

Lithographically  
defined tips  
for superior  
impedance  
control and  
high visibility

The FPC-Series Fixed-Pitch Compliant Probe, with a bandwidth of 20 GHz, provides increased electrical performance for applications having test points with adjacent grounds. These applications include IC package and interconnect characterization, RF module signal insertion/output measurement, and measurements of SAW devices, hybrids, and MCMs.



Innovating Test  
Technologies

## Description

The FPC-Series Fixed-Pitch Compliant Probe is a high-frequency, 50-ohm coaxial probe that offers a signal line with either one or two low-inductance fixed-pitch ground contacts. The probe tip structure is lithographically-defined for unsurpassed impedance control, preserving the highest integrity possible in launching and receiving signals from SMT boards, hybrids, and MCMs.

The FPC is available with a pitch range of 150 to 1,250 microns (6 to 50 mils). Precision manufacturing produces excellent pitch accuracy and alignment of the ground contacts and signal line. The flexible contacts are compliant over several mils of topography.

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## Features

- Lithographically-defined probe tip
- dc to 20 GHz bandwidth
- 20 ps rise time
- Low insertion and return loss
- 2 mils of tip-to-tip compliance
- 150 to 1,250 micron pitch range
- GSG, GS, SG configurations
- Calibration standards available

## Benefits

- Maintains 50 ohm environment of test equipment to allow accurate high-frequency measurement of microelectronic modules and devices
- Compliant tips allow probing of non-planar structures
- Robust BeCu tips provide longer probing life and reduce tip damage

## Lithographic Tip Definition Benefits

- Superior impedance control
- High visibility of tip contact
- Contact force repeatability to reduce damage to devices
- Repeatable, reliable measurements
- Well-confined fields for crosstalk control

## Applications

- IC package and interconnect characterization
- RF and microwave module signal insertion and output measurements
- SAW device measurements
- Circuit board test and troubleshooting
- High-frequency circuit board process control monitors
- High-speed digital circuit analysis

## Specifications

(For GSG probes up to 250  $\mu\text{m}$  pitch at 20 GHz. GS and wider pitch probes typically meet these specifications up to 12 GHz.)

### Frequency domain

Return loss ( $S_{11}$ ): better than -20 dB (reflected energy less than 1%)

Maximum attenuation: 1 dB

Crosstalk (250  $\mu\text{m}$  spacing): 40 dB

Maximum RF power: 15  $\Omega$

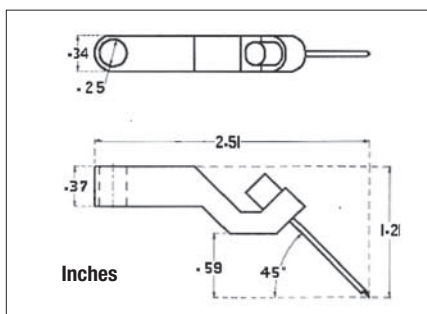
### Time domain

Nominal impedance: 50 ohm

Maximum reflection: 50 mp

Electrical length: 600 ps

Maximum dc current: 1 A



## Calibration Standards

Miniature, non-dispersive calibration standards are the key to achieving accurate and repeatable test data. The Cascade Microtech impedance standard substrate (ISS) provides all the elements required for complete network analyzer calibration or oscilloscope normalization at the probe tip. For pitches greater than 250  $\mu\text{m}$ , users can calibrate on the Surrogate Chip™, which contains the necessary impedance standards.

## Compatibility

The FPC-Series is compatible with Cascade Microtech's FPD-100 and EZ-Probe® positioners. To use an FPC-Series Probe on Cascade Microtech probe stations or on the MPH-Series Microprobe Holder, order part number 104-913 (WPH mount to fine pitch adapter).

## Ordering Information

FPC with ground-signal-ground configuration . . . . . *FPC-GSG-xxxx*  
FPC with ground-signal configuration . . . . . *FPC-GS-xxxx*  
FPC with signal-ground configuration . . . . . *FPC-SG-xxxx*  
xxxx refers to the number of microns center-to-center spacing between contacts. Available pitches include: 150, 250, 350, 500, 650, 750, 1000 and 1250  $\mu\text{m}$ . Ground-signal (GS) and signal-ground (SG) are specified as looking from above the probe with the tip pointing away.

## For More Information

The following data sheets give information on associated products: *MPH-Series Microprobe Holder*, *EZ-Probe Positioner*. See also the *RF Probe Selection Guide*.



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FPCDS-0201  
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