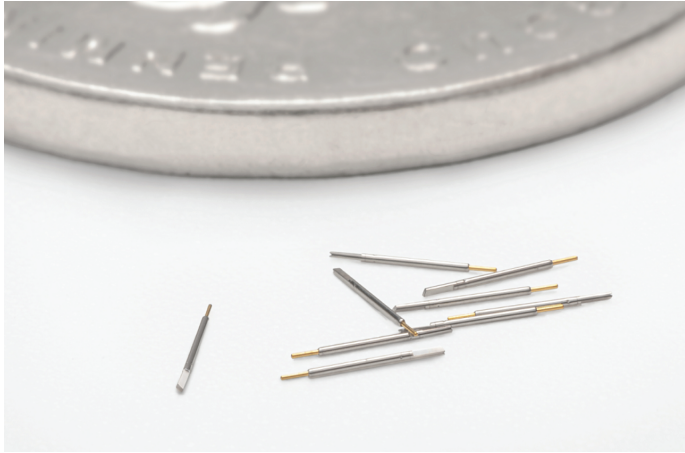


Kelvin Probes Solution

Kelvin probes for Peripheral and Array Devices



Smiths Interconnect has developed an innovative and robust spring probe technology for Kelvin contact applications down to 0.35mm pitch.

Our Kelvin probes leverage the same DNA and world class quality that Smiths Interconnect spring probes are globally recognized for in the semiconductor market. The product's unique chisel tip provides reliable, stable contact resistance for applications where test performance is critical.

Designed into Standard Array test sockets or Volta WLCSP probe heads, Kelvin probes provide a robust, low maintenance, long life test solution. For even longer life, Kelvin probes can be optimized with Smiths Interconnect's proprietary homogenous alloy to deliver a high touchdown count HVM production solution.

Leveraging state-of-the-art manufacturing facility processes, Kelvin probes reach a pin-to-pin spacing of just 70 μ m, and a pin-to-PCB spacing of 250 μ m. The Kelvin line covers device pitches of 0.35mm and above. As industry requirements continuously evolve, Smiths Interconnect innovates Kelvin probe product line to ensure that it supports all new technology standards.

Technical Features

- Device contact pitch: 0.35mm pitch and above
- Operating Temperature Range: -55°C to 120°C
- Device packages: BGA, WLCSP, QFN
- Pin-to-pin tip distance is 0.07mm-0.14mm, depending on the pin used
- Insertions: >500,000
- Innovative beveled offset tip allows for tighter centers, down to 0.25mm on the device pad

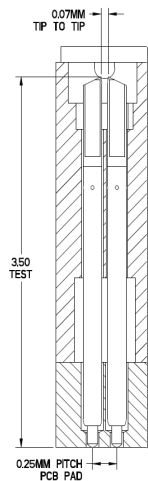
Benefits

- Suited for 0.35mm pitch and above applications
- Four-terminal measurement for low resistance power and analog test
- Ease of maintenance
- Excellent signal integrity
- Self-cleaning top plunger design

Kelvin Pin List

Pitch	0.35mm (Full Matrix)	0.40mm (Full Matrix)	0.40mm (QFN Pad)	0.50mm (Full Matrix)
Tip to Tip (Device)	0.07mm	0.07mm	0.10mm	0.14mm
Pin to Pin (PCB)	0.25mm	0.25mm	0.40mm	0.35mm
Pin P/N	851-1003350-H00		623-0248-H13	101851-001

350µm Pitch Kelvin Probe P/N 851-1003350-H00 Specification



Mechanical

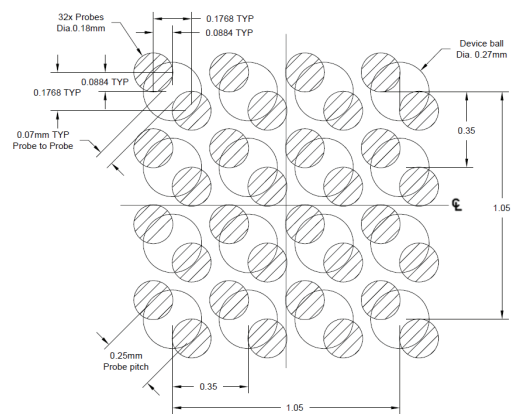
- Typical Application: BGA/WLCSP
- Minimum Device Pitch: 0.35mm @array, 0.25mm @single-row
- Force: 15.5gf @ 0.45mm Recommended Travel
- Operating Temperature Range: -55°C to 120°C
- Device Side Contact: 2-Point Crown Tip
- PCB Side Contact: Conical Radius Tip

Electrical*

- Contact Resistance: < 100mΩ average
- Current Carrying Capability: 1.3 A

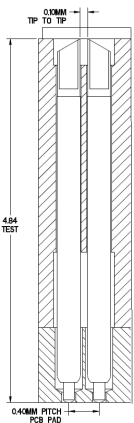
Plating

- Device Side Plunger: Homogenous alloy
- PCB Side Plunger: Gold plated
- Barrel: Gold plated Inside
- Spring: Gold plated



350µm Pitch
Full Matrix Footprint

400µm Pitch Kelvin Probe P/N 623-0248-H13 Specification



Mechanical

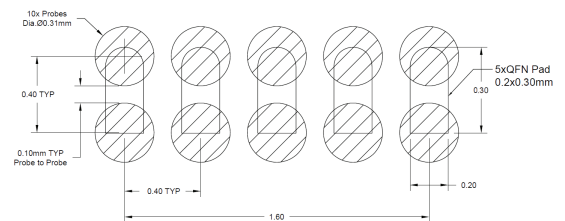
- Typical Application: QFN
- Minimum Device Pitch: 0.6mm @array, 0.4mm @single-row
- Force: 28.0gf @ 0.60mm Recommended Travel
- Operating Temperature Range: -55°C to 120°C
- Device Side Contact: Edge
- PCB Side Contact: Conical Radius Tip

Electrical*

- Contact Resistance: < 60mΩ average
- Current Carrying Capability: 3.0 A

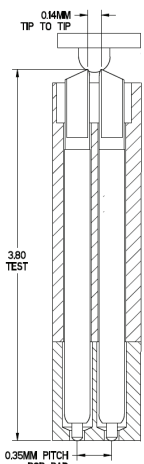
Plating

- Device Side Plunger: Homogenous alloy
- PCB Side Plunger: Gold plated
- Barrel: Gold plated
- Spring: Gold plated



400µm Pitch
QFN Footprint

500µm Pitch Kelvin Probe P/N 101851-001 Specification



Mechanical

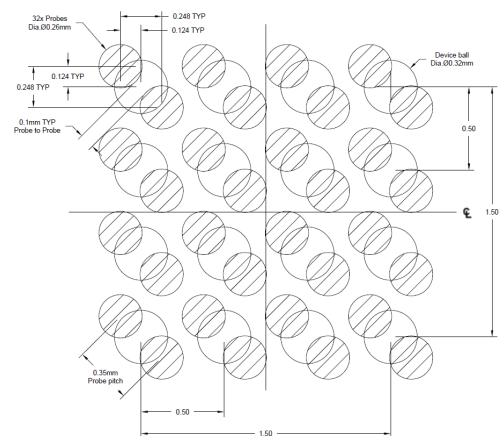
- Typical Application: BGA/WLCSP
- Minimum Device Pitch: 0.50mm @array, 0.35mm @single-row
- Force: 18.0gf @ 0.40mm Recommended Travel
- Operating Temperature Range: -55°C to 150°C
- Device Side Contact: 2-Point Crown Tip
- PCB Side Contact: Conical Radius Tip

Electrical*

- Contact Resistance: < 60mΩ average
- Current Carrying Capability: 2.0 A

Plating

- Device Side Plunger: Gold plated
- PCB Side Plunger: Gold plated
- Barrel: Gold plated
- Spring: Gold plated



500µm Pitch
Full Matrix Footprint