

# 50 $\Omega$ Interface Board - High Frequency IFB-HF-3002A

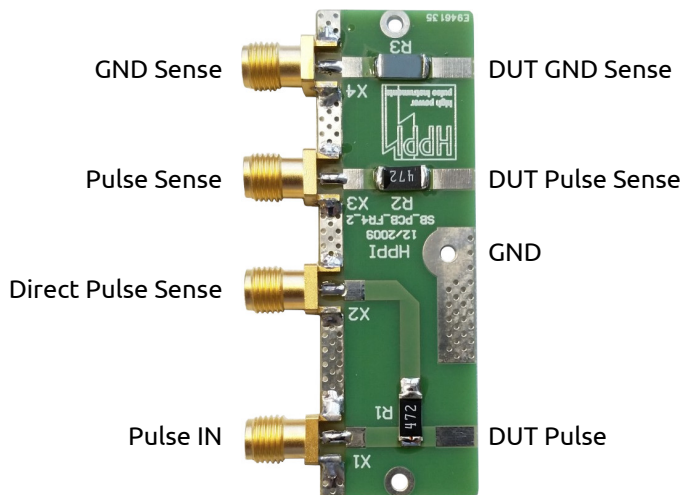
Advanced TLP/HMM/HBM Solutions

## 1 Features

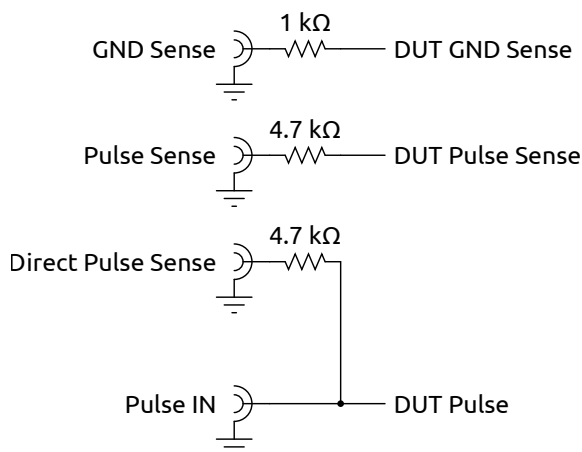
- 50  $\Omega$  DUT interface board with SMA connectors for TLP, VF-TLP, HMM measurements
- 2-layer FR-4 (1.6 mm thick)
- 21.4 mm x 66 mm size

## 2 Description

The IFB-HF-3002A can be used as 50  $\Omega$  DUT interface board for packaged devices and system-level measurements. Fig. 1(a) shows the photograph and Fig. 1(b) shows the schematic diagram of the IFB-HF-3002A.



(a) IFB-HF-3002A (21.4 mm x 66 mm board size)



(b) IFB-HF-3002A schematic diagram

Figure 1: IFB-HF-3002A

Depending on the resistors, the pick-off channels have different voltage scale factors in a 50  $\Omega$  transmission line:

**Direct Pulse Sense:**

$$k = \frac{4700 + 50}{50} = 95 \quad (1)$$

**Pulse Sense:** same as Direct Pulse Sense

**GND Sense:**

$$k = \frac{1000 + 50}{50} = 21 \quad (2)$$

## 3 Typical Applications

Fig. 2 shows typical applications of the IFB-HF-3002A, whereas Fig. 2(a) is the most common use case. The advantage is that only two wires are required to connect the DUT. The disadvantage is, that the parasitic inductance of the “DUT Pulse” and “GND” interconnections add some parasitic inductance which sum up some voltage drop  $L \cdot dI_{DUT}/dt$ , which is recognized as virtual voltage overshoot at the “Direct Pulse Sense” output, which tampers the measurement result. This drawback can be avoided by a separate “DUT Pulse Sense” tap, as shown in Fig. 2(b). The tamper effect can be further decreased if also the “GND” signal is separately sensed, as presented in Fig. 2(c). In this case the difference of “Pulse Sense” and “GND Sense” signal has to be calculated in order to evaluate the DUT voltage. Furthermore, the “Pulse Sense” and “GND Sense” channels can be used also to measure other nodes in the DUT for general purpose, as shown in Fig. 2(d).

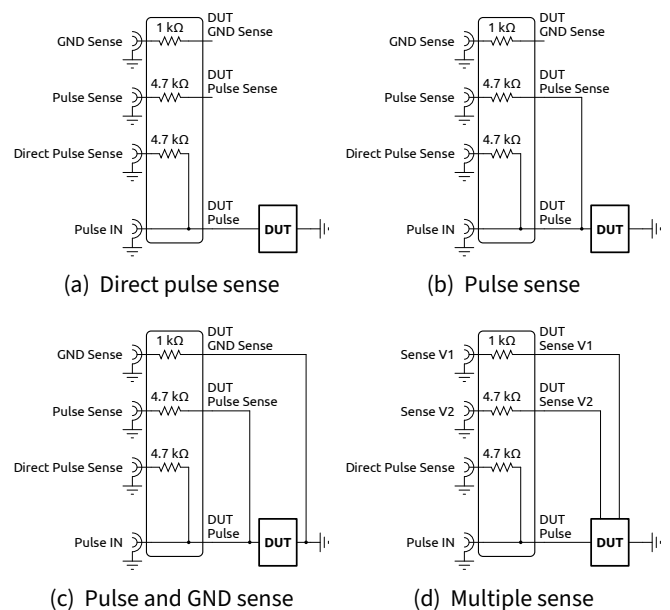


Figure 2: IFB-HF-3002A typical applications

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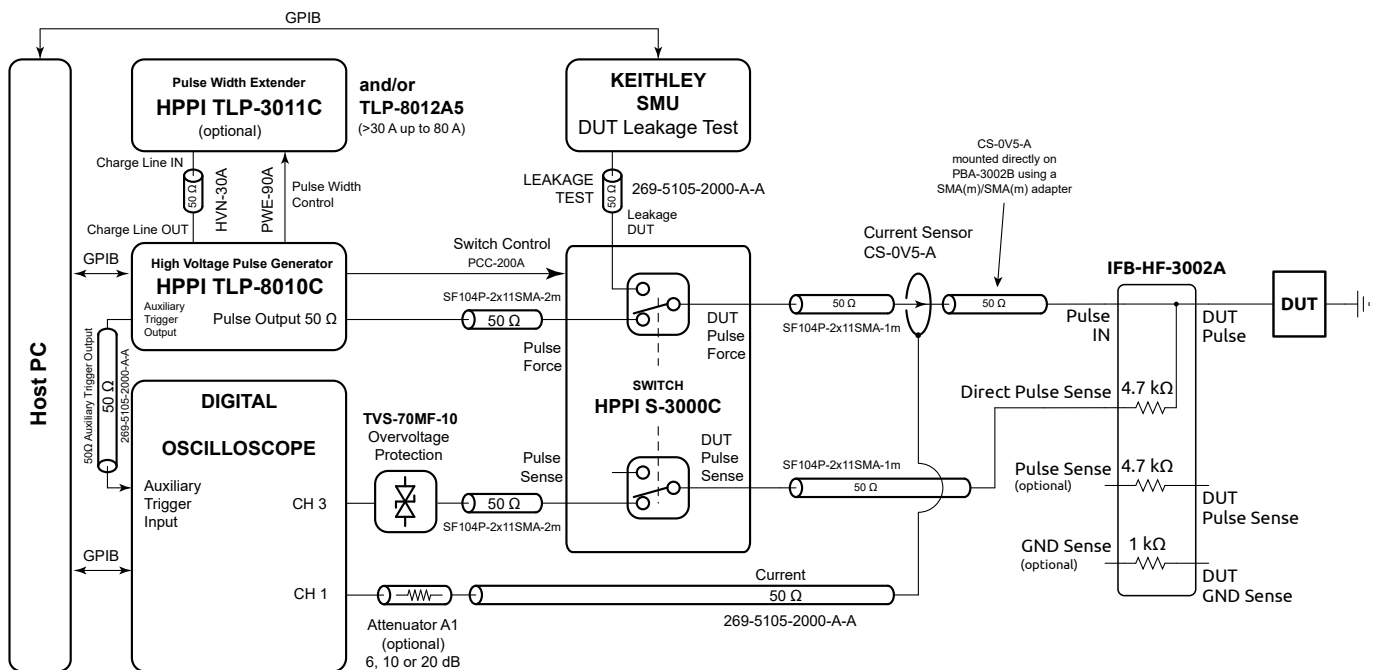


Figure 3: IFB-HF-3002A measurement setup with use case Fig. 2(a)

More details can be found in the application note “Advantages and Limitations of the PCB-Adapter PBA-3002A”: [https://www.hppi.de/files/AN\\_PBA\\_3002A.pdf](https://www.hppi.de/files/AN_PBA_3002A.pdf)

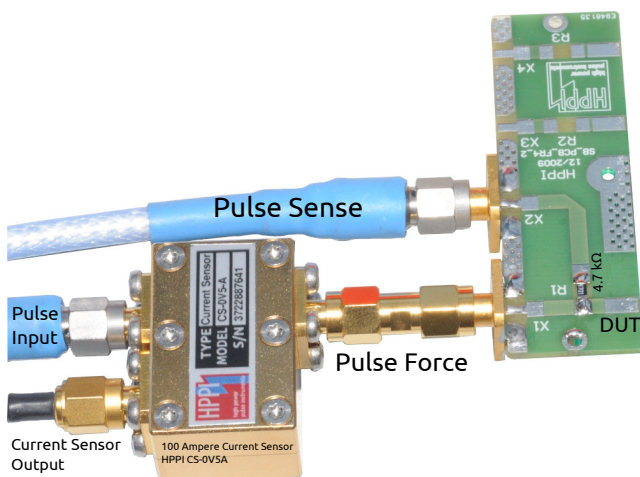


Figure 4: IFB-HF-3002A setup including current sensor

Fig. 3 presents the complete IFB-HF-3002A measurement setup with use case Fig. 2(a). Fig. 4 shows the current sensor connected to the IFB-HF-3002A. Fig. 5 and Fig. 6 show an example how a LCD panel interface board can be measured and soldered to the IFB-HF-3002A. If the length of the DUT interconnection is in the mm-range (Fig. 5), very fast rise-time  $< 2$  ns can be achieved (Fig. 7), which is significantly better compared to the PBA-3002A.

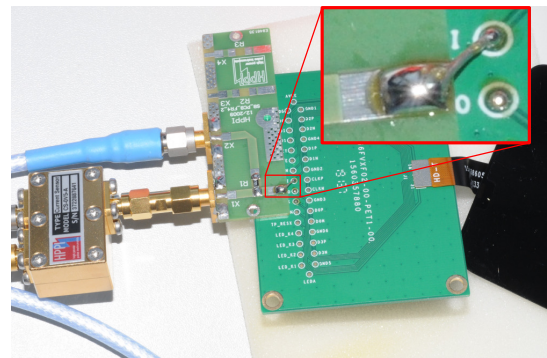


Figure 5: Application example of IFB-HF-3002A how to measure a LCD panel

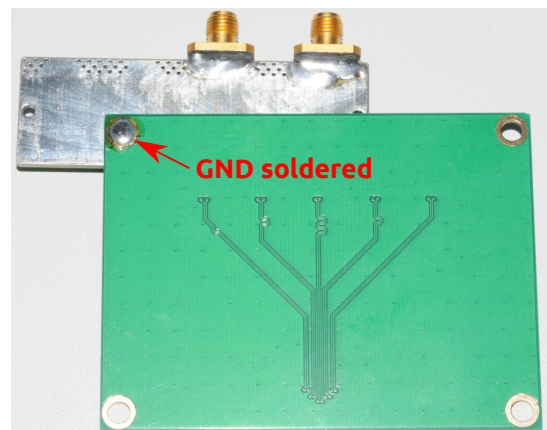


Figure 6: Application example of IFB-HF-3002A how to measure a LCD panel. GND connection soldered on the back side.

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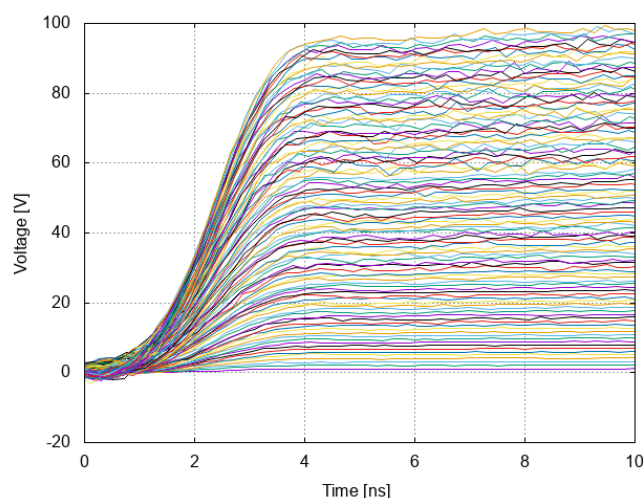


Figure 7: Test waveform (Fig. 4 and 50  $\Omega$  resistor as DUT)

## 4 Ordering Information

Pos.	Description	Part No.
01	50 $\Omega$ Interface Board - High Frequency	IFB-HF-3002A

### 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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