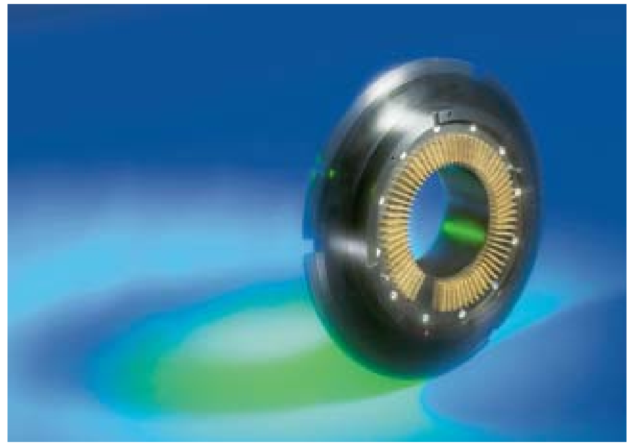
Prober Tester Interface (PTI)

Improved Performance in Traditional Spring Probe Interface Tower Design

Accurate testing requires an outstanding electro-mechanical interface between tester and probe card. Understanding the complex interface requirements, we engineer our Prober-Tester Interfaces (PTI) with superior electrical and mechanical characteristics to deliver consistently accurate test data.



Xandex Spring Probe PTI

Mechanical Precision

Sophisticated, tolerancing methodologies employed during the design and manufacture of each PTI ensure consistently accurate electrical spring-contact-to-pad alignment. In addition, each PTI delivers uniform pin compression within each circumferential row. The mechanical precision of the Xandex PTI ensures that this product will perform reliably, even under the toughest conditions.

Electrical Performance

The Xandex PTI transparently delivers test signals with extremely high fidelity. This PTI has been designed and characterized as performing well beyond the operational frequency range of most testers. Extended frequency range ensures accurate, distortion-free signal transmission.

Robust Design

Quality engineering and construction ensures there will be minimal maintenance required during each PTI’s lifetime. The tough outer casing is constructed of solid, hard-anodized aluminum. Only stainless steel hardware is used in each PTI’s construction thereby protecting your clean-room environment. Accidentally damaged, spring-contact pins are easily replaced.

The Integrated Solution

The PTI seamlessly integrates with all of the Xandex AutoLoader 2 probe card changing systems. The AutoLoaders perform precision probe card changes in a matter of seconds, and Xandex’s PTI provides the crucial electrical and mechanical link between the prober and tester. The superior performance of this integrated system leads to reduced downtime and increased operator satisfaction. Avoid multi-vendor complexities by utilizing Xandex’s complete solution. Get it right the first time.

Flexible Systems

Xandex is well known for customized sort floor solutions. The Xandex PTI is no exception. This unit is adaptable to multiple probers/tester platforms. In addition, Xandex will work with you to build any custom system required for your needs. Whether you require a PTI design for a new tester, or the enhanced productivity of retrofitting your existing system call Xandex, your partner in wafer sort.

Typical Specifications

System Impedance:	50 Ohms
Return Loss:	-24 dB, 0 to 1 GHz -11 dB, 1 to 3 GHz
Bandwidth:	0 - 3 GHz (-1 dB) 0 - 8 GHz (-3 dB)
Transition Time:	43 psec
Propagation Delay:	300 psec

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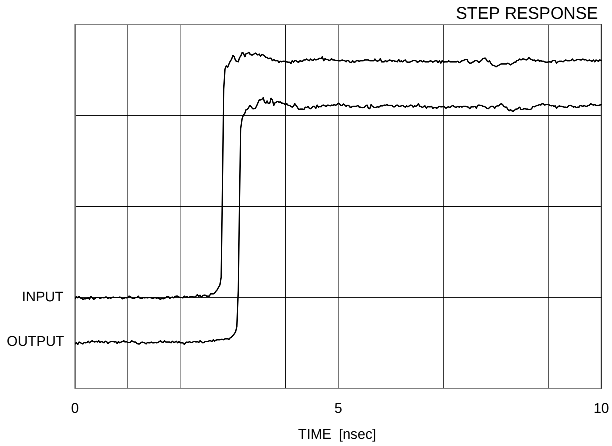


Step Response

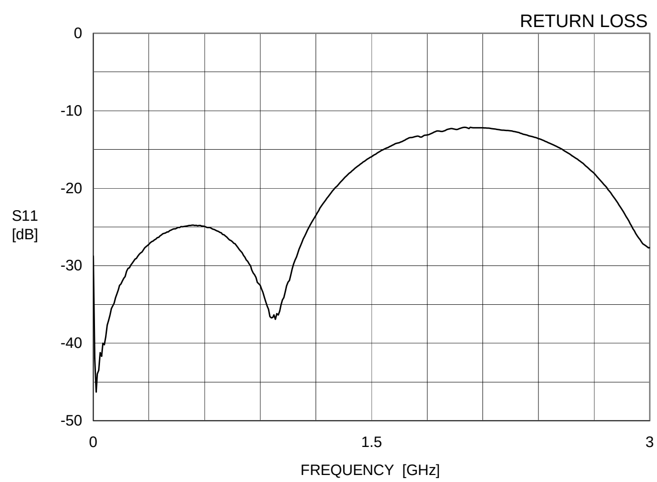
The Step Response graph is generated using calibrated, impedance-matched hardware. A fast rising voltage step is injected into the PTI and the resulting signal is captured at the other side. The three most important things to look for in this graph are:

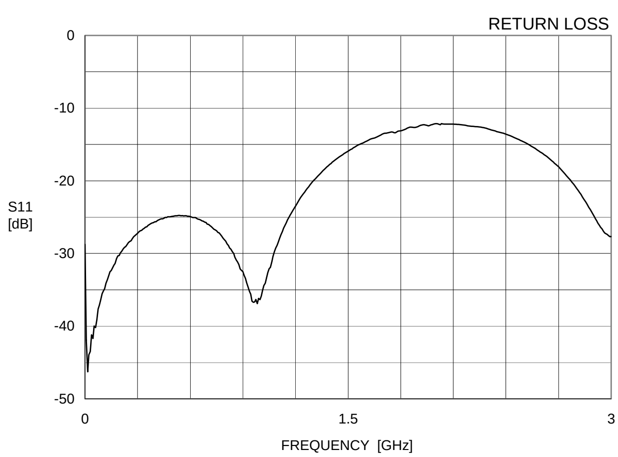
1. Transition time (TT) or Rise Time (t): This is the time it takes for the signal to make the transition from 10% to 90% of the full step. This value is the starting point for evaluating an interface.
2. The settling characteristics at the end of the transition (at the "knee" of the curve): PTIs with better Bandwidth characteristics will have a sharper transition.
3. Propagation or Group delay: The length of time it takes the electromagnetic wave front to move through the interface.

Frequency Response

The Frequency Response curves are commonly called "bandwidth" curves. Starting at the lowest possible frequency that the network analyzer can achieve (10 MHz or so), the frequency of a sine wave is swept up into the GHz range. The resulting plot shows the ratio of the strength of the injected signal to what comes out the other side, using a decibel scale on the vertical axis (typically 1 dB per division) and frequency on the horizontal axis (typically 500 MHz or ½ GHz per division).

Ideally the curve would go straight across the page along the 0 dB line (a Frequency Response of 1, or "unity"), with all of the signal passing through the tower with no loss, at all frequencies. The real curve will tend downwards as one looks from left to right (from low to high frequencies).





Return Loss

The Return Loss graph features units on the vertical axis that are typically 10 dB instead of the 1 dB per division used in the bandwidth curves. The horizontal axis is still typically ½ GHz per division.

The ideal situation would be no reflection at all (so the plotted line would start and end at 40-to-50-dB-down, in the "noise floor" of the test equipment). As with the Frequency Response curves, a Reflection Coefficient of 1 is at the 0 dB Return Loss line. When the Return Loss is 0 dB, all of the signal sent to the PTI is reflected back to its source.