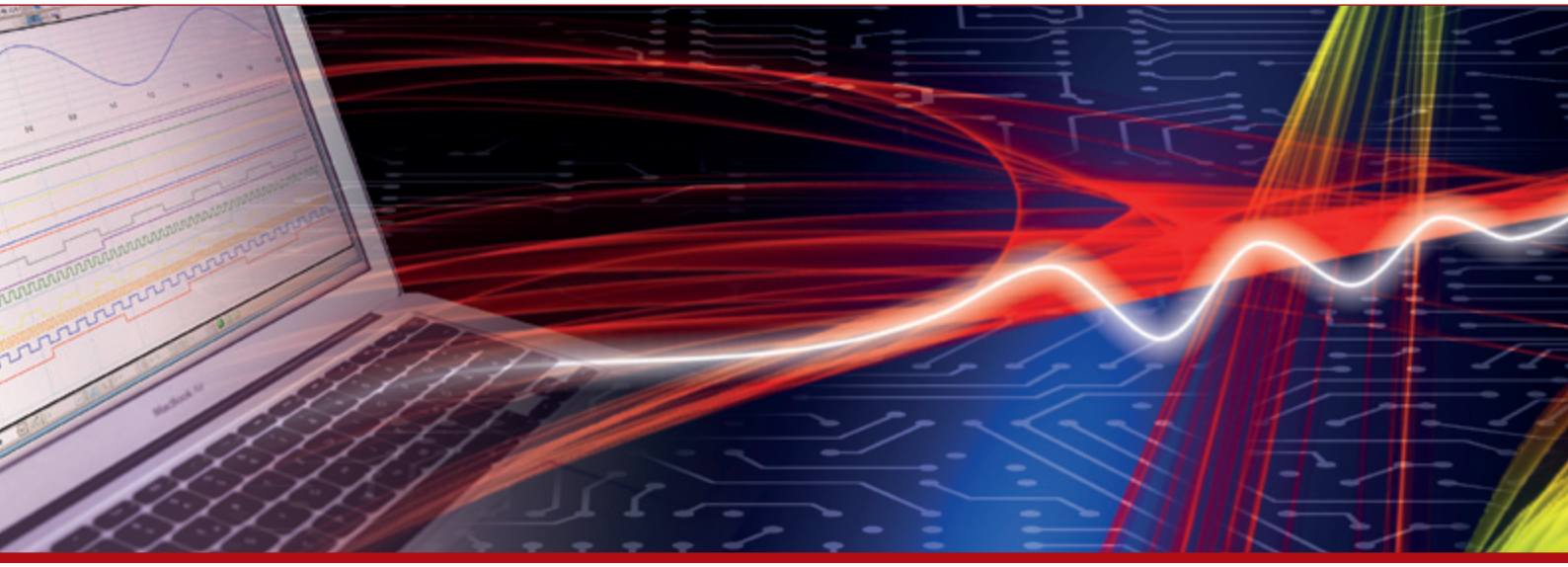
# Product Datasheet - Technical Specifications



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# RF PULSE CURRENT MONITORING PROBE

## 1 Introduction

The TBPCP3-05H30 is an RF pulse current monitoring probe, expanding the Tekbox product range of affordable test equipment.
The probe has a 3 dB bandwidth from 0.5 Hz to 30 MHz and is characterized over the frequency range from 0.1 Hz to 100 MHz. The TBPCP3-05H30 is typically used for surge or RF pulse current monitoring applications in the time domain, in contrary to RF current monitoring probes designed for EMC applications, which are typically used for measurements in the frequency domain.


*Picture 1: TBPCP3-05H20 current monitoring probe*

The aperture of the RF current monitoring probe is 15 mm.
The transfer-impedance is -26 dBΩ / 0.05 V/A when terminated with 50 Ohm and 0.1 V/A with a high impedance load. The typical 3dB bandwidth is 0.5 Hz to 30 MHz.

# RF PULSE CURRENT MONITORING PROBE

## 2 Specification

Characterized frequency range: 0.1 Hz to 100 MHz
3 dB bandwidth: 0.5 Hz to 30 MHz (measured in a 50 + 50 Ohm loop)
Transfer impedance into 50 Ω load: -26 dBΩ; 0.05 V/A
Transfer impedance into high Z: 0.1 V/A
Probe port impedance: 50 Ω
Droop rate: 0.12 %/ms
Rise time: < 10 ns
Max. RMS AC current: 55A
Max. pulse current: 5000A
Current time product: 0.25 Ampere seconds
Max. core temperature: 80 °C
Aperture diameter: 15 mm
Outside diameter: 61 mm
Height: 30 mm
Weight: 320 g
Connector type: N female; comes supplied with a coaxial adapter to BNC-female

## 3 Transfer impedance

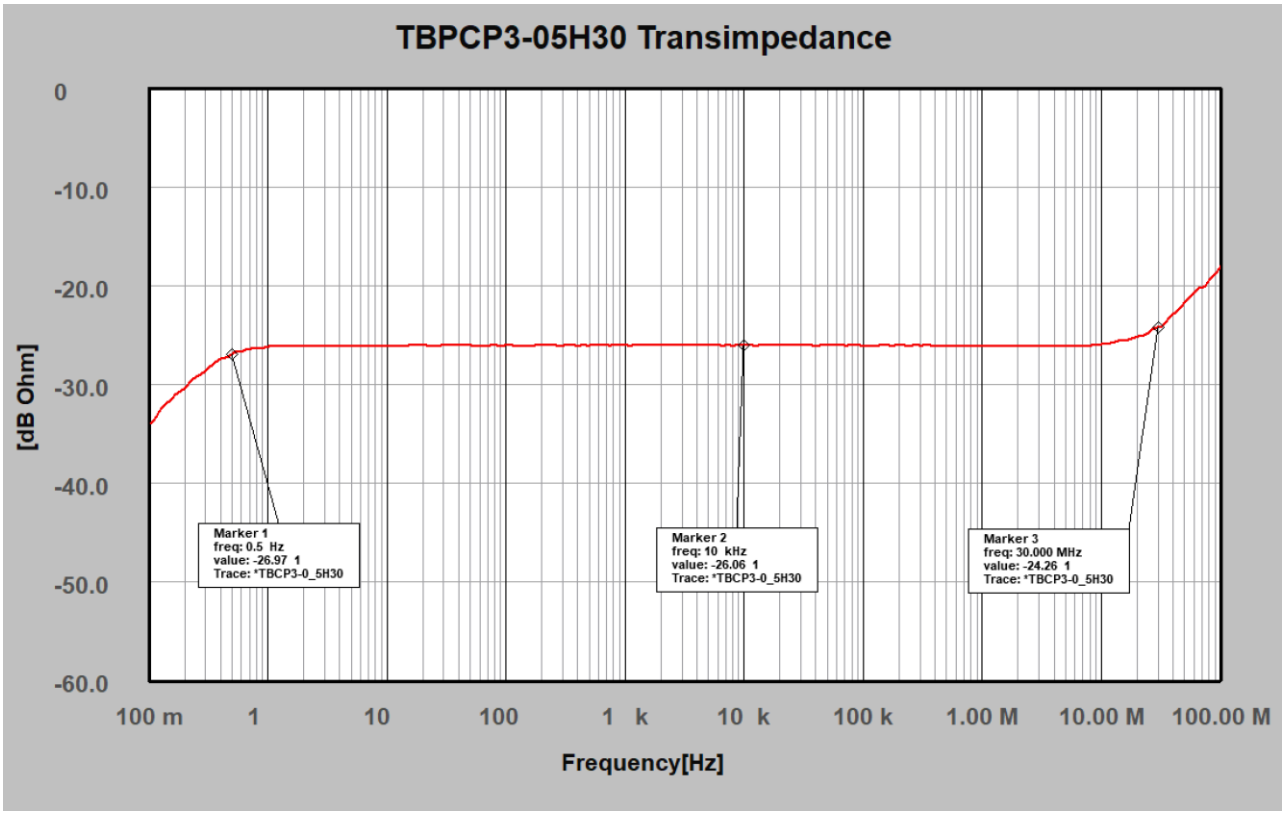



*Figure1: typical transfer impedance, 0.1 Hz – 100 MHz*

## 4 Transfer impedance table

The table below shows typical transfer impedance data of a TBPCP3-05H30 pulse current probe. Each current probe is delivered with its corresponding measurement protocol. The transimpedance is measured with a 50 Ohm load.
Transimpedance [V/A] = 10^(dBOhm/20) @ 50 Ohm
Transimpedance [V/A] = 2*10^(dBOhm/20) @ High Z

| Frequency | transfer impedance [dBΩ] 50 Ohm load | transfer impedance [V/A] 50 Ohm load | transfer impedance [V/A] high Z load |
|---|---|---|---|
| 0,1 Hz | -34,11 | 0,020 | 0,039 |
| 0,2 Hz | -30,42 | 0,030 | 0,060 |
| 0,3 Hz | -28,63 | 0,037 | 0,074 |
| 0,4 Hz | -27,46 | 0,042 | 0,085 |
| 0,5 Hz | -26,97 | 0,045 | 0,090 |
| 0,75 Hz | -26,39 | 0,048 | 0,096 |
| 1 Hz | -26,24 | 0,049 | 0,097 |
| 2,5 Hz | -26,13 | 0,049 | 0,099 |
| 5 Hz | -26,15 | 0,049 | 0,098 |
| 7,5 Hz | -26,12 | 0,049 | 0,099 |
| 10 Hz | -26,10 | 0,050 | 0,099 |
| 25 Hz | -26,10 | 0,050 | 0,099 |
| 50 Hz | -26,08 | 0,050 | 0,099 |
| 75 Hz | -26,09 | 0,050 | 0,099 |
| 100 Hz | -26,08 | 0,050 | 0,099 |
| 500 Hz | -26,09 | 0,050 | 0,099 |
| 1 kHz | -26,07 | 0,050 | 0,099 |
| 5 kHz | -26,06 | 0,050 | 0,100 |
| 10 kHz | -26,06 | 0,050 | 0,100 |
| 50 kHz | -26,02 | 0,050 | 0,100 |
| 100 kHz | -26,13 | 0,049 | 0,099 |
| 500 kHz | -26,10 | 0,050 | 0,099 |
| 1 MHz | -26,15 | 0,049 | 0,099 |
| 5 MHz | -26,10 | 0,050 | 0,099 |
| 10 MHz | -25,98 | 0,050 | 0,100 |
| 15 MHz | -25,58 | 0,053 | 0,105 |
| 20 MHz | -25,21 | 0,055 | 0,110 |
| 25 MHz | -24,78 | 0,058 | 0,115 |
| 30 MHz | -24,26 | 0,061 | 0,122 |
| 40 MHz | -22,94 | 0,071 | 0,143 |
| 50 MHz | -21,76 | 0,082 | 0,163 |
| 60 MHz | -20,81 | 0,091 | 0,182 |
| 70 MHz | -20,20 | 0,098 | 0,195 |
| 80 MHz | -19,53 | 0,106 | 0,211 |
| 90 MHz | -18,87 | 0,114 | 0,228 |
| 100 MHz | -18,13 | 0,124 | 0,248 |

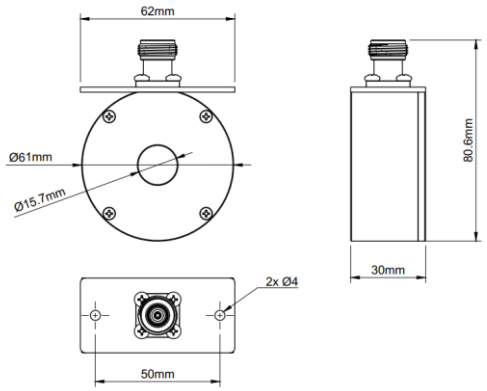
*Table1: Transfer impedance: 0.1 Hz to 100 MHz, typical data*

## 5 Calibration fixture

Tekbox supplies a calibrator suitable for the TBPCP3-05H30 current probe:

*Picture 1: TBCP3-CAL RF current probe calibration fixture*

## 6 Dimensions




## 7 Ordering Information

| Part Number | Description |
|---|---|
| TBPCP3-05H30 | Pulse Current Probe 0.5Hz – 30 MHz, N-male to BNC-Female adapter |
| TBCP3-CAL | Calibration fixture for TBPCP3 series pulse current probes |

## 8 History

| Version | Date | Author | Changes |
|---|---|---|---|
| V 1.0 | 1.7.2025 | Mayerhofer | Creation |
| | | | |