

HL9440 Broadband DC Bias Tee

The HL9440 is a broadband DC bias tee that allows for the insertion of a DC bias current into a circuit with minimal perturbation of the impedance of a 50 ohm transmission line.

Applications

- Biasing & testing active broadband devices
- Measuring carrier lifetime of switching diodes
- Connecting broadband terminations to an AC-coupled amplifier

Features and Technical Specifications

Bandwidth (-3 dB)	16 KHz to 18 GHz
Risetime	20 ps
Insertion Loss	< -1 dB to 5 GHz, -2 dB at 10 GHz; see <i>Figure 3</i> for details
Return Loss	25 dB at 10 GHz; see <i>Figure 4</i> for details
DC Block Capacitance	0.1 uF $\pm$ 10%
Inductance	215 μ H
DC Current	500 mA
Voltage Rating	10 V, DC
Impedance	50 Ω , 45 Ω at insertion point for $\approx$ 1 ns
Connectors	SMA, 1 x Plug In, 1 x Jack Out
Dimension	60.4 x 25.3 x 13.8 mm 2.38" x 1.0" x 0.54"
Weight	23.8 g 0.84 oz
Temperature Limits	0° to +40° C, operating -40° to +85° C, storage
Warranty	1 year, repair or return; see website for details

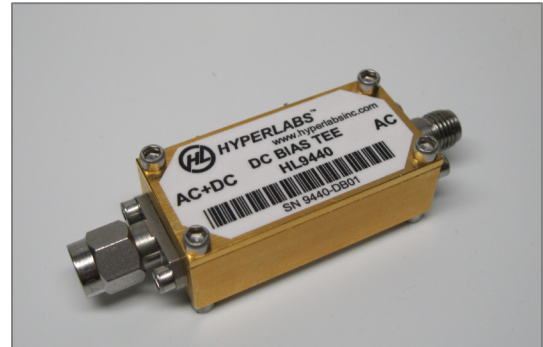


Figure 1: HL9440 Broadband DC Bias Tee

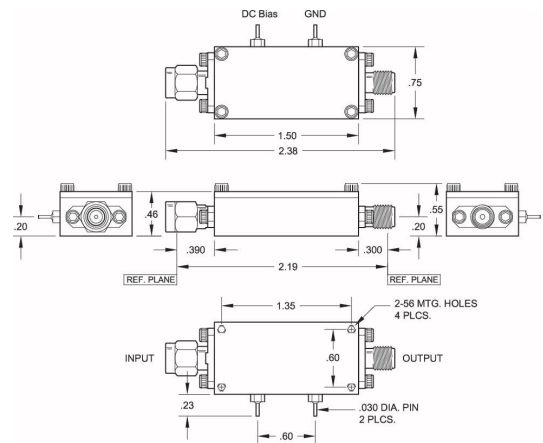


Figure 2: Dimensional drawing of the HL9440

Deployment Notes

This product is available as either a single unit or as part of an amplitude- and phase-matched pair. Please contact HYPERLABS for pricing and availability.

HL9440 Frequency Domain Measurements

Figure 3 shows the insertion loss (S21) on the RF Output of the HL9440 from 16 KHz to 20 GHz.

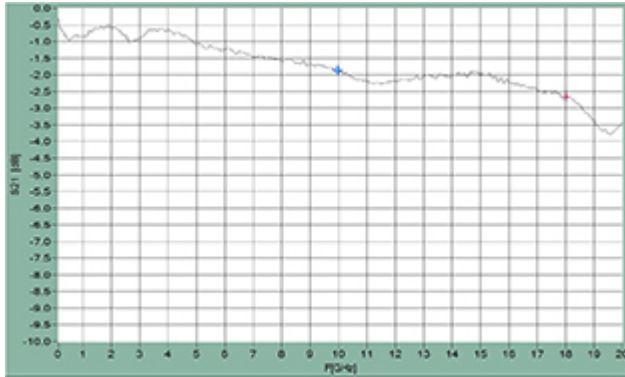


Figure 3: Insertion loss (S21) on the RF Output of the HL9440

Figure 4 shows the return loss (S11) on the RF Input of the HL9440 from 16 KHz to 20 GHz.

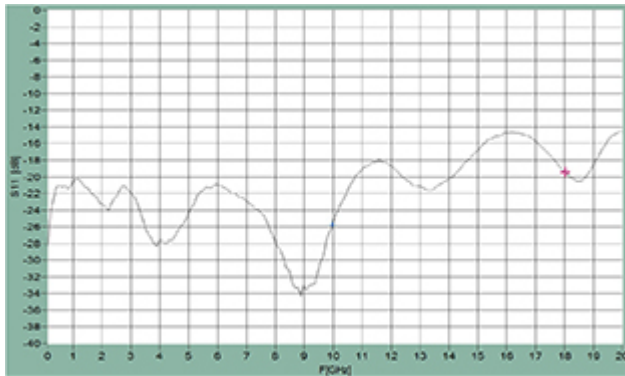


Figure 4: Return loss (S11) on the RF Input of the HL9440

HL9440 Time Domain Measurements

The HL9440 contains a broadband inductor, which minimizes resonances occurring in the devices' RF bandwidth.

The step response of the device, displayed in Figure 5, shows no overshoot or ringing after the step occurs. The scales shown are 20 ps, 100 ps, and 500 ps per division.

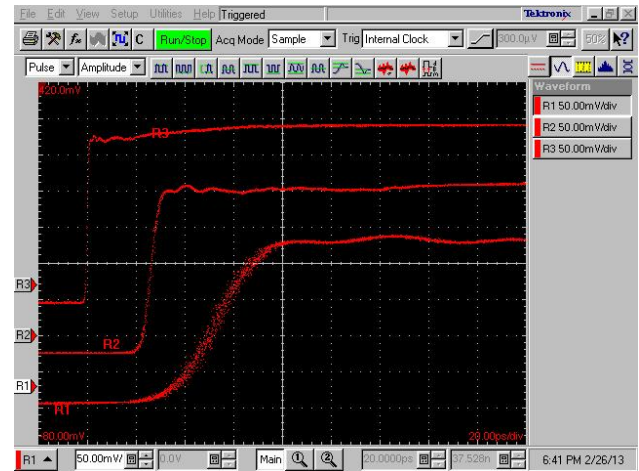


Figure 5: Step Response Measurement of the HL9440

Figure 6 shows the impedance of the HL9440 at the DC bias insertion point on a 50 Ω transmission line.



Figure 6: Impedance measurement of the HL9440