

**Ground Spring Kit** – Set of two ground springs with a spare set screw for P80318 probe (p/n 020-2670-xx).

**For Further Information.** Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit [www.tektronix.com](http://www.tektronix.com)



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