

# YARI™ AND SHOTO™

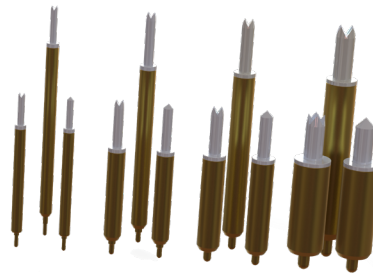


FOR LTE, SERDES, AND WI-FI APPLICATIONS

## 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 and YARI product lines are 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.

There are two distinct product lines with some general parameters:

### SHOTO (3.0mm Test Height)

- Pitches down to 0.3mm
- Frequencies up to ≈30GHz to be targeted
- High RF performance

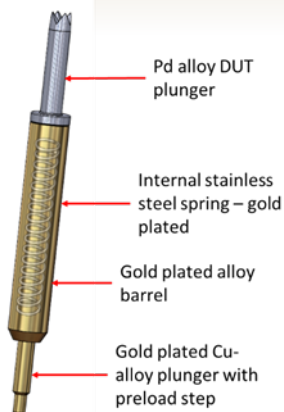
### YARI (4.5mm Test Height)

- Pitches down to 0.3mm
- Larger packages needing greater compliance
- Large ball counts >1,000

**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.

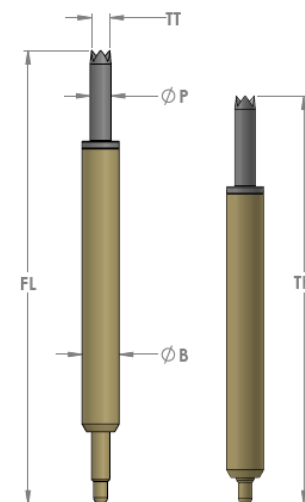
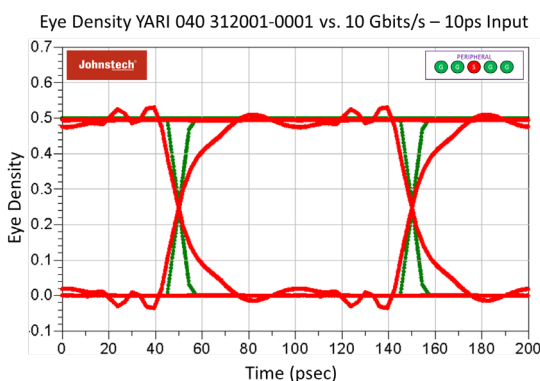
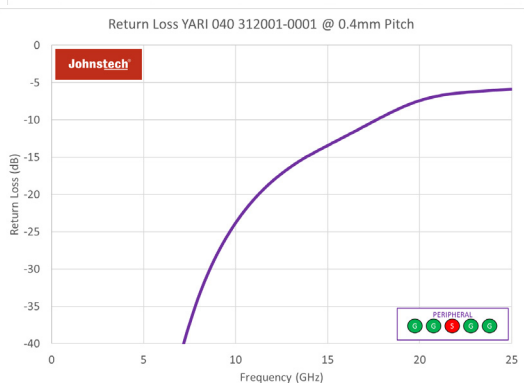
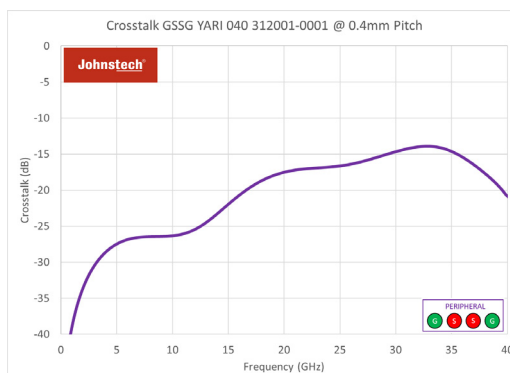
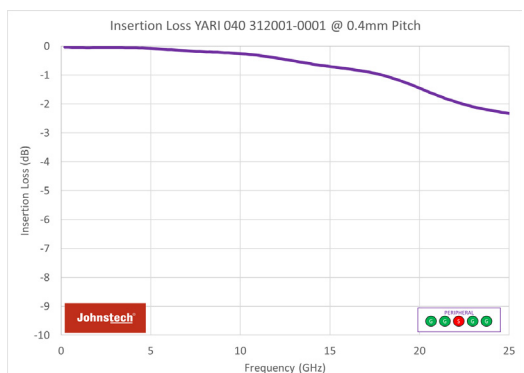


## Electrical Specifications

Probe Size/ Pitch (mm)	Contact Resistance* (mΩ)	CCC 100% Duty Cycle (Amps)	CCC 1% DC RMS (Amps)	1 dB Insertion Loss $S_{21}$ GSG (GHz)	20 dB Return Loss $S_{11}$ GSG (GHz)	Loop Inductance (nH)	1 dB Insertion Loss $S_{21}$ GSSG (GHz)	20 dB Return Loss $S_{11}$ GSSG (GHz)	20 dB Crosstalk $S_{41}$ GSSG (GHz)
0.3	70	1.63	16.30	17.9	13.5	1.14	16.7	12.6	15.5
0.4	50	1.74	17.40	17.3	11.4	1.23	20.7	8.2	16.5
0.5	40	2.26	22.60	13.5	6.8	1.08	8.6	10.6	14.1
0.8	40	2.45	24.50	16.3	7.2	1.28	15.5	11.2	13.5

## Mechanical Specifications

Probe Size/ Pitch (mm)	Test Height (mm)	DUT Side Compliance (mm)	Total Stroke (mm)	Force at Test Height (g)	Crown Tip-Tip TT (mm)	Uncom- pressed Length FL (mm)	Barrel Diameter B (mm)	DUT Plunger Diameter P (mm)
0.3	4.5	0.25	0.4	17	0.13	4.90	0.24	0.13
0.4	4.5	0.35	0.5	25	0.16	5.00	0.31	0.18
0.5	4.5	0.35	0.5	35	0.20	5.00	0.41	0.23
0.8	4.5	0.5	0.65	30	0.30	5.15	0.57	0.35



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

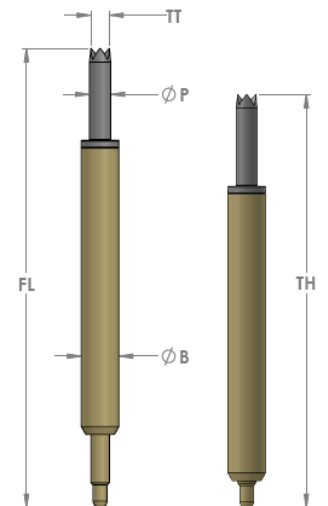
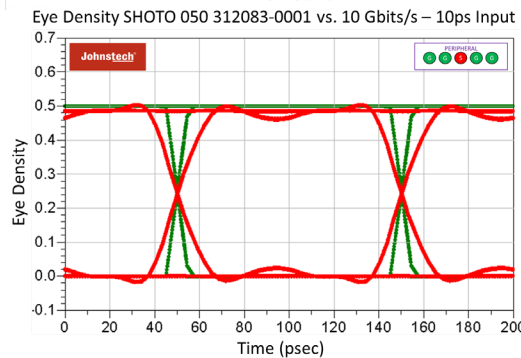
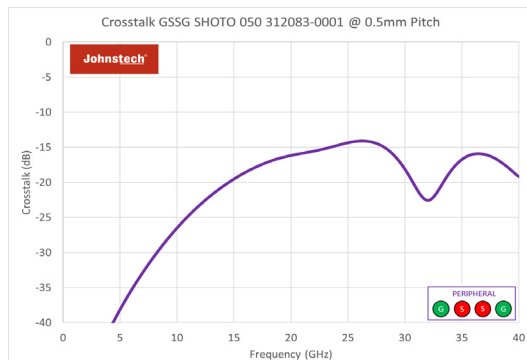
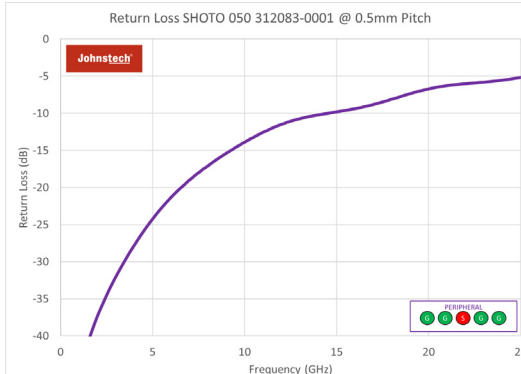
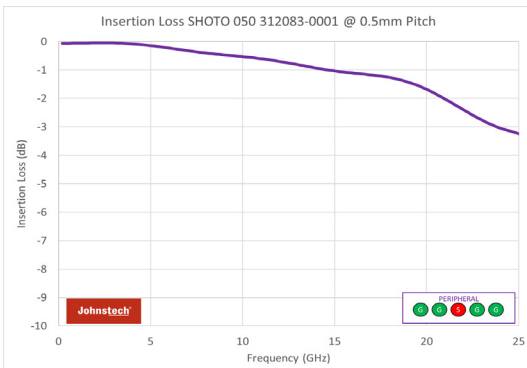
\* Contact Resistance depends on maintenance, cleaning and device materials. The values shown are measured average based on a new probe.

## Electrical Specifications

Probe Size/ Pitch (mm)	Contact Resistance* (mΩ)	CCC 100% Duty Cycle (Amps)	CCC 1% DC RMS (Amps)	1 dB Insertion Loss $S_{21}$ GSSG (GHz)	20 dB Return Loss $S_{11}$ GSSG (GHz)	Loop Inductance (nH)	1 dB Insertion Loss $S_{21}$ GSSG (GHz)	20 dB Return Loss $S_{11}$ GSSG (GHz)	20 dB Crosstalk $S_{41}$ GSSG (GHz)
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 Size/ Pitch (mm)	Test Height (mm)	DUT Side Compliance (mm)	Total Stroke (mm)	Force at Test Height (g)	Crown Tip-Tip TT (mm)	Uncom- pressed Length FL (mm)	Barrel Diameter B (mm)	DUT Plunger Diameter P (mm)
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



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