



Semiconductor Test Solution Providing

半導體測試解決方案



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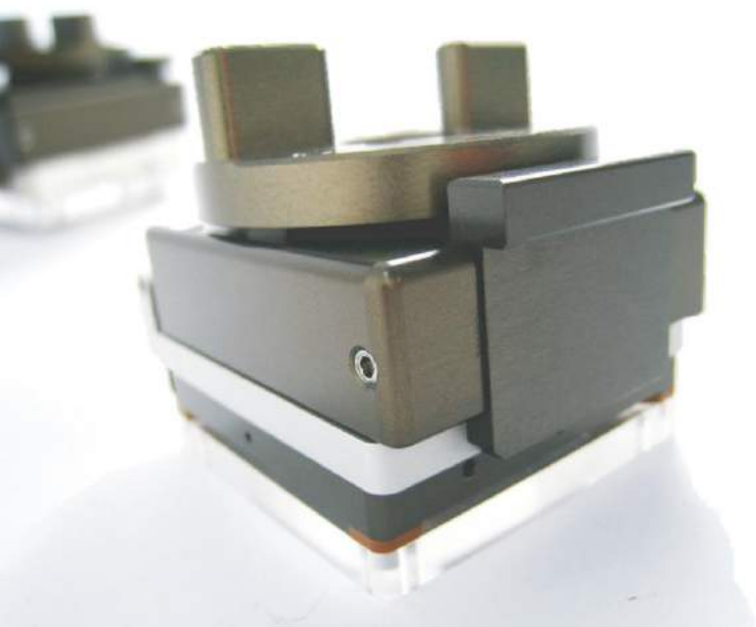


We Care, we Comfort, we Please all the customer needs

C.C.P. Contact Probes Co., LTD. was founded in 1983 with the mission of "Providing high quality along with customer satisfaction always." Specializing in test probes and socket auxiliary, C.C.P. have been deeply devoted in related industries and electronic component manufacturing for decades. We offer precise products and efficient service to customer all the time. By extensive experience and effort made, C.C.P. went public in 2001, listed in 2003 on the Taiwan stock exchange market. Besides, We established our subsidiary factory in Dong Guan and certified by AFAQ ISO 9001 in 1996 and ISO14000 in 2012.

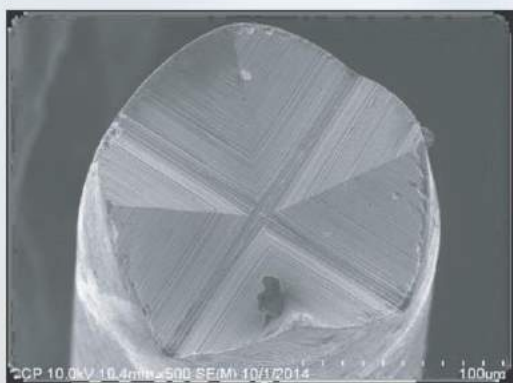
With continuous growth in C.C.P. company sales, we built branch offices in in Shaghai, Shenzen, Kunshan, Beijing, Chengdu, Wuhan and America to meet higher demands from entire world.

While fast responses to all the inquiries and orders with the best price, we composed in excellent sales team and production to make C.C.P. the most well organized company taking customer needs in the first place always.

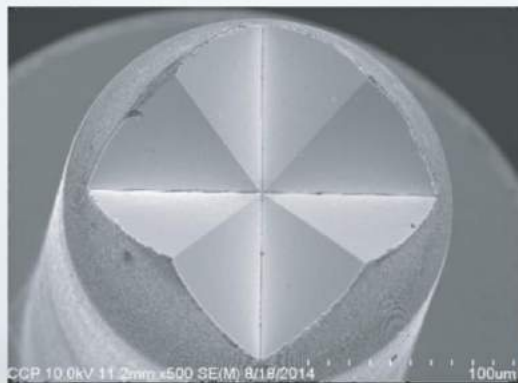


C.C.P. Strength

Mirror process



Normal



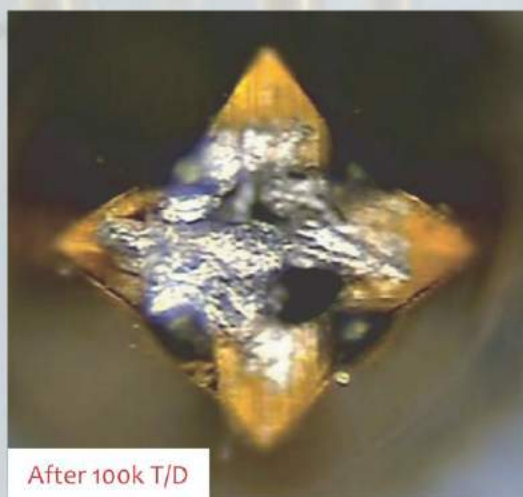
Mirror process

What C.C.P. always provides is high quality products hence we keep developing technology to be more qualified by all the clients. Mirror process is a cutting edge technology to improve the surface quality of pin tip.

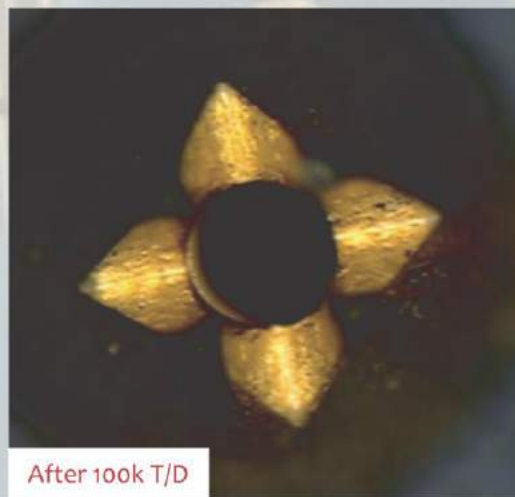
The smoother the surface is:

- The less chance for solder migrating
- The less frequency for probe cleaning

Tip appearance of different process comparison



Normal



Mirror process

C.C.P. Strength

Plating Line



C.C.P. possesses a complete plating line and plating technology. We control the quality strictly when processing and all the materials are certified by RoHS. We have developed the plating technology for a long time with strong ability to bring the best performance to all C.C.P. products.

C.C.P. is specialized in thick-layer Au-plating (over 150u"), a blind-hole plating (Aspect Ratio >6.5:1), precious metals processing (Pd alloy), etc.



Advanced Analysis Equipment



Optical Profiler

Surface roughness inspection and measurement.



Nanoindenter

Plating hardness measurement.



FE-SEM

Surface observation with EDS for material analysis additionally.

Product Number Instruction

PE 1-031 DF 21-01 F0

Plating and raw material

DE BeCu/SK₄, Au plated
PE Pd alloy w/o plating
WE BeCu, WJ₃ plated

Manufacturing Procedure

A0 Standard Manufacturing Process
F0 Fine Turning Manufacturing Process

Structure Type

- 1 Double-active
- 2 Double-active with Ring
- 3 Single-active
- 4 Single-active with Ring

Serial Number

Barrel Outer Diameter

Ex 031 correspond to barrel OD $\Phi 0.31\text{mm}$

Barrel Length

Ex 21 correspond to barrel length 2.1mm

Head Type

F



Crown

Easily penetrate into solder ball or pad for well contact.

B



Conical 60°

Sharper tip to strongly penetrate the oxide or particle on PCB

P



Pyramid Crown

Easily penetrate into solder ball or pad with stronger tips for well contact.

E



Conical 90°, 120°

Sharper tip to softly penetrate the oxide or particle on PCB

W



Serrated 5 Tips

Easily penetrate into solder ball or pad with more contact point than crown type.

D



Sphere

For avoiding probe mark on PCB. It is usually used in bottom plunger.

S



Serrated 8 Tips

Usually used in kelvin pin that all the tip can touch device firmly.

G



Flat

Mostly used in bottom plunger that avoid scratching PCB gold pad and leaving no marks or indentations.

H



Serrated 9 Tips

Easily penetrate into solder ball or pad with more contact point than crown type.

L



Half Moon

Used in Kelvin type. Pointing to ball/ pad, half moon tip can perfectly aim to the testing area.

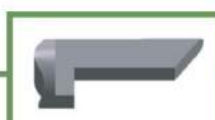
A



Cup

Commonly apply in testing PGA package type of IC.

L



Blade

Sharper than half moon tip, blade type is more commonly used in Kelvin pin as a standard type.



General Final Test

C.C.P. owns plentiful experience in developing and manufacturing socket and pin. We specialize in selecting optimized socket material and pin as best solutions for customer. So far has developed at least 200 types of customized pin and 30 types above standard pin, C.C.P. products can absolutely show well testing result and to reach the yield standard easily with simulating high frequency performance beforehand that is qualified by all the clients.

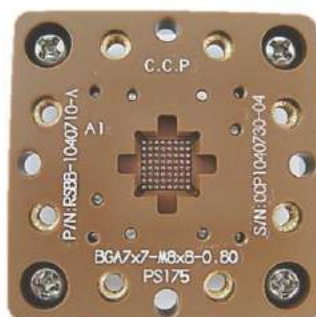
Design Concept

Applied IC package
BGA, QFN, QFP, LGA, CSP

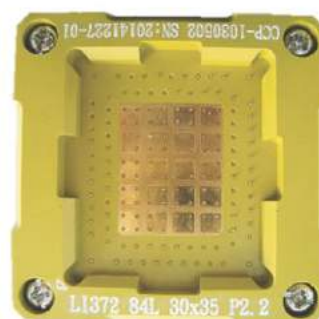
Pitch
0.3~2.2mm



QFN Socket
Pitch 0.3mm



BGA Socket
Pitch 0.8mm



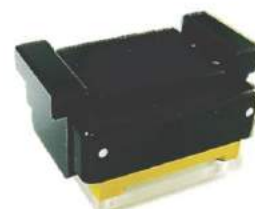
LGA Socket
Pitch: 2.2mm

General IC test Socket	Specification
IC Package Size	1.5X1.5~38X38 mm ²
Min. Pitch	0.2mm
Material	Torlon 4203, Torlon 5530, PEEK, PEEK ceramic, SCP 5000
Data Rate	6 Gpbs/ 8 Gpbs/ 12 Gpbs Performance will be different according to testing condition
Life Time (Pin)	>200K

Lid



Knob



Block

B.C.E. s.r.l.

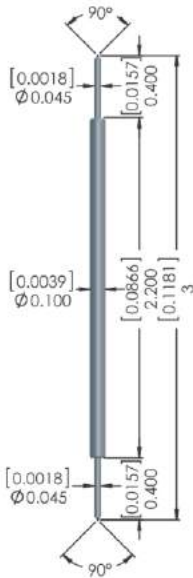
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*All specifications are subject to changes without prior notification

Probe Specification

Unit:mm, f Jin

PE1-010EE22-01A0



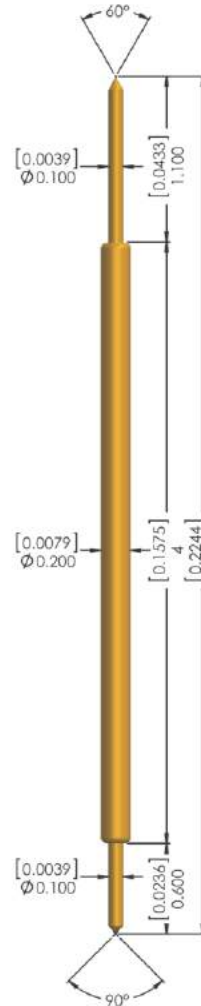
Material

Top Plunger
Pd alloy
Barrel
Ni alloy
Spring
SWP, Au plated
Bottom plunger
Pd alloy

Mechanical Spec.

Recommended travel
0.35mm
Full travel
0.50mm
Spring force
7g±20%@0.35mm
Operating Temp.
-15°C~125°C

DE1-020BE40-01A0



Material

Top Plunger
SK4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
SK4, Au plated

Mechanical Spec.

Recommended travel
0.60mm
Full travel
0.90mm
Spring force
12g±20%@0.60mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.2mm Socket Material: Peek 1000



Current rating 0.6A continuous
Contact Resistance <300mΩ(AVG)
Characteristic impedance 80.8Ω
Insertion loss -1dB@9.9GHz
Return loss -20dB@2.48GHz
Time delay 13.74 psec
Loop inductance 1.11 nH
Capacitance 0.17 pF

Electrical Spec.

Pitch: 0.3mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <200mΩ(AVG)
Characteristic impedance 55.9Ω
Insertion loss -1dB>20GHz
Return loss -20dB@12.88GHz
Time delay 26.83 psec
Loop inductance 1.5 nH
Capacitance 0.48 pF

B.C.E. s.r.l.

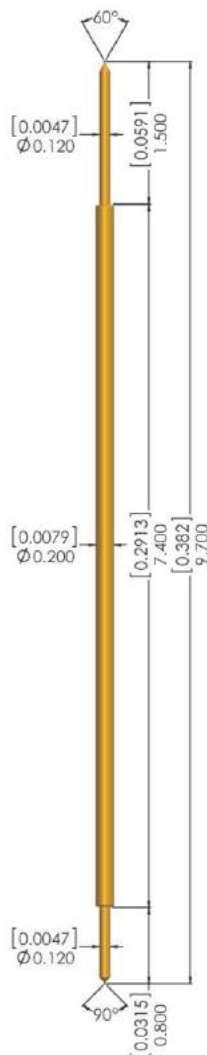
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Probe Specification

Unit:mm [in]

DE1-020BE74-01A0



Material

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.80mm
Full travel
1.30mm
Spring force
6g±20%@0.80mm
Operating Temp.
-15°C~125°C

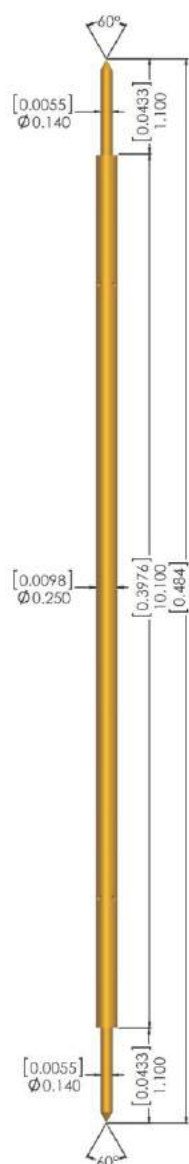
Electrical Spec.

Pitch: 0.3mm Socket Material: Peek 1000



Current rating 0.5A continuous
Contact Resistance <200mΩ(AVG)
Characteristic impedance 53.07Ω
Insertion loss -1dB >20GHz
Return loss -20dB@8.14 GHz
Time delay 46.17psec
Loop inductance 2.45 nH
Capacitance 0.87 pF

DE1-025BB10-02A0



Material

Top Plunger
SK4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
SK4, Au plated

Mechanical Spec.

Recommended travel
1.45mm
Full travel
2.20mm
Spring force
30g±20%@1.45mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 51.31Ω
Insertion loss -1dB >20GHz
Return loss -20dB@7.63GHz
Time delay 55.93 psec
Loop inductance 2.87 nH
Capacitance 1.09 pF

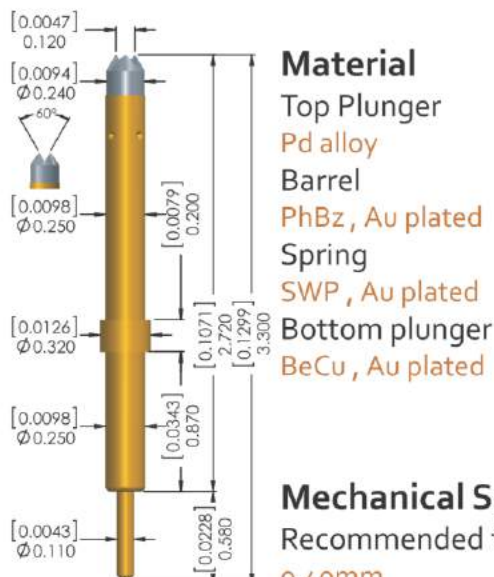
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Probe Specification

Unit:mm, 1/100"

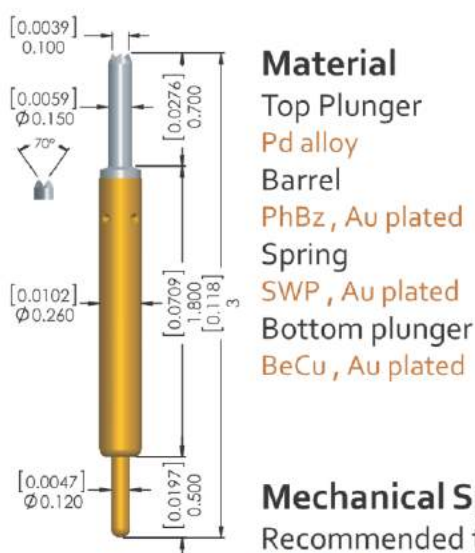
PE4-025EF24-01A0



Material
 Top Plunger
 Pd alloy
 Barrel
 PhBz, Au plated
 Spring
 SWP, Au plated
 Bottom plunger
 BeCu, Au plated

Mechanical Spec.
 Recommended travel
 0.40mm
 Full travel
 0.51mm
 Spring force
 23g±20%@0.40mm
 Operating Temp.
 -15°C~125°C

PE3-026DF17-01F0



Material
 Top Plunger
 Pd alloy
 Barrel
 PhBz, Au plated
 Spring
 SWP, Au plated
 Bottom plunger
 BeCu, Au plated

Mechanical Spec.
 Recommended travel
 0.35mm
 Full travel
 0.50mm
 Spring force
 20g±20%@0.35mm
 Operating Temp.
 -15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
 Contact Resistance <75mΩ(AVG)
 Characteristic impedance 50.15 Ω
 Insertion loss -1dB>20GHz
 Return loss -20dB>20GHz
 Time delay 16.55 psec
 Loop inductance 0.83 nH
 Capacitance 0.33 pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
 Contact Resistance <75mΩ(AVG)
 Characteristic impedance 57.68 Ω
 Insertion loss -1dB>20GHz
 Return loss -20dB@9.16GHz
 Time delay 13.31 psec
 Loop inductance 0.77 nH
 Capacitance 0.23 pF

B.C.E. s.r.l.

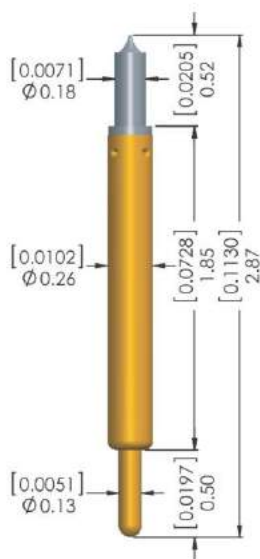
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Probe Specification

Unit:mmg [in]

PE3-026BD18-01A0



Material

Top Plunger

Pd alloy

Barrel

PhBz, Au plated

Spring

SWP, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.30mm

Full travel

0.40mm

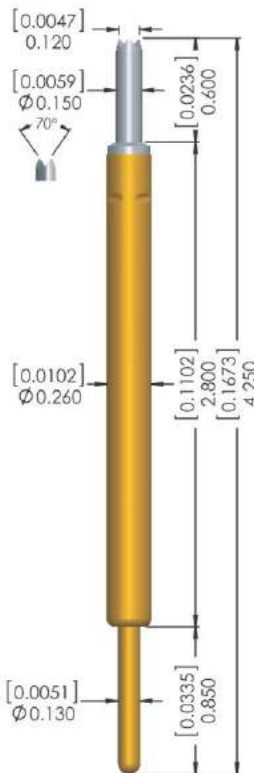
Spring force

24g±20%@0.30mm

Operating Temp.

-15°C~125°C

PE3-026DF27-01F0



Material

Top Plunger

Pd alloy

Barrel

PhBz, Au plated

Spring

SWP, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.40mm

Full travel

0.55mm

Spring force

22g±20%@0.40mm

Operating Temp.

-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <75mΩ(AVG)

Characteristic impedance 54.77 Ω

Insertion loss -1dB@>20GHz

Return loss -20dB@16GHz

Time delay 12.6 psec

Loop inductance 0.69 nH

Capacitance 0.23 pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <75mΩ(AVG)

Characteristic impedance 54 Ω

Insertion loss -1dB>20GHz

Return loss -20dB@18.9GHz

Time delay 21.7 psec

Loop inductance 1.18 nH

Capacitance 0.40 pF

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Pitch 0.2

Pitch 0.3

Pitch 0.4

Pitch 0.5

Pitch 0.6

Pitch 0.65

Pitch 0.8

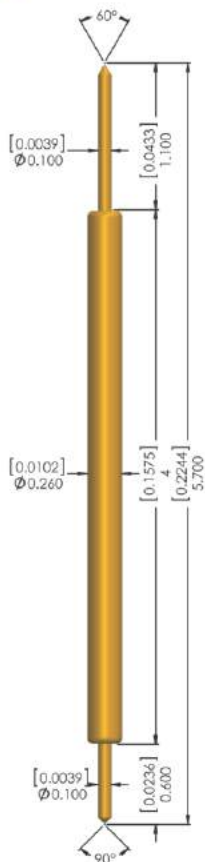
Pitch 1.0

Pitch 1.27

Probe Specification

Unit:mm, 1/100

DE1-026BE40-01A0



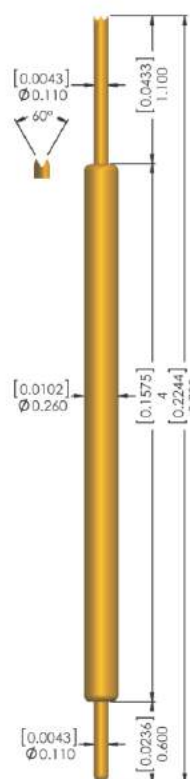
Material

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.65mm
Full travel
1.00mm
Spring force
14g±20%@0.65mm
Operating Temp.
-55°C~150°C

DE1-026DF40-02A0



Material

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.65mm
Full travel
0.85mm
Spring force
18g±20%@0.65mm
Operating Temp.
-55°C~150°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 49.46Ω
Insertion loss -1dB@16.7GHz
Return loss -20dB@8.23GHz
Time delay 27.7 psec
Loop inductance 1.37 nH
Capacitance 0.56 pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 47.71Ω
Insertion loss -1dB@17.81GHz
Return loss -20dB@6.45GHz
Time delay 27.67 psec
Loop inductance 1.32 nH
Capacitance 0.58 pF

B.C.E. s.r.l.

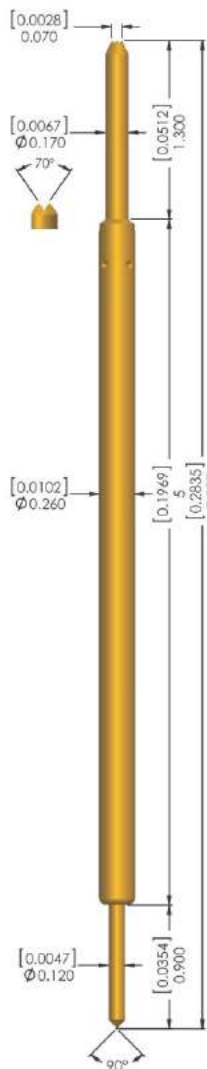
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Probe Specification

Unit:mm [in]

DE3-026EF49-01A0



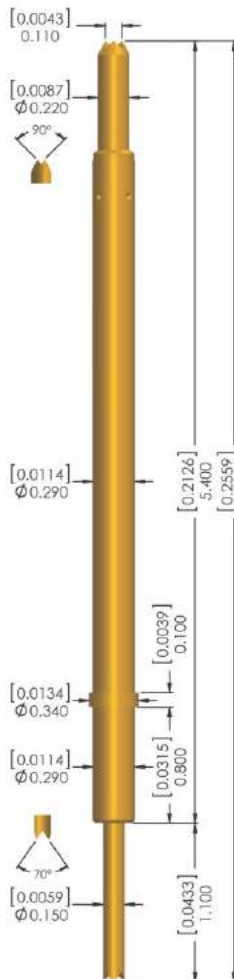
Material

Top Plunger
SK4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
SK4, Au plated

Mechanical Spec.

Recommended travel
0.70mm
Full travel
0.90mm
Spring force
20g±20%@0.70mm
Operating Temp.
-15°C~125°C

DE4-029FF45-01A0



Material

Top Plunger
SK4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.70mm
Full travel
1.10mm
Spring force
30g±20%@0.70mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 46.7Ω
Insertion loss -1dB>20GHz
Return loss -20dB@5.69GHz
Time delay 33.62 psec
Loop inductance 1.57 nH
Capacitance 0.72 pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 44.38Ω
Insertion loss -1dB>20GHz
Return loss -20dB@3.77GHz
Time delay 28.84 psec
Loop inductance 1.28 nH
Capacitance 0.65 pF

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Pitch 0.2

Pitch 0.3

Pitch 0.4

Pitch 0.5

Pitch 0.6

Pitch 0.65

Pitch 0.8

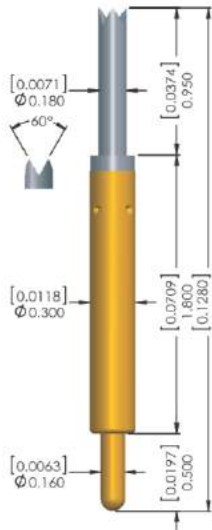
Pitch 1.0

Pitch 1.27

Probe Specification

Unit:mm, 1 Jin

PE3-030DF17-03A0



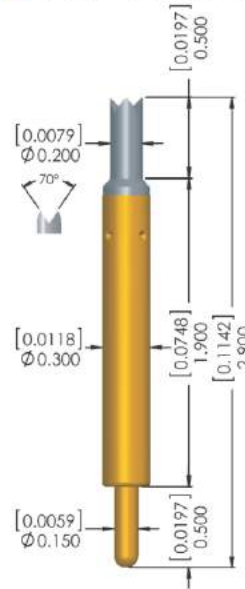
Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.35mm
Full travel
0.45mm
Spring force
27g±20%@0.35mm
Operating Temp.
-15°C~125°C

PE3-030DF18-01A0



Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.40mm
Full travel
0.50mm
Spring force
35g±20%@0.40mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 48.19 Ω
Insertion loss -1dB>20GHz
Return loss -20dB@8.59GHz
Time delay 14.94 psec
Loop inductance 0.72 nH
Capacitance 0.31 pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 42.36 Ω
Insertion loss -1dB>20GHz
Return loss -20dB@6.47GHz
Time delay 14.4 psec
Loop inductance 0.61 nH
Capacitance 0.34 pF

B.C.E. s.r.l.

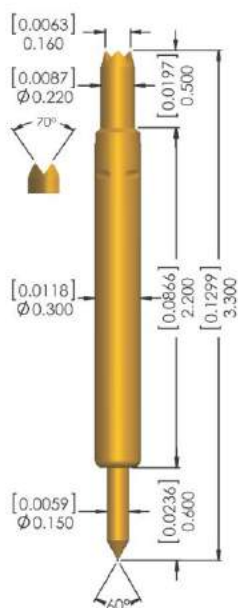
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Probe Specification

Unit:mmg [in]

DE3-030BF21-03F0



Material

Top Plunger

BeCu , Au plated

Barrel

PhBz , Au plated

Spring

SWP , Au plated

Bottom plunger

BeCu , Au plated

Mechanical Spec.

Recommended travel

0.40mm

Full travel

0.55mm

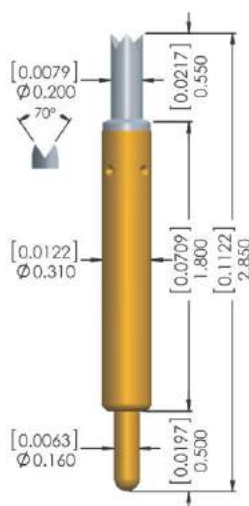
Spring force

30g±20%@0.40mm

Operating Temp.

-15°C~125°C

PE3-031DF17-03F0



Material

Top Plunger

Pd alloy

Barrel

PhBz , Au plated

Spring

SWP , Au plated

Bottom plunger

BeCu , Au plated

Mechanical Spec.

Recommended travel

0.35mm

Full travel

0.45mm

Spring force

35g±20%@0.35mm

Operating Temp.

-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <75mΩ(AVG)

Characteristic impedance 42Ω

Insertion loss -1dB>20GHz

Return loss -20dB@7.15GHz

Time delay 16.4psec

Loop inductance 0.69nH

Capacitance 0.39pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <75mΩ(AVG)

Characteristic impedance 39.9Ω

Insertion loss -1dB>20GHz

Return loss -20dB@4.5GHz

Time delay 14.7psec

Loop inductance 0.59nH

Capacitance 0.37pF

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Pitch 0.2

Pitch 0.3

Pitch 0.4

Pitch 0.5

Pitch 0.6

Pitch 0.65

Pitch 0.8

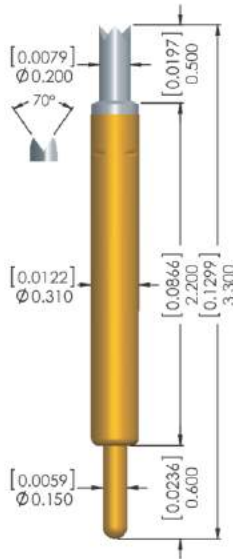
Pitch 1.0

Pitch 1.27

Probe Specification

Unit:mm, 1 Jin

PE3-031DF21-03F0



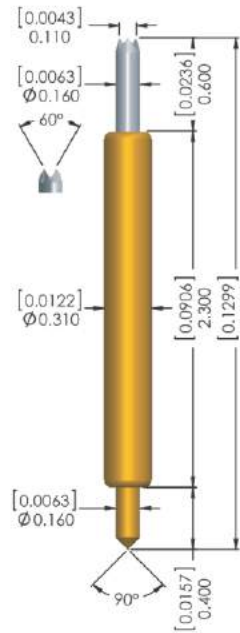
Material

Top Plunger
Pd alloy
Barrel
PhBz , Au plated
Spring
SWP , Au plated
Bottom plunger
BeCu , Au plated

Mechanical Spec.

Recommended travel
0.35mm
Full travel
0.60mm
Spring force
35g±20%@0.35mm
Operating Temp.
-15°C~125°C

PE1-031EF23-02F0



Material

Top Plunger
Pd alloy
Barrel
PhBz , Au plated
Spring
SWP , Au plated
Bottom plunger
BeCu , Au plated

Mechanical Spec.

Recommended travel
0.40mm
Full travel
0.65mm
Spring force
30g±20%@0.40mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 42.67Ω
Insertion loss -1dB >20GHz
Return loss -20dB@5.08GHz
Time delay 16.64psec
Loop inductance 0.71nH
Capacitance 0.39pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 40.14Ω
Insertion loss -1dB >20GHz
Return loss -20dB@4.15GHz
Time delay 14.45psec
Loop inductance 0.58nH
Capacitance 0.36pF

B.C.E. s.r.l.

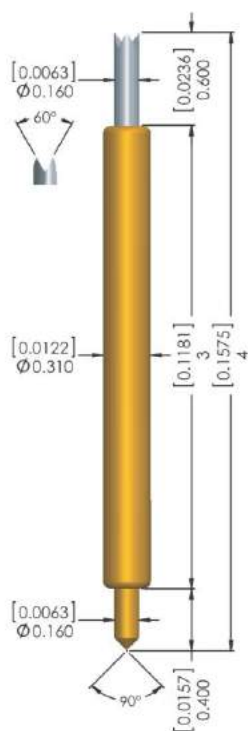
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Probe Specification

Unit:mm [in]

PE1-031EF30-02F0



Material

Top Plunger

Pd alloy

Barrel

PhBz, Au plated

Spring

SWP, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.60mm

Full travel

0.80mm

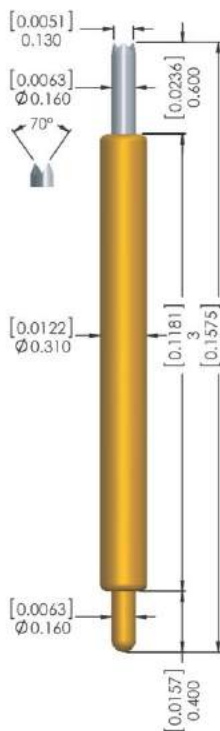
Spring force

31g±20%@0.60mm

Operating Temp.

-15°C~125°C

PE1-031DF30-01F0



Material

Top Plunger

Pd alloy

Barrel

PhBz, Au plated

Spring

SWP, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.60mm

Full travel

0.80mm

Spring force

31g±20%@0.60mm

Operating Temp.

-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <175mΩ(AVG)

Characteristic impedance 39.53Ω

Insertion loss -1dB>20GHz

Return loss -20dB@3.63GHz

Time delay 18.97 psec

Loop inductance 0.75 nH

Capacitance 0.48 pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <175mΩ(AVG)

Characteristic impedance 40 Ω

Insertion loss -1dB>20GHz

Return loss -20dB@3.9GHz

Time delay 19.7 psec

Loop inductance 0.8 nH

Capacitance 0.49 pF

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*All specifications are subject to changes without prior notification

Pitch 0.2

Pitch 0.3

Pitch 0.4

Pitch 0.5

Pitch 0.6

Pitch 0.65

Pitch 0.8

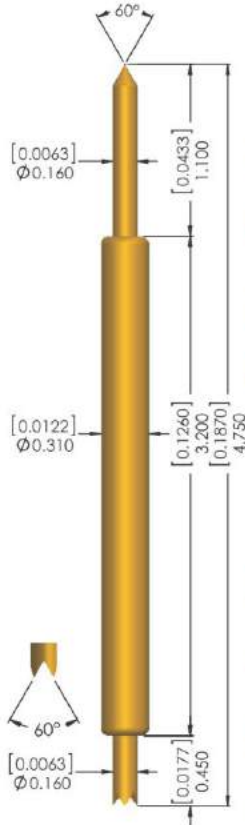
Pitch 1.0

Pitch 1.27

Probe Specification

Unit:mm, [] in

DE1-031BF32-02A0



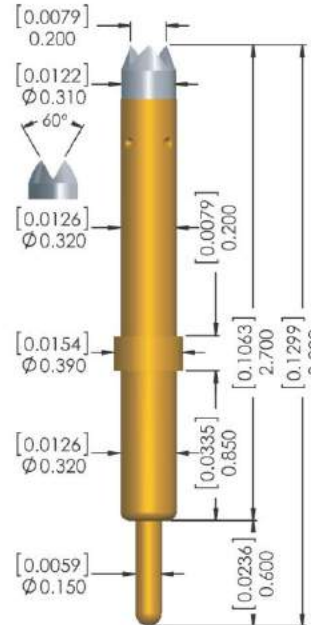
Material

Top Plunger
SK4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
SK4, Au plated

Mechanical Spec.

Recommended travel
0.60mm
Full travel
0.85mm
Spring force
25g±20% @ 0.60mm
Operating Temp.
-15°C~125°C

PE4-032DF24-03F0



Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.40mm
Full travel
0.60mm
Spring force
30g±20% @ 0.40mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 44.08Ω
Insertion loss -1dB@19.18GHz
Return loss -20dB@4.2GHz
Time delay 23.36 psec
Loop inductance 1.03 nH
Capacitance 0.53 pF

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 43.3Ω
Insertion loss -1dB>20GHz
Return loss -20dB@5.44GHz
Time delay 18.2 psec
Loop inductance 0.79 nH
Capacitance 0.42 pF

B.C.E. s.r.l.

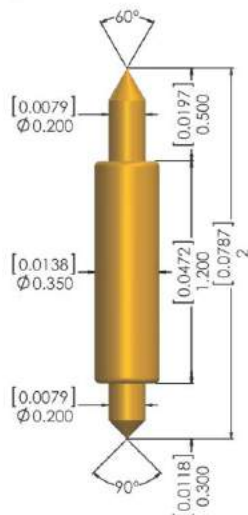
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Probe Specification

Unit:mm [in]

DE1-035BE12-01A0



Material

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.30mm
Full travel
0.40mm
Spring force
18g±20%@0.30mm
Operating Temp.
-15°C~125°C

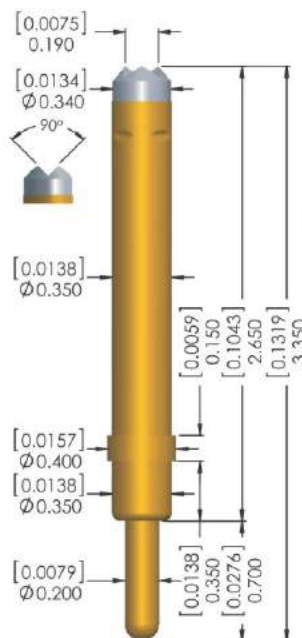
Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 34.74Ω
Insertion loss -1dB>20GHz
Return loss -20dB@4.08GHz
Time delay 10.07 psec
Loop inductance 0.35nH
Capacitance 0.29pF

PE4-035DF24-01F0



Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.45mm
Full travel
0.70mm
Spring force
32g±20%@0.45mm
Operating Temp.
-55°C~150°C

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 39.8Ω
Insertion loss -1dB>20GHz
Return loss -20dB@3.94GHz
Time delay 17.5 psec
Loop inductance 0.70 nH
Capacitance 0.44 pF

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Pitch 0.2

Pitch 0.3

Pitch 0.4

Pitch 0.5

Pitch 0.6

Pitch 0.65

Pitch 0.8

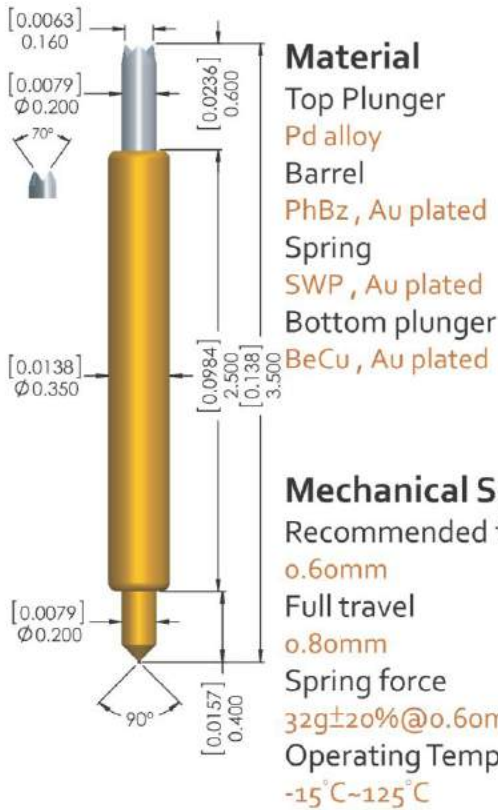
Pitch 1.0

Pitch 1.27

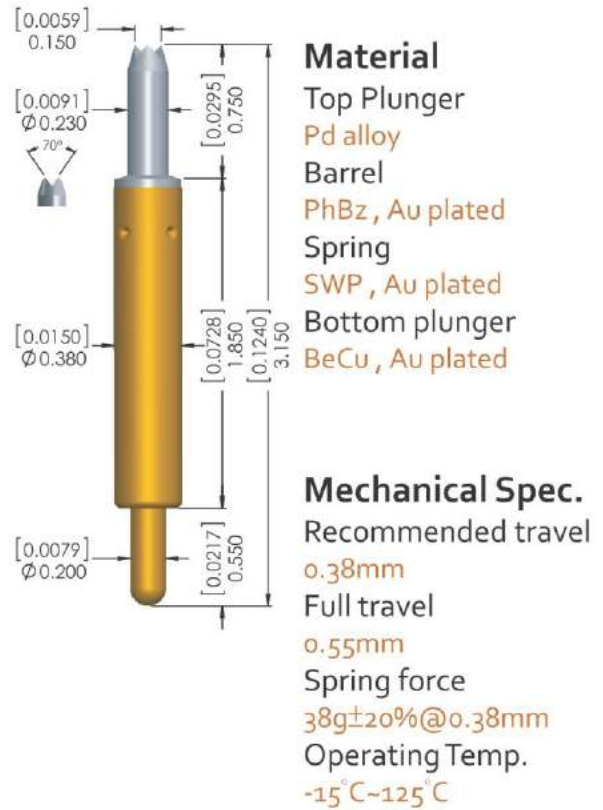
Probe Specification

Unit:mm, 1/100in

PE1-035EF25-01F0



PE3-038DF17-03F0



Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
 Contact Resistance <175mΩ(AVG)
 Characteristic impedance 44Ω
 Insertion loss -1dB>20GHz
 Return loss -20dB@ 8.48GHz
 Time delay 18.5psec
 Loop inductance 0.82nH
 Capacitance 0.42pF

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
 Contact Resistance <75mΩ(AVG)
 Characteristic impedance 45.08Ω
 Insertion loss -1dB>20GHz
 Return loss -20dB@5.69GHz
 Time delay 13.97psec
 Loop inductance 0.63nH
 Capacitance 0.31pF

B.C.E. s.r.l.

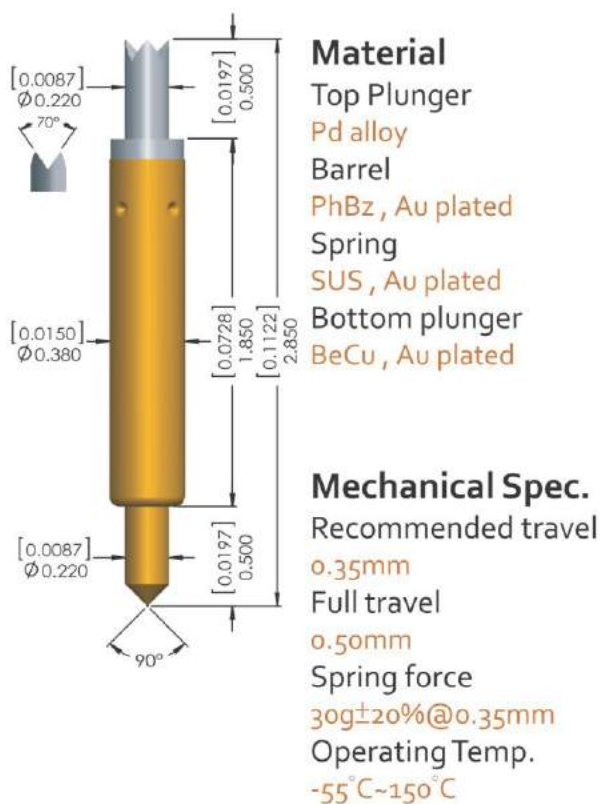
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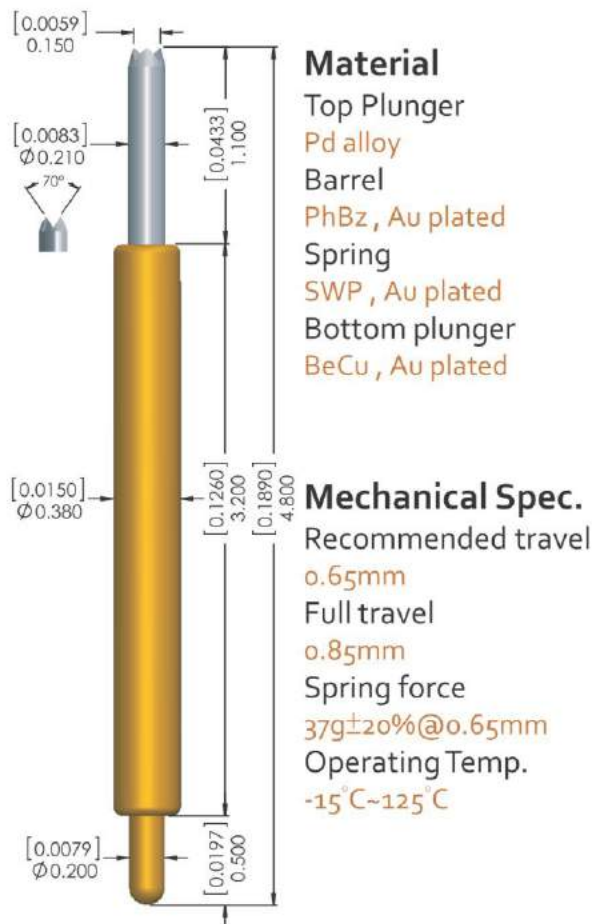
Probe Specification

Unit:mm [in]

PE3-038EF17-04A0



PE1-038DF32-02F0



Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
 Contact Resistance $<75m\Omega(AVG)$
 Characteristic impedance 39.8 Ω
 Insertion loss $-1dB > 20GHz$
 Return loss $-20dB @ 4.5GHz$
 Time delay 15.5 psec
 Loop inductance 0.62 nH
 Capacitance 0.39 pF

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
 Contact Resistance $<175m\Omega(AVG)$
 Characteristic impedance 39.5 Ω
 Insertion loss $-1dB > 20GHz$
 Return loss $-20dB @ 3GHz$
 Time delay 25.2 psec
 Loop inductance 1 nH
 Capacitance 0.64 pF

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Pitch 0.2

Pitch 0.3

Pitch 0.4

Pitch 0.5

Pitch 0.6

Pitch 0.65

Pitch 0.8

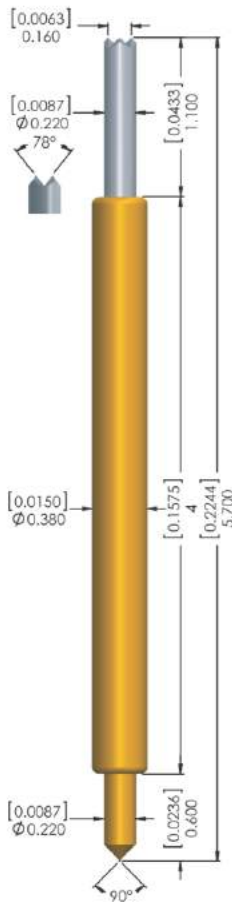
Pitch 1.0

Pitch 1.27

Probe Specification

Unit:mm, 1 Jin

PE1-038EP40-01A0



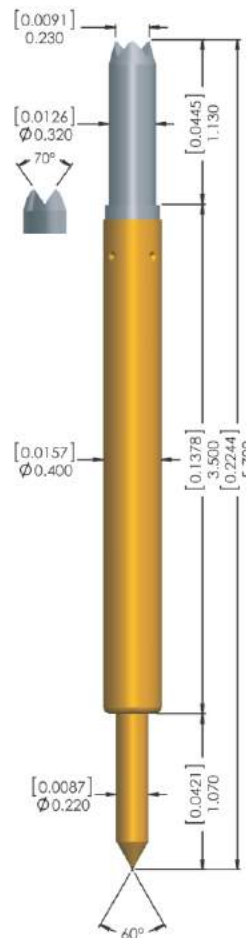
Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.65mm
Full travel
1.10mm
Spring force
40g±20%@0.65mm
Operating Temp.
-55°C~150°C

PE3-040BF34-01A0



Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.70mm
Full travel
1.00mm
Spring force
30g±20%@0.70mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 42 Ω
Insertion loss -1dB>20GHz
Return loss -20dB@3.82GHz
Time delay 29.9 psec
Loop inductance 1.26 nH
Capacitance 0.71pF

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 38.29 Ω
Insertion loss -1dB>20GHz
Return loss -20dB@2.16GHz
Time delay 27.95 psec
Loop inductance 1.07 nH
Capacitance 0.73 pF

B.C.E. s.r.l.

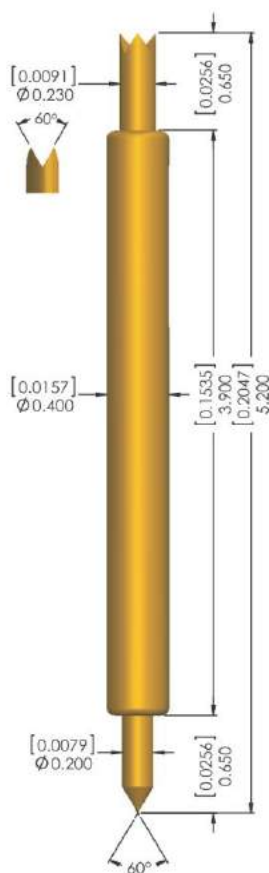
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Probe Specification

Unit:mm [in]

DE1-040BF39-030



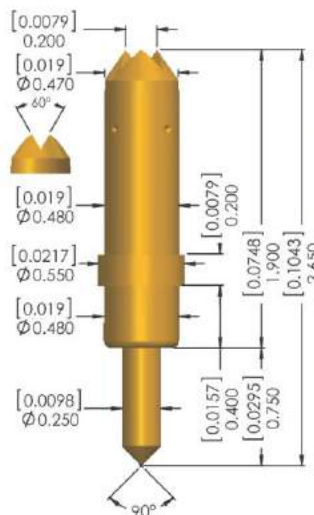
Material

Top Plunger
BeCu , Au plated
Barrel
PhBz , Au plated
Spring
SWP , Au plated
Bottom plunger
BeCu , Au plated

Mechanical Spec.

Recommended travel
0.65mm
Full travel
1.30mm
Spring force
25g±20%@0.65mm
Operating Temp.
-15°C~125°C

DE4-048EF17-01F0



Material

Top Plunger
BeCu , Au plated
Barrel
Brass , Au plated
Spring
SWP , Au plated
Bottom plunger
BeCu , Au plated

Mechanical Spec.

Recommended travel
0.50mm
Full travel
0.60mm
Spring force
27.5g±20%@0.50mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 36.58Ω
Insertion loss -1dB@15.1GHz
Return loss -20dB@1.99GHz
Time delay 25.97psec
Loop inductance 0.95nH
Capacitance 0.71pF

Electrical Spec.

Pitch: 0.65mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 36.5Ω
Insertion loss -1dB>20GHz
Return loss -20dB@3.54GHz
Time delay 14.2psec
Loop inductance 0.52nH
Capacitance 0.39pF

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Pitch 0.2

Pitch 0.3

Pitch 0.4

Pitch 0.5

Pitch 0.6

Pitch 0.65

Pitch 0.8

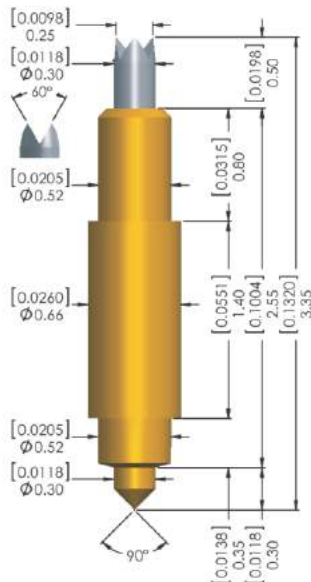
Pitch 1.0

Pitch 1.27

Probe Specification

Unit:mm, 1/100

PE2-050EF25-01F0



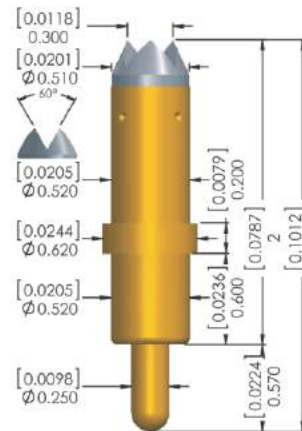
Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.45mm
Full travel
0.60mm
Spring force
30g±20%@0.45mm
Operating Temp.
-55°C~150°C

PE4-052DF17-01A0



Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.40mm
Full travel
0.60mm
Spring force
35g±20%@0.40mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 34.8Ω
Insertion loss -1dB>20GHz
Return loss -20dB@2.25GHz
Time delay 19.8psec
Loop inductance 0.69nH
Capacitance 0.57pF

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 38.7Ω
Insertion loss -1dB>20GHz
Return loss -20dB@4.45GHz
Time delay 15.4psec
Loop inductance 0.6nH
Capacitance 0.4pF

B.C.E. s.r.l.

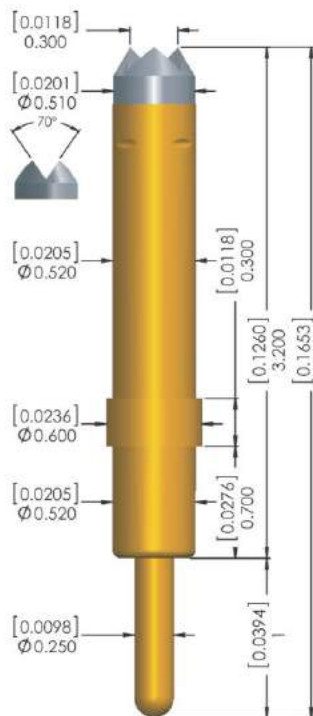
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Probe Specification

Unit:mmg [in]

PE4-052DF28-01F0



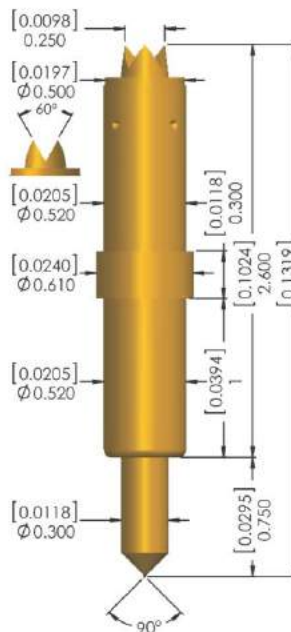
Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.60mm
Full travel
0.80mm
Spring force
40g±20%@0.60mm
Operating Temp.
-15°C~125°C

DE4-052EF23-02F0



Material

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.45mm
Full travel
0.65mm
Spring force
35g±20%@0.45mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 41.8Ω
Insertion loss -1dB@15.08GHz
Return loss -20dB@3.29GHz
Time delay 23.8psec
Loop inductance 1nH
Capacitance 0.57pF

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 41.5Ω
Insertion loss -1dB>20GHz
Return loss -20dB@3.45GHz
Time delay 19.9 psec
Loop inductance 0.83 nH
Capacitance 0.48 pF

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Pitch 0.2

Pitch 0.3

Pitch 0.4

Pitch 0.5

Pitch 0.6

Pitch 0.65

Pitch 0.8

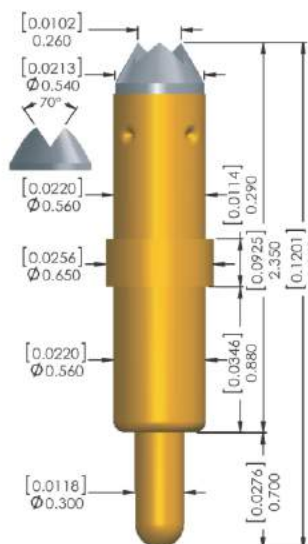
Pitch 1.0

Pitch 1.27

Probe Specification

Unit:mm, 1/16"

PE4-056DF20-02F0



Material

Top Plunger

Pd alloy

Barrel

Brass , Au plated

Spring

SWP , Au plated

Bottom plunger

BeCu , Au plated

Mechanical Spec.

Recommended travel

0.50mm

Full travel

0.70mm

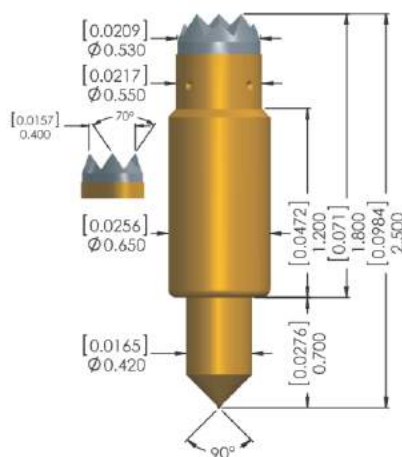
Spring force

35g±20%@0.50mm

Operating Temp.

-15°C~125°C

PE4-065EW15-01A0



Material

Top Plunger

Pd alloy

Barrel

PhBz , Au plated

Spring

SWP , Au plated

Bottom plunger

BeCu , Au plated

Mechanical Spec.

Recommended travel

0.50mm

Full travel

0.70mm

Spring force

32g±20%@0.50mm

Operating Temp.

-15°C~125°C

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <75mΩ(AVG)

Characteristic impedance 32.68Ω

Insertion loss -1dB@17.48GHz

Return loss -20dB@1.93GHz

Time delay 19.28psec

Loop inductance 0.63nH

Capacitance 0.59pF

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <75mΩ(AVG)

Characteristic impedance 29Ω

Insertion loss -1dB@10.3GHz

Return loss -20dB@1.79GHz

Time delay 16psec

Loop inductance 0.47nH

Capacitance 0.55pF

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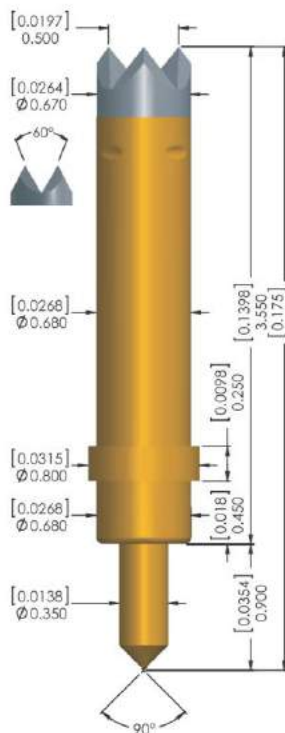
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Probe Specification

Unit:mm [in]

PE4-068EP35-01F0



Material

Top Plunger
Pd alloy
Barrel
Brass, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.65mm
Full travel
0.90mm
Spring force
40g $\pm$ 20% @ 0.65mm
Operating Temp.
-15°C~125°C

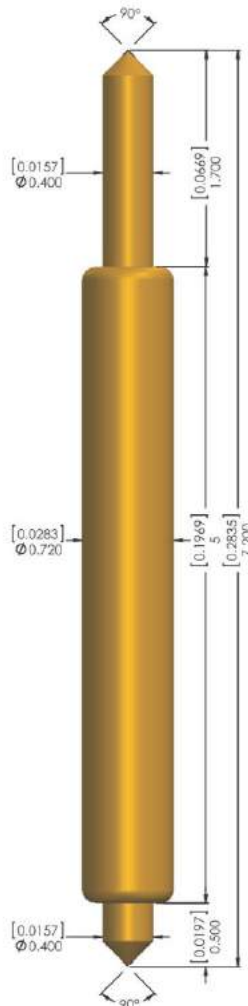
Electrical Spec.

Pitch: 1.0mm Socket Material: Peek 1000



Current rating 2A continuous
Contact Resistance <75m Ω (AVG)
Characteristic impedance 37.53 Ω
Insertion loss -1dB@11.91GHz
Return loss -20dB@2.19GHz
Time delay 26.65 psec
Loop inductance 1 nH
Capacitance 0.71 pF

DE1-072EE50-01A0



Material

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
1.20mm
Full travel
1.40mm
Spring force
20g $\pm$ 20% @ 1.20mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 1.0mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175m Ω (AVG)
Characteristic impedance 40.7 Ω
Insertion loss -1dB@13.9GHz
Return loss -20dB@2.37GHz
Time delay 38.7 psec
Loop inductance 1.58 nH
Capacitance 0.95 pF

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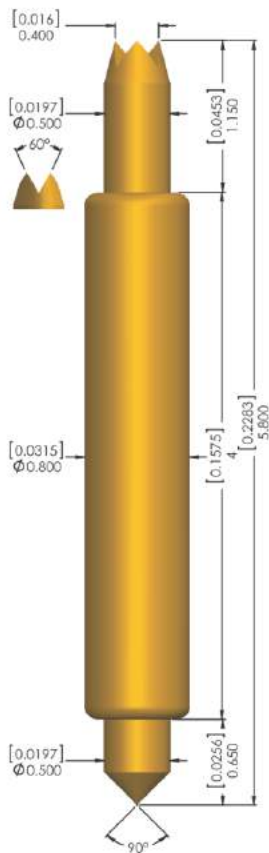
Tel. +39 0536 811.616 r.a. - Fax +39 0536 811.500

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Probe Specification

Unit:mm, 1/16in

DE1-080BF40-010



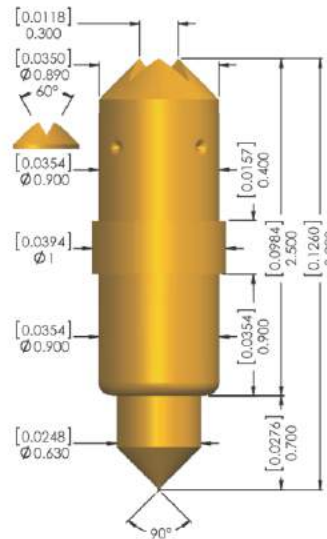
Material

Top Plunger
BeCu , Au plated
Barrel
PhBz , Au plated
Spring
SWP , Au plated
Bottom plunger
BeCu , Au plated

Mechanical Spec.

Recommended travel
0.70mm
Full travel
1.05mm
Spring force
30g±20%@0.70mm
Operating Temp.
-15°C~125°C

DE4-090EF25-02F0



Material

Top Plunger
BeCu , Au plated
Barrel
Brass , Au plated
Spring
SUS , Au plated
Bottom plunger
BeCu , Au plated

Mechanical Spec.

Recommended travel
0.50mm
Full travel
0.70mm
Spring force
30g±20%@0.50mm
Operating Temp.
-55°C~150°C

Electrical Spec.

Pitch: 1.0mm Socket Material: Peek 1000



Current rating 3A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 33.9Ω
Insertion loss -1dB@12GHz
Return loss -20dB@1.22GHz
Time delay 33.6 psec
Loop inductance 1.14 nH
Capacitance 0.99pF

Electrical Spec.

Pitch: 1.27mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 34.6 Ω
Insertion loss -1dB@17.27GHz
Return loss -20dB@2.16GHz
Time delay 20.4 psec
Loop inductance 0.71 nH
Capacitance 0.59 pF

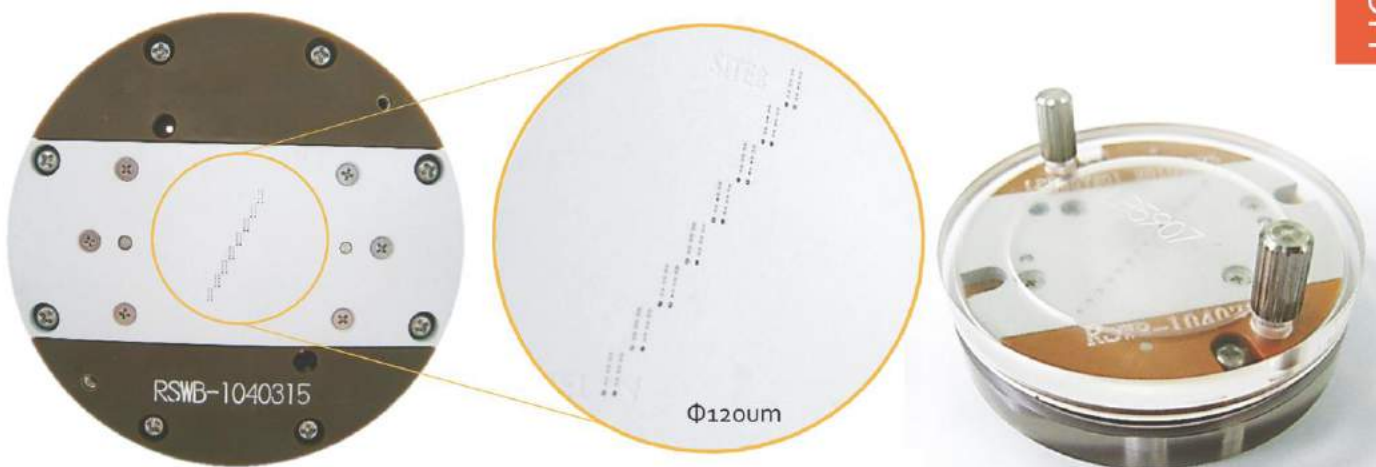
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Wafer-level CSP Test

With massive growth of WLCSP in semiconductor market, C.C.P. has designed over 30 different kinds of probe head so far to apply in this innovation. Pogo pin enhance the durability of probe in probe head. Coplanarity error induced by different size of solder balls can be solved by our pogo pin which working travel is designed to 250um. We have various head type to meet any requirement.

Design Concept



8 ball, pitch 0.5mm

C.C.P. owns TSUGAMI CNC lathe to make quality to the best, hence we are capable to drill precise hole at accurate position. The tiniest hole size we can drill is $\Phi 60\mu\text{m}$.



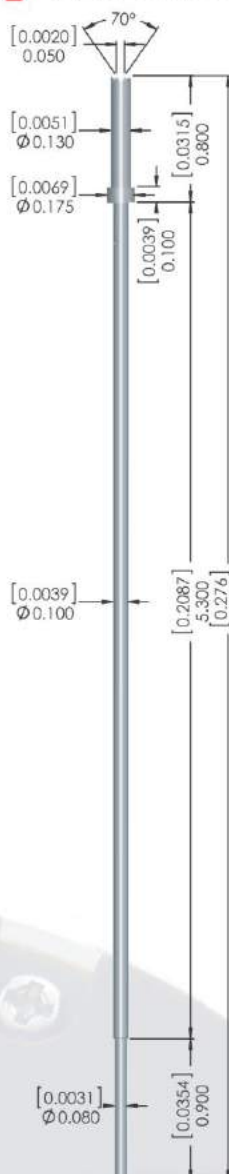
36 ball, pitch 0.4mm

Probe Head	Specification
Min. Pitch	0.20mm
Max. Site Counts	32 sites
Top Housing Material	Photoveel® / VESPEL®SCP5000
Mounting Plate Material	Torlon® 5530
Bottom Housing Material	VESPEL®SCP5000
Life Time (Pin)	>300,000

Probe Specification

Unit:mm, 1/100in

PE3-010DS53-02A0



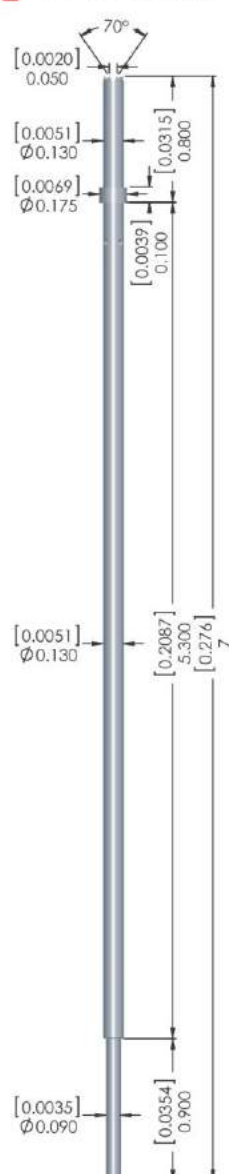
Material

Top Plunger
Pd alloy
Barrel
Ni alloy
Spring
SWP, Au plated
Bottom plunger
Pd alloy

Mechanical Spec.

Recommended travel
0.55mm
Full travel
0.85mm
Spring force
6g±20%@0.55mm
Operating Temp.
-15°C~125°C

PE3-013DS53-01F0



Material

Top Plunger
Pd alloy
Barrel
Ni alloy
Spring
SWP, Au plated
Bottom plunger
Pd alloy

Mechanical Spec.

Recommended travel
0.55mm
Full travel
0.85mm
Spring force
7g±20%@0.55mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.3mm Socket Material: Peek 1000



Current rating 0.2A continuous
Contact Resistance <500mΩ(AVG)
Characteristic impedance 91.77 Ω
Insertion loss -1dB@3.76GHz
Return loss -20dB@0.72GHz
Time delay 34.87 psec
Loop inductance 3.2 nH
Capacitance 0.38 pF

Electrical Spec.

Pitch: 0.3mm Socket Material: Peek 1000



Current rating 0.4A continuous
Contact Resistance <500mΩ(AVG)
Characteristic impedance 91.3 Ω
Insertion loss -1dB@1.47GHz
Return loss -20dB@0.43GHz
Time delay 42.9 psec
Loop inductance 3.92 nH
Capacitance 0.47pF

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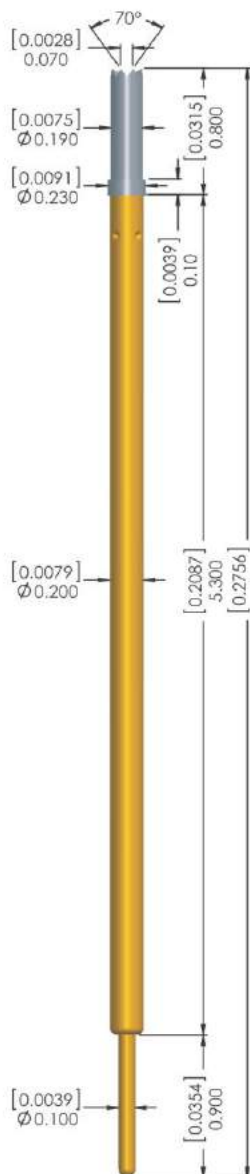
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Probe Specification

Unit:mmg [Jin

PE3-020DS53-01A0

**Material**

Top Plunger

Pd alloy

Barrel

PhBz, Au plated

Spring

SWP, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.55mm

Full travel

0.90mm

Spring force

25g±20%@0.55mm

Operating Temp.

-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000

Current rating 0.6A continuous

Contact Resistance <300mΩ(AVG)

Characteristic impedance 66.62 Ω

Insertion loss -1dB>20GHz

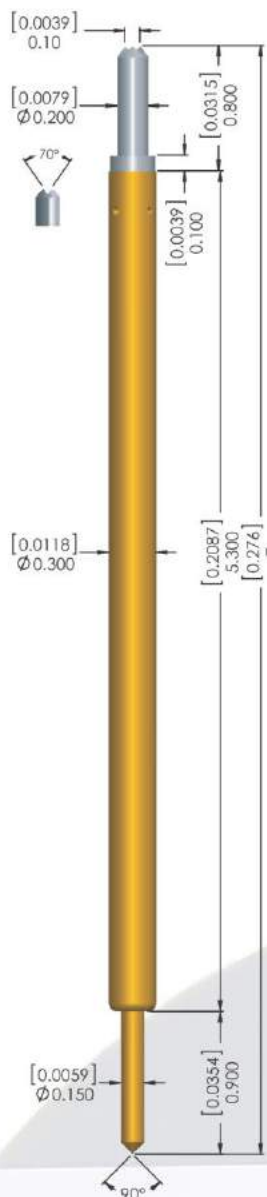
Return loss -20dB@1.84GHz

Time delay 37.97 psec

Loop inductance 2.32 nH

Capacitance 0.57 pF

PE3-030EF53-01A0

**Material**

Top Plunger

Pd alloy

Barrel

PhBz, Au plated

Spring

SWP, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.55mm

Full travel

0.90mm

Spring force

25g±20%@0.55mm

Operating Temp.

-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000

Current rating 1A continuous

Contact Resistance <175mΩ(AVG)

Characteristic impedance 42.3 Ω

Insertion loss -1dB>20GHz

Return loss -20dB@3GHz

Time delay 34.7 psec

Loop inductance 1.47nH

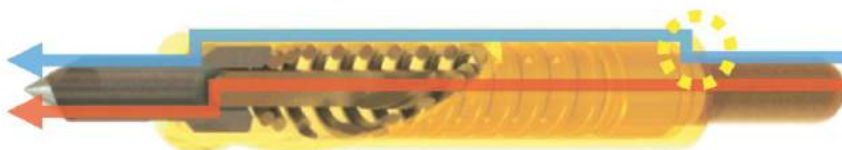
Capacitance 0.82pF

High Current Solution

As high current pogo pin connector is commonly used in charging automobile with its special manufacturing process and design, the similar concept is now applied in IC test pin and is basically used in testing power IC, automobile IC, etc.. From IC testing to battery formation, we have solution to all the high current demands.

Design Concept

Double-Ended High Current Probe for IC Test



Current Path of...

General pin: **Blue line**

High current pin: **Red line**

Taiwan Patent No.: M453149

Generally, current runs from bottom plunger through barrel wall to top plunger while the contact resistance between wall and plunger will increase gradually hence the current route between top and bottom plunger will transfer from barrel to spring that might induce spring burn out. The straight plunger in the center of high current pin allow current avoid flowing through spring during testing.

Single High Current Pin for Lithium Battery Test



CCP innovated a special design which is different from standard testing pin to increase the current rating of high current pin.

Coaxial High Current Pin for Lithium Battery Test



The integration of sense pin and force pin form into coaxial pin. Force pin is designed in one piece to endure higher current.

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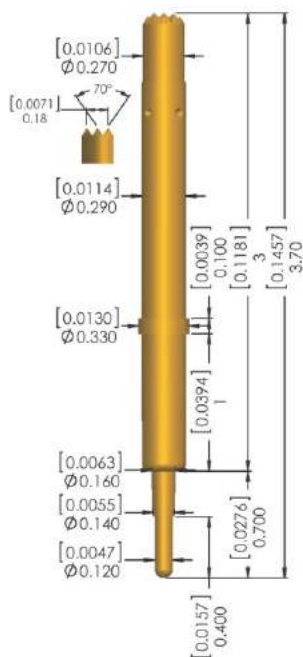
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Probe Specification (IC Test Probe)

Unit:mm (in)

DE4-029DW25-01A0

**Material**

Top Plunger

BeCu, Au plated

Barrel

PhBz, Au plated

Spring

SUS, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.40mm

Full travel

0.70mm

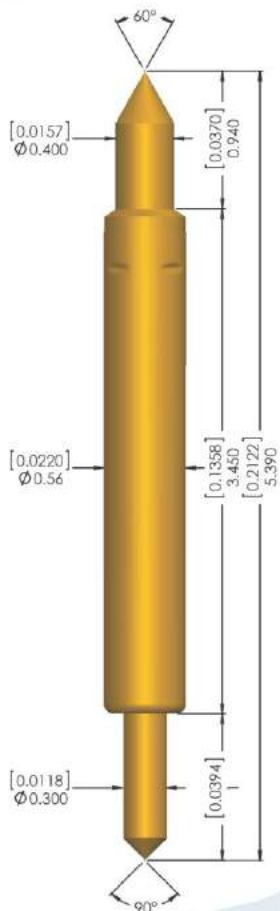
Spring force

25g $\pm$ 20% @ 0.40mm

Operating Temp

-55°C~150°C

DE3-056BE34-01A0

**Material**

Top Plunger

BeCu, Au plated

Barrel

Brass, Au plated

Spring

SUS, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.67mm

Full travel

0.95mm

Spring force

35g $\pm$ 20% @ 0.67mm

Operating Temp.

-55°C~150°C

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 3A continuous

Contact Resistance <75m Ω (AVG)Characteristic impedance 52.7 Ω

Insertion loss -1dB >20GHz

Return loss -20dB @ 10GHz

Time delay 18.97 psec

Loop inductance 1.00 nH

Capacitance 0.36 pF

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 5A continuous

Contact Resistance <75m Ω (AVG)Characteristic impedance 32.1 Ω

Insertion loss -1dB @ 6.27GHz

Return loss -20dB @ 1.2GHz

Time delay 29.5 psec

Loop inductance 0.95 nH

Capacitance 0.92 pF

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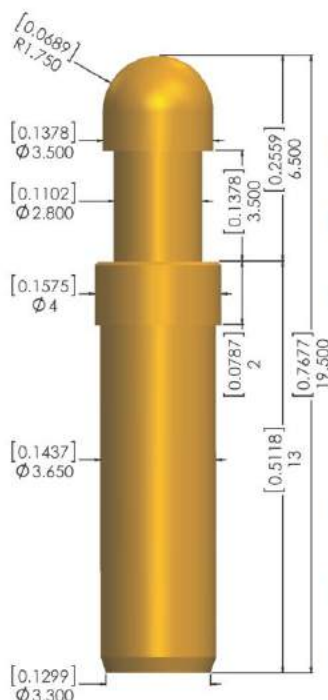
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*All specifications are subject to changes without prior notification

Probe Specification (Single Probe)

Unit:mm, [Jin

H101001M1



Material

Plunger

BeCu , Au plated

Barrel

Brass , Au plated

Spring

SUS , Au plated

Mechanical Spec.

Recommended travel

2.30mm

Full travel

3.5mm

Spring force

250g $\pm$ 20% @ 2.3mm

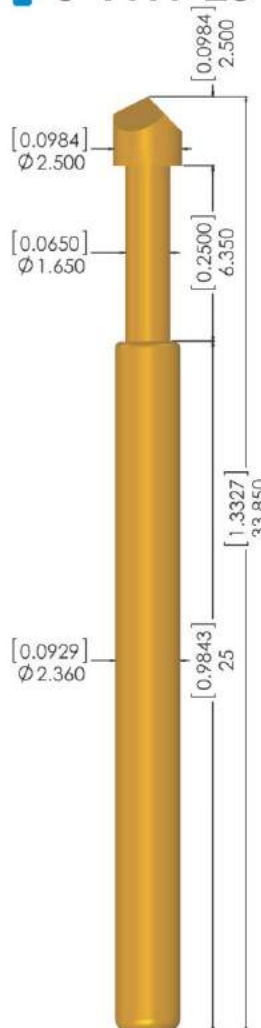
Operating Temp

-55°C~150°C

Current Rating

10 A

S-11T1-2545G



Material

Plunger

BeCu , Au plated

Barrel

Brass , Au plated

Spring

SUS , Au plated

Mechanical Spec.

Recommended travel

4.20mm

Full travel

6.35mm

Spring force

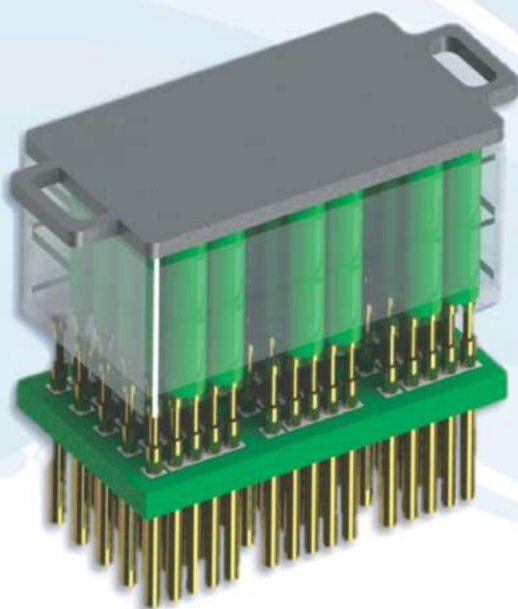
450g $\pm$ 20% @ 4.20mm

Operating Temp

-55°C~150°C

Current Rating

6 A



Application Demonstration

Probes inserting in PCB to loop circuit together for activating lithium battery.

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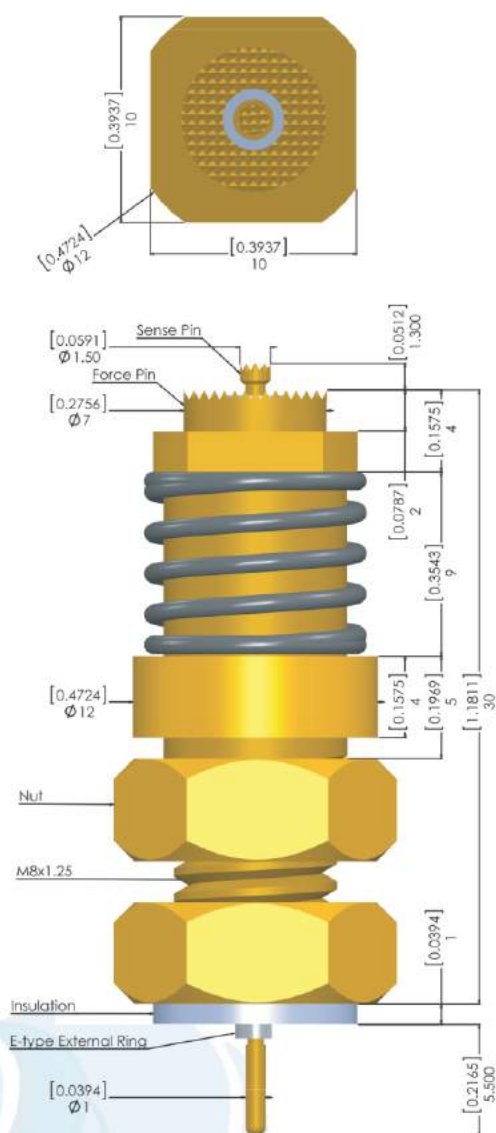
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Probe Specification (Coaxial Probe)

Unit:mm [in]



H050002M0

Material

Sense Pin

Plunger

BeCu, Au plated

Barrel

PhBz, Au plated

Spring

SUS, Au plated

Force Pin

Plunger

BeCu, Au plated

Barrel

Brass, Au plated

Spring

SUS, Au plated

Nut

BeCu, Au plated

Insulation

Teflon

Mechanical Spec.

Sense Pin

Recommended travel

1.00mm

Full travel

1.50mm

Spring force

90g $\pm$ 20%@1.00mm

Force Pin

Recommended travel

4.00mm

Full travel

6.00mm

Spring force

700g $\pm$ 20%@4.00mm

Current Rating

50 A

Application Demonstration

If single point testing requires higher current capacity only to adjust the pin dimension then would be able to meet the current rating requirement.



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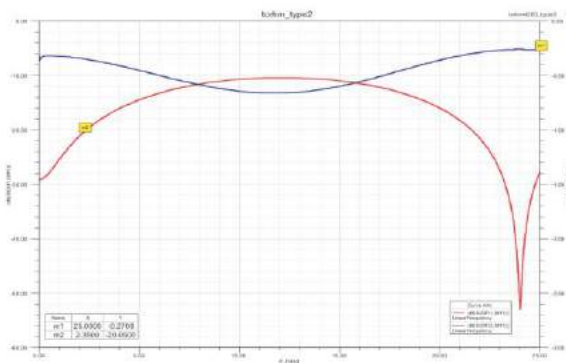
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High Frequency Solution

High Frequency condition is mostly happened in tester channel card RF signal and wideband transacting interfere, signal pin can be customized according to required electrical characteristic and testing environment. For IC testing, ultra short pin and C.C.P. exclusive V socket to deal with any different package type of IC. Providing alternatives and optimal solutions to fulfill any high frequency requirement is what C.C.P. has dedicated to.

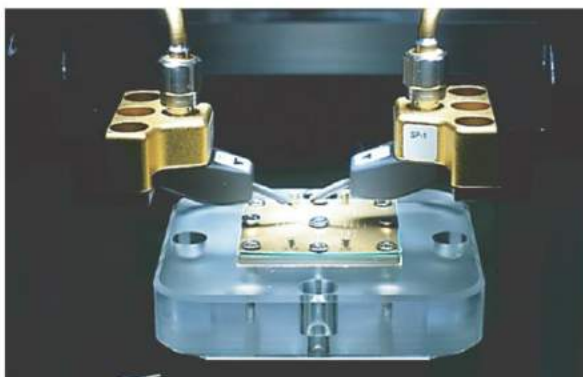
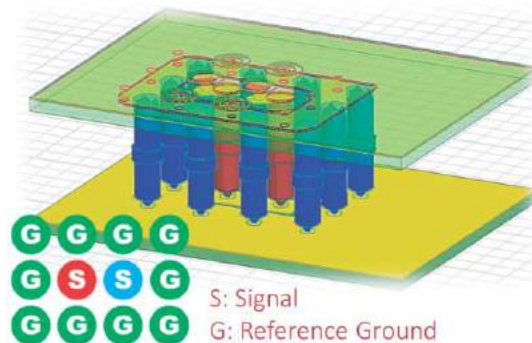
Design Concept



We have the ability to forecast 3D electromagnetic performance as well as to acknowledge S-parameter, inductance and impedance beforehand therefore to enhance SI characteristic.

Performance Simulation

C.C.P. utilizes HFSS to simulate the pin performance in sockets for choosing the best pin before designing customized sockets.



Had established high frequency lab for years that possesses TDR, network analyzer and RF probe station to measure the socket/pin actual performance to verify simulation result. These are all indispensable equipment for innovating new high class product.

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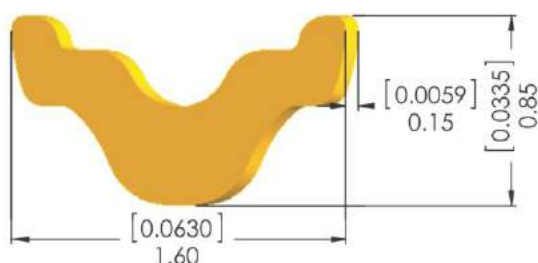
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Probe Specification (Rolling Pin)

Unit:mm [in]

V pin



Taiwan Patent No.: M440520



Side View

Material

V pin

Ni alloy

Elastic Module

Spring SUS

Pressure Peek

Mechanical Spec.

Recommended travel

0.15mm

Spring force

35g $\pm$ 20% @ 0.15mm (Adjustable)

Operating Temp.

-55°C~150°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000

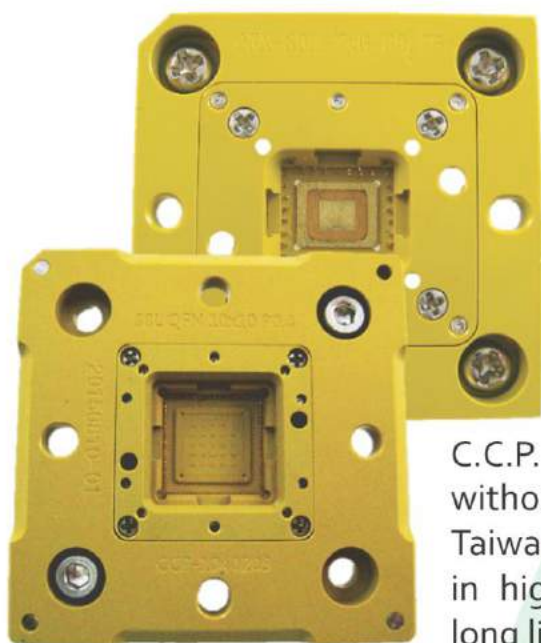
Contact Resistance <20m Ω (AVG)Characteristic impedance 52.7 Ω

Insertion loss -1dB @ 24.72GHz

Return loss -20dB @ 5.16GHz

Self inductance 0.27 nH

Self Capacitance 0.156 pF



V Socket

Specification

IC Type

QFN

IC Size

2X2~20X20 mm²

Min. Pitch

>0.4mm

Life Time (Pin)

>500,000

C.C.P. developed a new innovation of rolling pin without silicon rubber, and certified patent in Taiwan and Korea. V socket performs excellently in high frequency condition and demonstrates long life time.

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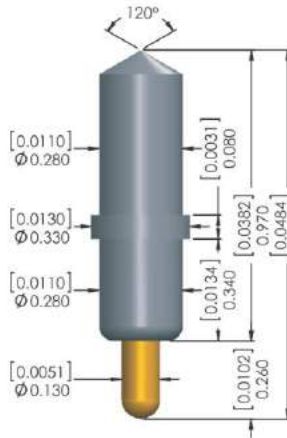
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Probe Specification (IC Test Probe)

Unit:mm, 1/10in

PE4-028DE09-01A0



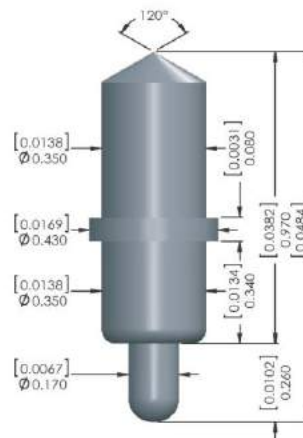
Material

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±20%@0.18mm
Operating Temp.
-55°C~150°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±20%@0.18mm
Operating Temp.
-55°C~150°C

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 48.9 Ω
Insertion loss -1dB>20GHz
Return loss -20dB>20GHz
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 <75mΩ(AVG)
Characteristic impedance 37.4Ω
Insertion loss -1dB>20GHz
Return loss -20dB@7.62GHz
Time delay 7.48 psec
Loop inductance 0.28 nH
Capacitance 0.2 pF

B.C.E. s.r.l.

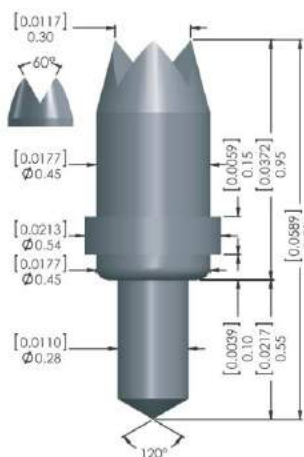
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Probe Specification (IC Test Probe)

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

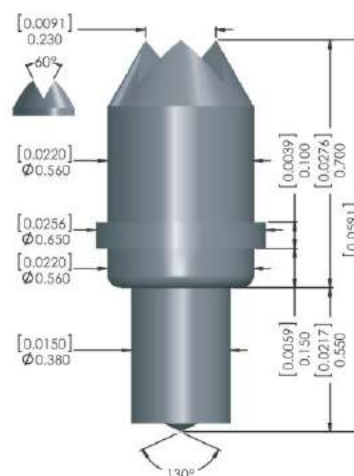
Spring force

30g $\pm$ 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 $\pm$ 20%@0.40mm

Operating Temp.

-55°C~150°C

Electrical Spec.

Pitch: 0.65mm Socket Material: Peek 1000



Current rating 1A continuous

Contact Resistance <75m Ω (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 <75m Ω (AVG)Characteristic impedance 29.7 Ω

Insertion loss -1dB>20GHz

Return loss -20dB@2.9GHz

Time delay 10.4 psec

Loop inductance 0.31 nH

Capacitance 0.35 pF

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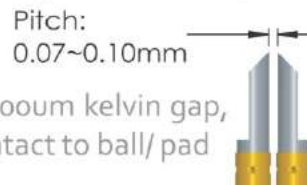
Kelvin Contact Solution

The Kelvin description comes from Lord Kelvin, a physicist who invented kelvin bridge in 1861 to measure the very low resistance. Each two wire in four terminal sensing can be see as kelvin connection. To calibrate the voltage when testing, Kelvin contact adjusts to testing sensitive ICs with one pin as sense while the other pin as force.

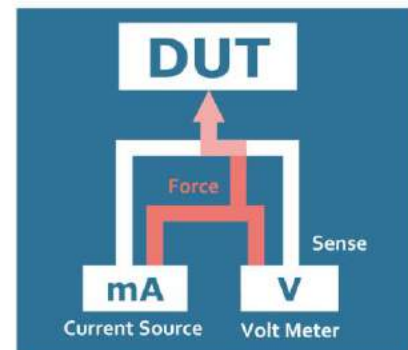
Design Concept

Kelvin Contact

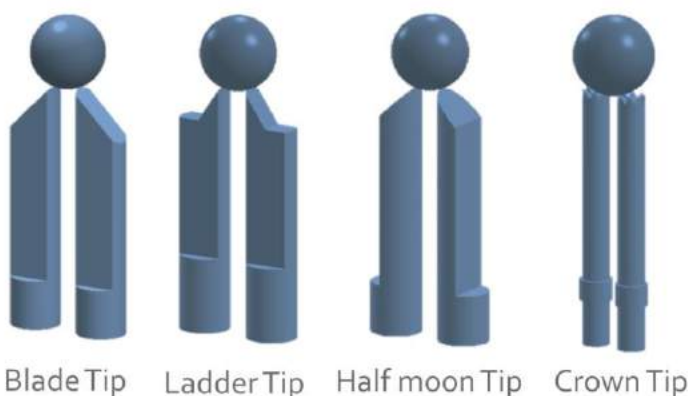
Kelvin Contact is mostly used to test specific electrical signal, as well as be the route of current bypass when testing. C.C.P. innovated several types of kelvin pin to meet market demands.



Available in 70um~100um kelvin gap,
we can precisely contact to ball/ pad



Different type of tip for various application



- Blade: Common tip type for kelvin testing
- Ladder: Similar with blade type but would be more accurate on positioning
- Half moon: Mostly applied in QFN, QFP
- Crown: No need to be aware of the direction when manufacture the socket and pin inserting since each claw can perfectly prick on testing area

Kelvin Socket	Specification
IC Type	QFN,QFP,BGA
IC Size	2X2~20X20 mm ²
Min. Pitch	0.30mm
Life Time (Pin)	>200,000

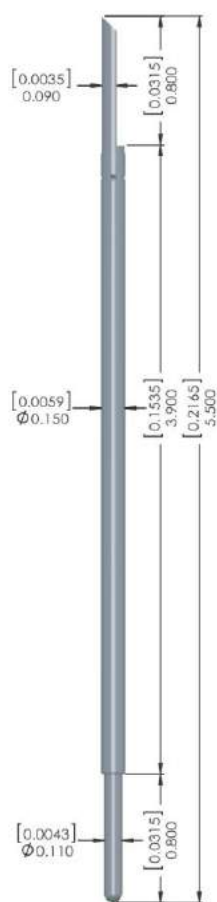




Unit:mm [in]

Probe Specification

PE3-015DL38-01A0

**Material**

Top Plunger

Pd alloy

Barrel

Ni alloy

Spring

SUS

Bottom plunger

Pd alloy

Mechanical Spec.

Recommended travel

0.40mm

Full travel

0.70mm

Spring force

20g $\pm$ 20% @ 0.40mm

Operating Temp.

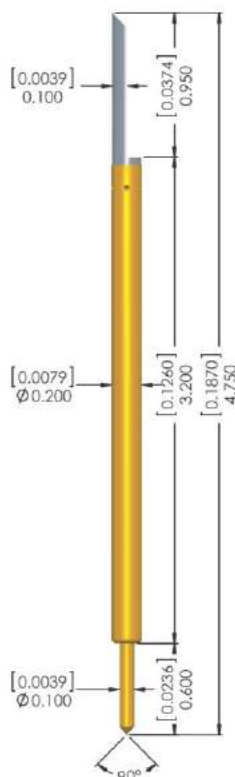
-55°C~150°C

Electrical Spec.

Current rating 1A continuous

Contact Resistance <75m Ω (AVG)

PE3-020EL31-01A0

**Material**

Top Plunger

Pd alloy

Barrel

PhBz, Au plated

Spring

SWP, Au plated

Bottom plunger

BeCu, Au plated

Mechanical Spec.

Recommended travel

0.30mm

Full travel

0.50mm

Spring force

10g $\pm$ 20% @ 0.30mm

Operating Temp.

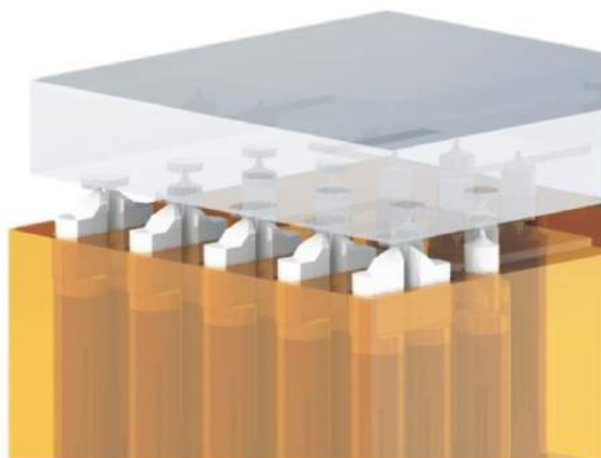
-15°C~125°C

Electrical Spec.

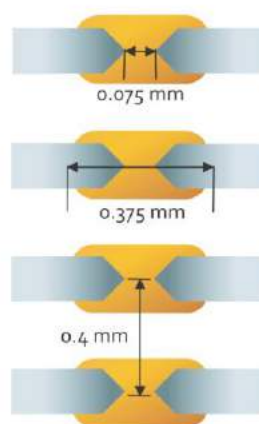
Current rating 2A continuous

Contact Resistance <75m Ω (AVG)

Half Moon Kelvin Socket Example



Pin Array

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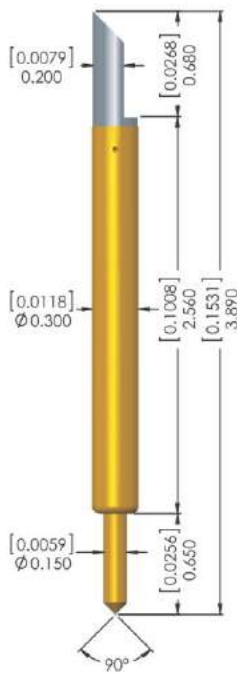
www.bce.it - E-mail: bce@bce.it

*All specifications are subject to changes without prior notification

Probe Specification

Unit:mm, 1/32in

PE3-030EL25-01A0



Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

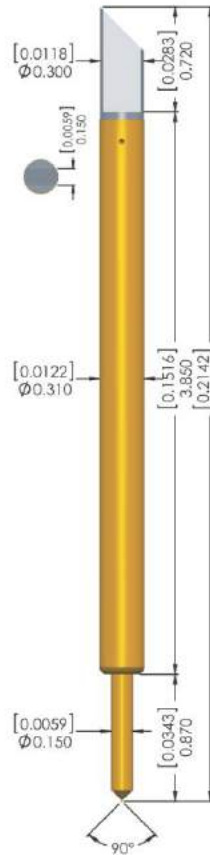
Mechanical Spec.

Recommended travel
0.45mm
Full travel
0.60mm
Spring force
25g $\pm$ 20% @ 0.45mm
Operating Temp.
-15°C ~ 125°C

Electrical Spec.

Current rating 3A continuous
Contact Resistance <75m Ω (AVG)

PE3-031EL38-01A0



Material

Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

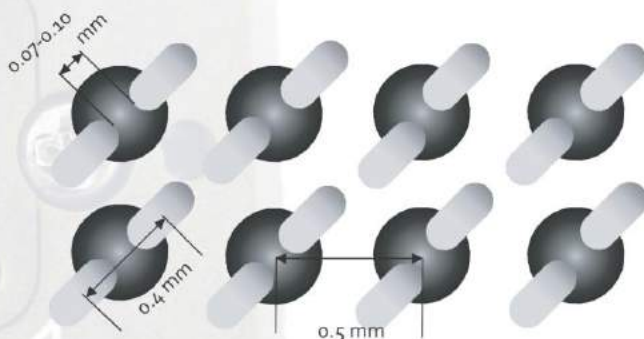
Recommended travel
0.60mm
Full travel
0.75mm
Spring force
32g $\pm$ 20% @ 0.60mm
Operating Temp.
-55°C ~ 150°C

Electrical Spec.

Current rating 3A continuous
Contact Resistance <75m Ω (AVG)

Blade Kelvin Socket Example

Pin Array



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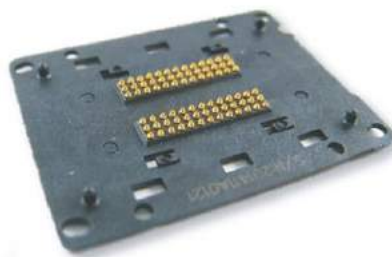
Memory Testing

Memory IC has played an important role in our lives. It normally categorized into volatile and non-volatile according to the contents vanished or not when power off. As memory testing becomes standard process, memory pin is standardized. C.C.P. presents various types of pin optimized for DDR, flash, eMCP testing, etc..

Design Concept



DDR2/3 Socket



DDR3/4 Socket



eMCP Socket

Housing	Material
Injection molding	PES

Housing	SPEC
Min. Pitch	0.4mm



Manual DDR2/3 Testing Module
Single Side



Manual DDR3 Testing Module
Double Side

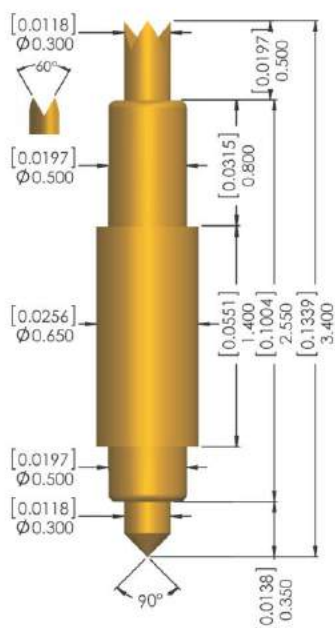
ManualDDR2/3 Testing Module	SPEC
Max. Site Amount	8~16 (Single side/ Double side)
Transmission Rate (MT/s)	200MHz~1866MHz

Probe Specification

Unit:mm, 1/100in

DE2-050EF25-120

DDR
2/3



Material

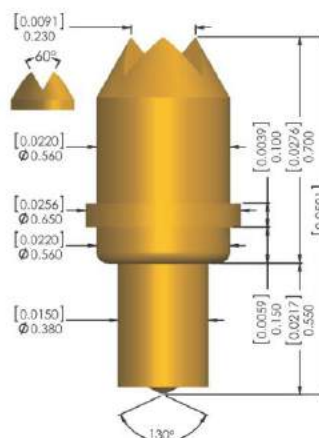
Top Plunger
BeCu, Au plated
Barrel
Brass, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.40mm
Full travel
0.60mm
Spring force
35g±20%@0.40mm
Operating Temp.
-55°C~150°C

DE4-056EF09-03F0

DDR3



Material

Barrel
BeCu, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.40mm
Full travel
0.50mm
Spring force
30g±20%@0.40mm
Operating Temp.
-55°C~150°C

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 37Ω
Insertion loss -1dB@18.6GHz
Return loss -20dB@2.69GHz
Time delay 20.4 psec
Loop inductance 0.76 nH
Capacitance 0.55 pF

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 36.16Ω
Insertion loss -1dB>20GHz
Return loss -20dB@5.11GHz
Time delay 9.4 psec
Loop inductance 0.34nH
Capacitance 0.26pF

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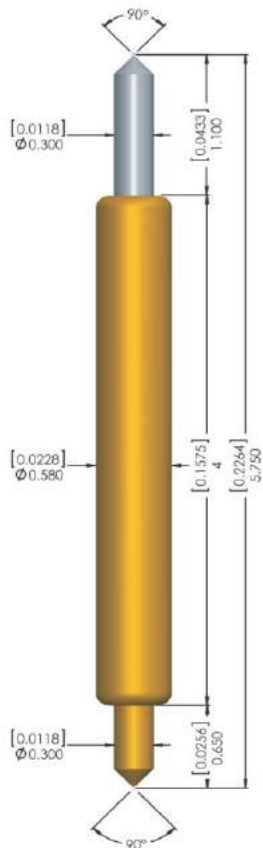


Unit:mm [in]

Probe Specification

PE1-058EE40-01A0

Flash

**Material**

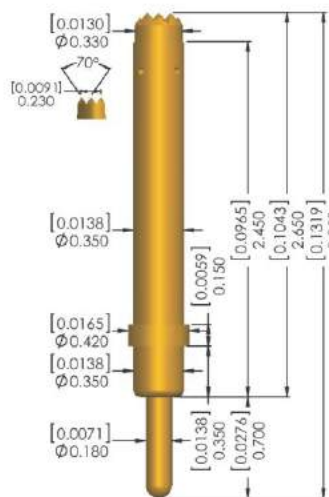
Top Plunger
Pd alloy
Barrel
PhBz, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.80mm
Full travel
1.1mm
Spring force
28g±20%@0.80mm
Operating Temp.
-55°C~150°C

DE4-035DH24-01A0

eMCP

**Material**

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.50mm
Full travel
0.70mm
Spring force
27g±20%@0.50mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 41.2Ω
Insertion loss -1dB>20GHz
Return loss -20dB@ 2.56GHz
Time delay 32.2psec
Loop inductance 1.33nH
Capacitance 0.78pF

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 40.06Ω
Insertion loss -1dB>20GHz
Return loss -20dB@ 4.5GHz
Time delay 17.22 psec
Loop inductance 0.69 nH
Capacitance 0.43 pF

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Burn in Test

While the ICs in final test will be the ultimate product to sell, those should be applied to more strict testing environment to ensure the ICs meet the specification. Burn in test will expose the DUT under condition that temperature: 150°C; relative humidity (RH): 85%; current rating: 1A continuous for 1000 hrs. Normally, we modify the plating material or raw material of pin to reach the severe testing condition.

Design Concept



Pogo Type Burn-in Socket

C.C.P. splits the socket into standard part and machining part. Standard part is processed by insert molding while the machining part is manufactured by CNC according to IC size, therefore to shorten the develop time and to down mold tooling cost. C.C.P. is flexible to all the customer demands.

Burn in Socket	Specification
IC Size	<15x15 mm ²
Min. Pitch	0.3
Body Material	PES (Black)
Housing Material	Ultem2300
Operating Temperature	-55°C~180°C



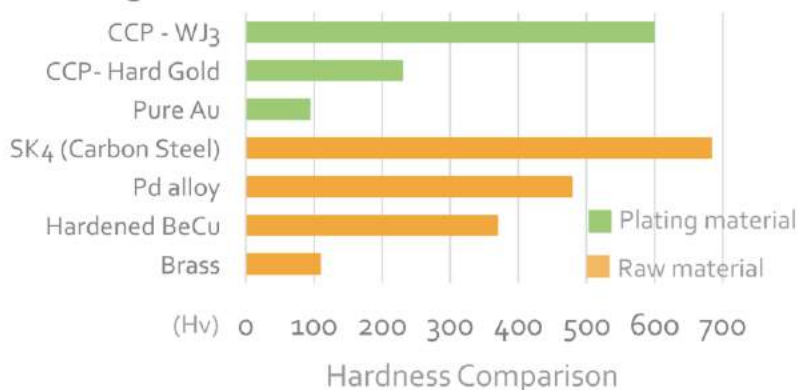
Standard Part



Customized part

Manufactured according to IC size

Plating / Raw Material



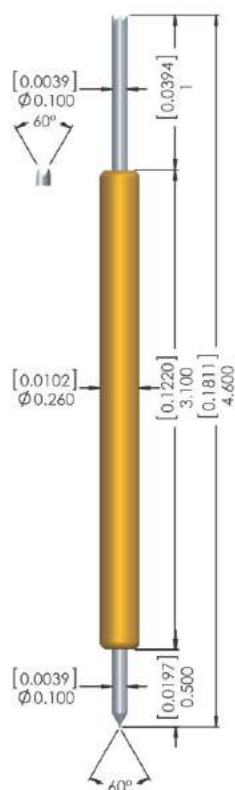
Commonly used in burn in test solution, WJ3 is a special plating material developed by C.C.P. and usually plated on DUT side plunger. Beside high hardness, WJ3 is able to perform steadily in severe testing environment that reach 150°C for 1000 hours possibly even for 3000 hours.



Unit:mm [in]

Probe Specification

WE1-026EF31-01A0

**Material**

Top Plunger
BeCu , WJ3 plated
Barrel
PhBz , Au plated
Spring
SUS , Au plated
Bottom plunger
BeCu , WJ3 plated

Mechanical Spec.

Recommended travel
0.50mm
Full travel
0.80mm
Spring force
20g±20%@0.50mm
Operating Temp.
-55°C~175°C

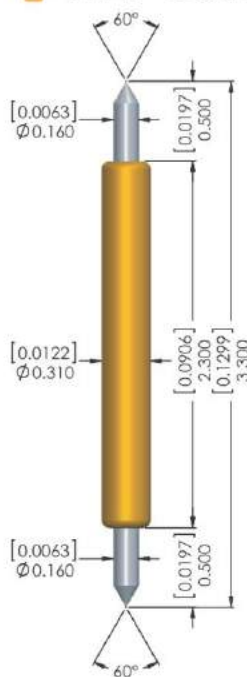
Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 57Ω
Insertion loss -1dB>20GHz
Return loss -20dB@8.38GHz
Time delay 23.4psec
Loop inductance 1.34 nH
Capacitance 0.41pF

WE1-031BB23-01A0

**Material**

Top Plunger
BeCu , WJ3 plated
Barrel
PhBz , Au plated
Spring
SUS , Au plated
Bottom plunger
BeCu , WJ3 plated

Mechanical Spec.

Recommended travel
0.50mm
Full travel
0.70mm
Spring force
30g±20%@0.50mm
Operating Temp.
-55°C~175°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1.5A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 40.8Ω
Insertion loss -1dB>20GHz
Return loss -20dB@5.3 GHz
Time delay 15.9psec
Loop inductance 0.65nH
Capacitance 0.39pF

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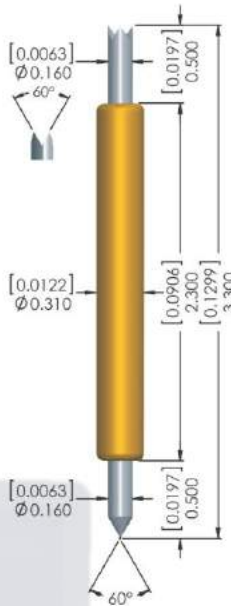
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Probe Specification

Unit:mm, 1/100

WE1-031BF23-01A0



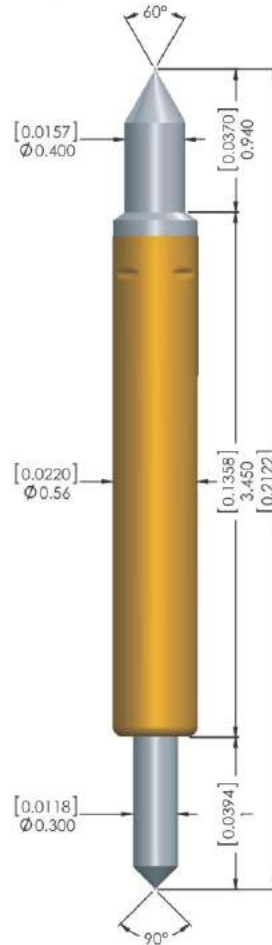
Material

Top Plunger
BeCu , WJ3 plated
Barrel
PhBz , Au plated
Spring
SUS , Au plated
Bottom plunger
BeCu , WJ3 plated

Mechanical Spec.

Recommended travel
0.50mm
Full travel
0.70mm
Spring force
30g±20%@0.50mm
Operating Temp.
-55°C~175°C

WE3-056BE34-02A0



Material

Top Plunger
BeCu , WJ3 plated
Barrel
Brass , Au plated
Spring
SUS , Au plated
Bottom plunger
BeCu , WJ3 plated

Mechanical Spec.

Recommended travel
0.67mm
Full travel
0.90mm
Spring force
35g±20%@0.67mm
Operating Temp.
-55°C~175°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1.5A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 33.72Ω
Insertion loss -1dB@12.51GHz
Return loss -20dB@2.49GHz
Time delay 17.2 psec
Loop inductance 0.58 nH
Capacitance 0.51 pF

Electrical Spec.

Pitch: 0.8mm Socket Material: Peek 1000



Current rating 5A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 32.1Ω
Insertion loss -1dB@7 GHz
Return loss -20dB@1.19 GHz
Time delay 29.5 psec
Loop inductance 0.95nH
Capacitance 0.92 pF

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Fine Pitch Conn./FPC Test

Fine pitch pogo socket is required as a board to board connection. Instead of traditional connector, pogo socket composes a much more better life time that capable of sustaining more than 30000 touchdowns along with excellent connection that correcting the coplanarity error with pogo pins.

Design Concept



Single-site pogo socket
Pitch: 0.4mm

Connector pogo socket

Floating plate is not only to align the connector but also to protect pogo pins inside since the pins won't reveal unless the floating plate is pressed. Further, with the floating block in lid, there is no chance for connector and pogo pins unwell connecting.



Fine Pitch Connector
Device under Test

Clip Pogo Socket

Dolphin can hold the gold finger part on PCB/ FPC. This solution definitely would be fast and easy for PCB/ FPC testing.



Gold Finger
Device under Test

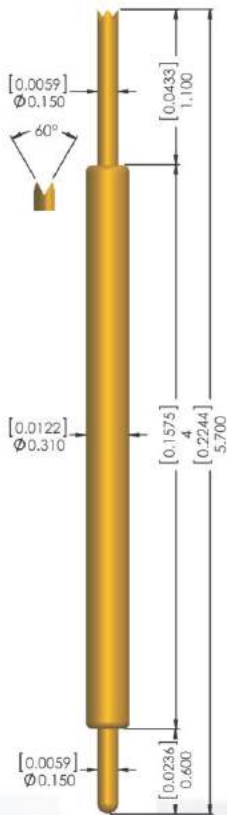
Pogo Socket Parts	Specification
Min. Pitch	0.35mm
Lid Material	Acrylic/ Aluminum
Floating Plate/ Top, Bottom Housing Material	Peek Ceramic
Mounting Plate Material	Aluminum
Life Time	30,000



Dual-site pogo socket
with fine pitch connector (DUT)

Probe Specification

DE1-030DF40-05A0



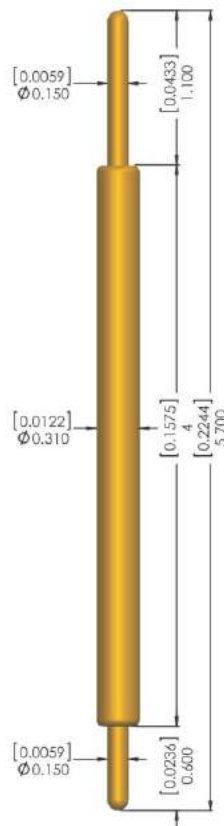
Material

Top Plunger
SK4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, WJ3 plated

Mechanical Spec.

Recommended travel
0.50mm
Full travel
1.00mm
Spring force
25g±20% @ 0.50mm
Operating Temp.
-15°C ~ 125°C

DE1-031DD40-01W1



Material

Top Plunger
SK4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
SK4, Au plated

Mechanical Spec.

Recommended travel
0.80mm
Full travel
1.00mm
Spring force
25g±20% @ 0.80mm
Operating Temp.
-15°C ~ 125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 44.8Ω
Insertion loss -1dB >20GHz
Return loss -20dB @ 4.5GHz
Time delay 28.2psec
Loop inductance 1.27nH
Capacitance 0.63pF

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 42.54Ω
Insertion loss -1dB @ 18.82GHz
Return loss -20dB @ 3.41GHz
Time delay 26.8psec
Loop inductance 1.14nH
Capacitance 0.63pF

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Panel Test

Most of the digital electronics acquire display interfere nowadays along with ascending demands in panel testing. Pogo pin will definitely make out for most of the panel testing solutions and capable for perfectly adjusting to any pitch of device under test.

Design Concept



Panel Pin Housing

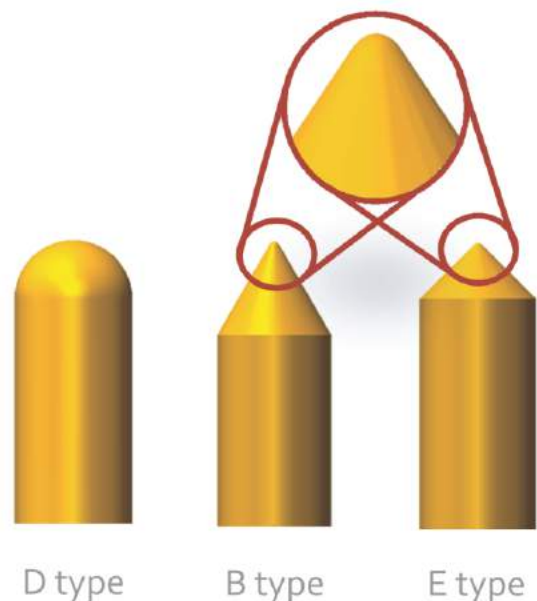
Panel Test Housing

The housing is installed in test head which contact to panel directly. To protect the panel from damage, head type should be rounded to avoid from scratching the panel surface.

Panel Pin Housing	Specification
Min. Pitch	0.45 mm
Panel Size	50"~85"
Housing Material	Peek
Life Time (Pin)	>200,000

Panel Pin Head Type

Conical tip is able to puncture oxide layer and less opportunity to scratch PCB pad, hence we still can consider conical type (B head, E head) in panel test, but mainly apply round type (D head) as first priority.



D type

B type

E type

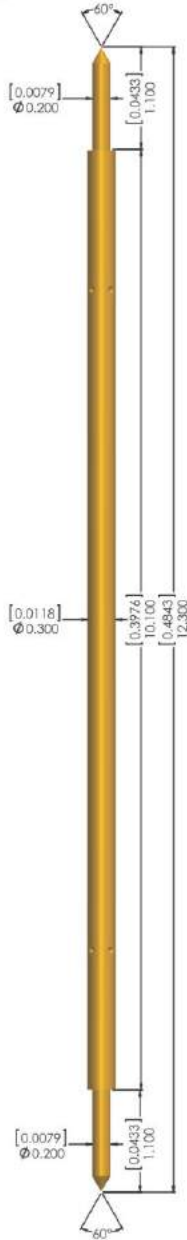
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Probe Specification

Unit:mm, 1/10in

DE1-030BB10-01A0



Material

Top Plunger
Sk4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
Sk4, Au plated

Mechanical Spec.

Recommended travel
1.25mm
Full travel
1.90mm
Spring force
20g±20%@1.25mm
Operating Temp.
-15°C~125°C

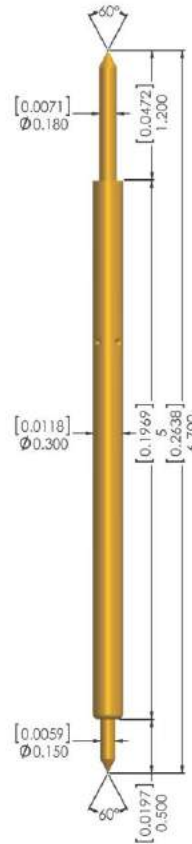
Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 67Ω
Insertion loss -1dB@3.34GHz
Return loss -20dB@0.87GHz
Time delay 67.01 psec
Loop inductance 4.49 nH
Capacitance 1 pF

DE1-030BB50-01A0



Material

Top Plunger
Sk4, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
0.65mm
Full travel
1.00mm
Spring force
13g±20%@0.65mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



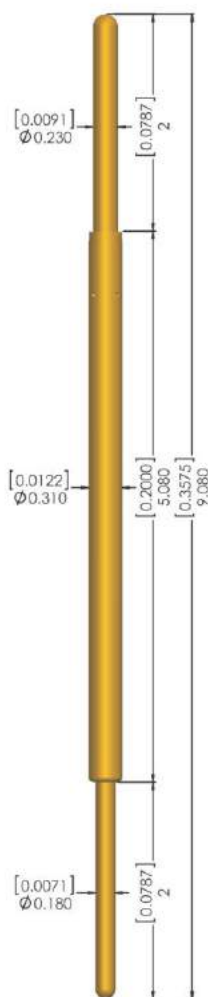
Current rating 1A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 45Ω
Insertion loss -1dB >20GHz
Return loss -20dB@3.35GHz
Time delay 32.8 psec
Loop inductance 1.48 nH
Capacitance 0.73 pF



Probe Specification

Unit:mmg [in]

DE3-031DD50-01A0

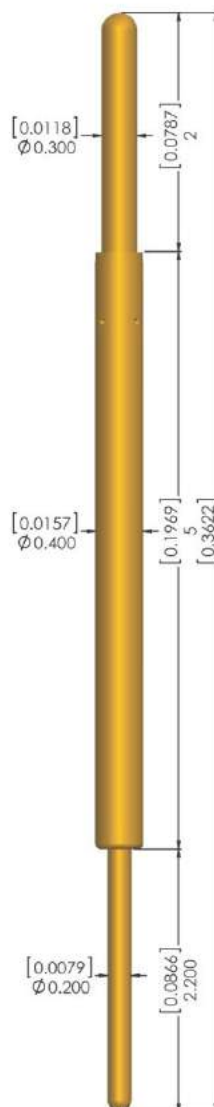
**Material**

Top Plunger
BeCu , Au plated
Barrel
PhBz , Au plated
Spring
SWP , Au plated
Bottom plunger
BeCu , Au plated

Mechanical Spec.

Recommended travel
1.00mm
Full travel
2.00mm
Spring force
20g $\pm$ 20%@1.00mm
Operating Temp.
-15°C~125°C

DE3-040DD50-01A0

**Material**

Top Plunger
BeCu , Au plated
Barrel
PhBz , Au plated
Spring
SWP , Au plated
Bottom plunger
BeCu , Au plated

Mechanical Spec.

Recommended travel
1.00mm
Full travel
2.00mm
Spring force
20g $\pm$ 20%@1.00mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.4mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75m Ω (AVG)
Characteristic impedance 41.54 Ω
Insertion loss -1dB@14.66GHz
Return loss -20dB@2.03GHz
Time delay 42.37 psec
Loop inductance 1.76 nH
Capacitance 1.02 pF

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000

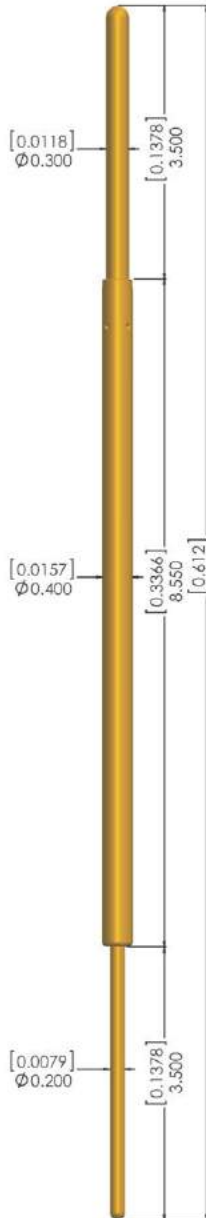


Current rating 1A continuous
Contact Resistance <75m Ω (AVG)
Characteristic impedance 42.13 Ω
Insertion loss -1dB@10.93GHz
Return loss -20dB@2.05GHz
Time delay 46.76 psec
Loop inductance 1.97 nH
Capacitance 1.11 pF

Probe Specification

Unit:mm, 1/10in

DE3-040DD85-01A0



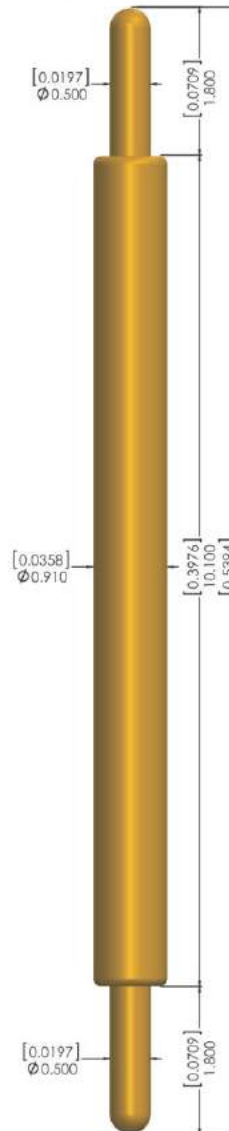
Material

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SUS, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
2.50mm
Full travel
3.00mm
Spring force
20g±20%@2.50mm
Operating Temp.
-55°C~150°C

DE1-091DD10-01A0



Material

Top Plunger
BeCu, Au plated
Barrel
PhBz, Au plated
Spring
SWP, Au plated
Bottom plunger
BeCu, Au plated

Mechanical Spec.

Recommended travel
2.00mm
Full travel
3.00mm
Spring force
20g±20%@2.00mm
Operating Temp.
-15°C~125°C

Electrical Spec.

Pitch: 0.5mm Socket Material: Peek 1000



Current rating 1A continuous
Contact Resistance <75mΩ(AVG)
Characteristic impedance 40 Ω
Insertion loss -1dB@6.08GHz
Return loss -20dB@1.06GHz
Time delay 74.8 psec
Loop inductance 3 nH
Capacitance 1.87 pF

Electrical Spec.

Pitch: 1.0mm Socket Material: Peek 1000



Current rating 2A continuous
Contact Resistance <175mΩ(AVG)
Characteristic impedance 24.2Ω
Insertion loss -1dB@1.52 GHz
Return loss -20dB@0.28GHz
Time delay 72.6 psec
Loop inductance 1.76 nH
Capacitance 3 pF

ATE Connecting

To connect mother board and daughter board in automatic testing equipment, pogo tower and adapter are usually applied. C.C.P. has been devoted to ATE connecting solutions for several years. Testing equipment such as J750, V93000, etc. are those compose C.C.P. probes along with innovation of high frequency pogo tower these years.

Design Concept

We are capable to customize for customer to meet the requirement of high frequency signal transaction or mechanism space.



Pogo tower (line)



Pogo tower (ring)



Pogo cable

Pogo tower (line) Specification

Housing Material	FR4
Pitch	2.54
Insertion Loss	-3dB@2.4GHz

Pogo tower (ring) Specification

Housing Material	FR4
Pitch	2.54
Insertion Loss	-3dB@2.4GHz

Pogo cable Specification

Housing Material	FR4
Pitch	2.54
Insertion Loss	-3dB@2.4GHz
Impedance	50Ω

Cleaning Tools



Nylon Brush
SSP-SSN-906500

Wire Diameter: $\Phi 0.1\text{mm}$

Size: 2.1 mm*4.0 mm*L145 mm



Steel Brush
SSP-SSS-SST6SS

Wire Diameter: $\Phi 0.1\text{mm}$

Size: 3.5mm*6.5 mm*L130 mm



Steel Brush
SSP-SSS-SST2SS

Wire Diameter: $\Phi 0.1\text{mm}$

Size: 2.0 mm*4.5mm*L9.3 mm

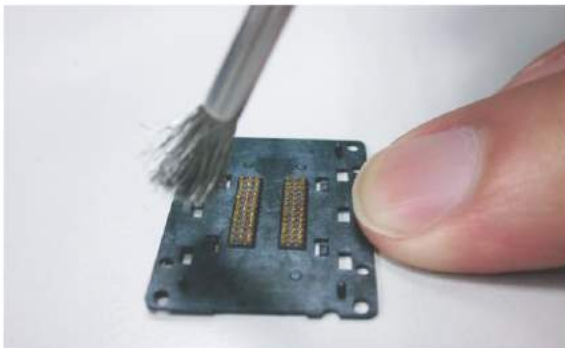


Tungsten Steel Brush
SSP-BR-TS002-094

Wire Diameter: $\Phi 0.02\text{mm}$

Size: 1.7 mm*4.2 mm*L9.4 mm

Probe Cleaning

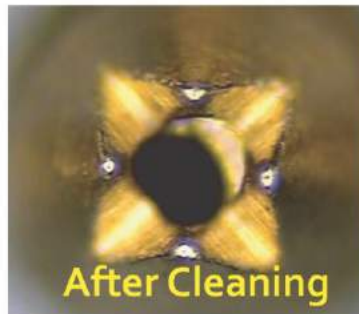


Particles can interfere testing result and come up with unwell yield rate. Probe cleaning can avoid this situation happening. We can provide various cleaning tools for indomitable solder splash or particle on probe tip.

Slightly brush the probe tip to remove particle or tin on it.



Before Cleaning



After Cleaning

Probe damage level:

Nylon brush

< Nano Tungsten steel brush

< Steel Brush (smaller brush size)

< Steel Brush (bigger brush size)

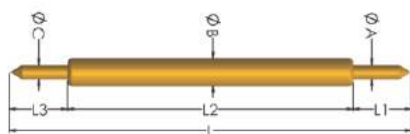




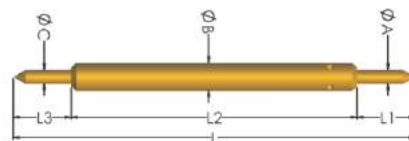
Pin SPEC.

Index

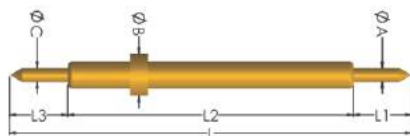
Type 1
Double Active



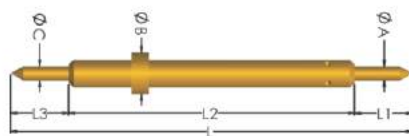
Type 3
Single Active



Type 2
Double Active
W/ Ring



Type 4
Single Active
W/ Ring



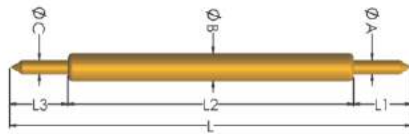
Unit: mm

Pitch	P/N	Type	Total Length (L)	Barrel /Ring OD (φB)	Plunger A Type/ Length (L1)	Plunger A OD (φA)	Plunger C Type/ Length (L3)	Plunger C OD (φC)	Working Stroke	Spring Force ±20% @Working Stroke	Detail Spec (page)
0.2	PE1-010EE20-01Ao	1	3.00	0.10	Conical/ 0.40	0.045	Conical/ 0.40	0.045	0.35	7g	6
	PE3-010DS53-02Ao	3	7.00	0.175	Serrated/ 0.70	0.13	Round/ 0.90	0.08	0.55	6g	28
	PE3-013DS53-01Fo	3	7.00	0.175	Serrated/ 0.70	0.13	Round/ 0.90	0.09	0.55	6g	28
0.3	PE3-015DL38-01Ao	3	5.50	0.15	Blade/ 0.80	0.14	Round/ 0.80	0.11	0.40	20g	39
	PE3-020EL31-01Ao	3	4.75	0.20	Blade/ 0.95	0.19	Conical/ 0.60	0.10	0.30	10g	39
	DE1-020BE40-01Ao	1	5.70	0.20	Conical/ 1.10	0.10	Conical/ 0.60	0.10	0.60	12g	6
	PE3-020DS53-01Ao	3	7.00	0.23	Serrated/ 0.70	0.19	Round/ 0.90	0.10	0.55	25g	29
	DE1-020BE74-010	1	9.70	0.20	Conical/ 1.50	0.12	Conical/ 0.80	0.12	0.80	6g	7
	DE1-025BB10-02Ao	1	12.20	0.25	Conical/ 1.10	0.13	Conical/ 1.10	0.13	1.45	30g	7
0.4	PE4-025EF24-01Ao	4	3.30	0.32	Crown/ 0.25	0.24	Conical/ 1.10	0.11	0.40	23g	8
	PE3-026DF17-01Fo	3	3.00	0.26	Crown/ 0.70	0.15	Conical/ 0.50	0.12	0.35	20g	8
	PE3-026BD18-01Ao	3	2.87	0.18	Conical/ 0.52	0.18	Round/ 0.50	0.13	0.30	24g	9
	PE3-026DF27-01Fo	3	4.25	0.26	Crown/ 0.60	0.15	Round/ 0.85	0.13	0.40	22g	9
	WE1-026EF31-01Ao	1	4.60	0.26	Crown/ 1.00	0.10	Conical/ 0.50	0.10	0.50	20g	45
	DE1-026BE40-01Ao	1	5.70	0.26	Conical/ 1.10	0.10	Conical/ 0.60	0.10	0.65	14g	10
	DE1-026DF40-02Ao	1	5.70	0.26	Crown/ 1.10	0.11	Round/ 0.60	0.11	0.65	18g	10
	DE3-026EF49-01Ao	3	7.20	0.26	Crown/ 1.30	0.17	Conical/ 0.90	0.12	0.70	20g	11
	PE4-028DE09-01Ao	4	1.23	0.33	-	-	Round/ 0.26	0.13	0.18	15g	36
	DE4-029DW25-01Ao	4	3.70	0.33	Serrated/ 0.45	0.27	Round/ 0.70	0.12	0.40	25g	31
	DE4-029FF45-01Ao	4	6.50	0.34	Crown/ 0.75	0.22	Crown/ 1.10	0.15	0.70	30g	11
	DE1-030BB10-01Ao	1	12.30	0.30	Conical/ 1.10	0.20	Conical/ 1.10	0.20	1.25	20g	50
	DE1-030BB50-01Ao	1	6.7	0.30	Conical/ 1.20	0.18	Conical/ 0.50	0.15	0.65	13g	50
	PE3-030DF17-03Ao	3	3.25	0.30	Crown/ 0.95	0.18	Round/ 0.50	0.16	0.35	27g	12
	PE3-030DF18-01Ao	3	2.90	0.30	Crown/ 0.60	0.20	Round/ 0.50	0.15	0.40	35g	12
	DE3-030BF21-03Fo	3	3.30	0.30	Crown/ 0.60	0.22	Conical/ 0.60	0.15	0.40	30g	13
	PE3-030EL25-01Ao	3	3.89	0.30	Blade/ 0.68	0.20	Conical/ 0.65	0.15	0.45	25g	40
	DE3-030DF40-05Ao	3	5.70	0.30	Crown/ 1.10	0.15	Round/ 0.60	0.15	0.50	25g	29
	PE3-030EF53-01Ao	3	7.00	0.30	Crown/ 0.70	0.20	Conical/ 0.90	0.15	0.55	25g	29
	PE3-031DF17-03Fo	3	2.85	0.31	Crown/ 0.55	0.20	Round/ 0.50	0.16	0.35	35g	13
	PE3-031DF21-03Fo	3	3.30	0.31	Crown/ 0.50	0.20	Round/ 0.60	0.16	0.40	35g	14
	WE1-031BB23-01Ao	1	3.30	0.31	Conical/ 0.50	0.16	Conical/ 0.50	0.16	0.50	25g	45
	WE1-031BF23-01Ao	1	3.30	0.31	Crown/ 0.50	0.16	Conical/ 0.50	0.16	0.50	30g	46
	PE1-031EF23-02Fo	1	3.30	0.31	Crown/ 0.60	0.16	Conical/ 0.40	0.16	0.40	30g	14
	PE1-031EF30-02Fo	1	4.00	0.31	Crown/ 0.60	0.16	Conical/ 0.40	0.16	0.60	31g	15
	PE1-031DF30-01Fo	1	4.00	0.31	Crown/ 0.60	0.16	Round/ 0.40	0.16	0.60	31g	15
	DE1-031BF32-02Ao	1	4.75	0.31	Conical/ 1.10	0.16	Crown/ 0.45	0.16	0.60	25g	16
	PE3-031EL38-01Ao	3	5.44	0.31	Blade/ 0.77	0.30	Conical/ 0.87	0.15	0.60	35g	40
	DE1-031DD40-01W1	3	5.70	0.31	Round/ 1.10	0.15	Round/ 0.60	0.15	0.80	25g	48
	DE3-031DD50-01Ao	3	9.08	0.31	Round/ 2.00	0.23	Round/ 2.00	0.18	1.00	20g	51
	PE4-032DF24-03Fo	4	3.30	0.39	Crown/ 0.30	0.31	Round/ 0.60	0.15	0.40	30g	16

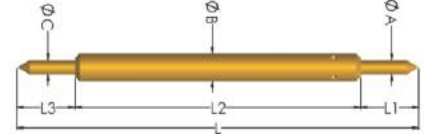
Except the specifications in table, we provide customization for all client demands as well.



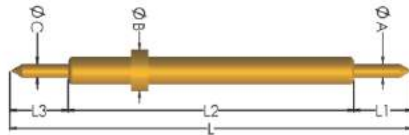
Type 1
Double Active



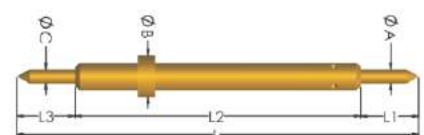
Type 3
Single Active



Type 2
Double Active
W/ Ring



Type 4
Single Active
W/ Ring



Unit: mm

Pitch	P/N	Type	Total Length (L)	Barrel /Ring OD (φB)	Plunger A Type/ Length (L1)	Plunger A OD (φA)	Plunger C Type/ Length (L3)	Plunger C OD (φC)	Working Stroke	Spring Force ±20% @Working Stroke	Detail Spec (page)
0.5	PE4-035DE09-01Ho	4	1.23	0.43	-	-	Round/ 0.26	0.17	0.18	15g	36
	DE1-035BE12-01Ao	1	2.00	0.35	Conical/ 0.50	0.20	Conical/ 0.30	0.20	0.30	18g	17
	DE4-035DH24-01Ao	4	3.35	0.42	Serrated/ 0.25	0.33	Round/ 0.70	0.18	0.50	27g	43
	PE4-035DF24-01Fo	4	3.35	0.40	Crown/ 0.25	0.34	Round/ 0.70	0.20	0.45	32g	17
	PE1-035EF25-01Fo	1	3.50	0.35	Crown/ 0.60	0.20	Conical/ 0.40	0.20	0.60	32g	18
	PE3-038DF17-03Fo	3	3.15	0.38	Crown/ 0.75	0.23	Round/ 0.55	0.20	0.38	38g	18
	PE3-038EF17-04Ao	3	2.85	0.38	Crown/ 0.50	0.22	Conical/ 0.50	0.22	0.35	30g	19
	PE1-038DF32-02Fo	1	4.80	0.38	Crown/ 1.10	0.21	Round/ 0.55	0.20	0.65	37g	19
	PE1-038EP40-01Ao	1	5.70	0.38	Crown/ 1.10	0.22	Conical/ 0.60	0.22	0.65	40g	20
	PE3-040BF34-01Ao	3	5.70	0.40	Crown/ 1.13	0.32	Conical/ 1.07	0.22	0.70	30g	20
	DE1-040BF39-030	1	5.20	0.40	Crown/ 0.65	0.23	Conical/ 0.65	0.20	0.65	25g	21
	DE3-040DD50-01Ao	3	9.20	0.40	Round/ 2.00	0.30	Round/ 2.20	0.20	1.00	20g	51
	DE3-040DD85-01Ao	3	15.55	0.40	Round/ 3.50	0.30	Round/ 3.50	0.20	2.50	22g	52
0.6	PE4-045EF09-01Ao	4	1.50	0.54	-	-	Conical/ 0.55	0.28	0.40	30g	37
	DE4-048EF17-01Fo	4	2.65	0.55	Crown/ 0.20	0.47	Conical/ 0.75	0.25	0.50	27.5g	21
	DE2-050EF25-120	2	3.40	0.65	Crown/ 0.50	0.30	Conical/ 0.35	0.30	0.40	35g	42
	PE2-050EF25-01Fo	2	3.35	0.66	Crown/ 0.50	0.30	Conical/ 0.30	0.30	0.45	35g	22
	PE4-052DF17-01Fo	4	2.57	0.62	Crown/ 0.30	0.51	Round/ 0.57	0.25	0.40	30g	22
	PE4-052DF28-01Fo	4	4.20	0.60	Crown/ 0.40	0.51	Round/ 1.00	0.25	0.60	40g	23
	DE4-052EF23-02Fo	4	3.35	0.61	Crown/ 0.30	0.50	Conical/ 0.75	0.30	0.45	35g	24
0.7	DE4-056EF09-03Fo	4	1.50	0.65	-	-	Conical/ 0.55	0.38	0.40	31g	42
	PE4-056EF09-01Ho	4	1.50	0.65	-	-	Conical/ 0.55	0.38	0.40	31g	37
	PE4-056DF20-02Fo	4	3.05	0.65	Crown/ 0.30	0.54	Round/ 0.70	0.30	0.50	35g	24
	DE3-056BE34-01Ao	3	5.39	0.56	Conical/ 0.94	0.40	Conical/ 1.00	0.30	0.67	35g	31
	WE3-056BE34-02Ao	4	5.39	0.56	Conical/ 0.94	0.40	Conical/ 1.00	0.30	0.67	35g	46
	PE1-058EE40-01Ao	1	5.75	0.58	Conical/ 1.10	0.30	Conical/ 0.65	0.30	0.80	28g	43
0.8	PE4-065EW15-01Ao	4	2.5	0.65	Serrated/ 0.60	0.53	Conical/ 0.70	0.42	0.50	32g	24
	PE4-068EP35-01Fo	4	4.45	0.80	Crown/ 0.40	0.67	Conical/ 0.90	0.35	0.65	40g	25
	DE1-072EE50-01Ao	1	7.20	0.72	Conical/ 1.70	0.40	Conical/ 0.50	0.40	1.20	20g	25
0.9	DE1-080BF40-010	1	5.80	0.80	Crown/ 1.15	0.50	Conical/ 0.65	0.50	0.70	30g	26
1.0	DE4-090EF25-02Fo	4	3.20	1.00	Crown/ 0.40	0.90	Conical/ 0.70	0.63	0.50	30g	26
	DE1-091DD10-01Ao	1	13.70	0.91	Round/ 1.80	0.50	Round/ 1.80	0.50	2.00	50g	52

Except the specifications in table, we provide customization for all client demands as well.

*All specifications are subject to changes without prior notification



C.C.P. Contact Probes Co., Ltd.

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