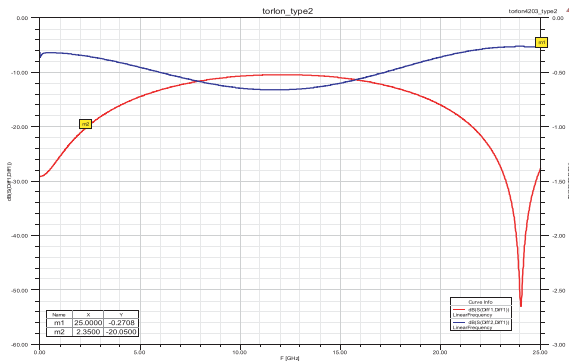


# High Frequency Solutions

High frequency testing is mostly used for radio-frequency channels and wide-band transaction applications. The signal pin can be customized according to the electrical characteristics and testing environments of the client. For IC testing, we usually recommend ultra-short pins, coaxial probes, and PCRs to accommodate the different types of ICs.

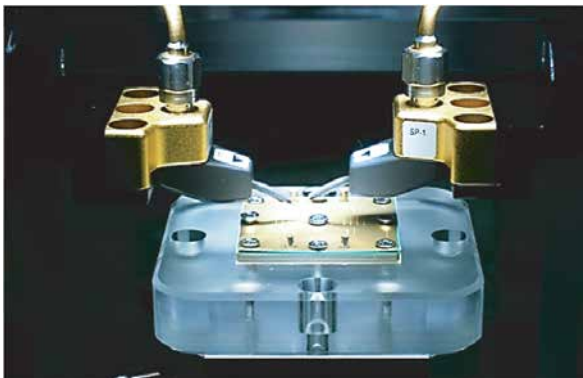
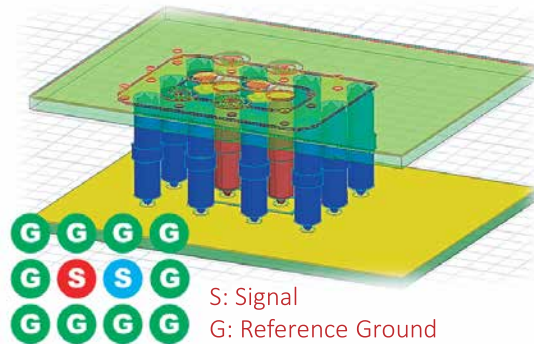
## Design Concept



We have the ability to simulate 3D electromagnetic performance as well as S-parameters, inductance and impedance and by that improving SI characteristics.

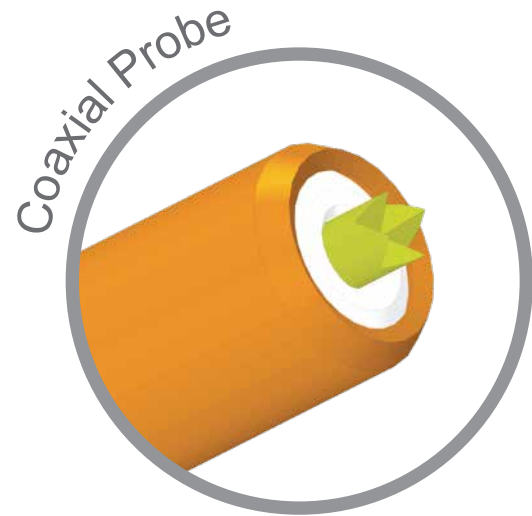
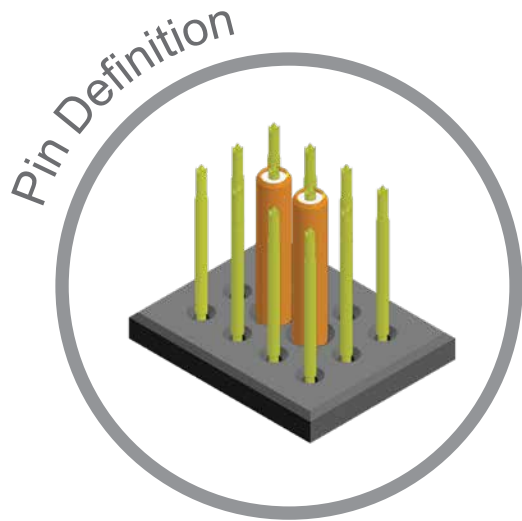
## Performance Simulation

CCP utilizes HFSS to simulate the pin performance in the sockets. This allows us to choose the best pin before designing a customized sockets.



CCP has a dedicate high frequency lab that uses TDR, network analyzers and RF probe stations to measure the socket / pins actual performance and thereby verifying the simulation results. These are all indispensable equipments for developing new high-class products.

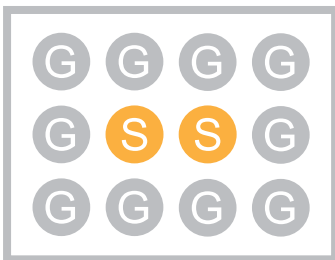
# Probe Specifications (Coaxial Probe)



## Pin Definition

**S** Signal Probe

**G** Ground Probe

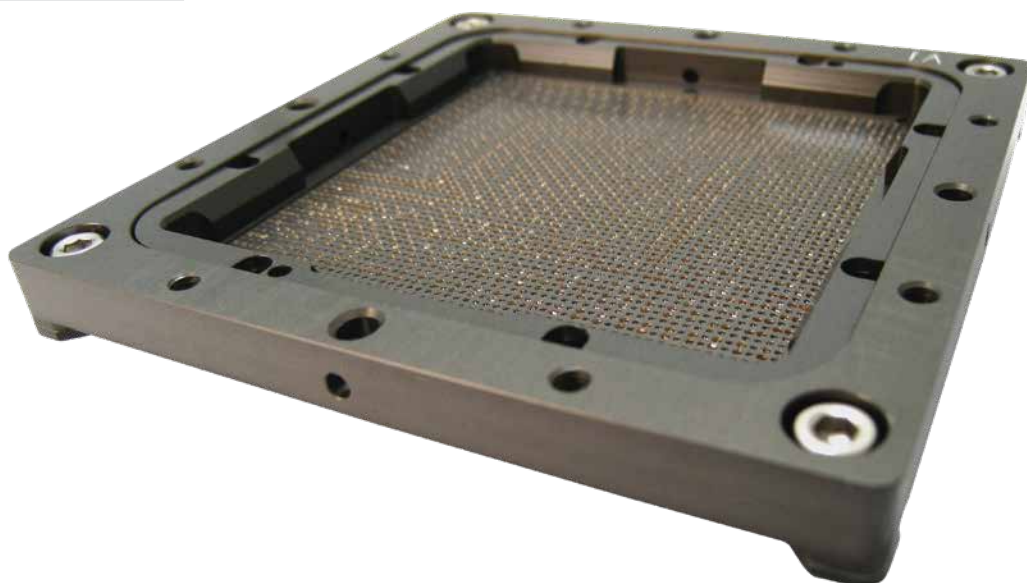


## Application

Feature:  
High Speed / High Frequency  
DUT:  
Bluetooth / GPS / LTE /  
Wireless IC / 5G  
Packaging:  
BGA / CSP / QFN / QFP

## Specification

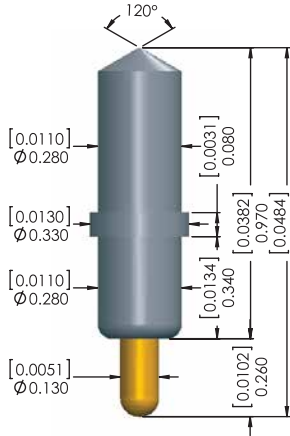
Insertion Loss:  
-1dB @ >50 GHz  
Return Loss:  
-20dB @ >30 GHz  
Impedance:  
50 Ohm  
Pitch:  
0.65~1.00 mm



# Probe Specifications (IC Test Probe)

Unit:mm; [ ]:in

## PE4-028DE09-01A0



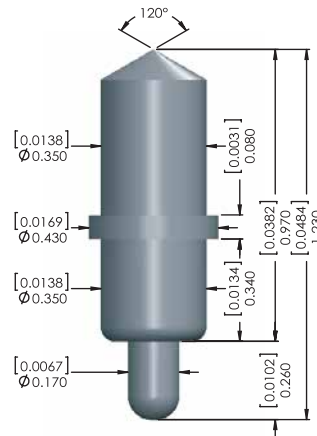
### Material

- Barrel: Pd alloy
- Spring: SUS, Au plated
- Bottom Plunger: BeCu, Au plated

### Mechanical Spec.

- Recommended Travel: 0.18mm
- Full Travel: 0.23mm
- Spring Force:  $15g \pm 20\%$  @ 0.18mm
- Operating Temp.:  $-55^{\circ}\text{C} \sim 150^{\circ}\text{C}$

## PE4-035DE09-01H0



### Material

- Barrel: Pd alloy
- Spring: SUS, Au plated
- Bottom Plunger: Pd alloy

### Mechanical Spec.

- Recommended Travel: 0.18mm
- Full Travel: 0.23mm
- Spring Force:  $14g \pm 20\%$  @ 0.18mm
- Operating Temp.:  $-55^{\circ}\text{C} \sim 150^{\circ}\text{C}$

### Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



- Current Rating: 1A continuous
- Contact Resistance:  $<75\text{m}\Omega(\text{AVG})$
- Characteristic Impedance:  $48.9\ \Omega$
- Insertion Loss:  $-1\text{dB} > 20\text{GHz}$
- Return Loss:  $-20\text{dB} > 20\text{GHz}$
- Time Delay: 7.3 psec
- Loop Inductance: 0.36 nH
- Capacitance: 0.15 pF

### Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000

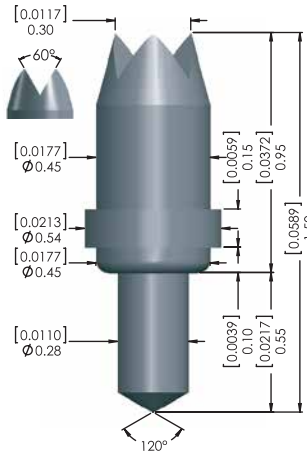


- Current Rating: 1A continuous
- Contact Resistance:  $<75\text{m}\Omega(\text{AVG})$
- Characteristic Impedance:  $37.4\ \Omega$
- Insertion Loss:  $-1\text{dB} > 20\text{GHz}$
- Return Loss:  $-20\text{dB} @ 7.62\text{GHz}$
- Time Delay: 7.48 psec
- Loop Inductance: 0.28 nH
- Capacitance: 0.2 pF

# Probe Specifications (IC Test Probe)

Unit:mm; [ ]in

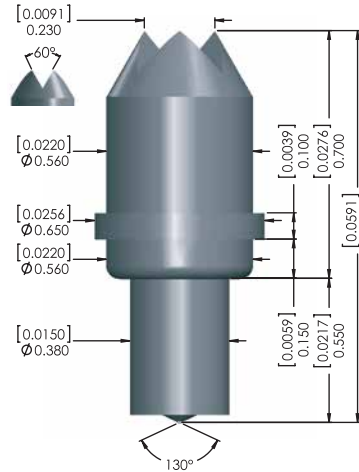
## PE4-045EF09-01A0



**Material**  
 Barrel Pd alloy  
 Spring SUS, Au plated  
 Bottom plunger Pd alloy

**Mechanical Spec.**  
 Recommended travel 0.40mm  
 Full travel 0.55mm  
 Spring force 30g±20%@0.40mm  
 Operating Temp. -55°C~150°C

## PE4-056EF09-01H0



**Material**  
 Barrel Pd alloy  
 Spring SUS, Au plated  
 Bottom plunger Pd alloy

**Mechanical Spec.**  
 Recommended travel 0.40mm  
 Full travel 0.55mm  
 Spring force 31g±20%@0.40mm  
 Operating Temp. -55°C~150°C

### Electrical Spec.



Pitch: 0.65mm Socket Material: Peek 1000

Current Rating 1A continuous  
 Contact Resistance <75mΩ(AVG)  
 Characteristic Impedance 35.9 Ω  
 Insertion Loss -1dB>20GHz  
 Return Loss -20dB@5.54GHz  
 Time Delay 8.6 psec  
 Loop Inductance 0.31 nH  
 Capacitance 0.24 pF

### Electrical Spec.



Pitch: 0.8mm Socket Material: Peek 1000

Current Rating 1A continuous  
 Contact Resistance <75mΩ(AVG)  
 Characteristic Impedance 29.7 Ω  
 Insertion Loss -1dB>20GHz  
 Return Loss -20dB@ 2.9 GHz  
 Time Delay 10.4 psec  
 Loop Inductance 0.31 nH  
 Capacitance 0.35 pF