

FOR LTE, SERDES, AND WI-FI APPLICATIONS

### Your Solution for Analog / Mixed Signal / RF Testing

Looking for solutions in the highly competitive commercial market you can rely on Johnstech to provide a cost-effective top of the line answer. Johnstech has taken all the best features found throughout the Spring Probe world and combined them into our designs.

Suitable for BGA, LGA, QFN and WLCSP applications.

o Crown Tips - BGA and WLCSP

o Spear Tips - QFN and LGA

- The SHOTO product line is designed in a single-ended architecture to minimize Cres variability.
- Two test heights to provide flexibility and compliance features to accommodate both small and large packages
- Pd alloy tips for easy cleaning
- Compatible with a floating alignment plate for accuracy

A lot of experience and care went into the design of these probes to provide our customers with the best features. Johnstech studied several hundred BGA packages to understand ball diameters and heights that are most prevalent. We were able to optimize the tip geometry based on this exhaustive study of the market.

The Shoto family features:

SHOTO (3.0mm Test Height)

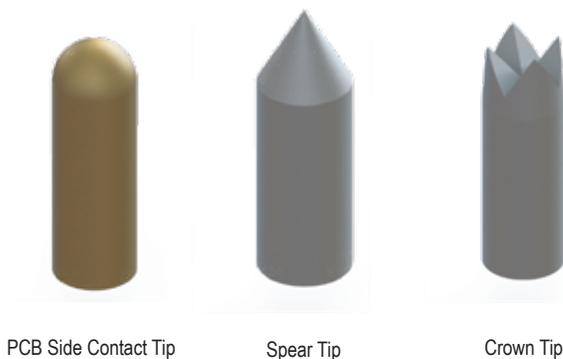
- Pitches down to 0.24mm
- Frequencies up to ≈30GHz to be targeted
- High RF performance

Environmental Temperature Range: -65 to 175°C

Reliability Typical Probe Life: 500,000+ cycles



All Contactors will be available for Engineering test/ Characterization with a Manual Actuator and are ready for high volume Automated Testing.



PCB Side Contact Tip

Spear Tip

Crown Tip



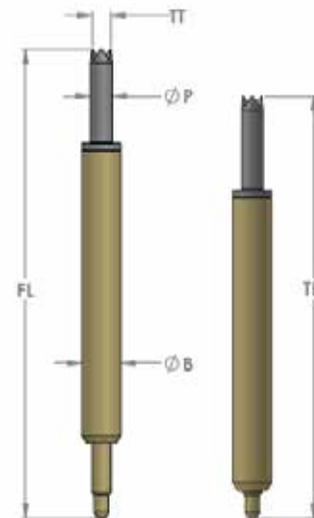
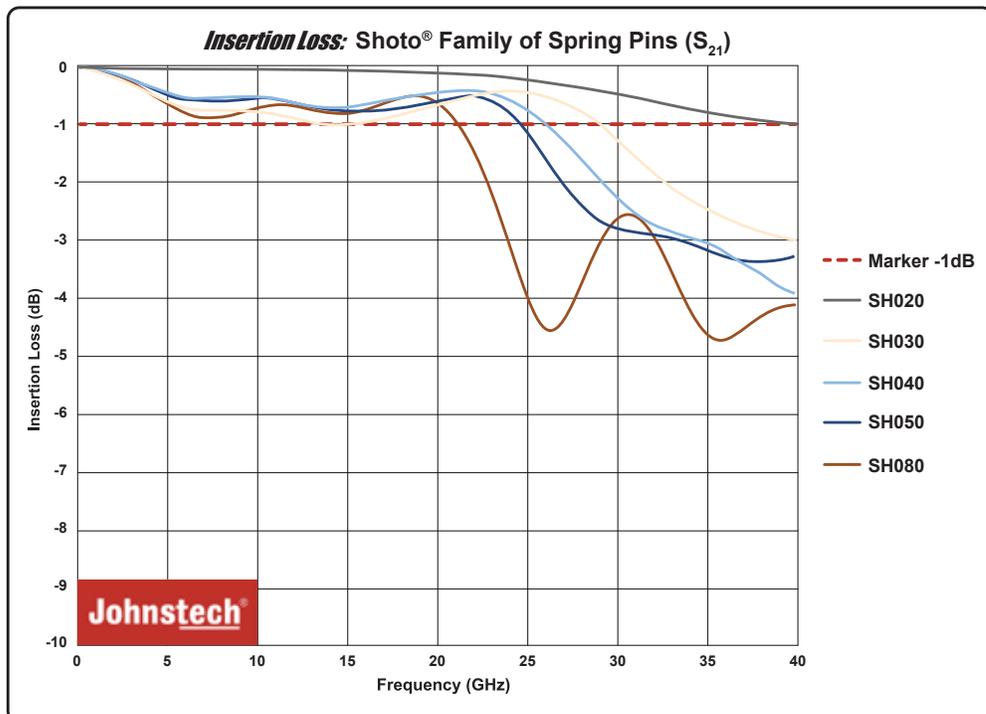
Changing the World of Semiconductor Testing Since 1991

## Electrical Specifications

Probe Pitch (mm)	Contact Resistance (mΩ)	CCC 100% DC (amps)	CCC 1% DC RMS (amps)	Insertion Loss 1dB S <sub>21</sub> GSG (GHz)	Return Loss 20dB S <sub>11</sub> GSG (GHz)	Loop Inductance (nH)	Insertion Loss 1dB S <sub>21</sub> GSSG (GHz)	Return Loss 20dB S <sub>11</sub> GSSG (GHz)	Crosstalk 20dB S <sub>41</sub> GSSG (GHz)
0.2	200	0.70	7.00	34.0	31.4	0.70	36.7	31.5	32.6
0.3	80	1.35	13.50	21.3	15.5	0.85	12.80	10.20	17.10
0.4	40	1.93	19.30	20.7	13.2	0.84	22.30	13.90	18.90
0.5	40	2.25	22.50	15.1	6.6	0.77	13.50	8.20	15.70
0.8	40	2.32	23.20	14.7	5.4	0.85	11.80	9.80	14.10

## Mechanical Specifications

Probe Pitch (mm)	Test Height (mm)	DUT Side Compliance (mm)	Total Stroke (mm)	Force at Test Height (g)	Crown Tip Tip TT (mm)	Uncompressed Length FL (mm)	Barrel Diameter B (mm)	DUT Plunger Diameter P (mm)
0.2	3.0	0.20	0.30	6	0.09	3.30	0.155	0.09
0.3	3.0	0.15	0.25	15	0.13	3.25	0.21	0.13
0.4	3.0	0.30	0.40	21	0.16	3.40	0.33	0.18
0.5	3.0	0.25	0.40	24	0.20	3.40	0.43	0.23
0.8	3.0	0.35	0.50	20	0.30	3.50	0.23	0.35



Results shown are typical for the size and configuration shown here. These charts are representative data. Please contact your Johnstech Sales Representative for additional specifications for specific test applications.

\* Contact Resistance depends on maintenance, cleaning and device materials. The values shown are measured average based on a new probe.

All specifications are for reference only, and are subject to change without notice. Refer to contactor drawing to design interface hardware. For detailed performance specifications, contact your Johnstech representative.