

## HIGH FREQUENCY

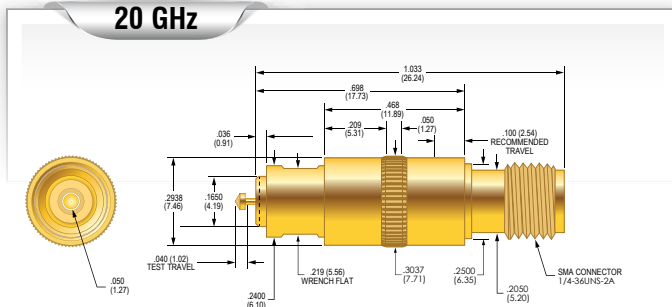
High Frequency or Radio Frequency (RF) coaxial probes are used for testing high speed circuits in a variety of industries including automotive, wireless communications, satellite, and more.

The precisely controlled physical and electrical characteristics of ECT's RF coaxial probes make them an ideal 50 ohm impedance port-extending accessory for network analyzers and time domain reflectometers. The RF center conductor is captivated for maximum reliability. RF coaxial probes incorporate spring probes in an open architecture format to accommodate a wide range of physical circuit topologies and to alleviate the need for special geometry contact pads on the circuit under test.

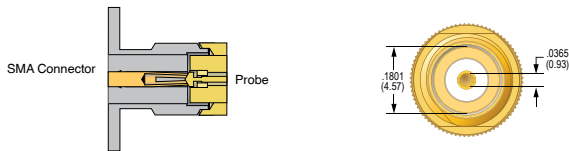
The instrumentation side is configured for reliable and easy connection to SMA, SMB or MMCX. If you don't find a configuration that aligns to your requirements, our team of engineers will provide a solution tailored to your specifications.



## CSP-30ES-013



### Connection to SMA Connector



### Mechanical

Recommended Travel:	.100 (2.54)
Recommended Travel inner conductor:	.040 (1.02)
Recommended Travel outer conductor:	.100 (2.54)
Full Travel:	.200 (5.08)
Operating Temperature:	-55°C to 85°C
Connection (instrument side):	SMA Connector, 1/4 -36UNS-2A

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	CSP-30ES-013	3.06 (86)	4.0 (113)

### Electrical (Static Conditions)

Nominal Impedance:	50 Ohms
Average Probe Resistance:	<50 mOhms
Bandwidth @ -1 dB:	>20 GHz

### Materials and Finishes

Housing:	Brass, Gold plated
Dielectric:	Rexolite
Spring:	Stainless Steel, Gold plated over hard Nickel

### Mounting

Hole diameter:	Ø.297 (7.54)
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### Replaceable Probes

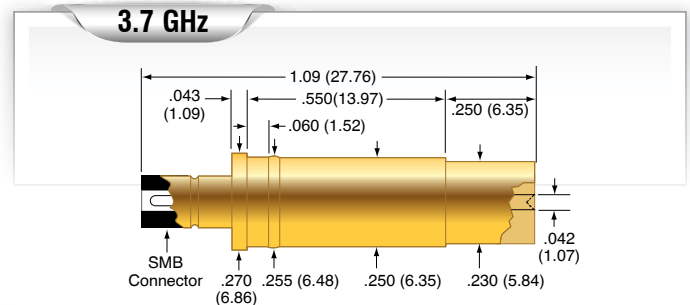
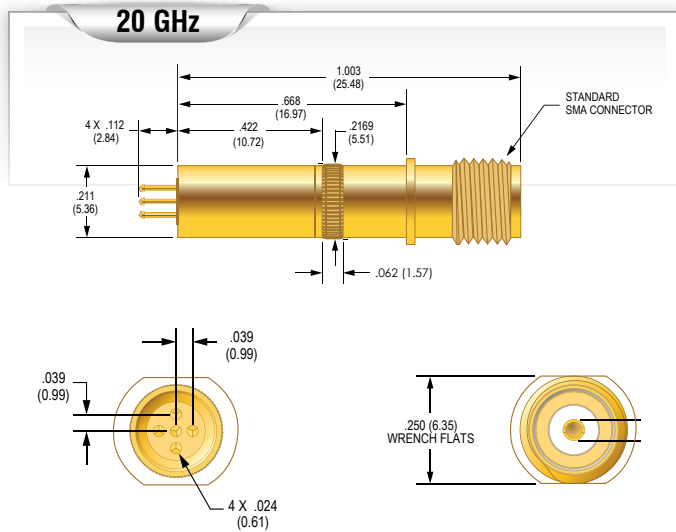
Order Number (CSP-30ES-013):	SPL-30E-030
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### Applications

The CSP-30ES-013 was specifically designed to mate with SMA connectors. Designed for use in interconnect applications where signal integrity is required, such as accessing high frequency RF connectors on circuit boards. Can also be used as R.F. mating connector.

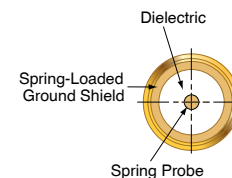
## CSP-30TS-011

## CSP-03B-006 CSP-03G-003



CSP-03B-006

CSP-03G-003



### Mechanical

Recommended Travel:	.067 (1.70)
Full Travel:	.100 (2.54)
Operating Temperature:	-55°C to 85°C
Connection:	Standard SMA Connector

### Spring Force in oz. (grams)

Order Code	Preload	Rec. Travel
Standard CSP-30TS-011	1.59 (40)*	7.0 (198)*

\* Fully populated - 5 probes total

### Electrical (Static Conditions)

Nominal Impedance:	50 Ohms
Average Probe Resistance:	<50 mOhms
Bandwidth @ -1 dB:	>20 GHz

### Materials and Finishes

Housing:	Brass, Gold plated
Dielectric:	Rexolite
Spring:	Stainless Steel, Gold plated over hard Nickel

### Mounting

Hole diameter:	Ø.213 (5.4)
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### Replaceable Probes

Order Number (CSP-30TS-011):	
Signal	SPL-30T-020
Ground	SPL-30T-021

### Applications

Designed for interconnect applications where signal integrity is required, such as accessing high frequency RF targets on circuit boards. Can also be used as R.F. mating connector.

### Mounting tool: CIT-30-0

Ships with each CSP-30TS-011



Dimensions in inches (millimeters). Specifications subject to change without notice. Consult factory for other temperature requirements, and applications below -40°C. Stocking Disclaimer: Stocking levels for part numbers listed in this catalog are subject to change. Availability is based on current levels of usage and demand.

### Mechanical

Recommended Travel:	.167 (4.24)
Full Travel:	.250 (6.35)
Operating Temperature:	-35°C to +105°C
Connection:	Standard SMB 27-1 or equivalent Connector

### Spring Force in oz. (grams)

Standard	CSP-03B-006	0.80 (22)	4.0 (113)
Standard	CSP-03G-003	0.80 (22)	4.0 (113)

### Electrical (Static Conditions)

Nominal Impedance:	50 Ohms
Average Probe Resistance:	<50 mOhms
Dielectric Voltage Rating:	1K VAC
Minimum Insertion Loss @ 1GHz (tested with target):	0.13 dB typical
Maximum VSWR @ 1GHz (tested with target):	1.15:1 typical

### Materials and Finishes

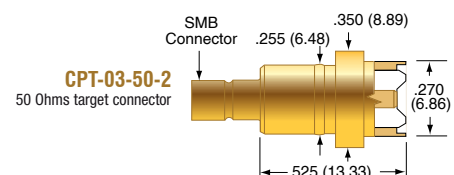
Housing:	Brass, Gold plated
Dielectric:	Premium virgin Teflon per MIL-P-18468

### Replaceable Probes

Order Number (CSP-03B-006):	SPL-03B-121
Order Number (CSP-03G-003):	SPL-03G-043

### Applications

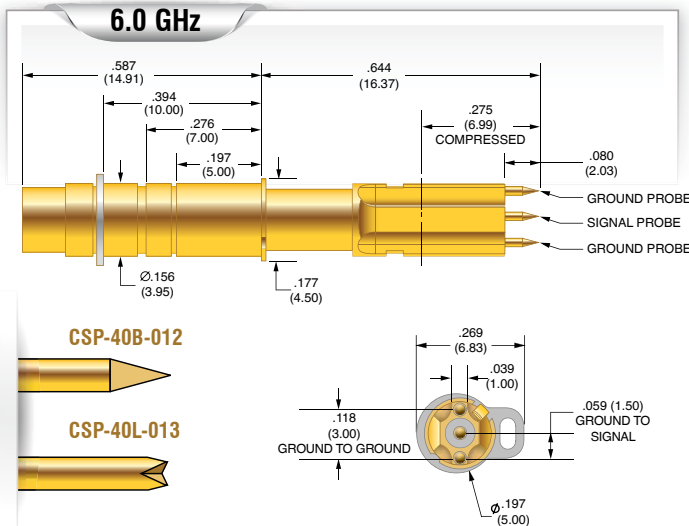
Designed for use in interconnect applications where signal integrity is required, such as accessing high frequency targets on circuit boards. Can also be used as R.F. mating connector.



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# High Frequency Probe

## CSP-40B-012 CSP-40L-013



CSP-40B-012

CSP-40L-013

### Mechanical

Recommended Travel: 0.133 (3.38) SHIELD, 0.211 (5.36) INCLUDING TRAVEL OF PROBES  
 Full Travel: 0.200 (5.08) SHIELD, 0.275 (6.99) INCLUDING TRAVEL OF PROBES  
 Operating Temperature: -35°C to +155°C  
 Connection: MMCX

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	CSP-40B-012	1.9 (53.9)	8.0 (226.8)
Standard	CSP-40L-013	1.9 (53.9)	8.0 (226.8)

### Electrical (Static Conditions)

Nominal Impedance: 50 Ohms  
 Dielectric Voltage Rating: 1K VAC  
 Bandwidth @ -1 dB: 6 GHz

### Materials and Finishes

Housing: Brass, Gold plated  
 Dielectric: Teflon  
 Spring: Stainless Steel, Nickel Plated

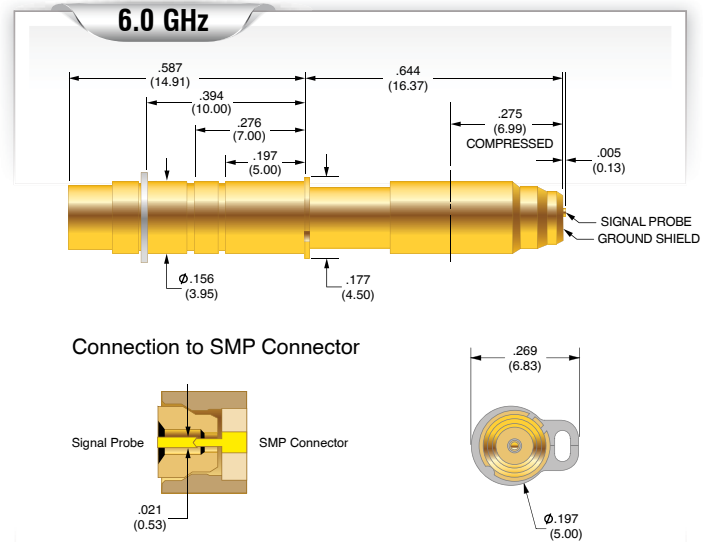
### Replaceable Probes

Ground Probe, Order Number (CSP-40B-012) SPL-00B-089  
 Signal Probe, Order Number (CSP-40B-012) SPL-40B-045  
 Ground Probe, Order Number (CSP-40L-013) SPL-00L-088  
 Signal Probe, Order Number (CSP-40L-013) SPL-40L-046

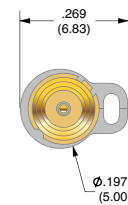
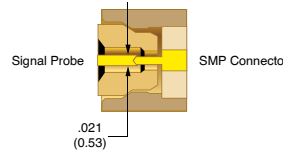
### Applications

The CSP-40 coaxial probe provides instrumentation-quality interface for broadband R.F. measurements up to 6 GHz. With the CSP-40 R.F. Circuit Design, impedance characterization measurements can be performed using it as a Network Analyzer port-extending accessory. Accurate and repeatable small signal and R.F. power (50 Watts) measurements provide consistent and repeatable results.

## CSP-40A-015



Connection to SMP Connector



### Mechanical

Recommended Travel: 0.133 (3.38) SHIELD, 0.211 (5.36) INCLUDING TRAVEL OF PROBE  
 Full Travel: 0.200 (5.08) SHIELD, 0.275 (6.99) INCLUDING TRAVEL OF PROBE  
 Operating Temperature: -35°C to +155°C  
 Connection: DUT side  
 Connection: SMP

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	CSP-40A-015	6.2 (175.2)	8.0 (226.8)

### Electrical (Static Conditions)

Nominal Impedance: 50 Ohms  
 Dielectric Voltage Rating: 1K VAC  
 Bandwidth @ -1 dB: 6 GHz

### Materials and Finishes

Housing: Brass, Gold plated  
 Dielectric: Teflon

### Replaceable Probes

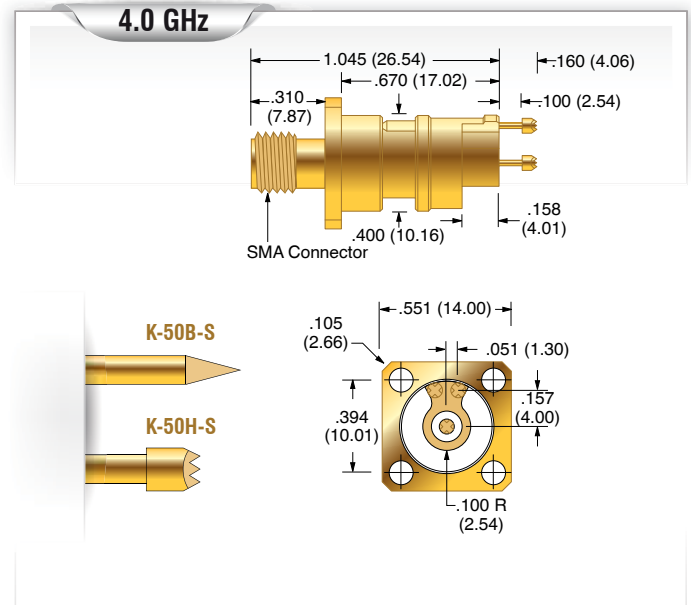
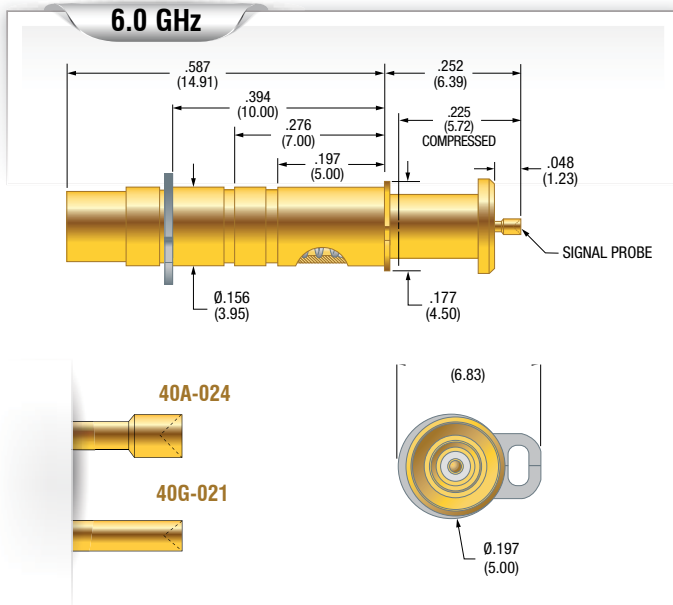
Signal Probe, Order Number (CSP-40A-015) HPA-40G  
 (more information on this probe in the General Purpose section)

### Applications

The CSP-40 coaxial probe provides instrumentation-quality interface for broadband R.F. measurements up to 6 GHz to an SMP male connector. With the CSP-40 R.F. Circuit Design, impedance characterization measurements can be performed using it as a Network Analyzer port-extending accessory. Accurate and repeatable small signal and R.F. power (50 Watts) measurements provide consistent and repeatable results.

## CSP-40A-024 CSP-40G-021

## K-50B-S K-50H-S



### Mechanical

Recommended Travel: 0.133 (3.38) SHIELD, 0.211 (5.36) INCLUDING TRAVEL OF PROBES  
 Full Travel: 0.150 (3.81) SHIELD, 0.225 (5.72) INCLUDING TRAVEL OF PROBES  
 Operating Temperature: -35°C to +155°C  
 Connection: MMCX

### Connections, DUT side

CSP-40A-024 MMCX, Fakra, SMB, U.FL  
 CSP-40G-021 MMCX, Fakra, SMB, U.FL

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	CSP-40A-024	0.79 (23.4)	1.75 (49.6)
Standard	CSP-40G-021	0.79 (23.4)	1.75 (49.6)

### Electrical (Static Conditions)

Nominal Impedance: 50 Ohms  
 Dielectric Voltage Rating: 1K VAC  
 Bandwidth @ -1 dB: 6 GHz

### Materials and Finishes

Housing: Brass, Gold plated  
 Dielectric: Teflon

### Replaceable Probes

Order Number (CSP-40A-024): HPA-40A  
 Order Number (CSP-40G-021): HPA-40G

### Mechanical

Recommended Travel: .090 (2.29)  
 Full Travel: .100 (2.54)  
 Operating Temperature: -55°C to +105°C  
 Connection: Standard SMA Connector

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	K-50B-S	4.47 (127)	12.00 (340)
Standard	K-50H-S	4.47 (127)	12.00 (340)

### Electrical (Static Conditions)

Nominal Impedance: 50 Ohms  
 Minimum Return Loss @ 1GHz: 23 dB, 26 dB typical  
 Minimum Insertion Loss @ 1GHz: 0.12 dB, 0.06 dB typical  
 Maximum VSWR @ 1GHz: 1.15:1, 1.11:1 typical

### Materials and Finishes

Housing: Brass, Gold plated  
 Dielectric: Premium virgin Teflon per MIL-P-18468

### Replaceable Probes

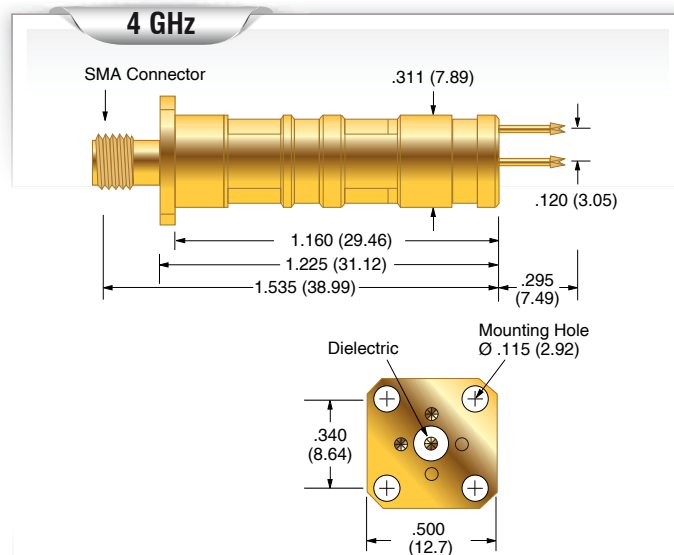
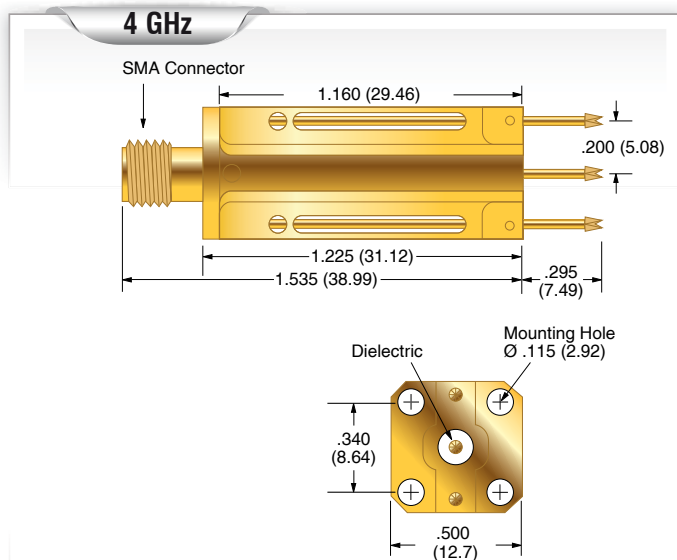
Order Number (K-50B-S): SPL-01B-119  
 Order Number (K-50H-S): SPL-01H-116

### Applications

The K-50H-S coaxial probe is a shorter version of the K-50 series measurement probe with .100 full travel and a slightly larger mounting flange. Electrical characteristics and applications are similar to the K-50.

## K-50L

## K-50L-QG



### Mechanical

Recommended Travel:	.225 (5.72)
Full Travel:	.250 (6.35)
Operating Temperature:	-55°C to +105°C
Connection:	Standard SMA Connector

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	K-50L	3.27 (93)	8.13 (231)

### Electrical (Static Conditions)

Nominal Impedance:	50 Ohms
Minimum Return Loss @ 1GHz:	23 dB, 26 dB typical
Minimum Insertion Loss @ 1GHz:	0.12 dB, 0.06 dB typical
Maximum VSWR @ 1GHz:	1.15:1, 1.11:1 typical

### Materials and Finishes

Housing:	Brass, Gold plated
Dielectric:	Premium virgin Teflon per MIL-P-18468

### Replaceable Probes

Order Number:	SPL-01L-039
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### Mechanical

Recommended Travel:	.225 (5.72)
Full Travel:	.250 (6.35)
Operating Temperature:	-55°C to +105°C
Connection:	Standard SMA Connector

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	K-50L-QG	3.27 (93)	8.13 (231)

### Electrical (Static Conditions)

Nominal Impedance:	50 Ohms
Minimum Return Loss @ 1GHz:	23 dB, 26 dB typical
Minimum Insertion Loss @ 1GHz:	0.12 dB, 0.06 dB typical
Maximum VSWR @ 1GHz:	1.15:1, 1.11:1 typical

### Materials and Finishes

Housing:	Brass, Gold plated
Dielectric:	Premium virgin Teflon per MIL-P-18468

### Replaceable Probes

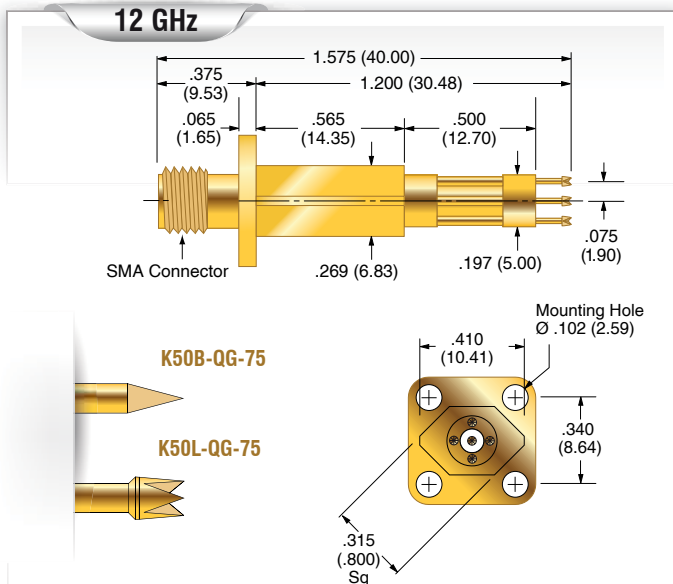
Order Number:	SPL-01L-039
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### Applications

The K-50 coaxial probe provides an instrumentation-quality interface for broadband R.F. measurements up to 4 GHz. With the K-50 R.F. Circuit Design, impedance characterization measurements can be performed using it as a Network Analyzer port-extending accessory. Accurate and repeatable small signal and R.F. power (50 Watts) measurements provide consistent and repeatable results.

## K-50B-QG-75 K-50L-QG-75

## K-50B-QG-75R K-50L-QG-75R



### Mechanical

Recommended Travel:	.067 (1.70)
Full Travel:	.100 (2.54)
Operating Temperature:	-55°C to +105°C
Connection:	Standard SMA Connector

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	K-50B-QG-75	3.74 (106)	14.35 (407)
Standard	K-50L-QG-75	3.74 (106)	14.35 (407)

### Electrical (Static Conditions)

Nominal Impedance:	50 Ohms
Minimum Return Loss @ 1GHz:	23.8 dB, 22.8 dB typical
Minimum Return Loss @ 5GHz:	18.3 dB, 16.4 dB typical
Minimum Return Loss @ 10GHz:	17.7 dB, 17.0 dB typical
Minimum Insertion Loss @ 1GHz:	0.183 dB, 0.186 dB typical
Minimum Insertion Loss @ 5GHz:	0.370 dB, 0.371 dB typical
Minimum Insertion Loss @ 10GHz:	0.577 dB, 0.572 dB typical
Maximum VSWR @ 1GHz:	1.14:1, 1.16:1 typical
Maximum VSWR @ 5GHz:	1.28:1, 1.36:1 typical
Maximum VSWR @ 10GHz:	1.30:1, 1.33:1 typical

### Materials and Finishes

Housing:	Brass, Gold plated
Dielectric:	Premium virgin Teflon per MIL-P-18468

### Replaceable Probes - K-50B-QG-75

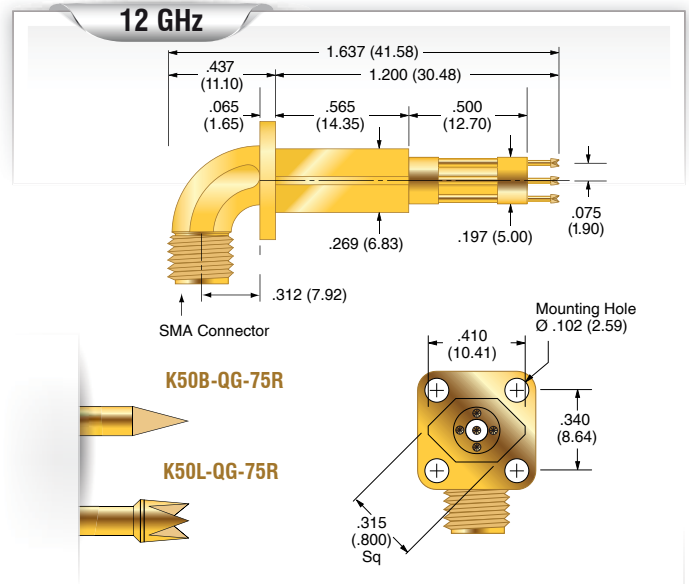
Order Number Ground Probe:	HPA-OL
Order Number Signal Probe:	SPG-72L-005

### Replaceable Probes - K-50L-QG-75

Order Number Ground Probe:	HPA-OL
Order Number Signal Probe:	SPG-72L-005

### Applications

The K-50L-QG-75 series coaxial probe provides an instrumentation-quality interface for broadband R.F. measurements up to 12 GHz. with the K-50L-QG-75 R.F.



### Mechanical

Recommended Travel:	.067 (1.70)
Full Travel:	.100 (2.54)
Operating Temperature:	-55°C to +105°C
Connection:	Standard SMA Connector

### Spring Force in oz. (grams)

	Order Code	Preload	Rec. Travel
Standard	K-50B-QG-75R	3.74 (106)	14.35 (407)
Standard	K-50L-QG-75R	3.74 (106)	14.35 (407)

### Electrical (Static Conditions)

Nominal Impedance:	50 Ohms
Minimum Return Loss @ 1GHz:	25.1 dB, 25.2 dB typical
Minimum Return Loss @ 5GHz:	18.0 dB, 17.5 dB typical
Minimum Return Loss @ 10GHz:	27.0 dB, 35.3 dB typical
Minimum Insertion Loss @ 1GHz:	0.160 dB, 0.159 dB typical
Minimum Insertion Loss @ 5GHz:	0.421 dB, 0.405 dB typical
Minimum Insertion Loss @ 10GHz:	0.489 dB, 0.429 dB typical
Maximum VSWR @ 1GHz:	1.12:1, 1.12:1 typical
Maximum VSWR @ 5GHz:	1.29:1, 1.31:1 typical
Maximum VSWR @ 10GHz:	1.09:1, 1.03:1 typical

### Materials and Finishes

Housing:	Brass, Gold plated
Dielectric:	Premium virgin Teflon per MIL-P-18468

### Replaceable Probes - K-50B-QG-75R

Order Number Ground Probe:	HPA-OL
Order Number Signal Probe:	SPG-72L-005

### Replaceable Probes - K-50L-QG-75R

Order Number Ground Probe:	HPA-OL
Order Number Signal Probe:	SPG-72L-005