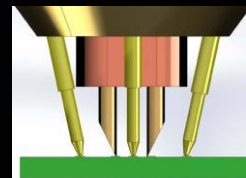


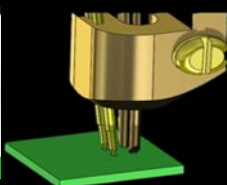
DVT40-1MM

40 GHz Differential Multi-Mode TDR and S-Parameters Probe Kit

Giga Probes



Configurable Ground Pins that match physical pad layout.



Instrument Compatibility

- Time Domain Reflectometry (TDR)
- Vector Network Analyzers (VNA)
- Spectrum Analyzers
- Bert Scopes



Measure 2 or 4-port S-parameters

Remove Ground Collar to Measure 100 or 50 Ohm Impedance



Features and Key Benefits

- 40 GHz Differential Probe
- Fully Balanced 100 Ω Differential Signals without Ground Contact
- Adaptable to 50 Ω Single Ended Input Impedance
- Measure S2p, S4p S-parameters using configurable Ground Collars
- Adjustable Signal Probe Pitch (from 450um to >1.7mm)
- 4-6um Conductive Diamond Plated Probe Tips for repeatable measurements
- ~3.5ps Fall Time Degradation
- Universal Probe Design: use as Hand Probe or Mount in Micro-positioners
- Full Set of Probe Pitch Calibration Accessories

40 GHz 100 & 50 ohm TDR Hand Probe: the model DVT40 GigaProbes® is a robust balanced 40GHz 100 Ω differential probe capable of making 50 Ω measurements with <3.5ps TDR Fall Time degradation. The DVT40 is like having two 40 GHz probes in one making it compatible with the fastest TDR modules from Tektronix, Agilent and LeCroy.

Make Accurate Time and Frequency Measurements: to make accurate time and frequency measurements S4P S-Parameters are available for each probe and used to de-embed the probe characteristics from the measurements. In addition, the NEW 40 GHz differential Y connector assembly is optimized to significantly reduce reflection and frequency loss. Combined, these features improve measurement accuracy and extend the measurement bandwidth range.

Everything you need to Characterize Gb/s Interconnects in the time or frequency domain: The DVT40-1MM kit comes in an elegant wooden box containing two DVT40 probes for measuring differential 100 ohm Time Domain Reflectometry (TDR) impedance (Z-line) measurements. Once impedance sensitive transmission lines are verified, use the second probe as a receiver to measure Time Domain Transmission (TDT) measurements. These odd mode differential measurements can be converted into differential insertion (SDD21) and return loss (SDD21) S-parameters (S2P) to verify differential transmission lines meet bandwidth performance. To measure the full spectrum of odd and even waveforms contained in a (S4P) S-parameters. Attach the *optional* Ground Pin Collars that contain replaceable .5 OD compliant ground pins to form Signal/Ground configurations (GSGSG, GSS, SSG, SGS, GSSG and SS with a SG pin spacing of 1mm) that meet the physical layout of the pads on your PCB. Import the S4p de embedding files for the probes to extend the measurement accuracy. The new DVT40 provides the flexibility to make low loss 50 ohm, 100 ohm and multi-mode measurements in order to validate industry design standards such as USB3, PCI/E Gen3, SATA/SAS, 10 G Base-R FEC, etc.

Applications

Time Domain Measurements

- 100 Ω Impedance measurements on PCBs, cables, backplanes, daughter-cards and connectors.
- Use 50 Ω mode for high resolution Failure Analysis with ~1mm fault Isolation

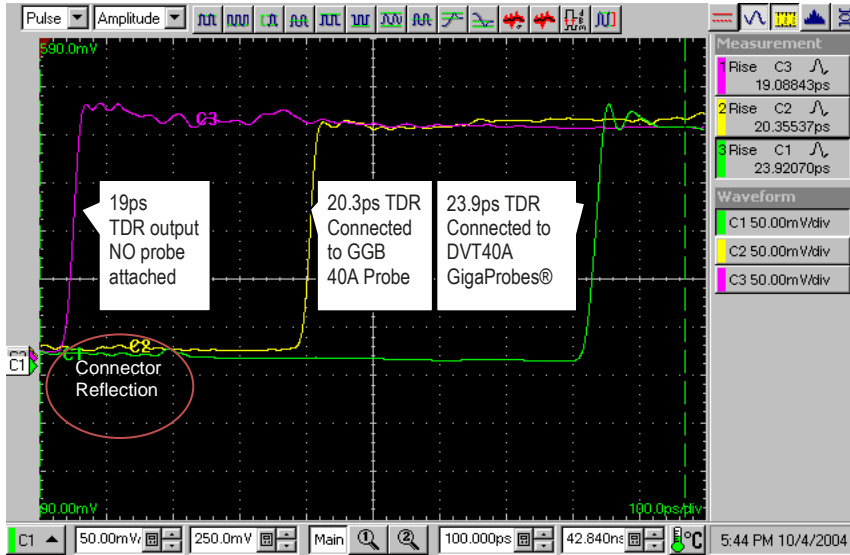
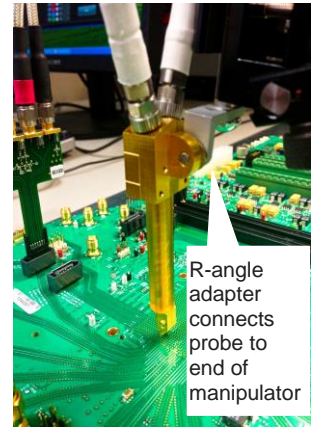
Frequency Domain Measurements

- Extract Differential TDR/TDT Measurements for Creating Return-Loss and Insertion-Loss S-Parameters
- Use 40 GHz VNA or TDR/T to make two or four-port Multi-Mode S-Parameters Measurements (requires ground collar adapter).
 - DVT40-1MM-L Ground/Signal pin Configurations: GSGSG, GSSG, SGS, GSS, SSG
 - DVT40-1MM-H Ground pin can be inserted in front or behind Signal
 - de-embedding 4 port S-Parameters to improve measurement accuracy

Giga Probes

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Adapters are provided to install the DVT40 in low cost probe manipulators, eliminating the need for expensive probe stations for high bandwidth hands-free probing. This capability frees the Signal Integrity Engineer to operate test instrument and to manipulate enhanced impedance and S-parameter software to accurately characterize differential impedances on the Gigabit: PCB's, device test boards, backplanes, connectors, and cables.



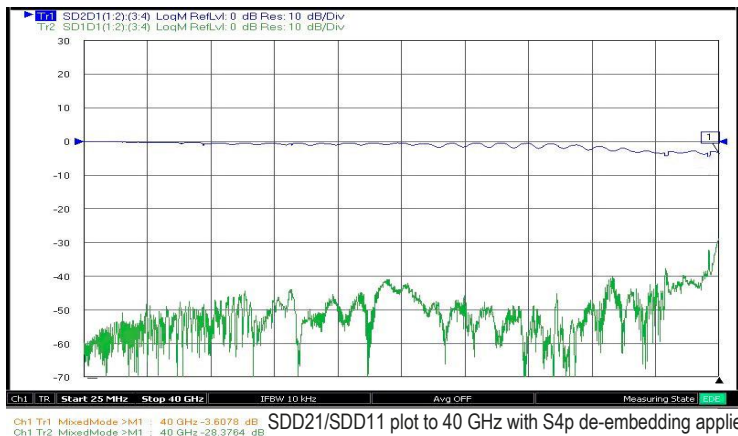
Rise-Time comparison of the DVT40 GigaProbes® to the GGB 40A Pico Probe both connected to a 19ps pulse. Also, a measurement of the discontinuity in the connector assembly shows nearly no impedance reflection.

- Characteristics**
- Attenuation: 1X
 - Connector Only Bandwidth: 40 GHz. @ -3db
 - Probe Measured Insertion Loss after de-embedding: 40GHz @ ~3.5db
 - TDR Fall time Degradation: <3.5ps
 - Probe Pitch: .450um to 1.7 mm (Signal tip to Signal tip)
 - Connector Type: 40 GHz 2.92mm K-Connector
 - Differential impedance: 100 ohm
 - Single impedance: 50 ohm (using conversion kit)
 - Max Voltage-in: 5.0 V



DVT40-1MM Standard Accessories Contained in Kit

- 2ea) 40GHz Differential Multimode TDR /VNA S-Parameter Probe
 - 40GHz 2.92mm K differential connector assembly in a Y formation
 - Gold-plated probe body and differential connector assembly
 - Gold plated conductive diamond (4-6um) adjustable probe tips
- 2ea) Custom Mount Anodized Right Angle Adapter connects DVT40 to articulating arms using a #10 screw mount. 2.5" long dowel adapter to connect probe to manipulators with compression holders
- 2ea) Ultem® Hand Mount Adapter designed for GigaProbes® DVT40 probes. Converts DVT40 to a precise, ergonomic hand probe
- 2ea) Stainless Steel Tweezers for fine 110mm pitch adjustments.
- 1ea) Steel SMA wrench to tighten cables to probes.
- 1ea) Pitch setting calibration tool (.8mm, 1mm, 1.27mm)
- 1ea) Desktop Macro-lens Inspection Station (5x magnification)
- 1ea) 50 ohm Conversion Kit: 2 SMA short cap, 5ea 20 gauge wire and 5ea pre-cut shrink-wrap.



DVT40 De-embedding and S-parameters Option

The DVT40 ground collars allows measurements referenced to a ground pin. 4 and 2 port measurement is made possible. Balanced S4p de embedding files for each probe is provided for free*.

DVT40-GC-1MM-L: 2ea) Ground Collar Adapters with 3 compliant .5 OD ground pins with a 1mm pitch between pins. Ground Collar ground pins are spring loaded. Configurations (GSGSG, GSSG, GSS, SSG, GGS, SGS, SS)

DVT40-GC-1MM-H:2ea) Ground Collar Adapters with 2 compliant .5 OD ground pins. Probe Ground can be placed in front or behind Signal pins with a 1mm pitch between pins. S/G Configurations: H pattern to existing signal probes.

DVT40-GC-1.27MM: 2ea) Ground Collar Adapters with 3 compliant .5 OD ground pins. One 1.27mm pitch between each ground pins. Ground Collar ground pins are spring loaded. Configurations (GSGSG, GSSG, GSS, SSG, GGS, SGS, SS)



* Compatibility with instrument may affect the de-embedding performance