

High Performance Microwave Probes for RF probing

Model 40A

- Durable RF probe
- DC to 40 GHz
- Insertion loss less than 0.8 db
- Return loss greater than 18 db
- Measurement repeatability better than -80db
- Individually spring loaded contacts
- BeCu, Tungsten, or Nickel tips available
- Any pitch from 50 to 1250 microns
- Variety of footprints
- Patented coaxial design
- Available in thirteen different adapter styles



Now available with nickel alloy contacts for probing aluminium pads

The model 40A microwave probe sets new standards in microwave probing performance. Using low loss coaxial techniques, the Model 40A achieves an insertion loss of less than 0.8 db and a return loss of greater than 18 db through 40 GHz.

With its individually spring loaded, Beryllium-Copper or optional Tungsten tips, the Model 40A provides reliable contacts, even when probing non-planar structures. This reliable low resistance contact is one of the keys to providing highly repeatable measurements. The Model 40A microwave probe also provides direct viewing of the probe tips for accurate positioning.

The Model 40A can be mounted in various adapters for use with standard microwave probe stations or attached to thin blades for use with dc probe needles on a probe card or multi-contact wedge. Custom mounts are available as well.

Any pitch (tip spacing) from 50 to 1250 microns may be specified. Probe pitches greater than 1250 microns can be accommodated.

The probe can be configured with **Ground-Signal-Ground (G,S,G)**, **Ground-Signal (G,S)**, or **Signal-Ground (S,G)** tip footprints.

Connection to the Model 40A is through a female K connector (2.9mm) which is 3.5mm connector compatible.



microworld®

Microelectronics supply specialist

Spécialiste de la fourniture microélectronique

Flexible Tips for Flexible Probing

Each Model 40A has patented, independently spring loaded tips which ensure a reliable contact to the probing surface. Because the tips are flexible they minimize circuit damage, increase probe life, and most importantly, provide a reliable individually spring loaded contact for each point. With a small amount of overdrive, the point scrubs the surface to make a reliable contact free of dust, dirt, and oxide contamination. A well-appreciated feature of the Model 40A is the ability to view the exact contact area which eases probe placement and allows for the precise positioning necessary for good LRM calibrations.

The flexible tips even allow probing of non-planar surfaces such as ceramic substrates and laser diode structures.

Coaxial Transmission Improves Performance

The Model 40A uses a precision miniature 50 ohm coaxial cable from the probe tips to the connector interface. The coaxial design provides lower loss and less radiation than coplanar designs. The miniature coaxial cable is fabricated from flexible Beryllium-Copper which greatly improves the probes durability. It's sister probe, the Model 40M has the lowest insertion loss in the Industry : less than 0.5db.

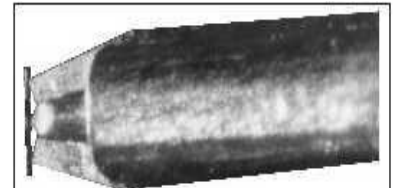
Probe Cards

Model 40A probes can be mounted on both industry standard 4.5 inch probe cards and custom-sized probe cards for testing wafers at high frequencies using standard automatic or manual probe stations.

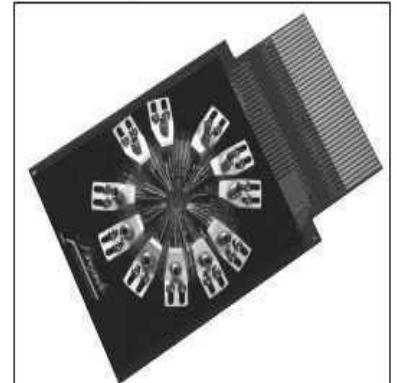
Probe Cards can be designed with all of our microwave probes operating from 40, 67, and 110 GHz for RF applications and can be combined with multiple DC needles for power and low frequency signals as well.

Multi-Contact Wedges

Our unique Multi-Contact Wedge designs accommodate multiple RF and DC contacts on a single, compact adapter. This compact design provides the user with a convenient method for testing wafers at high frequencies using standard automatic or manual probe stations. The user can choose from a variety of wiring options for the DC or power needles and select any combination of 40, 50, 67, and/or 110 GHz RF probes.



Closeup of Model 67A Tips with 150 Micron Pitch almost touching a 50 ohm calibration load.



Typical Probe Card with Model 40A Probes.



Examples of the Multi-Contact Wedge which combine Multiple RF and DC contacts.

An Entire Line of Microwave Probes

Other models of RF probes are available with standard tip spacings of up to 1250 microns. Larger tip spacings are available as well. For special applications, the Model 40A can be mounted in custom adaptors, the coaxial line can be bent to fit tight spaces, and the tips can be configured to match extremely non-planar surfaces or non-symmetrically placed grounds. Other options include: Tungsten probe tips; a high temperature version (Model 40A-HT) is available; and custom "chip" probes which have an integrated series or termination resistor built into the signal tip.

Several models are available with wave guide inputs including the Model 50, Model 75, Model 90, Model 120, Model 140, and Model 220. All Picoprobe wave guide probes have an optional integral bias T for active device measurements. Many other types are available, so please contact our office for details.

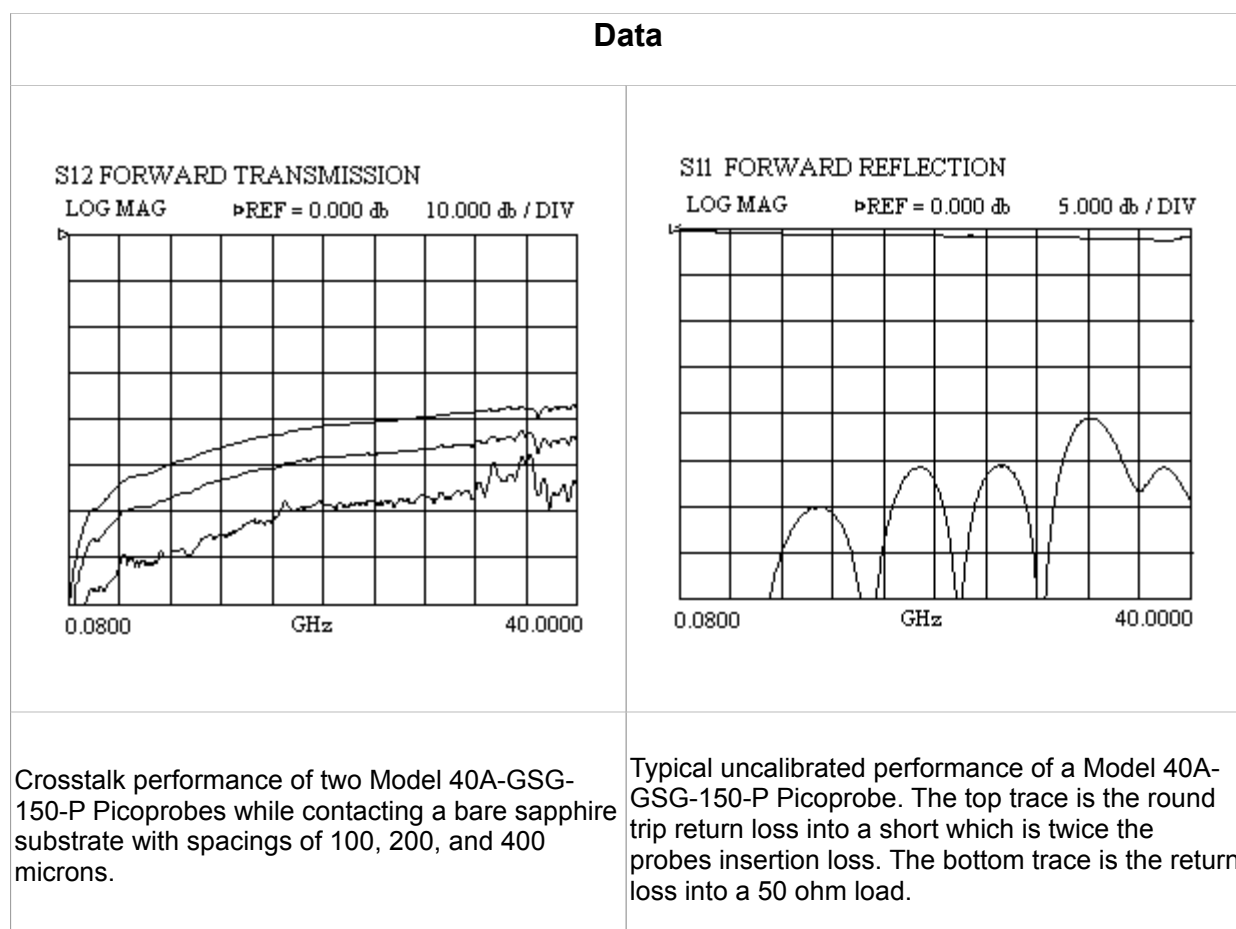
Probing Expertise

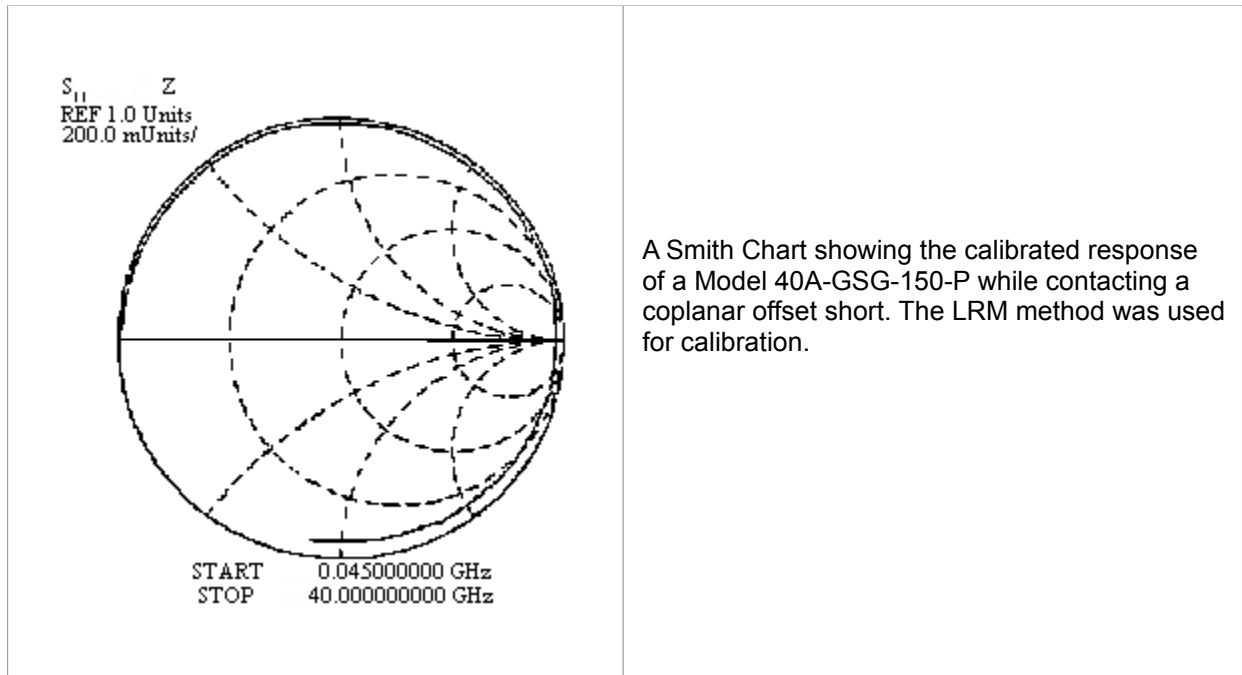
With more than 17 years of probing experience, we have broad capabilities in custom probe engineering and manufacturing. Our staff is accustomed to creating unique solutions for the most difficult probing requirements demanded by our customers. Picoprobe is the leading supplier of high impedance active probes offering models with input capacitances of as low as .02 pF and frequency responses of up to 3.0 GHz.

PERFORMANCES :

Model 40A Performance Data G,S,G Configuration	
Frequency Range :	DC to 40 GHz
Insertion Loss :	Less than 1.0 db to 40 GHz (.70 db typical)
Return Loss :	Less than 30 db to 4 GHz (35 db typical)
	Less than 20 db to 26 GHz (23 db typical)
	Less than 18 db to 40 GHz (20 db typical)
Crosstalk :	Less than 38 db to 40 GHz
<p>Specifications are for the P-style Model 40A Picoprobes with G,S,G configurations and pitches between 50 and 300 microns. The C and T style Model 40A Picoprobes (see the following page for mounting styles) have the same specifications except for the insertion loss, which is less than 1.2 db (0.9 db typical)</p> <p>Crosstalk is measured using two probes contacting a bare sapphire substrate 100 microns apart.</p>	

Model 40A Performance Data G,S and S,G Configuration	
Frequency Range :	DC to 40 GHz
Insertion Loss :	Less than 2.0 db to 40 GHz (1.6 db typical)
Return Loss :	Less than 30 db to 4 GHz
	Less than 15 db to 26 GHz
	Less than 12 db to 40 GHz
Specifications are for the P-style Model 40A Picoprobes	





ORDERING INFORMATION :

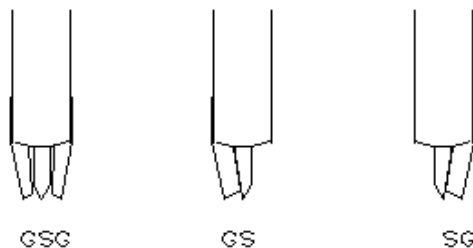
When ordering Picoprobe Model 40A probes, use the following part numbering convention :

Model 40A-configuration - pitch - mounting style

Configuration :

Specify GSG, GS or SG for tip placement where S is the signal tip and G is a ground tip. Use the following diagram to determine the appropriate configuration.

Top View



Pitch :

Specify ground (G) to signal (S) tip spacing in Microns from 50 to 1250 microns. For standard GSG probes, the two spacings are equal. Contact the factory for spacings larger than 1250 microns or unusual tip placement and spacings.

Mounting Style :

Choose from thirteen adapter styles. Specify T, C, GR, P, DP, EDP, LP, Q, F, S, DS, VP, or RVP. Choose the appropriate mounting type for your application. The P, DP, EDP, LP, Q, S, DS, VP, and RVP styles have the connector pointing back at a 45 degree angle to give more working area above the probe.

The DP, EDP, DS, VP, and RVP styles are used where extra clearance beneath the probe is needed. When using DP, EDP, and DS style probes, probe positioning is more difficult due to the increased probing angle since the probe points slide further forward for a given change in the Z axis than our other style probes. Custom mounting styles are available.

Example :

A 40A-GSG-150-P is a Model 40A with Ground, Signal, Ground configuration with 150 microns between each contact mounted in a P style adapter.