### **SEMICONDUCTOR PROBE**

ECT has a long history on supplying double ended fine pitch probes.

Thanks to our large market exposure on these products at most major semiconductor producers, we are able to gain a lot of expertise from our worldwide customer base. This expertise is reflected in each new probe series to stay a head of the very technical demanding and challenging Semiconductor market.

Please feel free to contact us for further requirements or more information, as we offer some special requirements like ultra-high temperature applications or none magnetic probes for the MEMS market.

#### The ZIP® Advantage

ECT ZIP<sup>®</sup> series probes feature a number of innovative designs that provide for superior contact capable of fitting your application needs. Utilizing ECT's patented flat technology, ZIP semiconductor spring probes present a new level of accuracy, scalability, and performance. While conventional round technology restricts longer travel and can have its reliability undermined by its small contact area, ZIP possesses a large internal contact area, resulting in low C-Res, superior bandwidth, and excellent high current behavior. The performance, economy, and application versatility provided by ZIP probes are further enhanced by the use of an external spring. Conventional spring probes rely on contact between the barrel and plunger, which allows for conductivity interference through contamination build up in dirty test environments. By having an external spring and no barrel, ZIP greatly reduces the threat of contamination, thereby reducing cost-of-test and increasing efficiency. ECT has produced flat compliant contacts since 1995. The ZIP series is the culmination of years of experience and development, and reflects the industry's finest semiconductor contacts. With its broad scope of application solutions and special options, the ZIP family of products can satisfy all of your semiconductor test needs. If your spring probes are leaving your tough, high volume challenges unmet, then you don't know ZIP.

#### **Bantam® Series**

The Bantam<sup>®</sup> probe is a high performance spring loaded compliant contact for applications requiring robust, short contact to support fine pitch and high bandwidth production needs. Unlike conventional spring probes, the Bantam has only one internal sliding / wiping contact surface, which provides consistent low resistance levels while maintaining a high level of Z-Axis compliance.

#### **CSP and SPLJ Series**

These probes are traditional but state of the art double ended probes ranging from 0.4mm to 1.27mm pitch. On the CSP Series probes we are able to offer a selection of different plating options to optimize contact challenges and maximize probe life. Various length options also provide drop-in replacement capability for most competitor probes.

#### Mini-Mite<sup>™</sup> Series

The SCP or also called Mini-Mite<sup>™</sup> probe features a unique single ended design, providing very low, consistent DC resistance. The uniform design allows all three product pitches to be used on the same test height. The single sliding contact cuts the failure mode in half and insures very repeatable results.





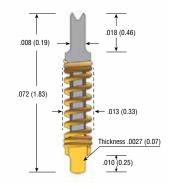


### **ZO** 0.40 mm, 0.50 mm

#### Ultra HIGH Bandwidth

The Z0 Ultra High Bandwidth Series takes advantage of the ZIP<sup>®</sup> scalable architecture to arrive at an ultra-compact design with 0.50 nH and 0.60 nH inductance tailor made for high frequency testing.





#### Mechanical

Pitch:	.016 (0.40)
Recommended Travel:	.018 (0.46)
Full Travel:	.020 (0.50)
Test Height:	.059 (1.51)
Mechanical Life*:	200,000 cycles
Operating Temperature:	-55°C to +155°C

#### Spring Force in oz. (grams)

	Order Code	Test Height
Standard		0.66 (19)
Hiah	- 1	0.96 (27)

#### Electrical (Static Conditions)

· /	
Current Rating DC:	2.5 amps
Average DC Probe Resistance**:	<90 mOhms
Self Inductance (Ls):	0.50 nH
Capacitance (Cc):	0.030 pF
Bandwidth @ -1dB:	>30.0 GHz
Anto Anto and Photoback	

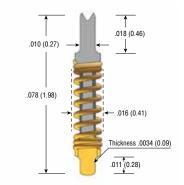
#### Materials and Finishes

Plunger DUT:	HyperCore™
Plunger HIB:	BeCu, Gold plated over hard Nickel
Spring:	Stainless Steel, Gold plated









#### Mechanical

Pitch:	.020 (0.50)
Recommended Travel:	.019 (0.48)
Full Travel:	.022 (0.56)
Test Height:	.059 (1.51)
Mechanical Life*:	500,000 cycles
Operating Temperature:	-55°C to +155°C

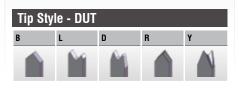
#### Spring Force in oz. (grams)

	Order Code	Test Height
Standard		0.65 (18)
High	- 1	1.11 (31)

#### **Electrical (Static Conditions)**

2.88 amps
<90 m0hms
0.60 nH
0.03 pF
>40.0 GHz

Plunger DUT:	HyperCore™
Plunger HIB:	BeCu with proprietary plating
Spring:	Stainless Steel, Gold plated



Tip Style	- HIB	
J		

• Life specifications are based on lab results but are dependent on cleaning frequency and the specific customer application, including DUT materials, handler kit, maintenance, etc. \*\* Contact resistance will increase over time due to solder build-up and wear

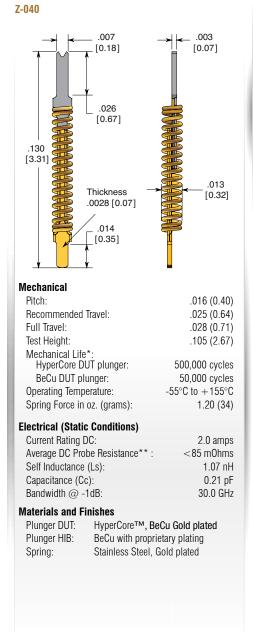


HYPERCORE

[base material]

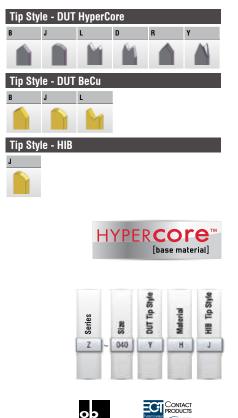
ECT-CPG.com shop.ECT-CPG.com Dimensions in inches (millimeters). Specifications subject to change without notice. Consult factory for other temperature requirements, and applications below ~40°C. Stocking Disclaimer: Stocking levels for part numbers listed in this catalog are subject to change. Availability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

### **Z-040** 0.40 mm



#### **HIGH Bandwidth**

The ZIP<sup>®</sup> Z High Bandwidth Series yields the highest and most stable bandwidth for its package size. The high performance provided by these contacts makes the Z series a perfect choice for the most demanding test applications. High Bandwidth probes are available in .4mm and .5mm pitches. The Z series is offered in two DUT-side plunger material choices: HyperCore for high volume production applications and BeCu for burn-in or low volume applications.



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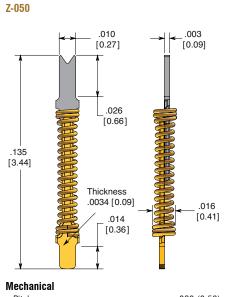
Dimensions in inches (millimeters). Specifications subject to change without notice. Consult factory for other temperature requirements, and applications below -40°C. Stocking Disclaimer: Stocking levels for part numbers listed in this catalog are subject to change. Availability is based on current levels of usage and demand.  Life specifications are based on lab results but are dependent on cleaning frequency and the specific customer application, including DUT materials, handler kit, maintenance, etc.
\*\* Contact resistance will increase over time due to solder build-up and wear

# **Z-050**

0.50 mm

#### **HIGH Bandwidth**

The ZIP® Z High Bandwidth Series yields the highest and most stable bandwidth for its package size. The high performance provided by these contacts makes the Z series a perfect choice for the most demanding test applications. High Bandwidth probes are available in .4mm and .5mm pitches. The Z series is offered in two DUT-side plunger material choices: HyperCore for high volume production applications and BeCu for burn-in or low volume applications.



	.020 (0.50)
avel:	.025 (0.64)
	.030 (0.76)
	.110 (2.79)
plunger:	500,000 cycles
ger:	50,000 cycles
ature:	-55°C to +155°C
z. (grams):	1.40 (40)
Conditions)	
,	
:	2.8 amps
e Resistance** :	<65 mOhms
.s):	1.01 nH
	0.20 pF
IB:	25.0 GHz
ishes	
	plunger: ger: ature: c. (grams): <b>Conditions)</b> : Resistance** : s): B:

Materials and Finishes		
Plunger DUT:	HyperCore™, BeCu Gold plate	
Plunger HIB:	BeCu with proprietary plating	
Spring:	Stainless Steel, Gold plated	

Life specifications are based on lab results but are dependent on cleaning frequency and the specific customer application, including DUT materials, handler kit, maintenance, etc.
\*\* Contact resistance will increase over time due to solder build-up and wear



Tip Style - DUT HyperCore

Tip Style - DUT BeCu

**Tip Style - HIB** 

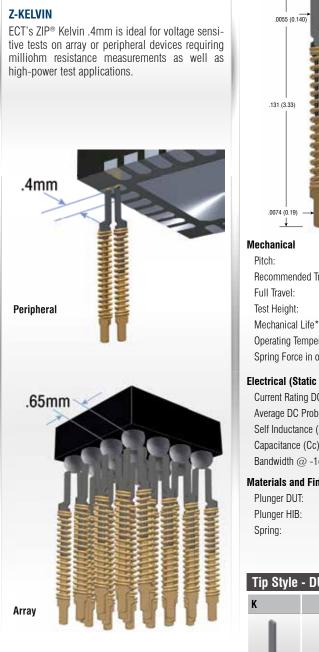


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Dimensions in inches (millimeters). Specifications subject to change without notice. Consult factory for other temperature requirements, and applications below -40°C. Stocking Disclaimer: Stocking levels for part numbers listed in this catalog are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

### Z - Kelvin

0.40 mm





Z-040KHJ .0262 (0.665) .0028 (0.071) .013 (0.33) .014 (0.35)

.016 (0.40)
.025 (0.64)
.028 (0.71)
.105 (2.67)
500,000 cycles
-55°C to +155°C
1.20 (34)

#### **Electrical (Static Conditions)**

Current Rating DC:	1.2 amps
Average DC Probe Resistance** :	<70 m0hms
Self Inductance (Ls):	1.0 nH
Capacitance (Cc):	0.40 pF
Bandwidth @ -1dB:	7.0 GHz
Materials and Finishes	

Plunger DUI:	HyperCore™
Plunger HIB:	BeCu with proprietary plating
Spring:	Stainless Steel, Gold plated



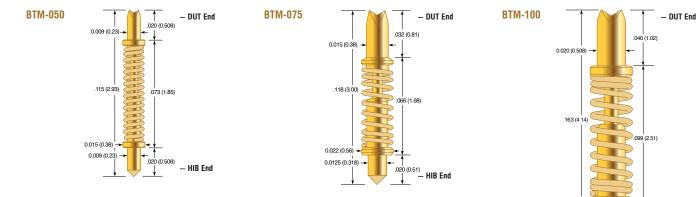




Dimensions in inches (millimeters). Specifications subject to change without notice. Consult factory for other temperature requirements, and applications below -40  $^\circ\text{C}.$ Stocking Disclaimer: Stocking levels for part numbers listed in this catalog are subject to change. Availability is based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

### **BTM**

0.50 mm, 0.75 mm, 1.00 mm



#### Mechanical

Pitch:	.019 (0.50)
Recommended Travel:	.015 (0.38)
Full Travel:	.020 (0.51)
Test Height:	.098 (2.49)
Mechanical Life*:	500,000 cycles
Operating Temperature:	-55°C to +155°C
Spring Force in oz. (grams):	1.10 (31)

#### **Electrical (Static Conditions)**

Current Rating:	2.5 amps
Average DC Probe Resistance**:	<50 mOhms
Self Inductance (Ls):	0.95 nH
Capacitance (Cc):	0.28 pF
Bandwidth @ -1dB:	23.00 GHz

#### **Materials and Finishes**

Plunger:	Heat-treated BeCu, Gold plated over hard Nickel or
	Primeguard 1 for NiPd solder or
	Primeguard 2 for Lead free solder
Barrel:	Work-hardened BeCu, Gold plated over hard Nickel
Spring:	Steel alloy, Gold plated over hard Nickel







#### Mechanical

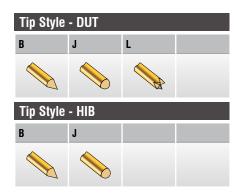
Pitch:	.030 (0.75)
Recommended Travel:	.015 (0.38)
Full Travel:	.020 (0.51)
Test Height:	.103 (2.62)
Mechanical Life*:	500,000 cycles
Operating Temperature:	-55°C to +155°C
Spring Force in oz. (grams):	1.00 (28)

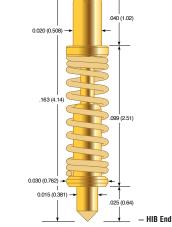
#### **Electrical (Static Conditions)**

Current Rating:	2.9 amps
Average DC Probe Resistance**:	<50 m0hms
Self Inductance (Ls):	0.77 nH
Capacitance (Cc):	0.25 pF
Bandwidth @ -1dB:	15.84 GHz

#### **Materials and Finishes**

Plunger:	Heat-treated BeCu, Gold plated over hard Nickel or	
	Primeguard 1 for NiPd solder or	
	Primeguard 2 for Lead free solder	
Barrel:	Work-hardened Brass, Gold plated over hard Nickel	
Spring:	Steel alloy, Gold plated over hard Nickel	





#### Mechanical

.040 (1.00)
.028 (0.71)
.030 (0.76)
.136 (3.45)
500,000 cycles
-55°C to +155°C
1.40 (39)

#### **Electrical (Static Conditions)**

Current Rating:	3.5 amps
Average DC Probe Resistance**:	<50 mOhms
Self Inductance (Ls):	1.30 nH
Capacitance (Cc):	0.34 pF
Bandwidth @ -1dB:	10.00 GHz

#### Materials and Finishes

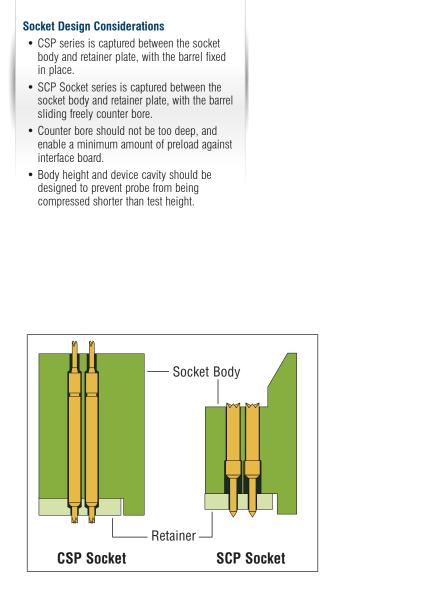
Plunger:	Heat-treated BeCu, Gold plated over hard Nickel or	
	Primeguard 1 for NiPd solder or Primeguard 2 for Lead free solder	
Barrel:	Work-hardened Brass, Gold plated over hard Nickel	
Spring:	Steel alloy, Gold plated over hard Nickel	

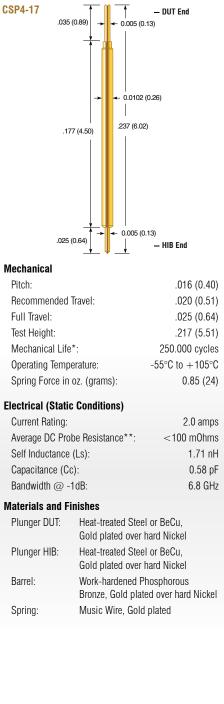


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# CSP4

0.40 mm









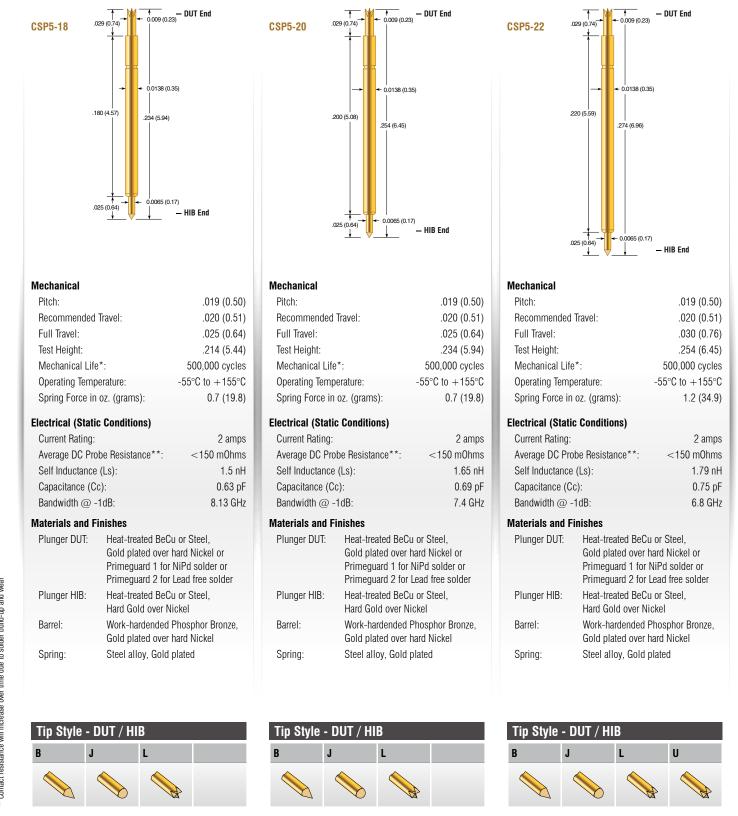




Life specifications are based on lab results but are dependent on cleaning frequency and the specific customer application, including DUT materials, handler kit, maintenance, etc.
\*\* Contact resistance will increase over time due to solder build-up and wear

### CSP5

0.50 mm

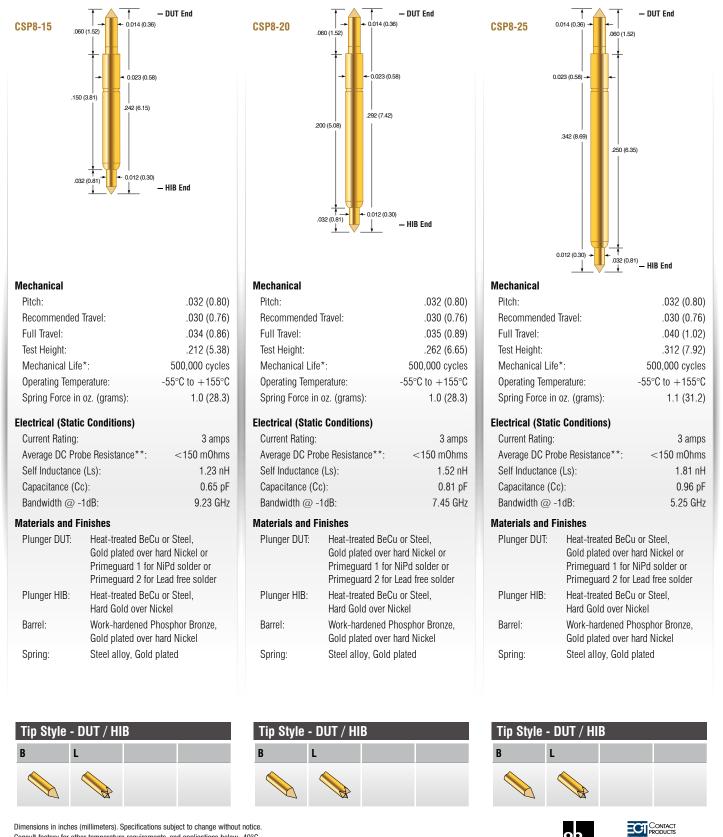




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# CSP8

0.80 mm



Consult factory for other temperature requirements, and applications below -40°C. Stocking Disclaimer: Stocking levels for part numbers listed in this catalog are subject to change Availability is based on current levels of usage and demand.

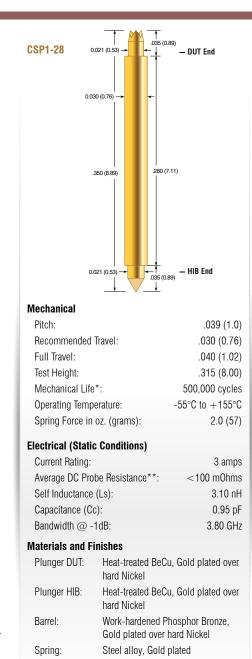
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\* Life specifications are based on the specific customer application,

Jife specifications are based on lab results but are dependent on cleaning frequency and s specific customer application, including DUT materials, handler kit, maintenance, etc. Contact resistance will increase over time due to solder build-up and wear

### CSP1

1.0 mm

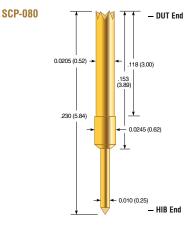


Tip Style - DUT / HIB			
R	I		
	-		
	A		



## SCP

0.80 mm, 1.00 mm, 1.27 mm

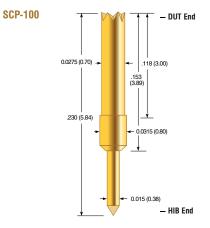


#### Mechanical

Pitch:	.032 (0.80)
Recommended Travel	.030 (0.76)
Full Travel:	.035 (0.89)
	( )
Test Height:	.200 (5.08)
Mechanical Life*:	1,000,000 cycles
Operating Temperature:	-55°C to $+155^{\circ}C$
Spring Force in oz. (grams):	1.50 (42.5)
Electrical (Static Conditions)	
Current Rating:	5 amps
Average DC Probe Resistance**:	<50 m0hms
Self Inductance (Ls):	1.27 nH
Capacitance (Cc):	0.12 pF
Bandwidth @ -1dB:	6.0 GHz
Materials and Finishes	

Plunger:	Heat-treated BeCu, Gold plated over hard Nickel
Barrel:	Work-hardened BeCu, Gold plated over hard Nickel
Spring:	Steel alloy, Gold plated





#### Mechanical

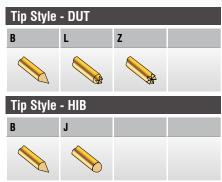
Pitch:	.039 (1.00)
Recommended Travel:	.030 (0.76)
Full Travel:	.035 (0.89)
Test Height:	.200 (5.08)
Mechanical Life*:	1,000,000 cycles
Operating Temperature:	-55°C to +155°C
Spring Force in oz. (grams):	1.50 (42.5)

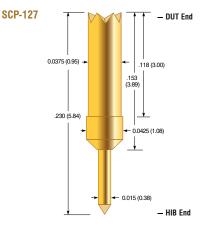
#### **Electrical (Static Conditions)**

( )	
Current Rating:	7 amps
Average DC Probe Resistance**:	<50 mOhms
Self Inductance (Ls):	1.40 nH
Capacitance (Cc):	0.66 pF
Bandwidth @ -1dB:	6.70 GHz

#### **Materials and Finishes**

Plunger:	Heat-treated BeCu, Gold plated over hard Nickel
Barrel:	Work-hardened BeCu, Gold plated over hard Nickel
Spring:	Steel alloy, Gold plated





#### Mechanical

Pitch:		.050 (1.27)
Recom	mended Travel:	.030 (0.76)
Full Tra	vel:	.035 (0.89)
Test He	ight:	.200 (5.08)
Mecha	nical Life*:	1,000,000 cycles
Operati	ng Temperature:	-55°C to +155°C
Spring	Force in oz. (grams):	1.50 (42.5)

#### **Electrical (Static Conditions)**

Current Rating:	9 amps
Average DC Probe Resistance**:	<50 m0hms
Self Inductance (Ls):	1.40 nH
Capacitance (Cc):	0.79 pF
Bandwidth @ -1dB:	7.6 GHz

#### **Materials and Finishes**

Plunger:	Heat-treated BeCu, Gold plated over hard Nickel
Barrel:	Work-hardened BeCu, Gold plated over hard Nickel
Spring:	Steel alloy, Gold plated



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Contact roducts

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