



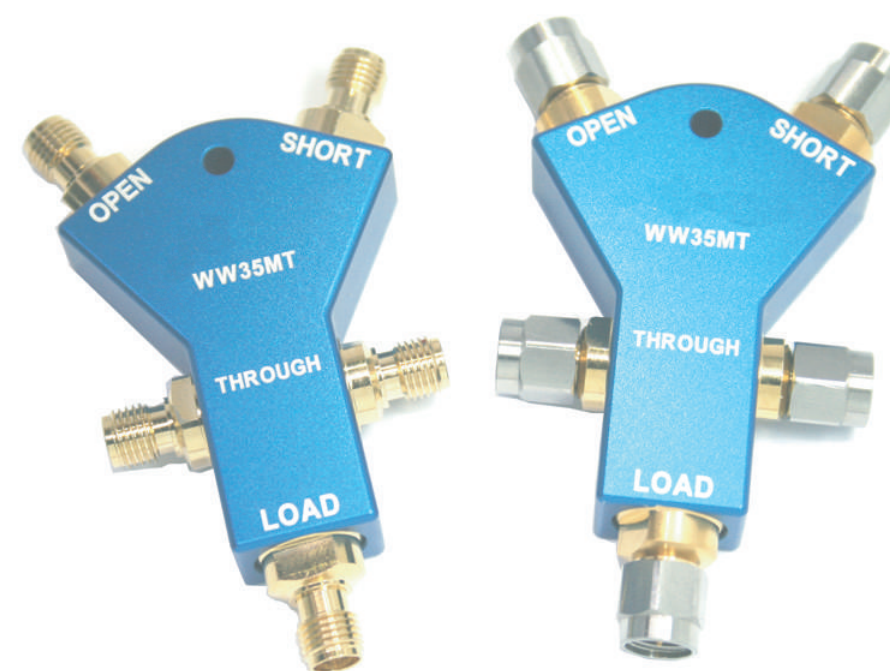
## Features

### Compact Calibration Kits

Frequency : DC to 6 GHz (N-type), 9 GHz (3.5 mm)  
 Standard Kit included Open-Short-Load and Through  
 Return Loss (Load) : < -38 dB  
 Phase deviation (Open, Short) : < 1.5 degrees

### T-probes

Frequency : DC to 20 GHz (3.5mm type) & 40 GHz (2.92mm type) bandwidth  
 Low insertion & Return loss ( < -10 dB)  
 GSG, GS configuration (0.8/1.5/2.5 mm pitch range)



## Compact Calibration Kits & T-probes



# Compact Calibration Kits



Microwave Farm’s Compact Calibration Kits offer excellent performance characteristics for fine-tuning in production environments and quality testing facilities, using 50 ohm N-type & 3.5 mm connectors up to 6 GHz and 9 GHz respectively. These Cal Kits include all needed calibration standards (Open, Short, Load, and Through) in one unit.

It is the best solution available for ease of use in VNA calibration, especially in the field.

We solve your performance and cost problems

## Specifications

- Return Loss (Load) : <-38dB
- Phase deviation (open, Short) : <1.5 degrees
- Providing calibration coefficient for user-defined calibration

# Compact Calibration Kits

## 3.5 mm, 3-in-1, DC to 9 GHz



### ■ Features

- DC to 9 GHz
- Standard kit included 3.5 mm (Female, Male) OPEN-SHORT-LOAD

### ■ Application

- VNA, Full 2-port CAL.
- Test & Measurement
- Precision Calibration

### ■ Specification

| Scope      | Items                       | Part No. : WW35M                 |
|------------|-----------------------------|----------------------------------|
| Electrical | Freq. range                 | DC to 9 GHz                      |
|            | Impedance                   | 50 Ohm                           |
|            | Return loss                 | LOAD : < -38 dB                  |
|            | Phase deviation(OPEN,SHORT) | < 1.5 degrees                    |
| Mechanical | Connector type              | 3.5 mm (Female)<br>3.5 mm (Male) |
|            | Housing                     | Stainless steel                  |
|            | Weight                      | 44 g                             |

# Compact Calibration Kits

## 3.5 mm, 3-in-1, DC to 9 GHz

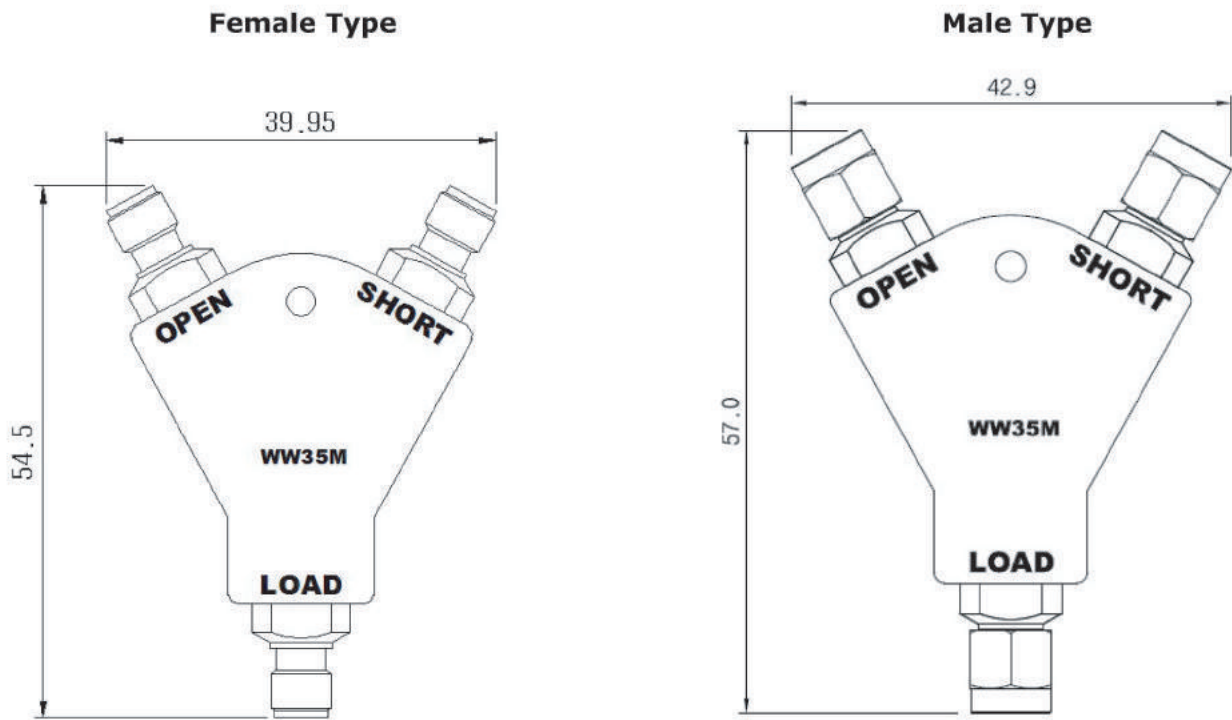


### ■ Calibration Coefficient

| Type  | Cal. Coefficient |                                        |
|-------|------------------|----------------------------------------|
| OPEN  | C0               | $49.43 \times 10^{-15} \text{F}$       |
|       | C1               | $-310.13 \times 10^{-27} \text{F/Hz}$  |
|       | C2               | $23.17 \times 10^{-36} \text{F/Hz}^2$  |
|       | C3               | $-0.16 \times 10^{-45} \text{F/Hz}^3$  |
|       | Offset delay     | 29.243 ps                              |
|       | Offset Loss      | 2.2 GΩ/s                               |
| SHORT | L0               | $2.0765 \times 10^{-12} \text{H}$      |
|       | L1               | $-108.54 \times 10^{-24} \text{H/Hz}$  |
|       | L2               | $2.1705 \times 10^{-33} \text{H/Hz}^2$ |
|       | L3               | $-0.01 \times 10^{-42} \text{H/Hz}^3$  |
|       | Offset delay     | 31.785 ps                              |
|       | Offset Loss      | 2.36 GΩ/s                              |

### ■ Drawing

Unit : mm



# Compact Calibration Kits

## N-type, 3-in-1, DC to 6 GHz



### ■ Features

- DC to 6 GHz
- Standard kit included N-type (Male) OPEN-SHORT-LOAD

### ■ Application

- VNA, Full 2-port CAL.
- Test & Measurement
- Precision Calibration

### ■ Specification

| Scope      | Items                       | Part No. : WWNT |
|------------|-----------------------------|-----------------|
| Electrical | Freq. range                 | DC to 6 GHz     |
|            | Impedance                   | 50 Ohm          |
|            | Return loss                 | LOAD : < -38 dB |
|            | Phase deviation(OPEN,SHORT) | < 1.5 degrees   |
| Mechanical | Connector type              | N-Type (Male)   |
|            | Housing                     | Stainless steel |
|            | Weight                      | 177 g           |

# Compact Calibration Kits

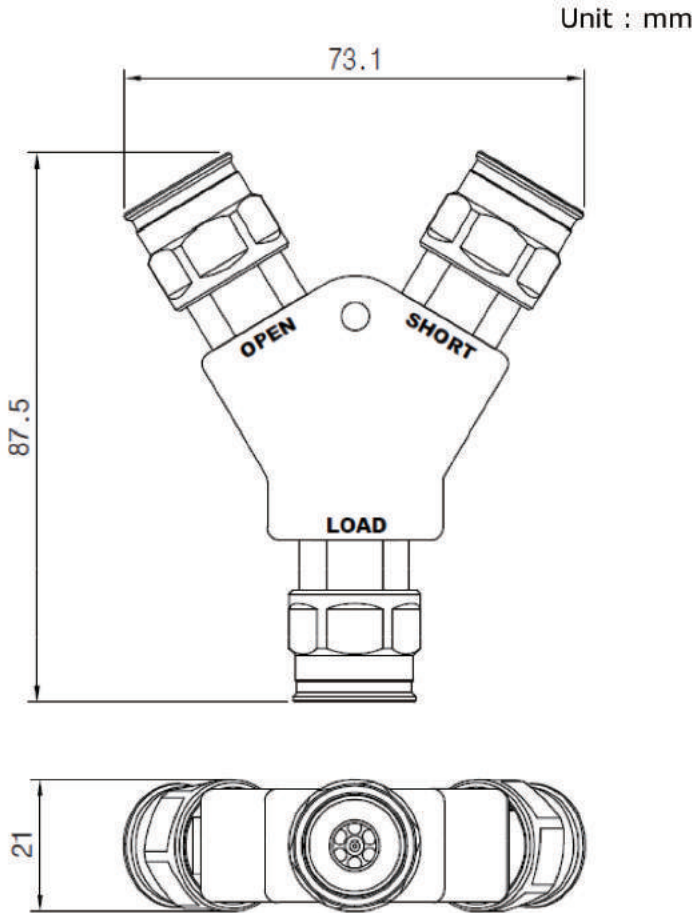
## N-type, 3-in-1, DC to 6 GHz



### ■ Calibration Coefficient

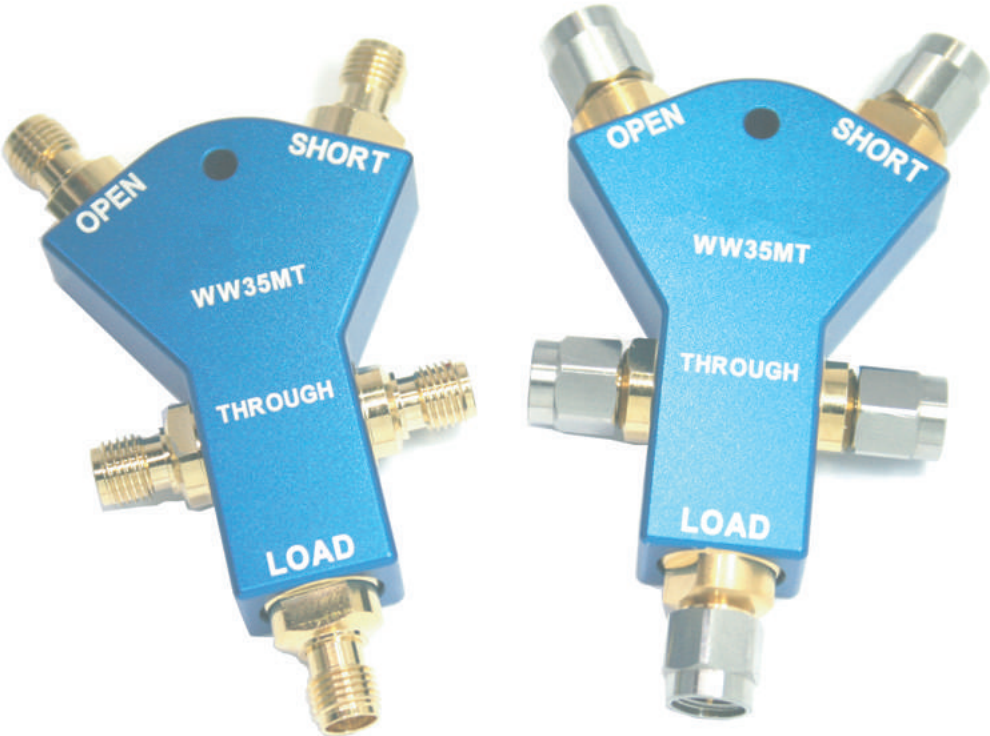
| Type  | Cal. Coefficient |                                          |
|-------|------------------|------------------------------------------|
| OPEN  | C0               | $89.939 \times 10^{-15} \text{F}$        |
|       | C1               | $2536.80 \times 10^{-27} \text{F/Hz}$    |
|       | C2               | $-264.990 \times 10^{-36} \text{F/Hz}^2$ |
|       | C3               | $13.4 \times 10^{-45} \text{F/Hz}^3$     |
|       | Offset delay     | 40.856 ps                                |
|       | Offset Loss      | 0.93 GΩ/s                                |
| SHORT | L0               | $3.3998 \times 10^{-12} \text{H}$        |
|       | L1               | $-496.4808 \times 10^{-24} \text{H/Hz}$  |
|       | L2               | $34.8314 \times 10^{-33} \text{H/Hz}^2$  |
|       | L3               | $-0.7847 \times 10^{-42} \text{H/Hz}^3$  |
|       | Offset delay     | 45.955 ps                                |
|       | Offset Loss      | 1.087 GΩ/s                               |

### ■ Drawing



# Compact Calibration Kits

## 3.5 mm, All-in-1, DC to 9 GHz



### ■ Features

- DC to 9 GHz
- Standard kit included 3.5 mm (Female, Male) Open-Short-Load-Through

### ■ Application

- VNA, Full 2-port CAL.
- Test & Measurement
- Precision Calibration

### ■ Specification

| Scope      | Items                       | Part No. : WW35MT                |
|------------|-----------------------------|----------------------------------|
| Electrical | Freq. range                 | DC to 9 GHz                      |
|            | Impedance                   | 50 Ohm                           |
|            | Return loss                 | LOAD : < 38 dB                   |
|            | Phase deviation(OPEN,SHORT) | < 1.5 degrees                    |
| Mechanical | Connector type              | 3.5 mm (Female)<br>3.5 mm (Male) |
|            | Housing                     | Stainless steel                  |
|            | Weight                      | 56 g                             |

# Compact Calibration Kits

## 3.5 mm, All-in-1, DC to 9 GHz

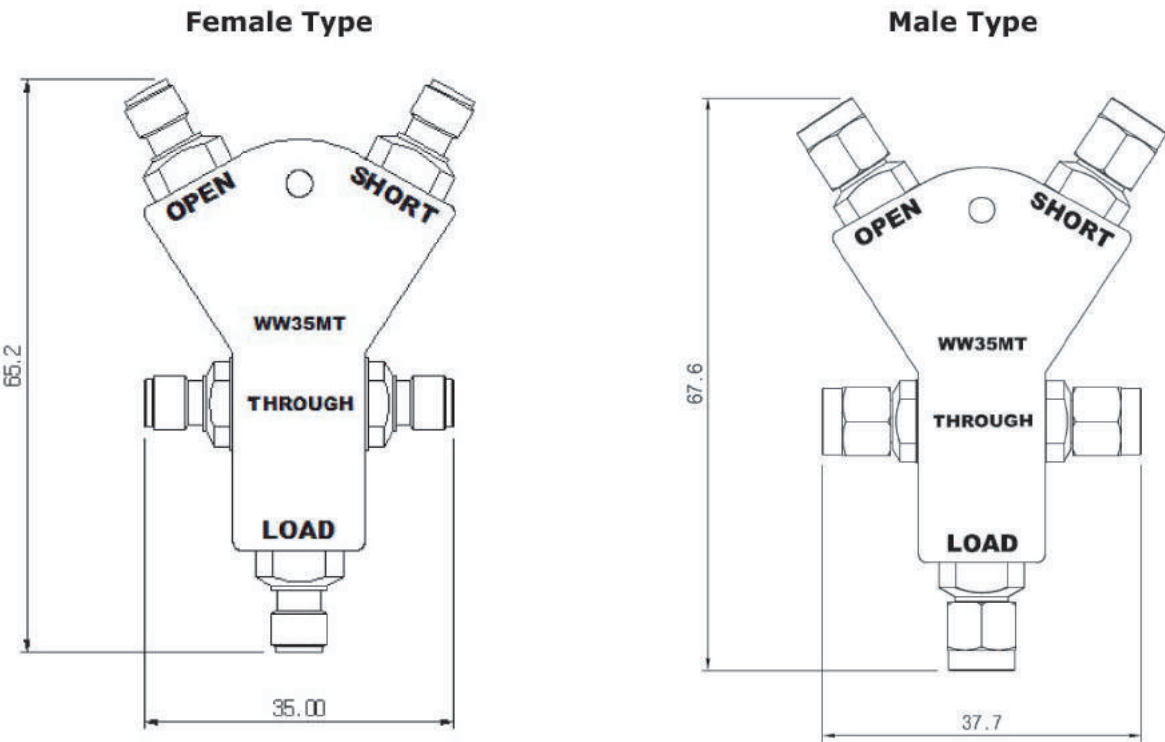


### ■ Calibration Coefficient

| Type    | Cal. Coefficient |                                        |
|---------|------------------|----------------------------------------|
| OPEN    | C0               | $49.43 \times 10^{-15} \text{F}$       |
|         | C1               | $-310.13 \times 10^{-27} \text{F/Hz}$  |
|         | C2               | $23.17 \times 10^{-36} \text{F/Hz}^2$  |
|         | C3               | $-0.16 \times 10^{-45} \text{F/Hz}^3$  |
|         | Offset delay     | 29.243 ps                              |
|         | Offset Loss      | 2.2 GΩ/s                               |
| SHORT   | L0               | $2.0765 \times 10^{-12} \text{H}$      |
|         | L1               | $-108.54 \times 10^{-24} \text{H/Hz}$  |
|         | L2               | $2.1705 \times 10^{-33} \text{H/Hz}^2$ |
|         | L3               | $-0.01 \times 10^{-42} \text{H/Hz}^3$  |
|         | Offset delay     | 31.785 ps                              |
|         | Offset Loss      | 2.36 GΩ/s                              |
| THROUGH | Electrical delay | 107.9 ps                               |

### ■ Drawing

Unit : mm



# Probe Positioner

## for T-probe

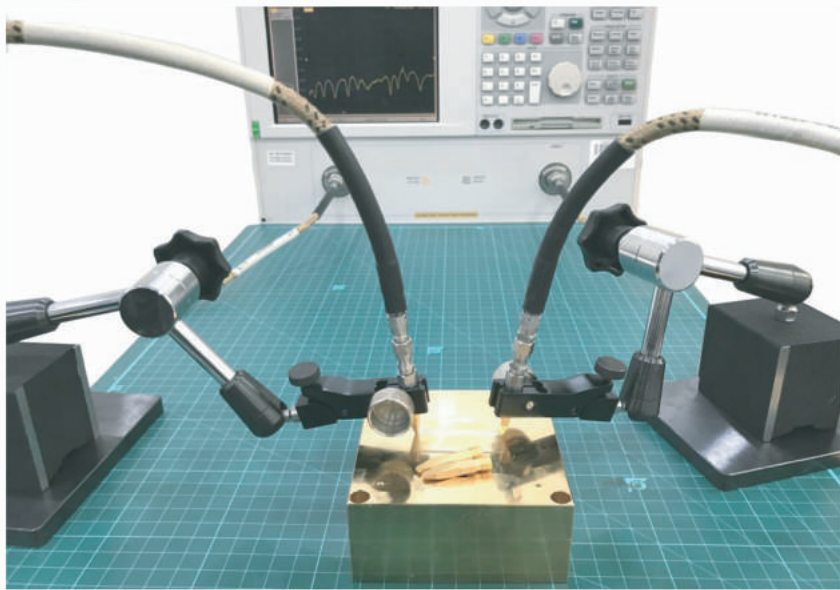


### ■ Advantage

- Articulated and Flexible Joints
- Easy to control to X-, Y-, Z- direction using Arm Knob
- Stable test measurement

### ■ Applications

- RF & Microwave module signal insertion, detection & output measurement
- High frequency circuit board electrical performance analysis
- High speed digital circuit analysis

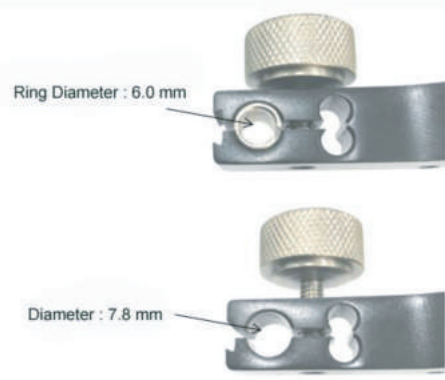
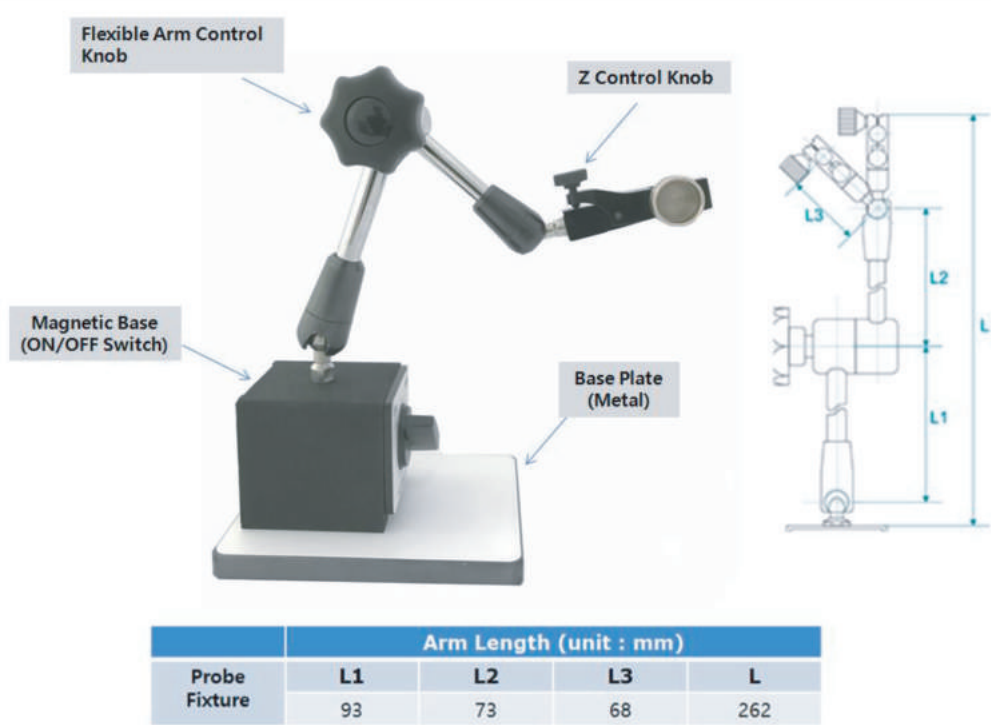


# Probe Positioner for T-probe



## ■ Specification

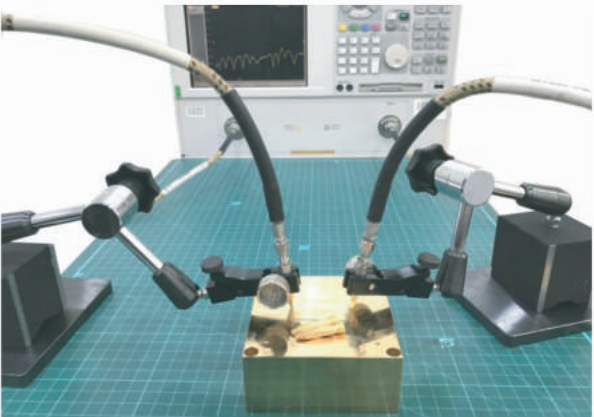
| Scope      | Items          | Part No: PP-01                                                  |
|------------|----------------|-----------------------------------------------------------------|
| Mechanical | Arm Length     | L1 : 93 mm<br>L2 : 73 mm<br>L3 : 68 mm<br>Total Length : 262 mm |
|            | Hole Diameter  | 6.0 mm (with metal ring)<br>7.8 mm (without metal ring)         |
|            | Magnetic Base  | Size (mm): 50 x 65 x 55                                         |
|            | Base plate     | Size (mm) : 120 x 90<br>Material : Steel                        |
|            | Weight (Total) | 2,145 g                                                         |



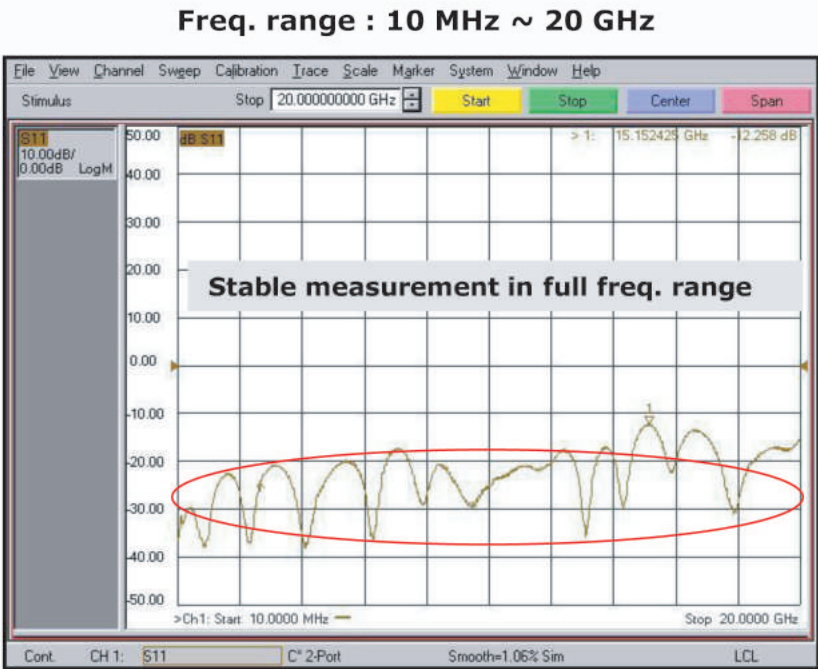
# Probe Positioner for T-probe



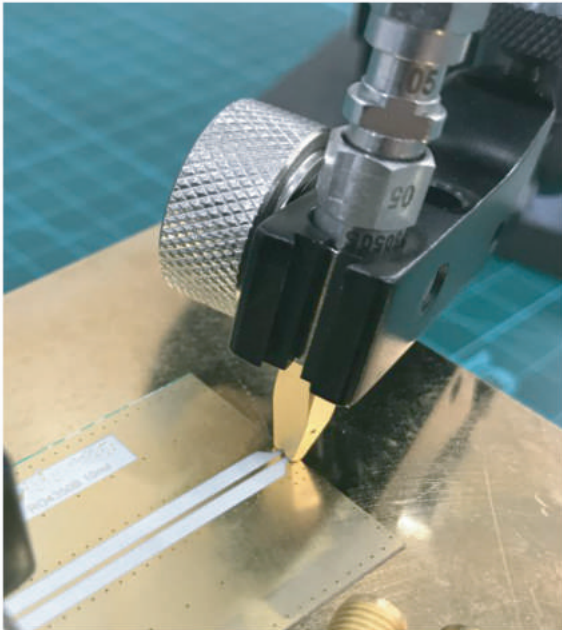
## ■ Test Result



- Test Board : RO4350B (10 mil)
- Trace Length : 40 mm



Please see YouTube video for probe Measurement



# T-probes

## GSG, GS type



Microwave Farm's T-probe is coaxial probe that offers one signal pin on center and several fixed pitch ground contact with low inductance. This probe provides excellent performance for applications having test point with adjacent grounds. This probe has various pitch range of 0.8, 1.5, 2.5 mm from signal to ground contacts and is produced by precision manufacturing process.

It is available for signal probing test in these applications such as RF module signal insertion/output measurement, high speed digital & high freq. circuit board analysis.

### Features

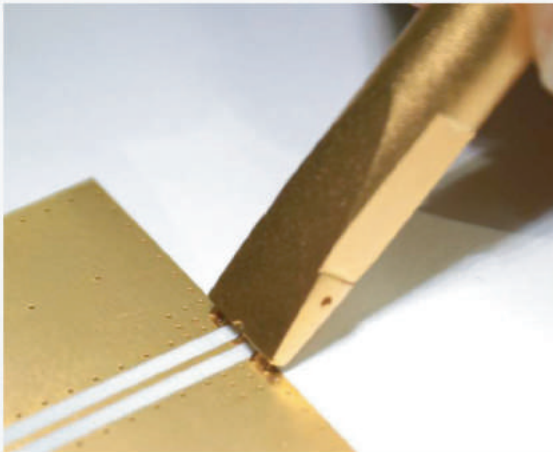
- DC to 20 GHz (3.5 mm type) & 40 GHz (2.92 mm) bandwidth
- Low insertion & Return loss ( <-10 dB)
- GSG, GS configuration (0.8/1.5/2.5 mm pitch range)

### Advantages

- Easy for signal probing test without any soldering process on circuit board
- Compliant pogo pins allows probing of non-planar structures, wall of module & other obstructions
- Robust pins with repetability provide longer probing life time and reduce pin damage from circuit board

### Applications

- RF & Microwave module signal insertion, detection & output measurement
- High freq. circuit board electrical performance analysis
- High speed digital circuit analysis



# T-probes

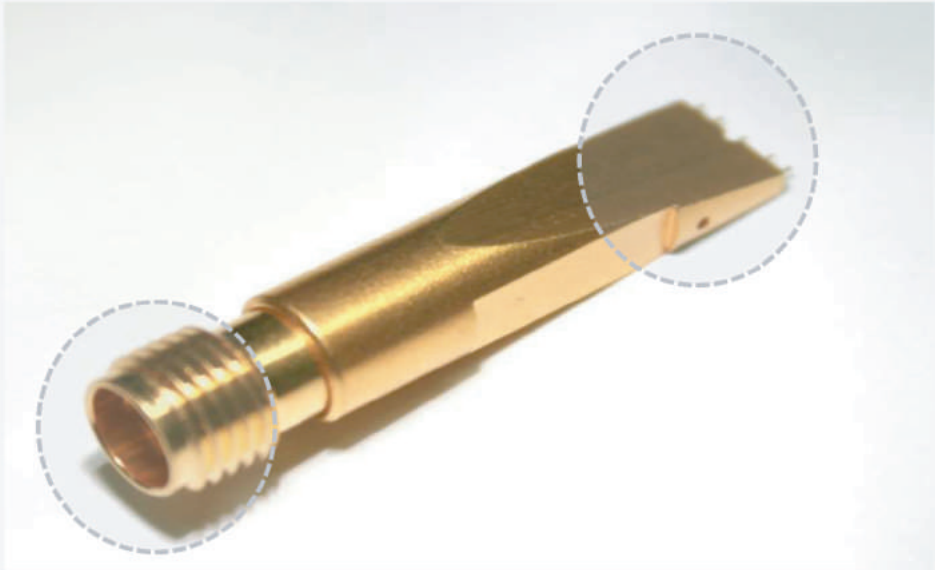
## GSG, GS type



### Specification

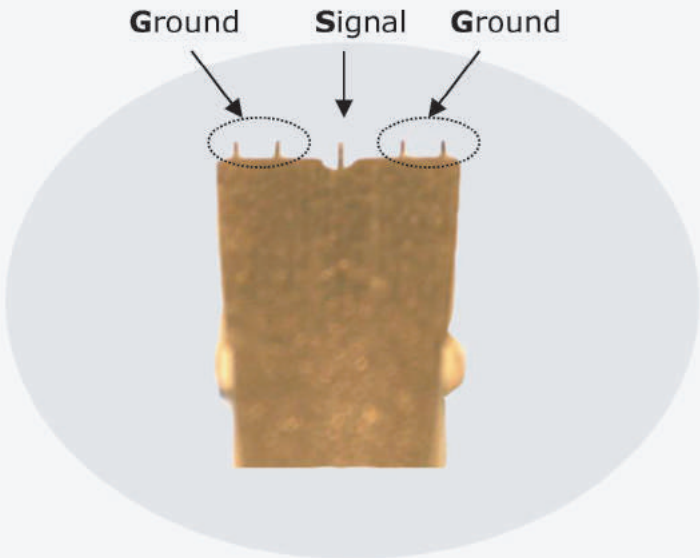
| Scope      | Items          | Specification                                                       |
|------------|----------------|---------------------------------------------------------------------|
| Electrical | Freq. range    | DC to 20 GHz (3.5 mm Connector)<br>DC to 40 GHz (2.92 mm Connector) |
|            | Insertion loss | < 0.5 dB                                                            |
|            | Return loss    | < 10 dB                                                             |
| Mechanical | Connector type | 3.5 mm & 2.92 mm connector                                          |
|            | Probe pitch    | 0.8/1.5/2.5 mm (from signal to ground)                              |
|            | Pin type       | Pogo Structure                                                      |

\* RoHS Compliant



Pogo Pin

Crown type



Interface : 3.5 mm type (DC to 20 GHz)  
2.92 mm type (DC to 40 GHz)

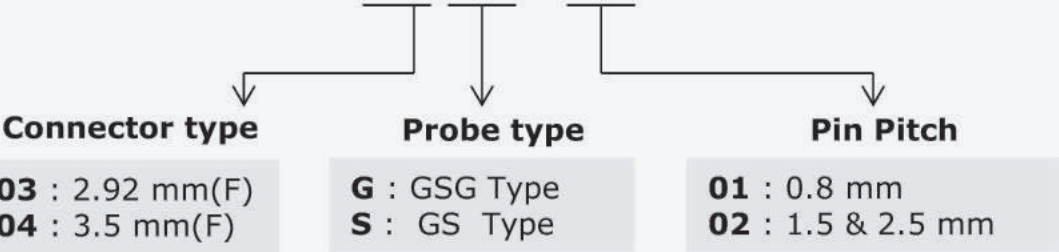
# T-probes

## GSG, GS type

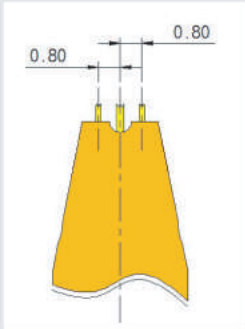
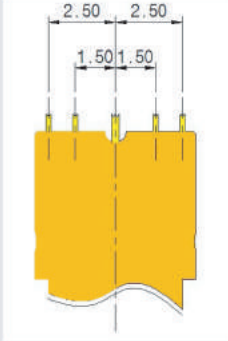


### Ordering Information

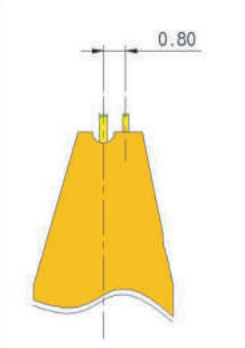
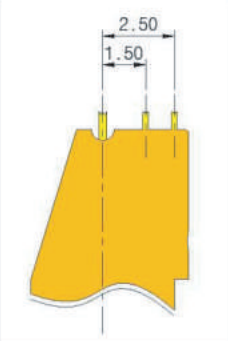
## PU-03G-01



### GSG Type (pitch : 0.8/ 1.5, 2.5)

| Part No.   | PU-03G-01<br>PU-04G-01                                                             | PU-03G-02<br>PU-04G-02                                                              |
|------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Pitch (mm) | 0.8                                                                                | 1.5 & 2.5                                                                           |
| Structure  |  |  |

### GS Type (pitch : 0.8/ 1.5, 2.5)

| Part No.   | PU-03S-01<br>PU-04S-01                                                              | PU-03S-02<br>PU-04S-02                                                               |
|------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Pitch (mm) | 0.8                                                                                 | 1.5 & 2.5                                                                            |
| Structure  |  |  |

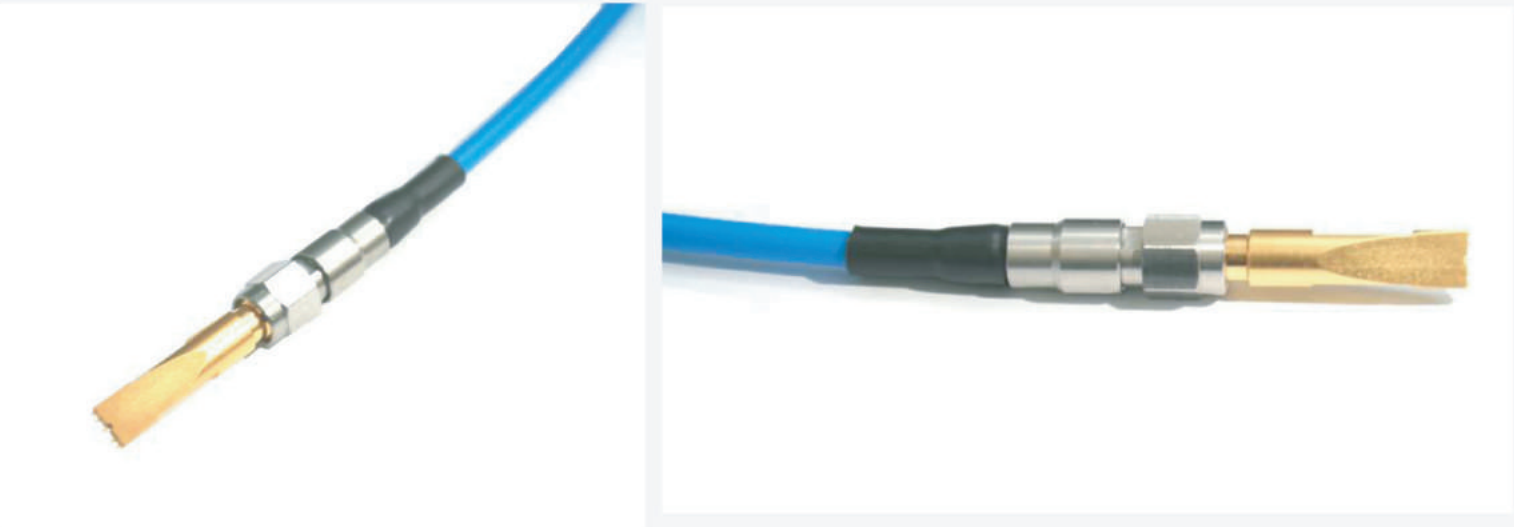
# T-probes

## GSG, GS type

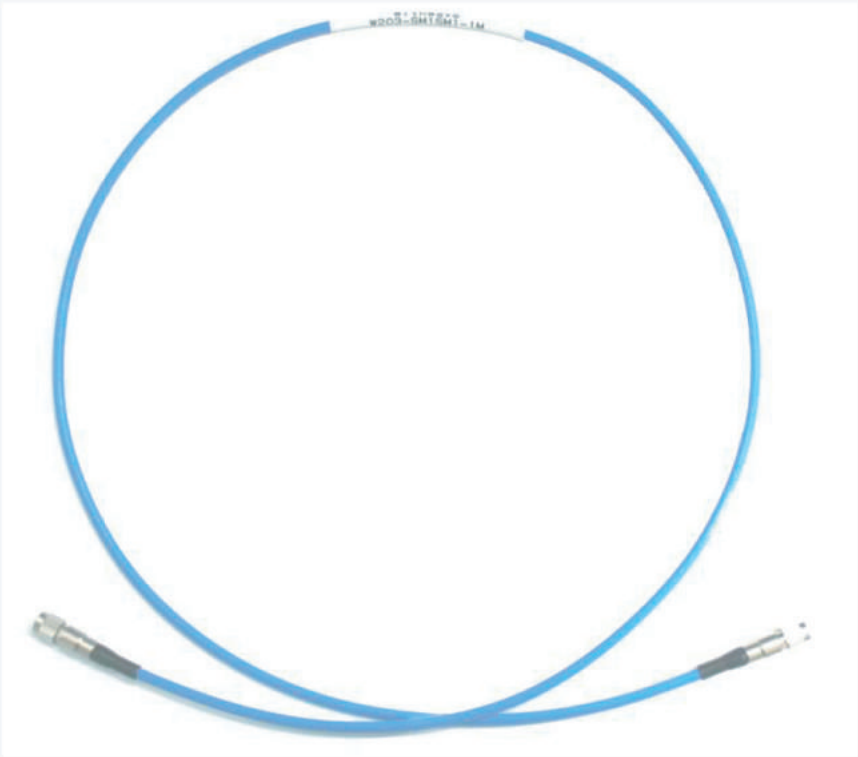


### Accessories : Test Cable Assembly

### W203 cable assembly



### Part No. : W203-SM1SM1-1M



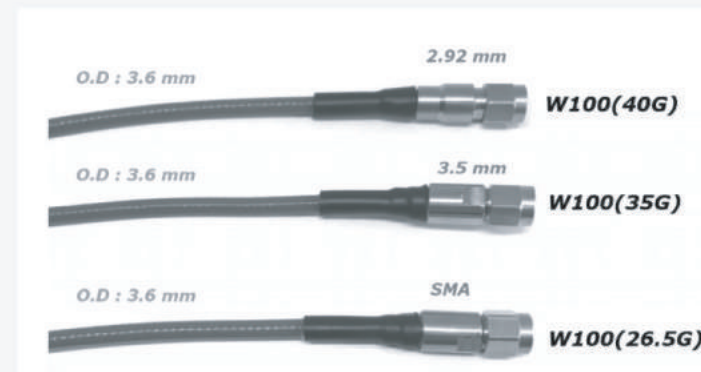
- Frequency : DC to 26.5 GHz
- Connector : SMA(Male)
- Cable :W203
- Cable Diameter : 3.80 mm

# T-probes GSG, GS type



## ■ Accessories : Test Cable Assembly

### W100 cable assembly



- Frequency : DC to 40 GHz
- Connector : 2.92 mm (Male)
- Cable : W100
- Cable Diameter : 3.60 mm

# T-probes GSG, GS type



## ■ Test results

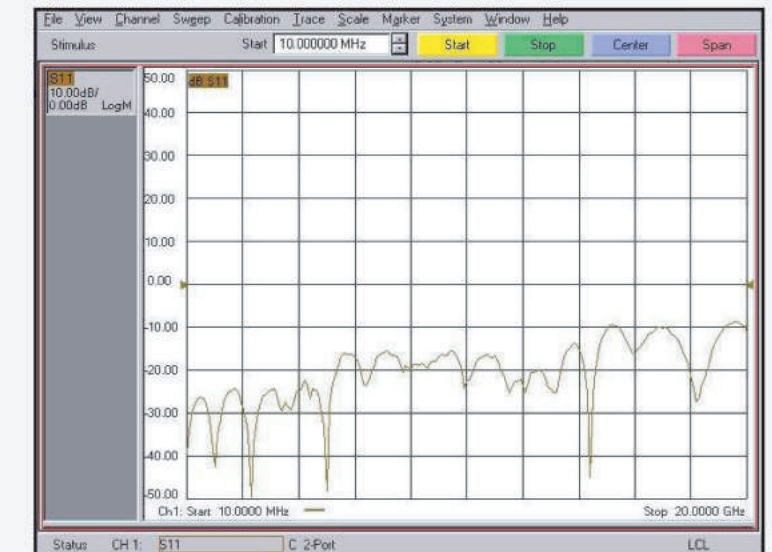
### GSG Type (pitch : 0.8 mm)

Part No : PU-04G-01



- Substrate : RO4350B (10 mil)
- Microstrip type

### Freq. range: 10 MHz~ 20 GHz



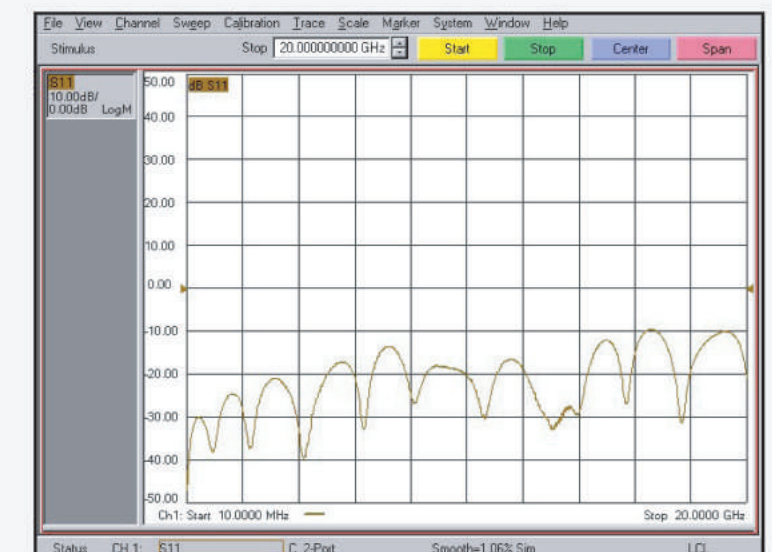
### GSG Type (pitch : 1.5 mm & 2.5 mm)

Part No : PU-04G-02



- Substrate : RO4350B (10 mil)
- Microstrip type

### Freq. range: 10 MHz~ 20 GHz



# T-probes

## GSG, GS type



### Test results

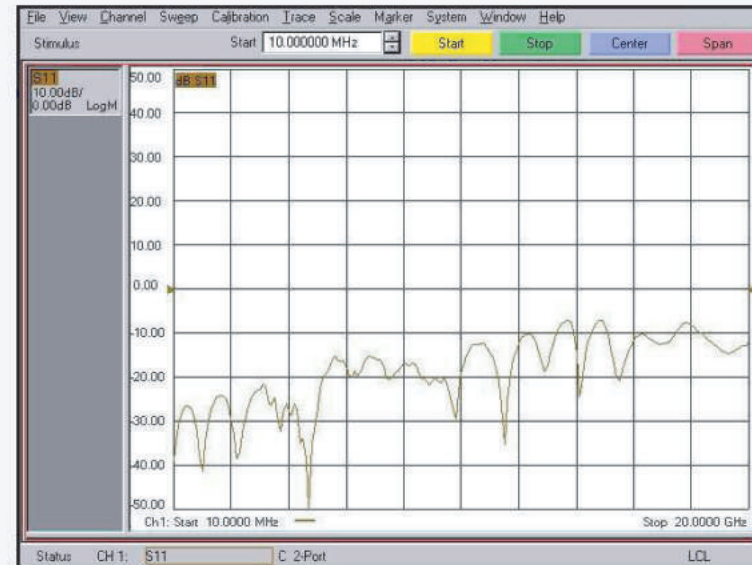
#### GS Type (pitch : 0.8 mm)

Part No : PU-04S-01



- Substrate : RO4350B (10 mil)
- Microstrip type

Freq. range: 10 MHz~ 20 GHz



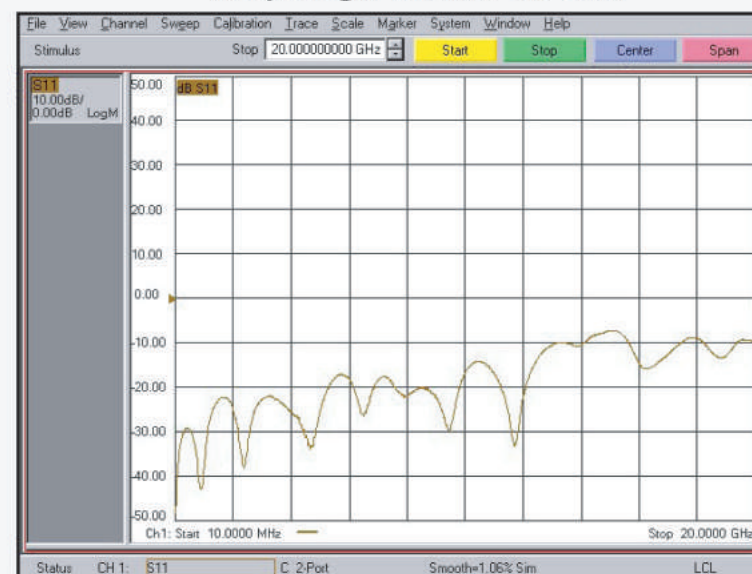
#### GS Type (pitch : 1.5 & 2.5 mm)

Part No : PU-04S-02



- Substrate : RO4350B (10 mil)
- Microstrip type

Freq. range: 10 MHz~ 20 GHz



# T-probes

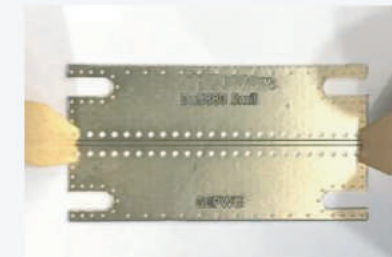
## GSG, GS type



### Test results

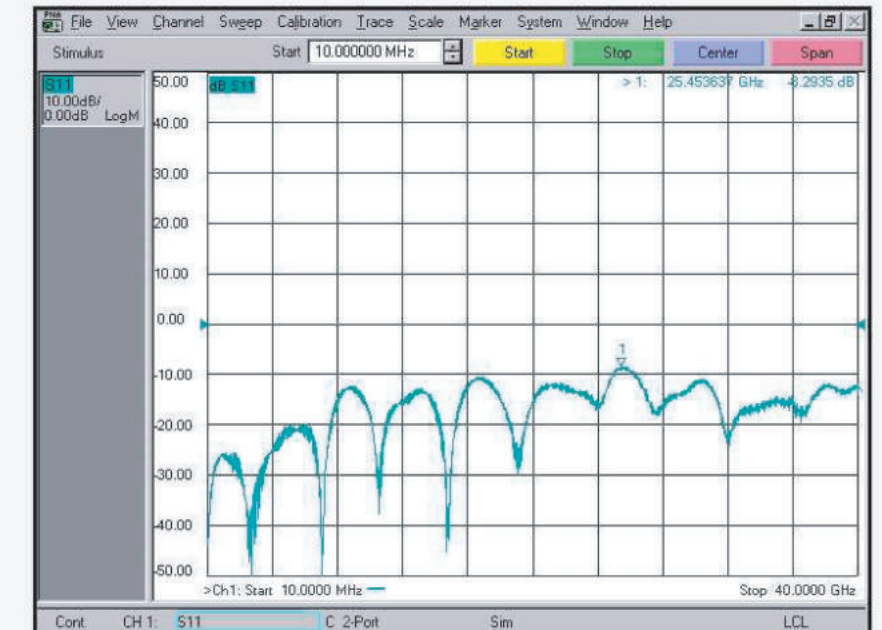
#### GSG Type (pitch : 0.8 mm)

Part No : PU-03G-01



- Substrate : Duroid 5880 (5 mil)
- GCPWG type

Freq. range: 10 MHz~ 40 GHz



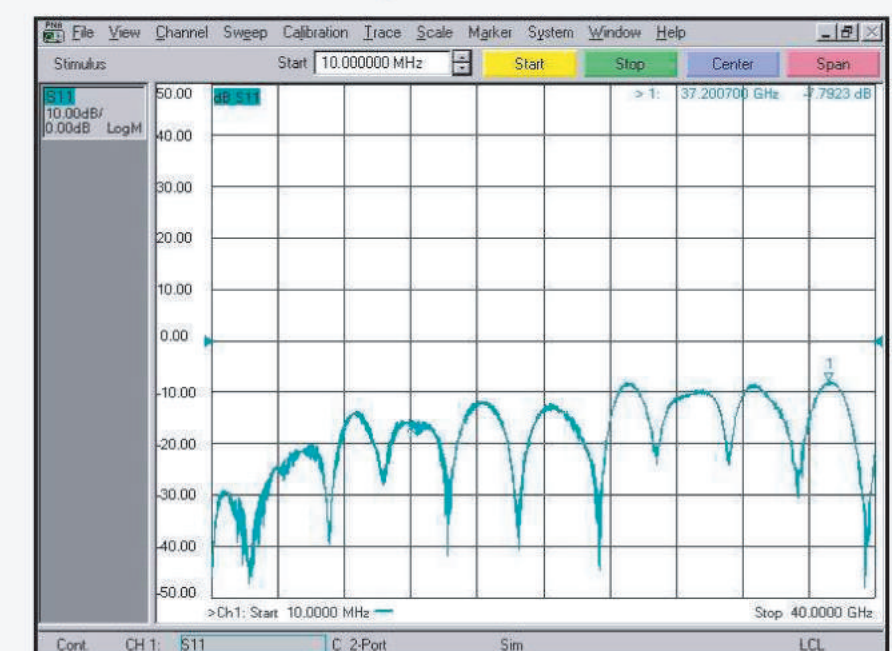
#### GSG Type (pitch : 0.8 mm)

Part No : PU-03G-01



- Substrate : Duroid 5880 (5 mil)
- Top Ground Microstrip

Freq. range: 10 MHz~ 40 GHz



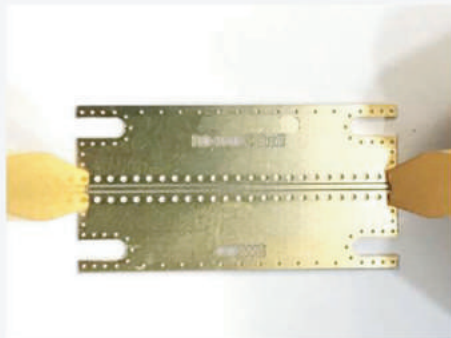
# T-probes GSG, GS type



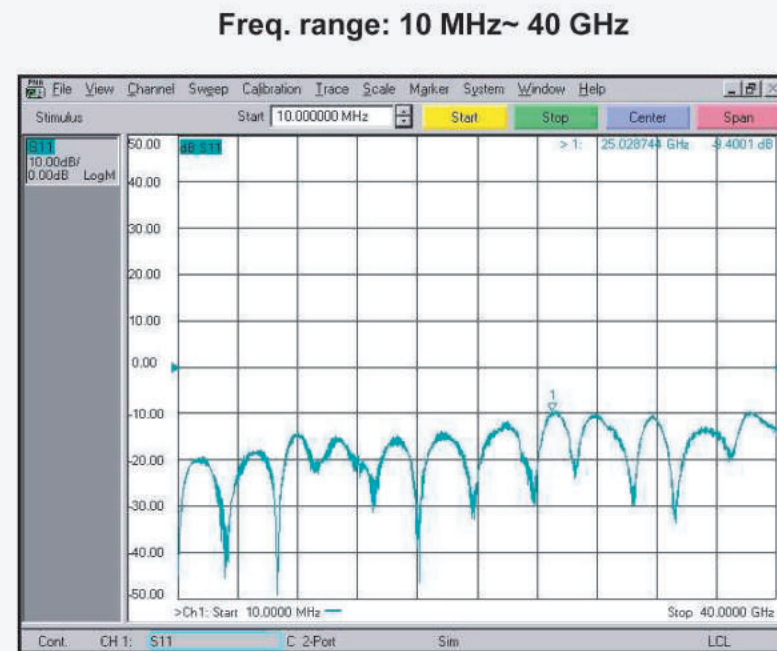
## ■ Test results

GSG Type (pitch : 0.8 mm)

Part No : PU-03G-01



- Substrate : RO4350B (10 mil)
- GCPWG type

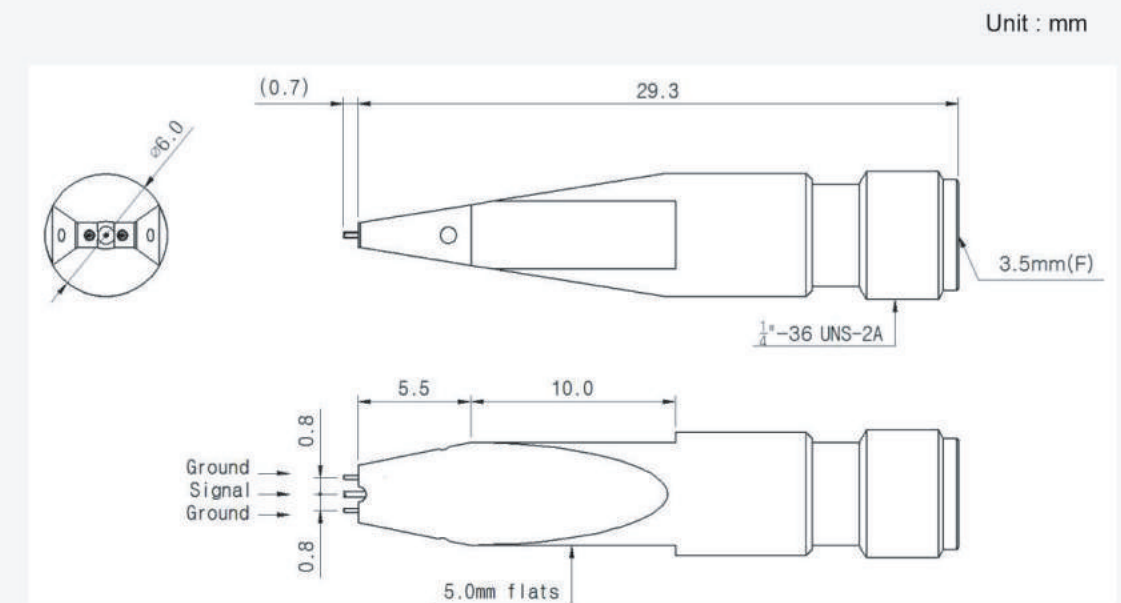


# T-probes GSG, GS type

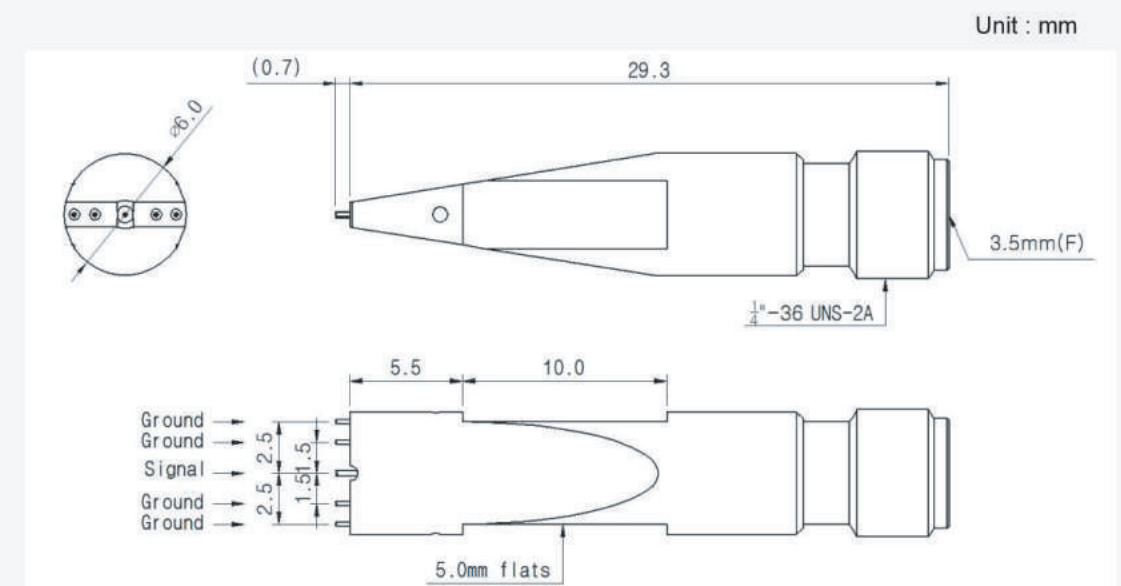


## ■ Drawing

Part No : PU-03G-01  
PU-04G-01



Part No : PU-03G-02  
PU-04G-02

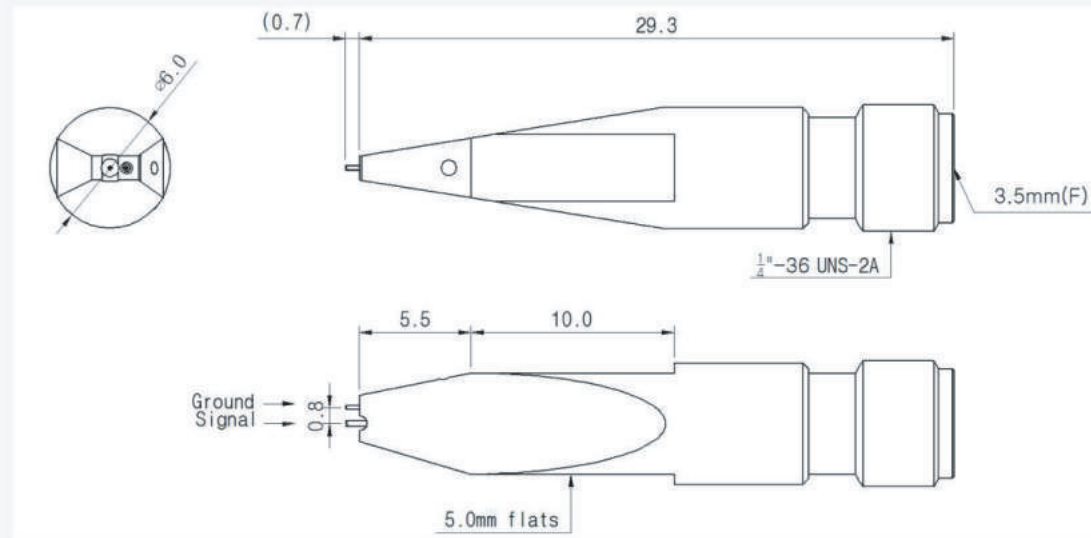


# T-probes GSG, GS type

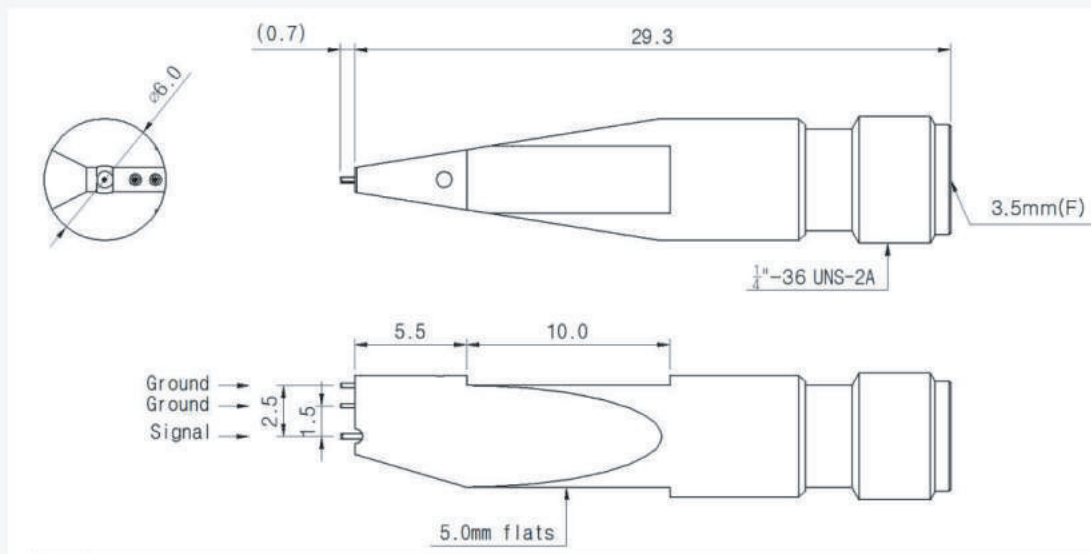


## ■ Drawing

Part No : PU-03S-01  
PU-04S-01



Part No : PU-03S-02  
PU-04S-02



# T-probes GSG, GS type

