

PRODUCT SUMMARY

The HL9469 is an impedance-matched pick-off tee with a flat frequency response from DC to 110 GHz on the thru line and 110 GHz bandwidth on the pick-off line.

It is suitable as a trigger source with minimum perturbation of the thru signal path. It can be used in 224 Gbps PAM4 communication systems.

Since the pick-off tee is bi-directional, a typical application is to inject noise on the pickoff port into the original signal. This is useful for compliance testing.

Another common application is for the injection of amplitude noise on the thru path for datacom compliance testing.

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

DEPLOYMENT NOTES

Some of the specifications in this datasheet are only applicable to matched pairs of devices and are labeled accordingly.

S-PARAMETERS

S-parameters are available on our website.

AVAILABLE 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

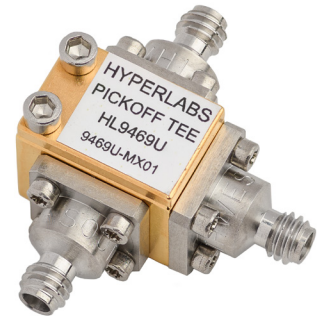
HL9469 Broadband Z-matched Pick-off Tee (110 GHz)

Key Features and Technical Specifications¹

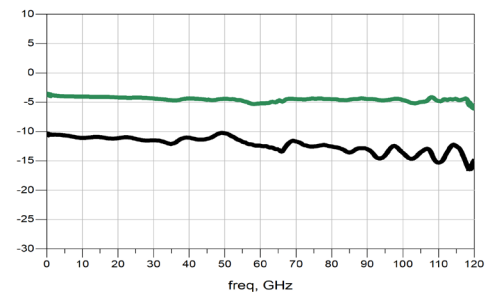
Bandwidth	DC to 110 GHz, thru line DC to 110 GHz, pick-off line
Insertion Loss See Fig. 1	4.5 ± 1 dB, thru line 11.0 dB, pick-off line
Return Loss See Fig. 2	< 15 dB, f < 100 GHz < 10 dB, 100 GHz ≤ f < 110 GHz
Amplitude Match (opt. -M only)	± 0.5 dB, DC < f ≤ 60 GHz ± 0.75 dB, 60 GHz < f ≤ 110 GHz Thru line only
Phase Match (opt. -M only)	± 5°, DC < f ≤ 60 GHz ± 10°, 60 GHz < f ≤ 110 GHz Thru line only
Rise Time	3 ps, thru 4 ps, pick-off
Group Delay See Fig. 3	≈ 105 ps, thru line (opt. -JJJ) ≈ 110 ps, thru line (opt. -JPJ) ≈ 110 ps, pick-off line (all opts.)
Input Power	20 dBm (24 dBm max) ²
Impedance	50 Ω, all ports
Connectors	1.0 mm jack, all ports (opt. -JJJ) 1.0 mm jack, Thru 1 and Pick-off; 1.0 mm plug, Thru 2 (opt. -JPJ)
Unit Dimensions	28.4 x 23.1 x 13.59 mm 1.140" x 0.908" x 0.535"
Weight	12.5 g (0.44 oz.)
Operating Temp.	-40° to +50° C
RoHS Compliant	Yes
REACH Compliant	Yes
Warranty	1 year, repair or replacement

1 - The specifications in this table are typical using the standard connector configuration (-JPJ, jack/plug/jack).

2 - Long-term power handling testing is ongoing. The preliminary specification is 20 dBm.



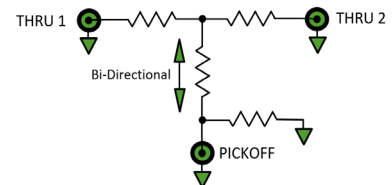
HL9469, option -U-JPJ



Typical Insertion Loss on thru and pick-off lines of HL9469 (opt. -JPJ); see also Fig. 1

DEVICE PORT ASSIGNMENTS

For the purposes of this datasheet, the below port assignments are used.





HL9469 Insertion Loss

Figure 1 shows the typical insertion loss of the HL9469 along the thru and pick-off lines from DC to 120 GHz.

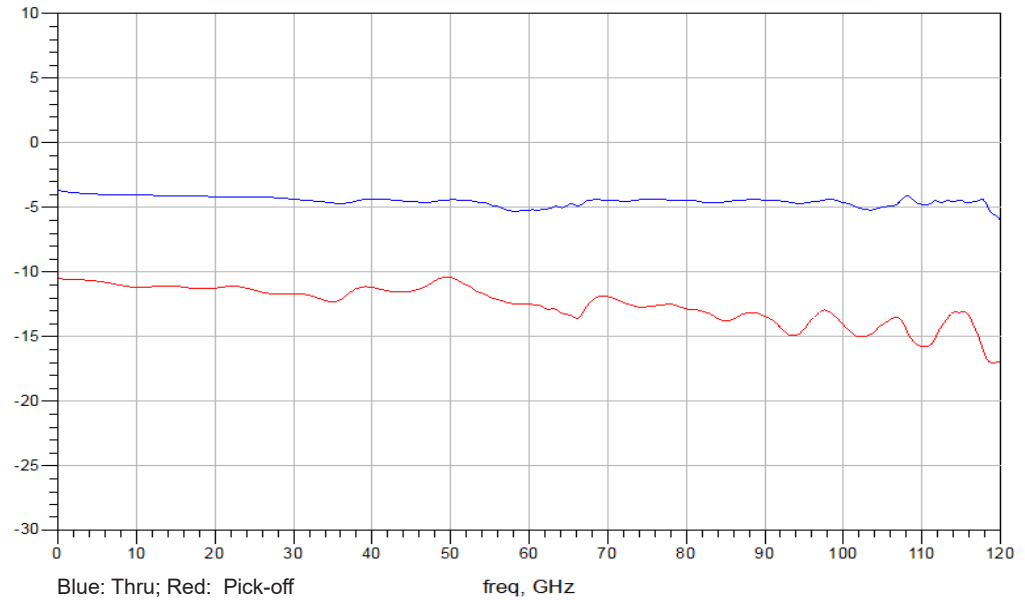


Figure 1: HL9469 Insertion Loss (opt. -JPJ)

HL9469 Return Loss

Figure 2 shows the typical return loss of all ports of the HL9469 from DC to 120 GHz.

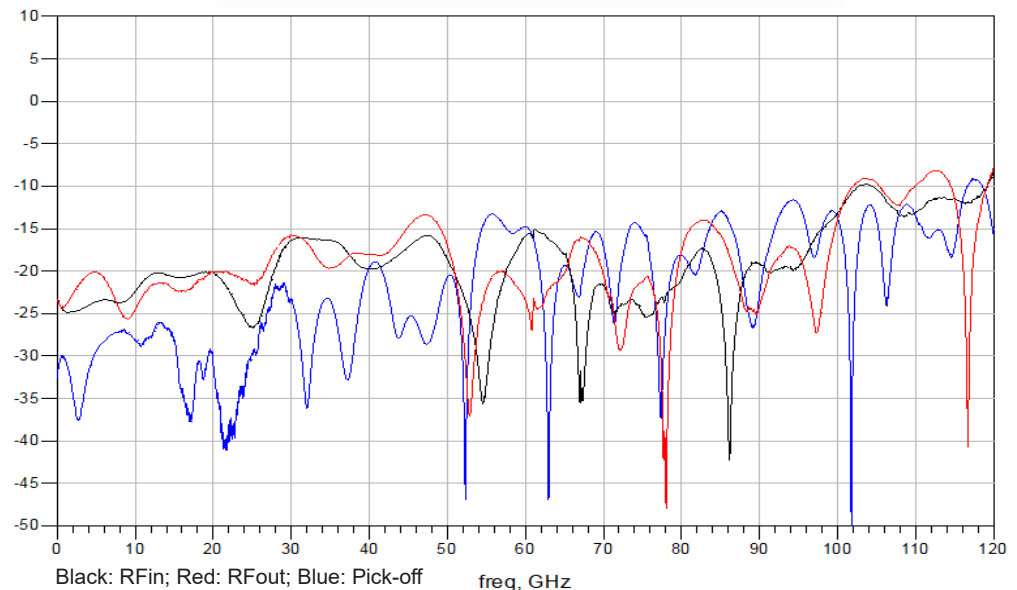


Figure 2: HL9469 Return Loss (opt. -JPJ)



HL9469 Group Delay

Figure 3 shows typical group delay of the thru and pick-off lines of the HL9469 from DC to 110 GHz.

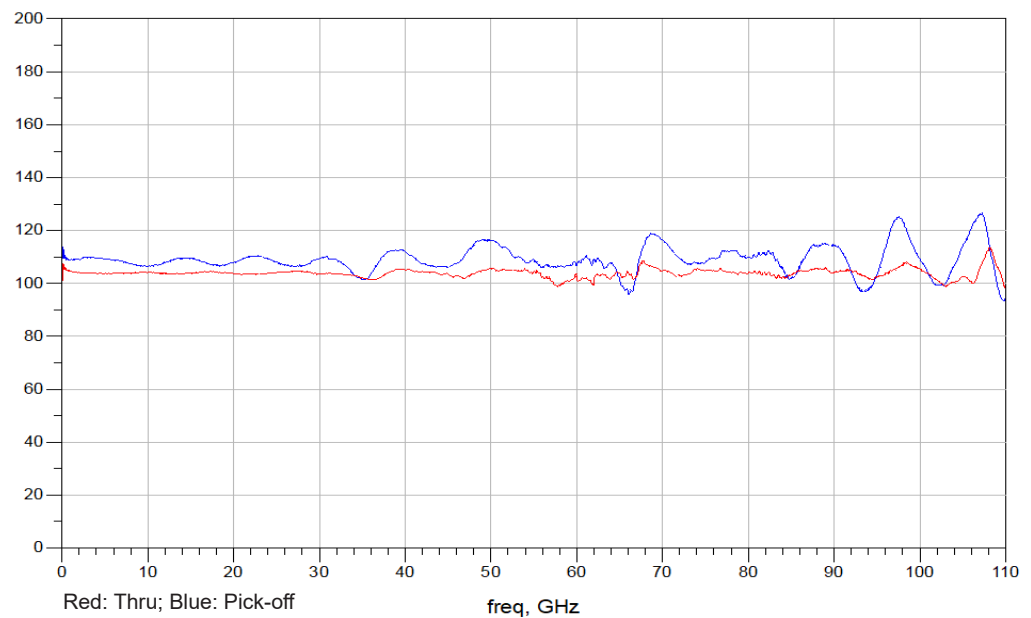


Figure 3: HL9469 Group Delay (opt. -JPJ)



HL9469 Dimensional Drawing

Figure 4 shows a mechanical drawing of an HL9469, option -JPJ. Unless otherwise noted, all units are in inches.

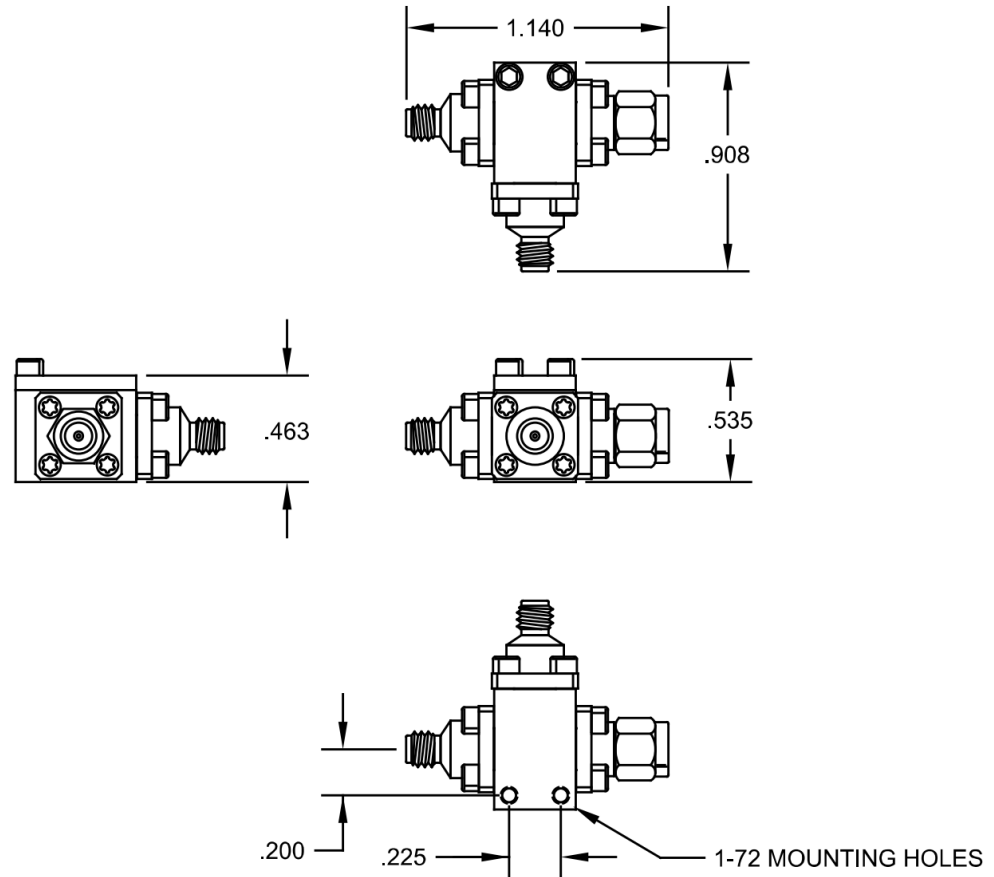


Figure 4: HL9469 mechanical drawing (opt. -JPJ)