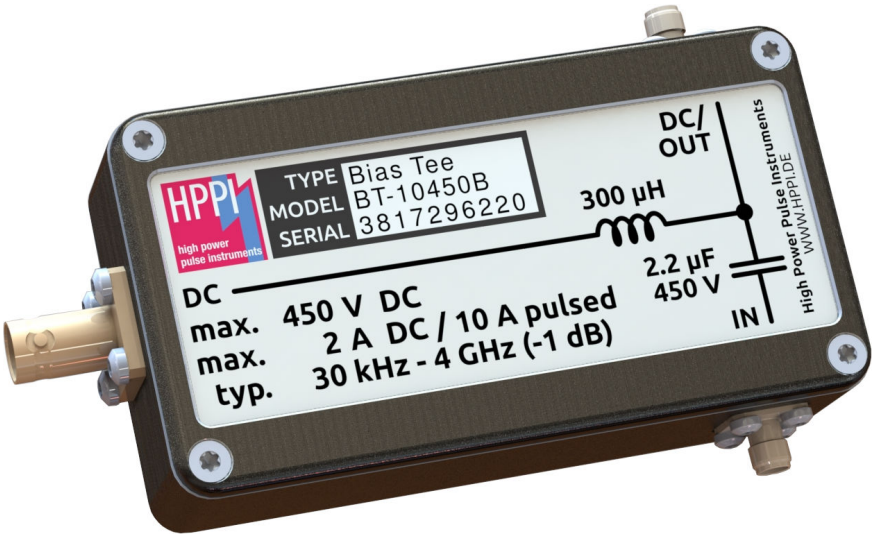
450 V, 10 A, 30 kHz – 4 GHz High Voltage Bias Tee BT-10450B

Advanced TLP/HMM/HBM Solutions



1 Features

- High voltage 30 kHz to 4 GHz (−1 dB S21) bias tee
- 450 V DC bias voltage
- DC input bias current: max. 2 A DC and max. 10 A pulsed at 100 ms pulse width and 1 % duty cycle
- Typ. 0.4 Ω DC resistance (port 3 to port 2)
- SMA 50 Ω pulse input and 50 Ω DC/pulse output
- BNC DC input
- Suitable for high-current TLP, VF-TLP and HMM
- Size: 130.6 mm x 77.6 mm x 31 mm
- Lab safety requirement: interlock operation above an operation voltage of 40 V needed to avoid life-endangerment risks.

2 Description

The BT-10450B is used for DC biased TLP, VF-TLP, HMM or general RF measurements of high voltage and power devices in the time domain or frequency domain. The DC voltage or current is applied to the DC input (port 3). The TLP output (pulse force) is connected to the pulse input (port 1). The DUT or DUT pulse force line is connected to the DC/pulse output (port 2). The BT-10450B features a lower cut-off frequency of 30 kHz at high bandwidth of 4 GHz. Fig. 1 shows the simplified schematic diagram.

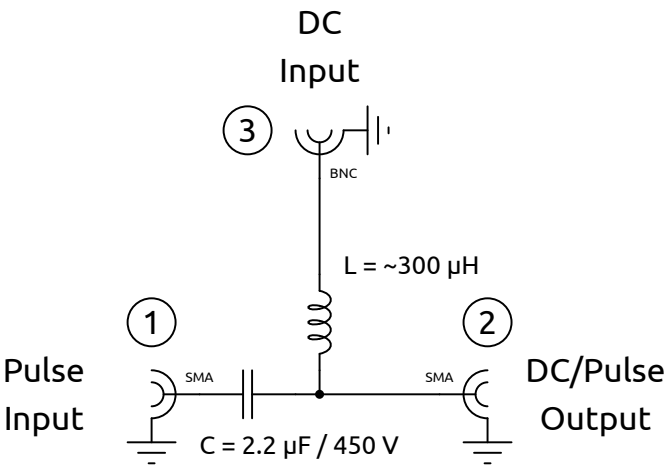


Figure 1: Simplified schematic diagram

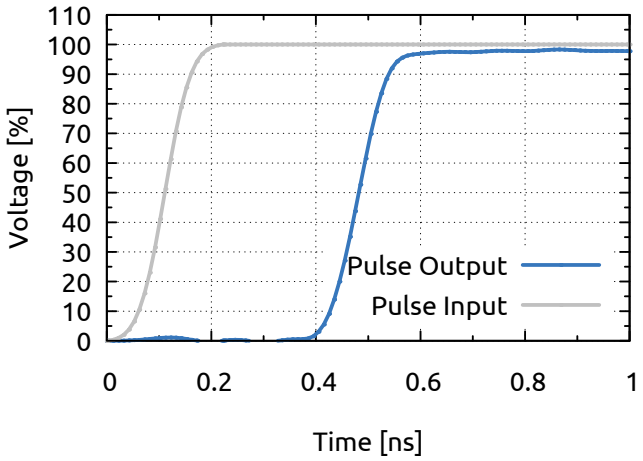


Figure 2: Step response of the bias tee at the pulse output (port 2) with input pulse rise time of 100 ps at the pulse input (port 1).

2.1 Electrical Characteristics

Fig. 2 shows the step response[1] from port 1 to port 2 at 100 ps input pulse rise time. The time delay of the output signal is about 0.4 ns.

Fig. 3 shows the typical insertion loss from port 1 to port 2.

[1] calculated based on measured S-parameters in the range from 300 kHz to 9 GHz and excitation input pulse rise-time of 100 ps.

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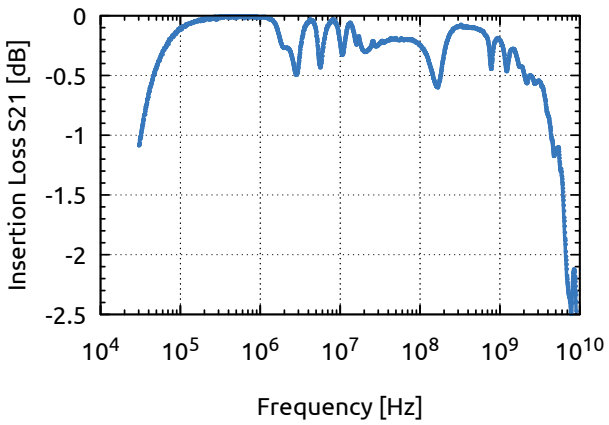

Figure 3: Measured insertion loss S21: pulse input to DC/pulse output in [dB]. Measurement condition: DC input port 3 terminated with 50 Ω.

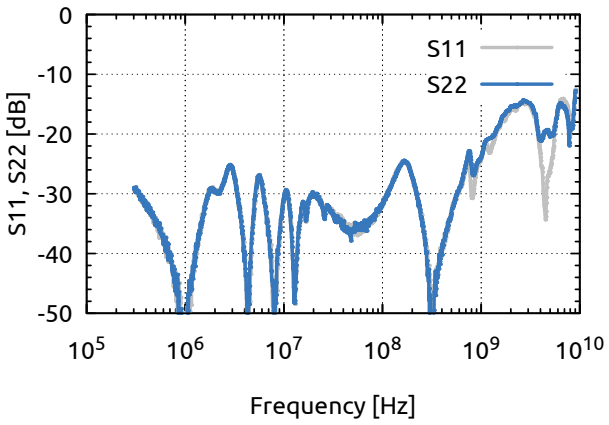

Figure 4: Measured reflection coefficients S11, S22: pulse input, DC/pulse output in [dB]. Measurement condition: DC input port 3 terminated with 50 Ω.

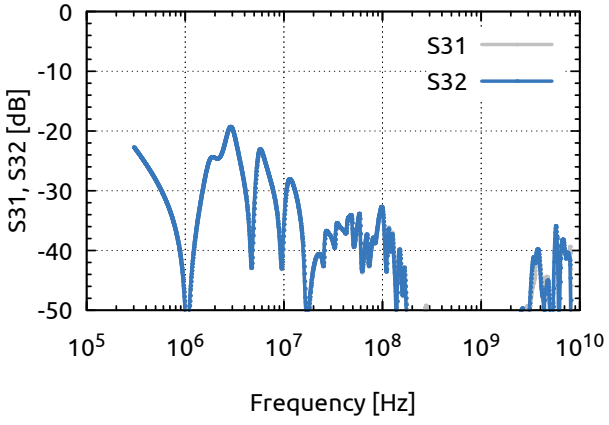

Figure 5: Measured isolation S31, S32: pulse input, DC/pulse output to DC input in [dB]. Measurement condition: DC input port 3 terminated with 50 Ω.

2.2 Laboratory Safety Requirement

Interlock operation above an operation voltage of 40 V needed to avoid life-endangerment risks.

3 Physical Dimensions

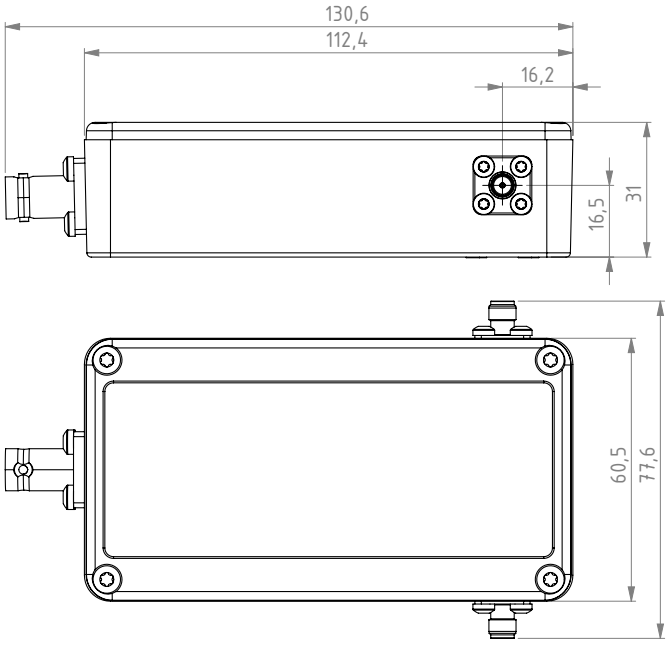

Figure 6: Physical dimensions of the BT-10450B in [mm]

4 Ordering Information

Pos.	Description	Part No.
01	450 V, 10 A, 30 kHz – 4 GHz High Voltage Bias Tee	BT-10450B

General

The product data contained in this data-sheet is exclusively intended for technically trained staff. You and your technical departments will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to such application. Our products are solely intended to be commercially used internally and should not be sold to consumers. This data-sheet is describing the specifications of our products for which a warranty is being granted by HPPI GmbH. Any such warranty is granted exclusively pursuant the terms and conditions of the respective supply agreement. There will be no guarantee of any kind for the product and its specifications. For further information on technology, specific applications of our product, delivery terms, conditions and prices please contact HPPI:

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