

DC-coupled driver amplifier

1 Introduction

The TBCS101-TGA is a DC-coupled amplifier with a flat gain from DC – 20 MHz, a 3 dB bandwidth of 40 MHz, a gain of 20 dB and an output power of + 15 dBm

Application:

Driver amplifier for high power DC coupled amplifiers such as required for CS101 testing

General-purpose amplifier to boost the tracking generator signal of the TBMR-110M measurement receiver



2 Specification

General specification

Frequency range: DC – 40 MHz, 3 dB band width, typical
Gain: 20 dB, typ. (\cong linear voltage gain 10) with 50 Ohm load impedance
RF-connectors: BNC-female

Input specification

Input impedance: 50 Ω
Input return loss: > 30 dB, typ.
Maximum input level: -5 dBm (\cong 0.35 V_{pp}); for output saturation
Maximum ratings: +20 dBm in a 50 Ohm system / \pm 1.5V DC max. input rating

Output specification

Output impedance: 50 Ω
Output return loss: > 20 dB, typ.
P1dB_{out}: +15 dBm (\cong 3.5 V_{pp}); output saturation

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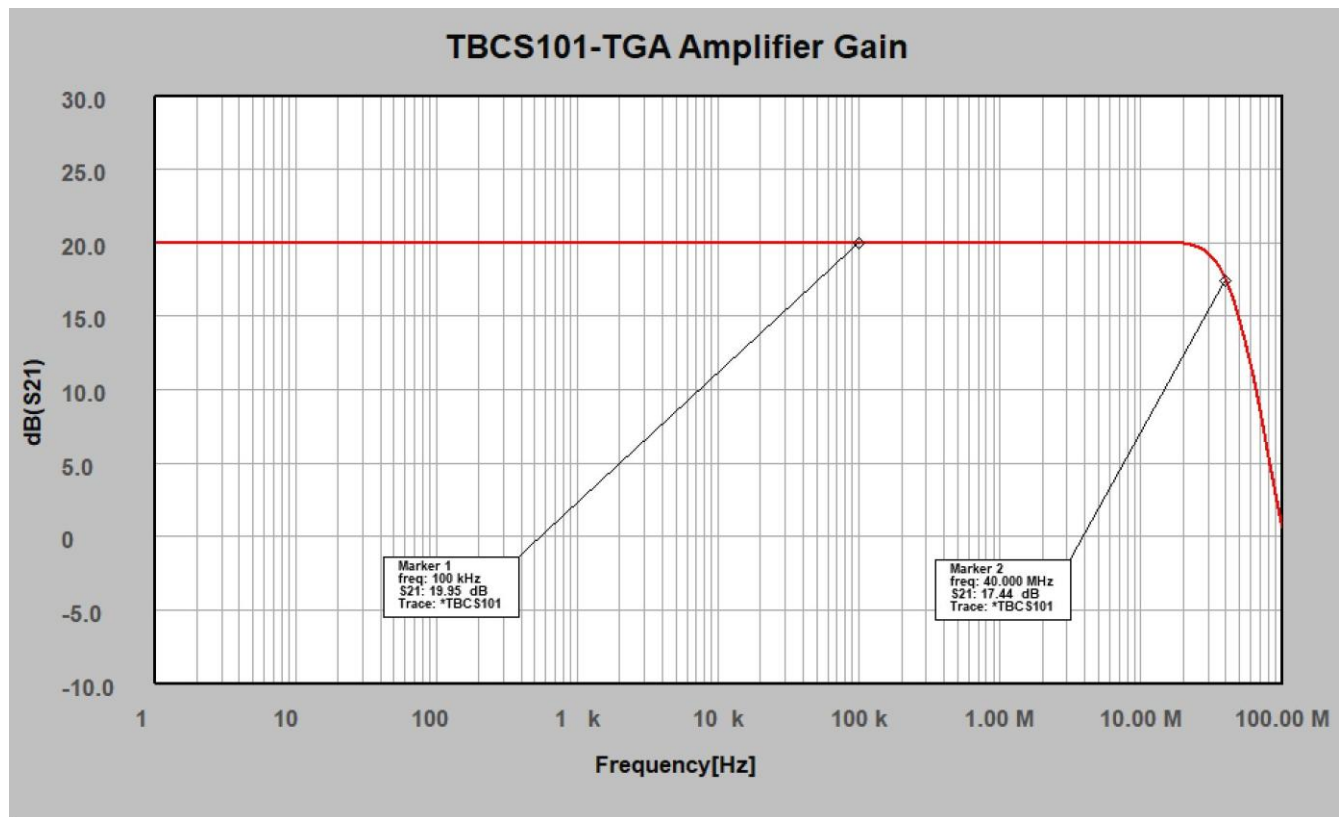
IP3_{out}: +25 dBm
DC offset: < 100mV at output; input terminated with 50 Ohm

Supply specification

Power-connector: USB-C
Indicator LEDs: Power ON,
Operating voltage: 5 V DC
Current consumption: 90 mA
Operating temperature range: -20°C to +50°C
Dimensions: W 82 mm x H 33 mm x L 80 mm;
Weight: 100 g

3 Measurement Plots

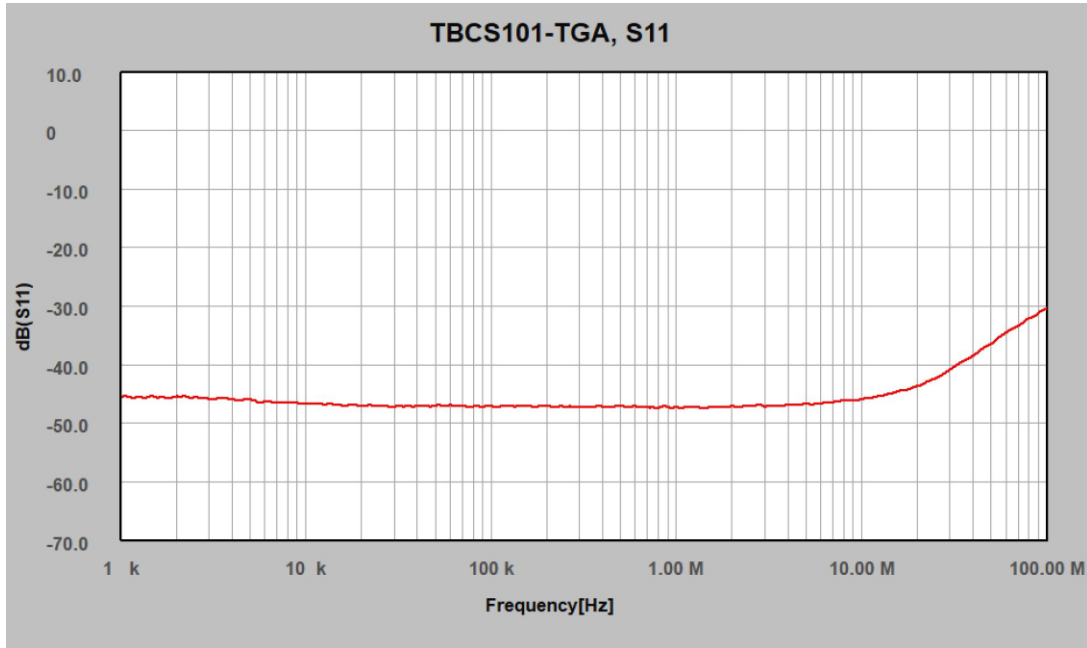
3.1 Gain



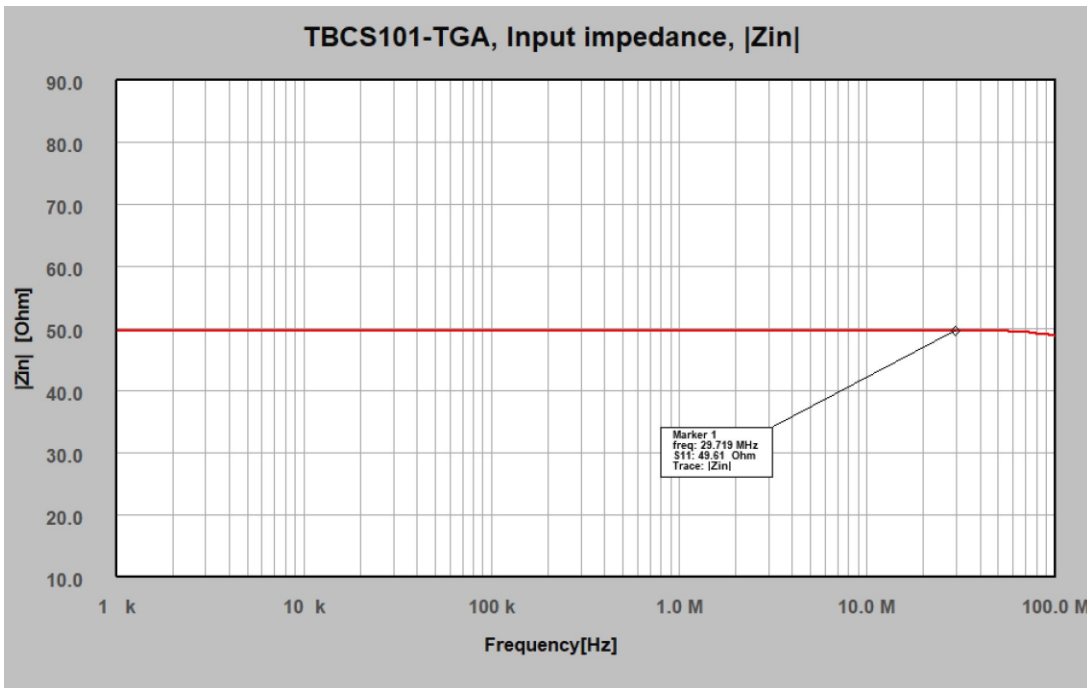
TBCS101-TGA, Gain, DC – 100 MHz, typ.

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3.2 Input return loss and impedance



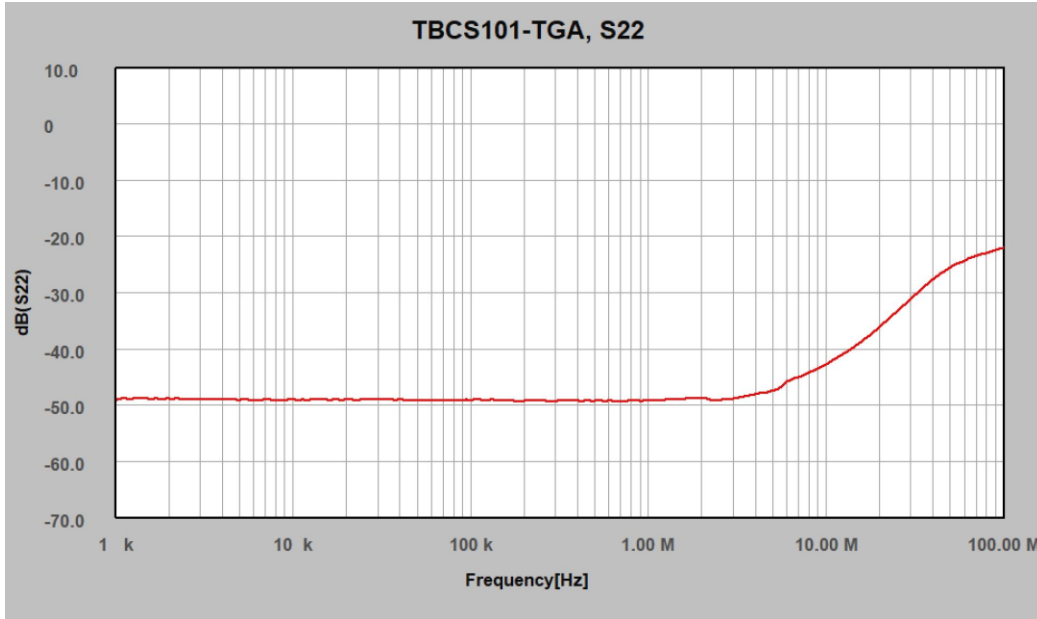
TBCS101-TGA, S11, 1 kHz – 100 MHz, typ.



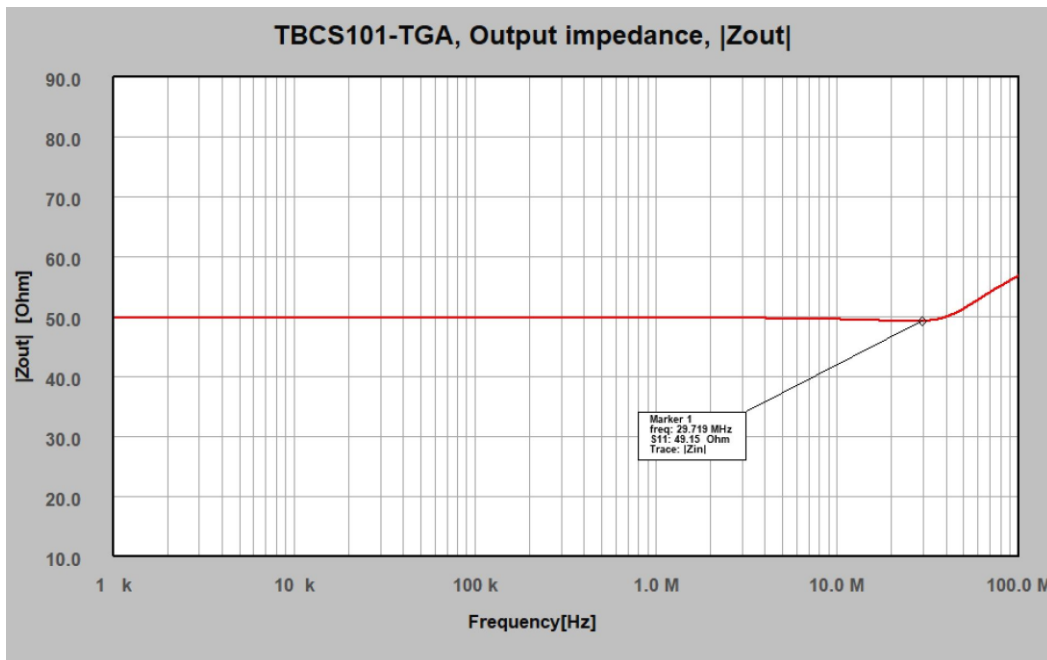
TBCS101-TGA, Input Impedance, 1 kHz – 100 MHz, typ.

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3.3 Output return loss and impedance



TBCS101-TGA, S22, 1 kHz – 100 MHz, typ.



TBCS101-TGA, Output Impedance, 1 kHz – 100 MHz, typ.

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4 Ordering Information

Part Number	Description
TBCS101-TGA	DC-coupled driver amplifier, USB-C cable

5 History

Version	Date	Author	Changes
V1.0	17. 2.2025	Mayerhofer	Creation of the document