

## HL9465 Broadband Z-matched Pick-off Tee (50 GHz)

### Features and Technical Specifications

#### PRODUCT SUMMARY

The HL9465 is an impedance-matched pick-off tee with a flat frequency response from DC to 50 GHz on the thru and pick-off lines.

It is suitable as a trigger source with minimum perturbation of the thru signal path.

Digital oscilloscope applications include pre-scaler triggering, synchronization, and clock/data recovery.

#### DEPLOYMENT NOTES

Unless otherwise noted, all specifications contained herein are typical and apply to all options and configurations.

Some of the data are applicable only to matched pairs of devices, and are labeled accordingly.

S-parameter files and higher resolution versions of the plots on the following pages are available on our website.

#### PRODUCT OPTIONS

The following options and configurations are available for this product:

- M, matched pair
- U, unmatched part(s)

- JJJ, jack (female), all ports
- JPJ, jack (female) thru in and pick-off; plug (male) thru out

Bandwidth	DC to 50 GHz, thru and pick-off lines
Insertion Loss	3.5 ± 0.5 dB, thru line 10.5 ± 1 dB, pick-off line See Fig. 1 below
Amplitude Match (opt. -M only)	± 0.1 dB See Figs. 3-4 below
Phase Match (opt. -M only)	± 2° at 10 GHz ± 4-6° at 20 GHz
Return Loss	< 15 dB, thru line < 20 dB, pick-off line See Fig. 5 below
Rise Time	9 ps, thru and pick-off lines
Group Delay	≈ 125 ps, thru line (config. -JJJ) ≈ 115 ps, thru line (config. -JPJ) ≈ 125 ps, pick-off line (all configs.) See Fig. 2 below
Max. Input Power	+30 dBm
Impedance	50 Ω, all ports
Connectors	2.4 mm jack, Thru In and Pick-off 2.4 mm plug, Thru Out
Unit Dimensions	32.69 x 24.23 x 13.59 mm 1.29" x 0.95" x 0.54"
Unit Weight	13.5 g (0.48 oz.)
Temperature Limits	-40° to +40° C, operating
RoHS Compliance	RoHS compliant, assembled with lead-free solder
Warranty	1 year, see website



#### MODEL NUMBER CHANGES

Effective October 2020, the following part number assignments have changed:

- HL9465-x-JPJ**, former HL9465
- HL9465-x-JJJ**, former HL9466

Please contact HYPERLABS for any questions related to these new part numbers

## HL9465 Insertion Loss

Figure 1 shows the typical insertion loss of the HL9465 along the thru and pick-off lines from DC to 50 GHz.

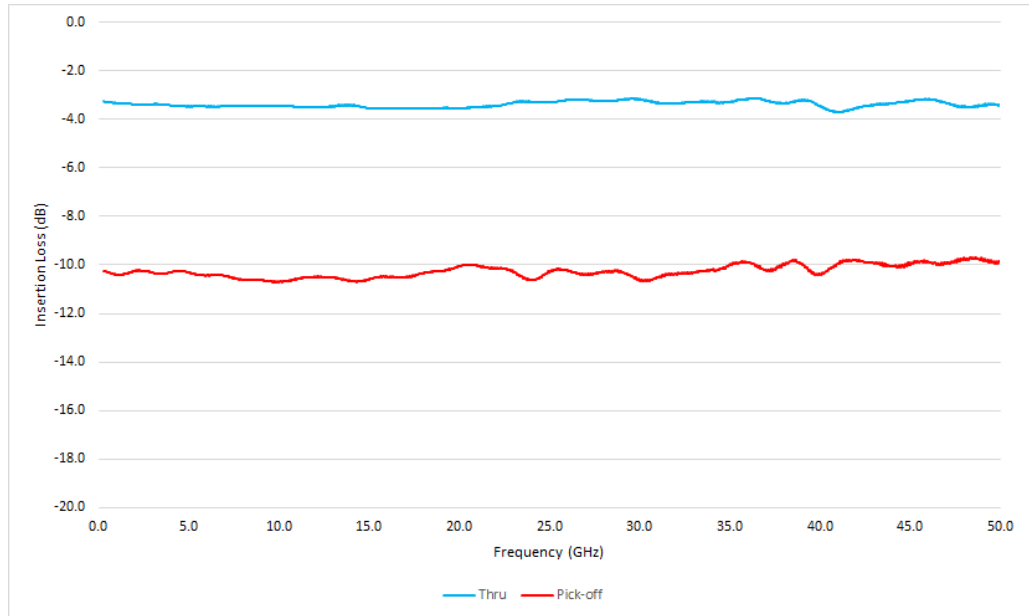


Figure 1: Typical insertion loss of the HL9465 (opt. -U-JPJ) along the thru and pick-off lines

## HL9465 Group Delay

Figure 2 shows the typical group delay of the HL9465 (opt. -U-JPJ) along the thru and pick-off lines from DC to 50 GHz.

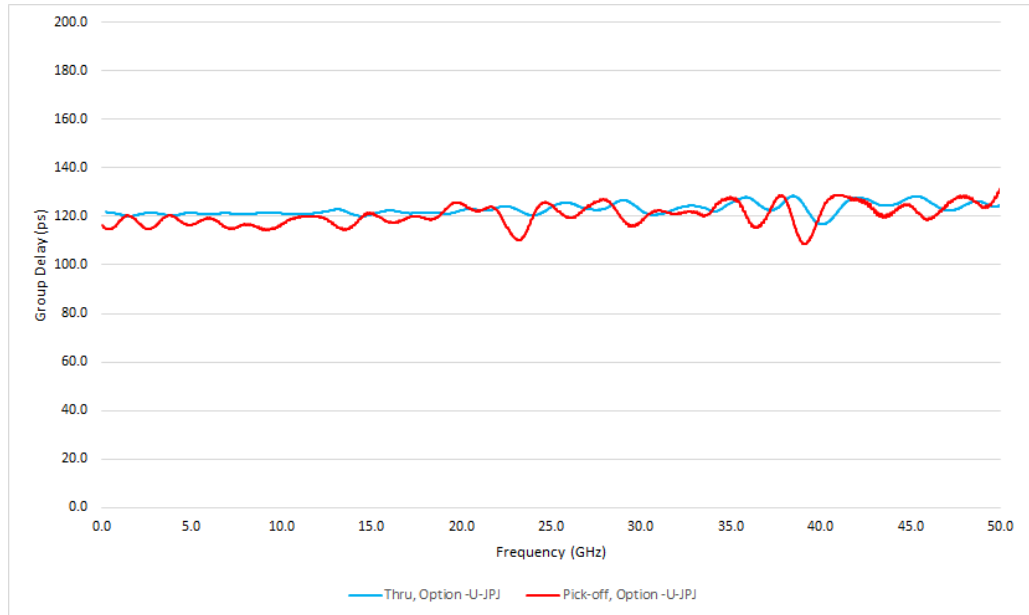


Figure 2: Typical group delay of the HL9465 (opt. -U-JPJ) along the thru and pick-off lines

### HL9465 Amplitude Match

Figure 3 shows amplitude match of two matched HL9465 devices along the thru line from DC to 50 GHz.

In Figure 4, amplitude match on the same matched HL9465 devices is shown along the pick-off line from DC to 50 GHz.

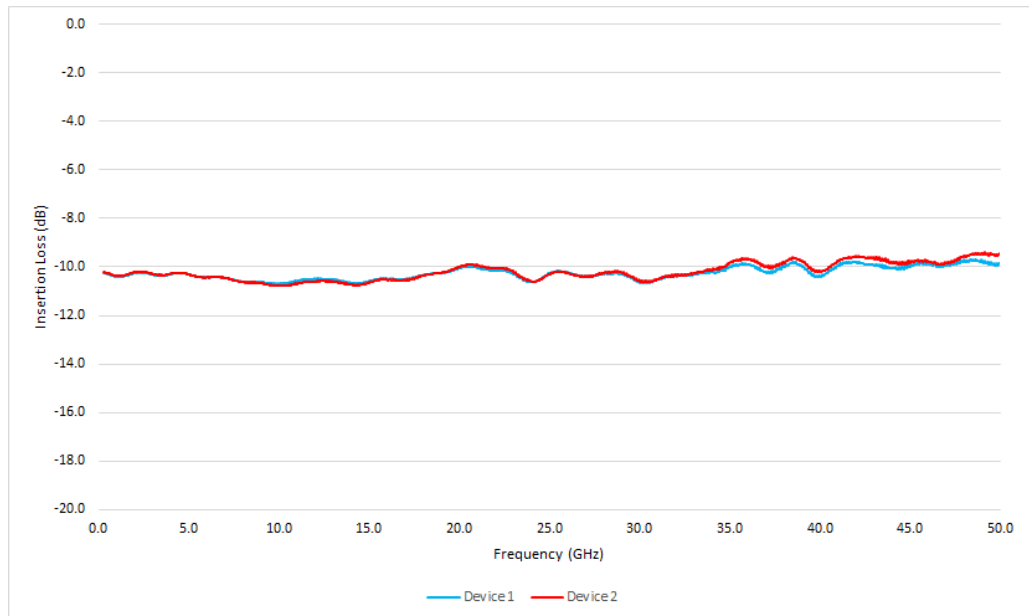


Figure 3: Typical HL9465 (opt. -M-JPJ) amplitude match along the thru line

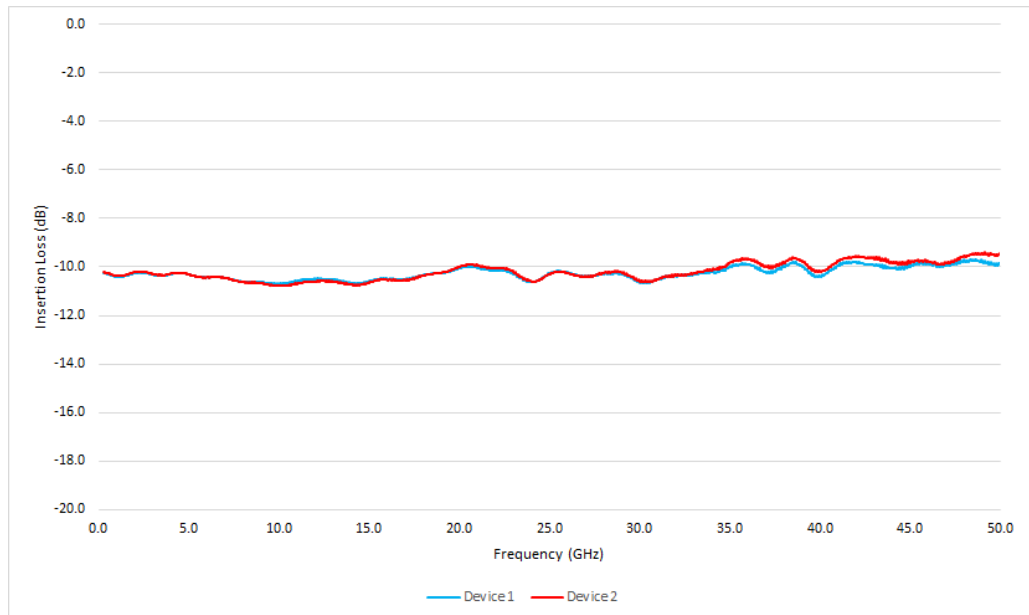


Figure 4: Typical HL9465 (opt. -M-JPJ) amplitude match along the pick-off line



## HL9465 Return Loss and VSWR

Figure 5 shows typical return loss on all ports of an HL9465 from DC to 50 GHz. Figure 6 shows the corresponding Voltage Standing Wave Ratio (VSWR).

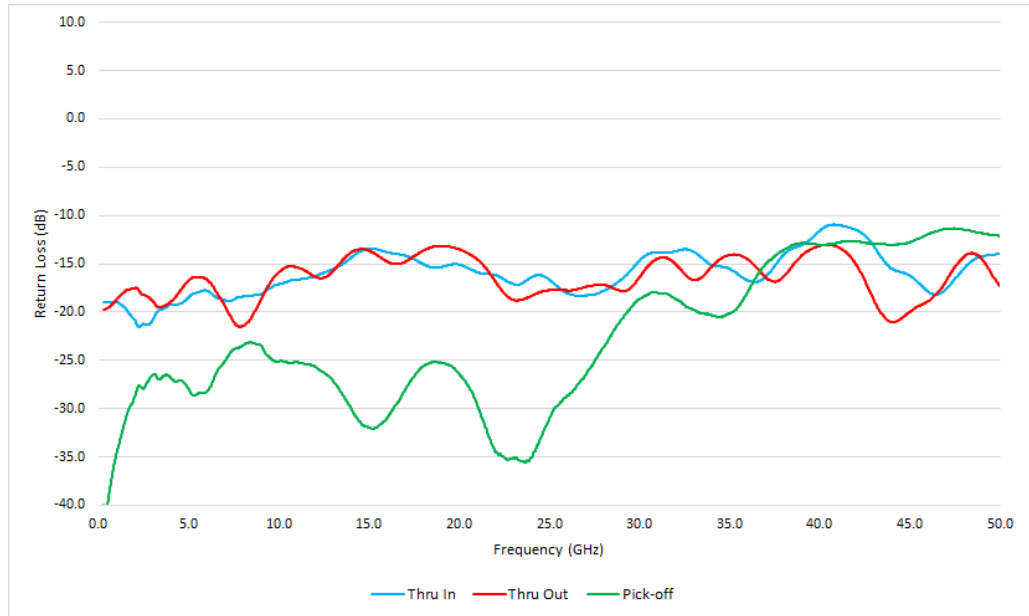


Figure 5: Typical HL9465 (opt. -U-JPJ) return loss on all ports



Figure 6: Typical HL9465 (opt. -U-JPJ) VSWR on all ports