

TWENTY THIRD ANNUAL



TestConX™

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DoubleTree by Hilton  
Mesa, Arizona

**Archive**

## High Frequency & High Current

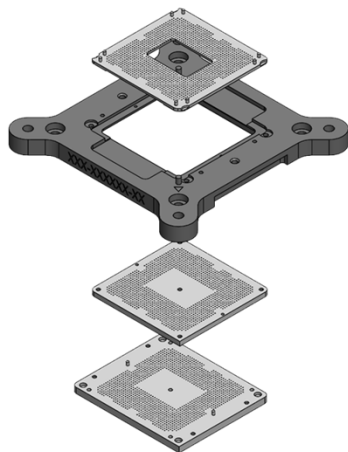
### Stamped Spring Probe

**Samuel Pak & A J Park**  
**IWIN Co., Ltd.**

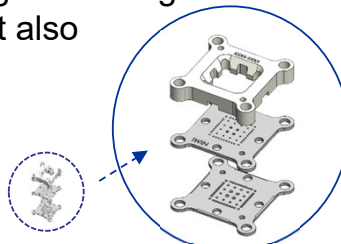
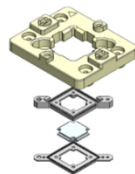
#### Introduction

Testing environment requires advanced technologies to support ever increasing demands. Test industry and test socket for semiconductor process have one of the most challenging interconnect applications in electronics due to the combination of harsh operating conditions and extremely high performance requirements, 80 GHz and beyond. With high current carrying for high frequency.

#### Various kinds of High Frequency Test socket with Stamped Spring Probe

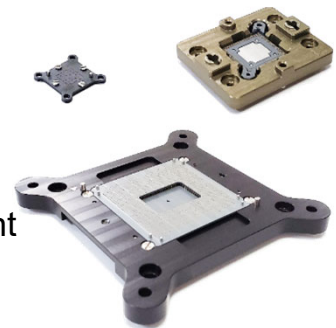


Big scale/ High pin count  
 For a large-sized package,  
 pins with a length enabling  
 high speed test also  
 available.

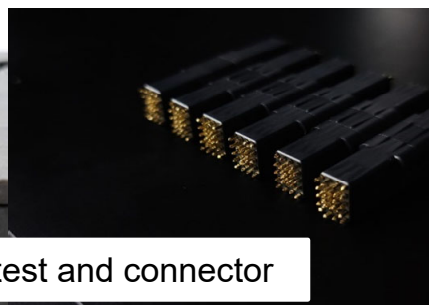
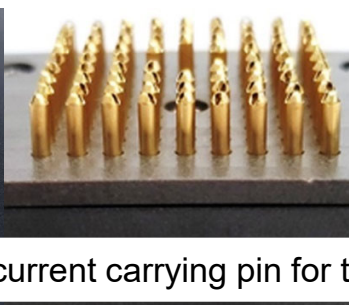


Small scale/ Low pin count  
 can be tested extremely  
 high frequency with very  
 short length pin.

Pictures of Test sockets  
for high speed test



#### Various kinds of High Current Stamped Spring Probe

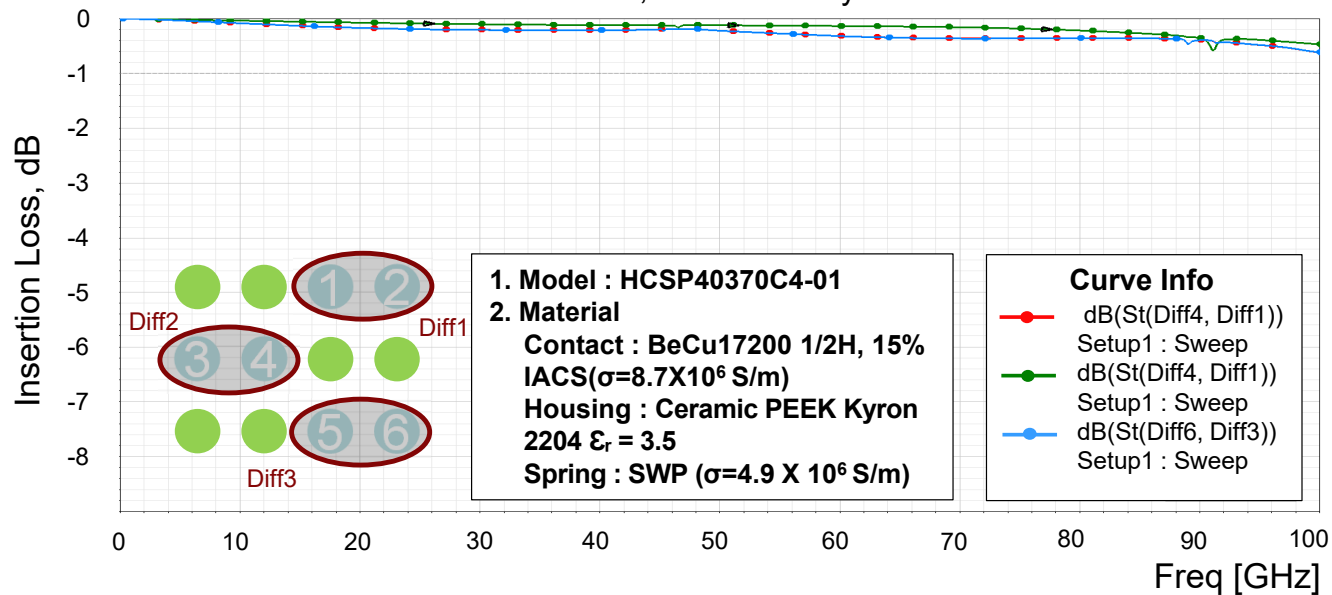


Need very high current carrying pin for test and connector

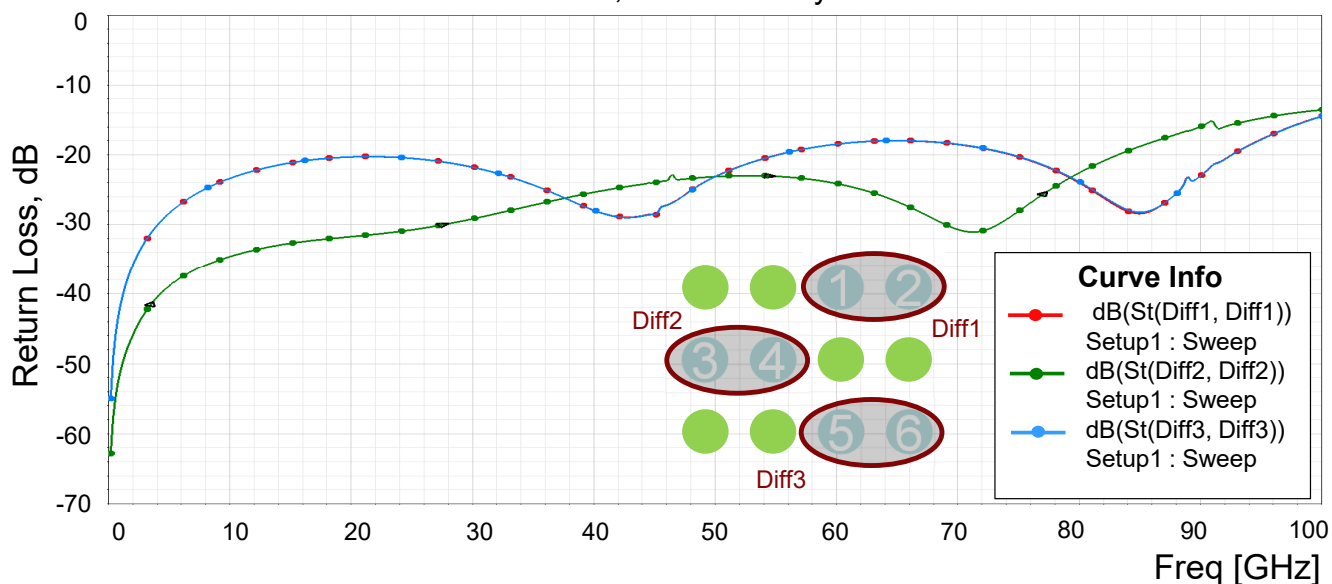


# HCSP61452C4-01 // 4.52mm length pin but high speed

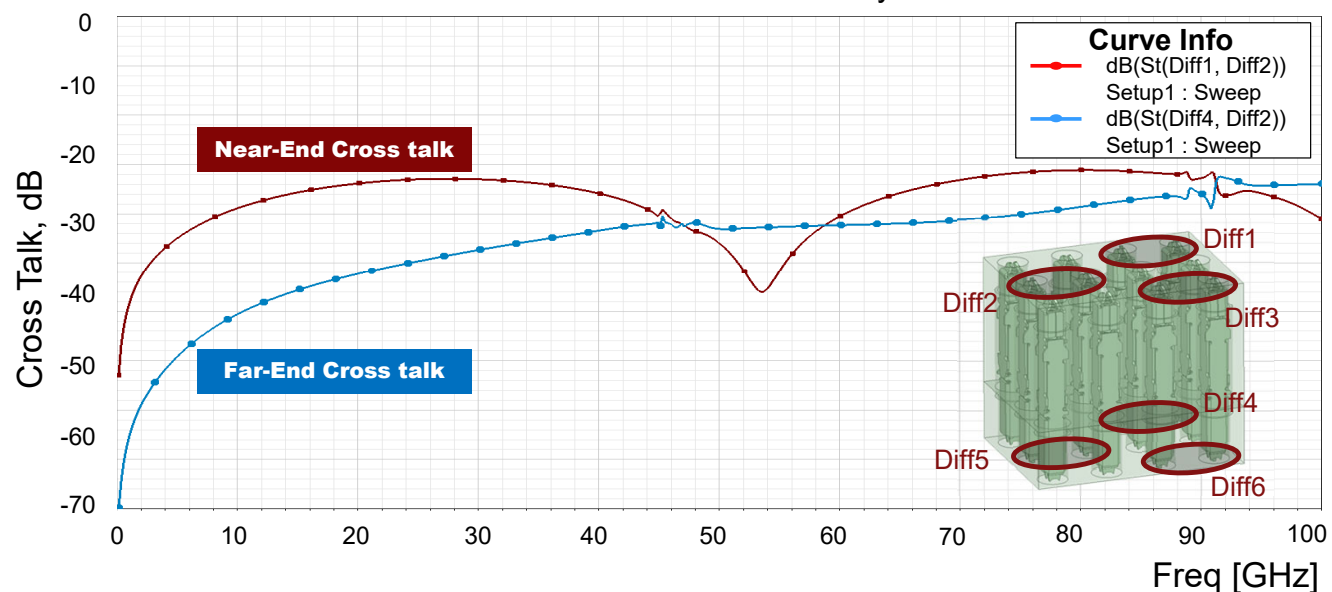
Insertion Loss, S21 with Ansys HFSS



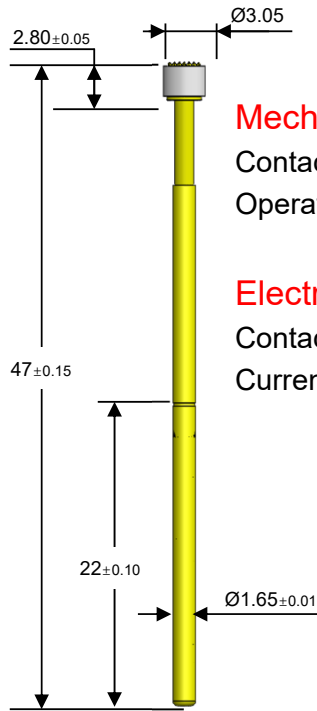
Return Loss, S11 with Ansys HFSS



Cross Talk Differential with Ansys HFSS



# Various kinds of High Current Stamped Spring Probe

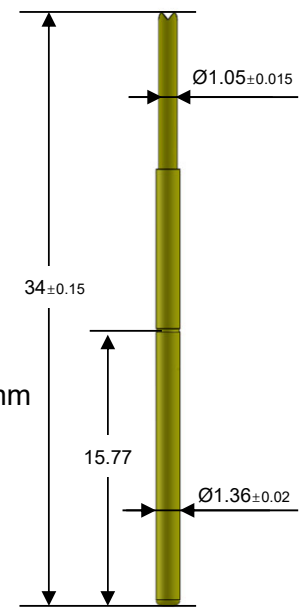


## Mechanical Specifications

Contact spring force : 315 gf / 4.50mm  
Operating temperature : -40~250°C

## Electrical Specifications

Contact resistance : < 14 mΩ  
Current rating : **29 Amperes**



## Mechanical Specifications

Contact spring force : 136 gf / 4.30mm  
Operating temperature : -40~250°C

## Electrical Specifications

Contact resistance : < 20 mΩ  
Current rating : **25 Amperes**

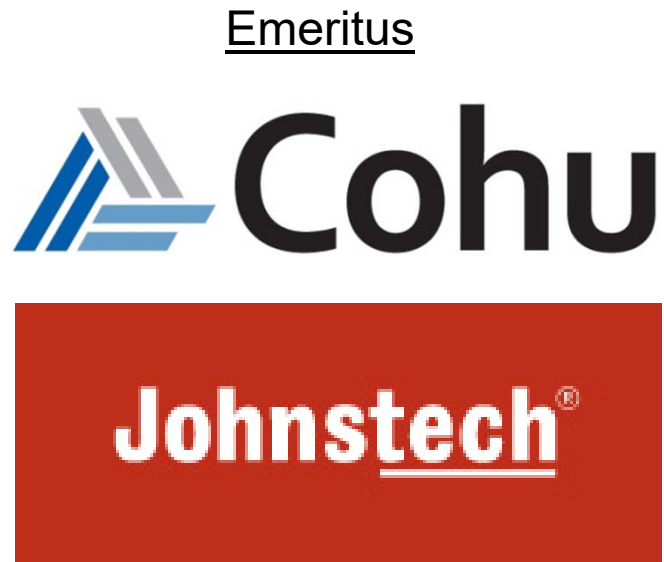
Parameter	New	Before
Current Carrying Capacity	<b>29 Amps</b>	15 Amps
Life	<b>Standard 100,000</b>	50,000
Resistance, CRES	<b>Under 20mΩ</b>	Under 30mΩ
Stability	<b>-40~270°C</b>	-40~120°C
Mass production	<b>Automated/Progressive Stamping Technology</b>	Semi-automated
Quality Control	<b>Automated</b>	Semi-Automated

## Summaries and the next plan

- Selection of high performance spring probe pin is critical
- Incredibly high speed parts/minute production by stamping
- 0.67mm test height pin is already under mass production the pins demonstrated high performance and long life.
- Pin for a big scale/high pin count socket is ready
- Improved with high current carrying using stamping technology
- Relatively easier quality management once stamping tool is qualified.
- Reduce lead time for stamping tool for a new pin development

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