



HL9489 Resistive Power Splitter (DC to 100 GHz)

Features and Technical Specifications

PRODUCT SUMMARY

The HL9489 is an ultra-broadband symmetrical, two-resistor power splitter that provides outstanding amplitude and phase-symmetrical power division from DC to beyond 100 GHz. The splitters also provide exceptional band flatness and return loss across the frequency range.

These parts are suitable for making power ratio measurements as accuracy of the divided outputs is extremely well tracked. The precision of the divided outputs allows for measurements to be taken with a high level of ratio-metric certainty.

They are applicable for levelling applications in transmission measurements, or reflection measurements with the use of a bridge.

DEPLOYMENT NOTES

If used in the reverse direction, the device can be used as a combiner.

MODELS & OPTIONS

The following model is available:

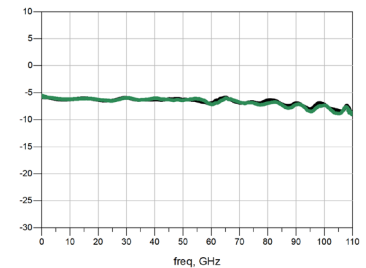
HL9489, 100 GHz

Bandwidth	DC to 100GHz
Insertion Loss (AC) Maximum See Fig. 1	< 7 dB, DC < f ≤ 50 GHz
	< 8 dB, 50 < f ≤ 75 GHz
	< 9 dB, 75 < f ≤ 100 GHz
Return Loss Input port 1 See Fig. 2	15 dB, DC < f ≤ 58 GHz
	12 dB, 58 < f ≤ 85 GHz 10 dB, 85 < f ≤ 100 GHz
Amplitude Match Typical See Fig. 1	± 0.1 dB, DC < f ≤ 70 GHz
	± 0.3 dB, 70 < f ≤ 100 GHz
Phase Match See Fig. 4	typ < ± 2°, max < ± 5°, DC < f ≤ 50 GHz
	typ < ± 4°, max ± 8°, 50 < f ≤ 85 GHz
	typ < ± 6°, max < ± 10°, 85 < f ≤ 100 GHz
Rise Time	3 ps
Insertion (Group) Delay	117 ps, all ports
	See Fig. 3
Max Input Power	20 dBm (24 dBm max) ¹
Impedance	50 Ω ± 5%
Connectors	1.0 mm, 3 x jack/female
Dimensions See Fig. 5	1.139" x 0.99" x 0.463"
	28.9 x 25.1 x 11.76 mm
Weight	14 g, (0.49 oz.)
Temperature Limits	-40° to +50° C, operating
RoHS Compliant	Yes, assembled with lead-free solder
REACH Compliant	Yes
Warranty	1 year, see website

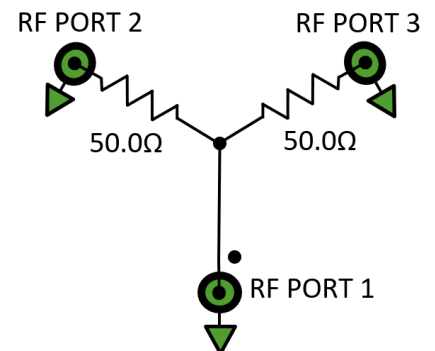
¹ - Long-term power handling testing is ongoing. The preliminary specification is 20 dBm.



HL9489



Typical HL9489 Insertion Loss



HL9489 Schematic and Port Assignments



HL9489 Insertion and Return Loss

The HL9489 is matched to 50 Ω on all ports. Port 1 is specified with a dot on the label, and Ports 2 and 3 are matched.

Figure 1 shows the HL9489 insertion loss and amplitude match on Ports 2-3 to 110 GHz. Figure 2 shows return loss on all three ports of the same device to 110 GHz.

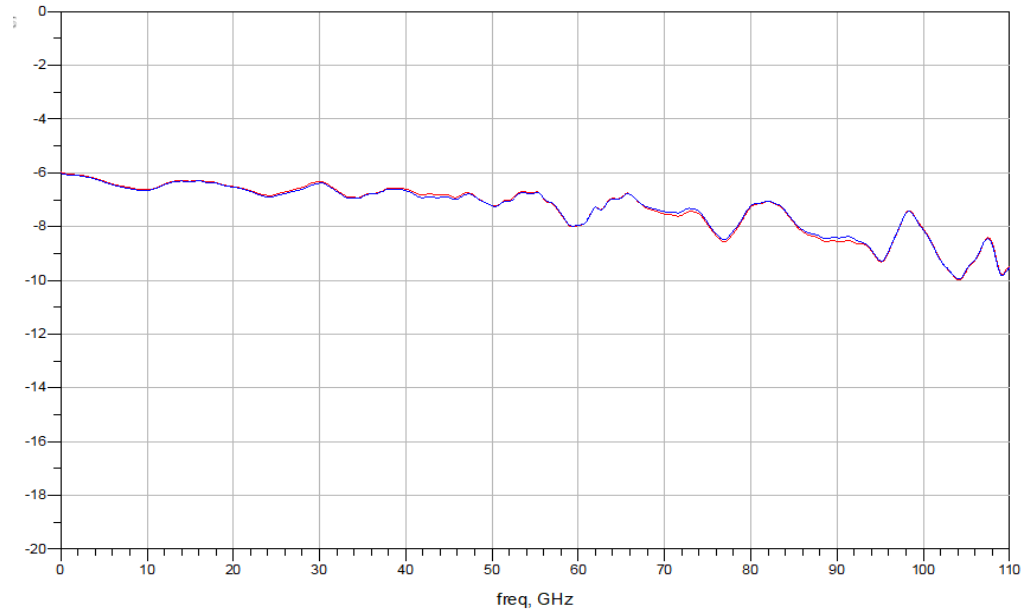


Figure 1: HL9489 Insertion Loss

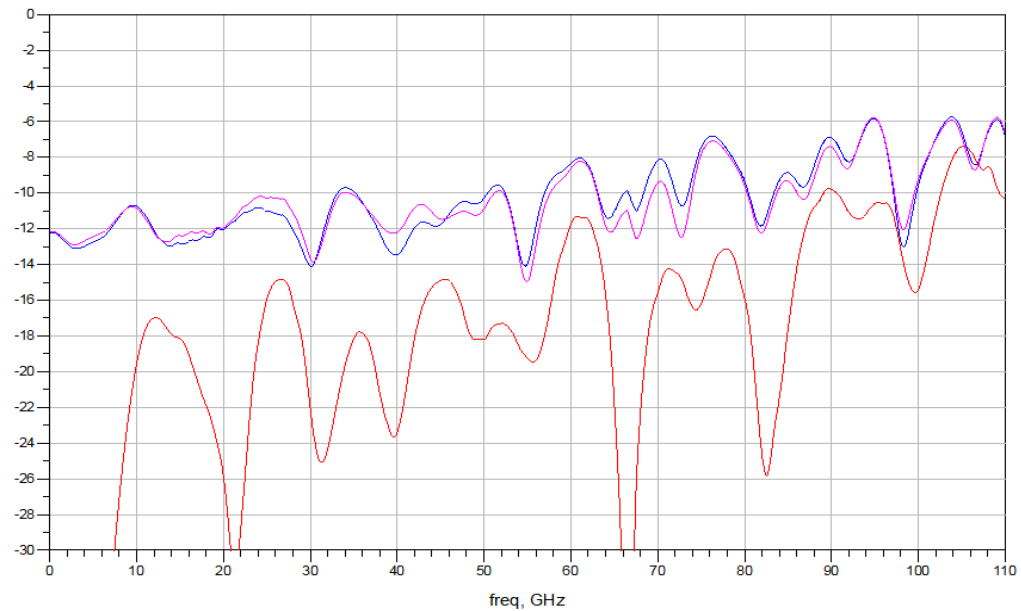


Figure 2: HL9489 Return Loss



HL9489 Group Delay and Phase Match

Figure 3 shows the typical group delay of an HL9489. The average slope of the phase mismatch, shown in Figure 4, is equal to the group delay mismatch. Other models show similar performance within respective specified bandwidths.

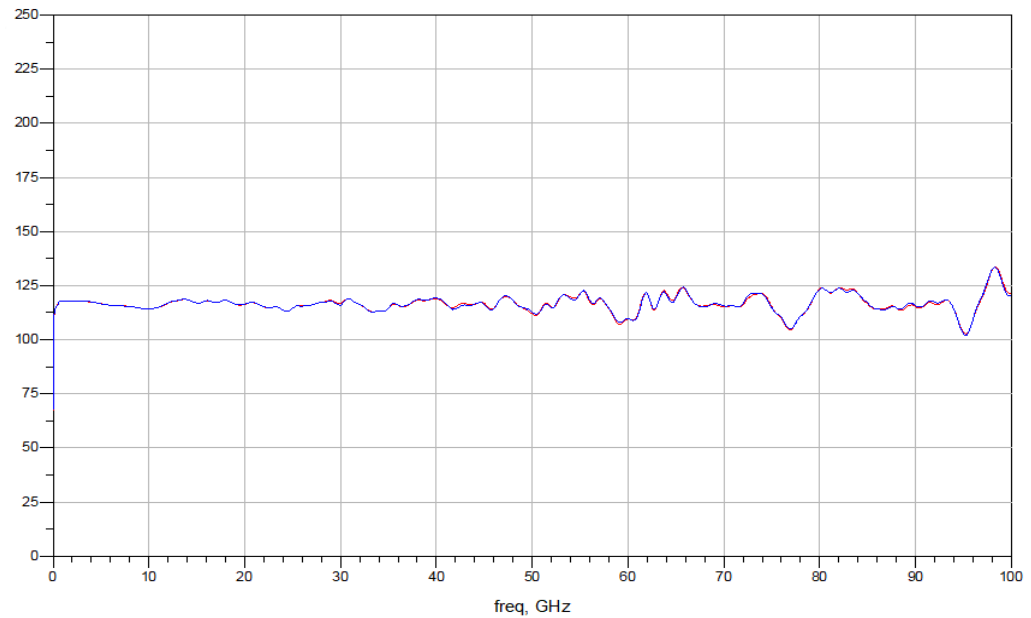


Figure 3: HL9489 Group Delay

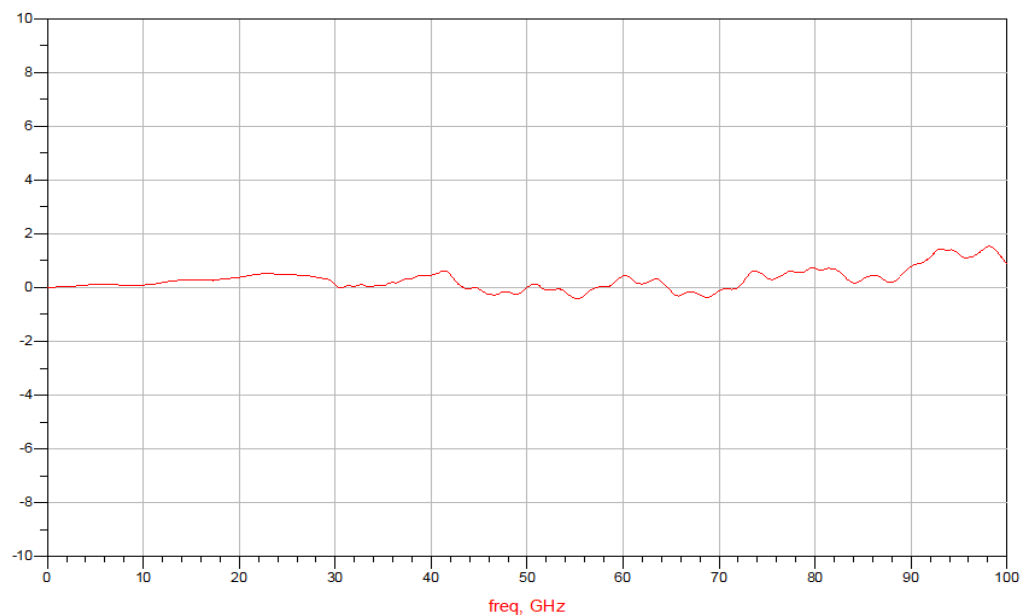


Figure 4: HL9489 Phase Mismatch



HL9489 Dimensional Drawing

Figure 5 shows a mechanical drawing of an HL9489. Unless otherwise noted, all units are shown in inches. Other models vary in length and width based on connectors.

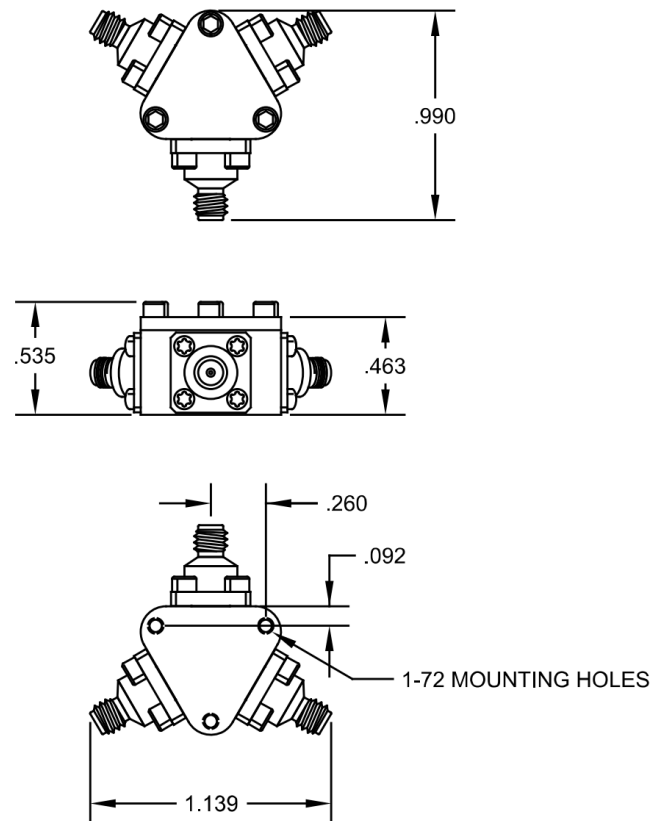


Figure 5: HL9489 Mechanical Drawing