50 Ω SMA Wideband Pick-Off Tee PT-95A

Advanced TLP/HMM/HBM Solutions

- Wideband pick-off tee for TLP/VF-TLP measurements
- General purpose voltage probe 95:1
- Nominal pick-off transfer coefficient ~39.55 dB
- DC to 5 GHz bandwidth (±1 dB)
- Insertion loss typ. 0.2 dB at 5 GHz
- max. 2.5 kV peak pulse voltage (1.6 µs pulse width)
- max. 50 V DC (port 1, port 2 to port 3)

1 Description

The wideband pick-off tee can be used to measure the voltage amplitude of incident and reflected waves in a 50 Ω transmission line. Pulse input and output are electrically equivalent and can be also changed in the setup.

**CAUTION:** IF THE MAXIMUM INPUT VOLTAGE OF THE OSCILLOSCOPE IS 5 V THEN THE MAXIMUM ALLOWED TLP VOLTAGE IN THE 50 Ω TRANSMISSION LINE IS 5 x 95 = 475 V. A HIGHER SIGNAL LEVEL MAY DAMAGE THE OSCILLOSCOPE INPUT. IT IS RECOMMENDED TO CONNECT AN ADDITIONAL ATTENUATOR IN SERIES, ACCORDING TO YOUR REQUIREMENTS.

2 Electrical Characteristics

2.1 Frequency Response (50 Ω S-Parameter)

![S21 vs Frequency](image1)

**Input (Port 1):** 50 Ω pulse force input.

**Output (Port 2):** 50 Ω pulse force output.

**Pick-Off Output (Port 3):** This output must be terminated with 50 Ω. Normally it is directly connected to the oscilloscope input. The pick-off voltage transfer coefficient is calculated $k = (R+50)/50$ where $R = 4.7$ kΩ, which results in a voltage transfer coefficient of $k = 95$. The voltage transfer coefficient $k$ can be calculated also from Fig. 4 using $k = 1/(10^{S31/20})$, with S31 in [dB].

![S31 vs Frequency](image2)

Figure 1: PT-95A connectors.

Figure 2: PT-95A schematic diagram.

Figure 3: Typical insertion loss of the PT-95A from port 1 to port 2 (Fig. 1).

Figure 4: Typical transfer characteristic of the PT-95A from port 1 or port 2 to port 3 (Fig. 1).
3 Ordering Information

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<th>Pos.</th>
<th>Description</th>
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<td>01</td>
<td>50 Ω SMA Wideband Pick-Off Tee (k = 95)</td>
<td>PT-95A</td>
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General

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