V1.0

TBCS101-TGA

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. (≙ 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 (≙ 0.35 V_{pp}); for output saturation
Maximum ratings:	+20 dBm in a 50 Ohm system / ± 1.5V DC max. input rating

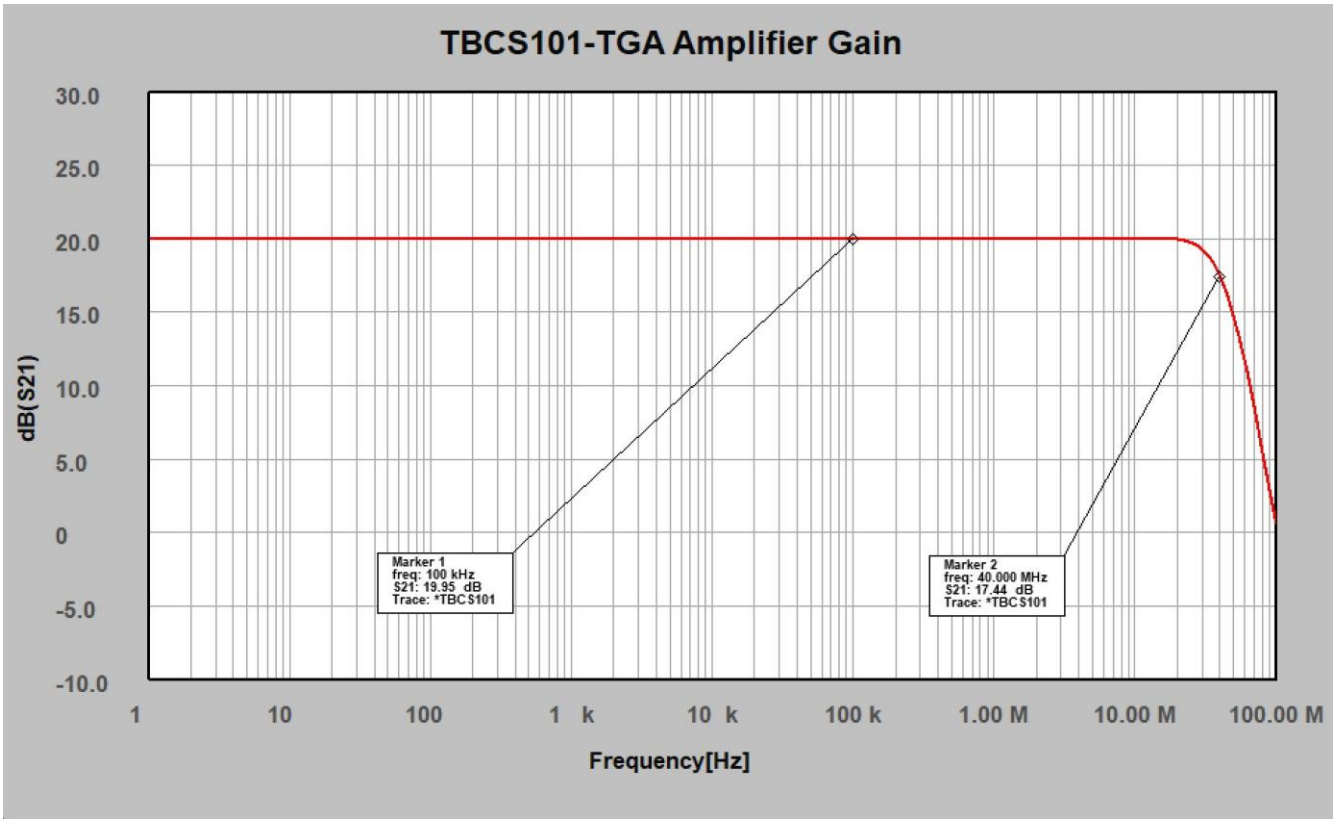
Output specification

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

$IP3_{out}$:	+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

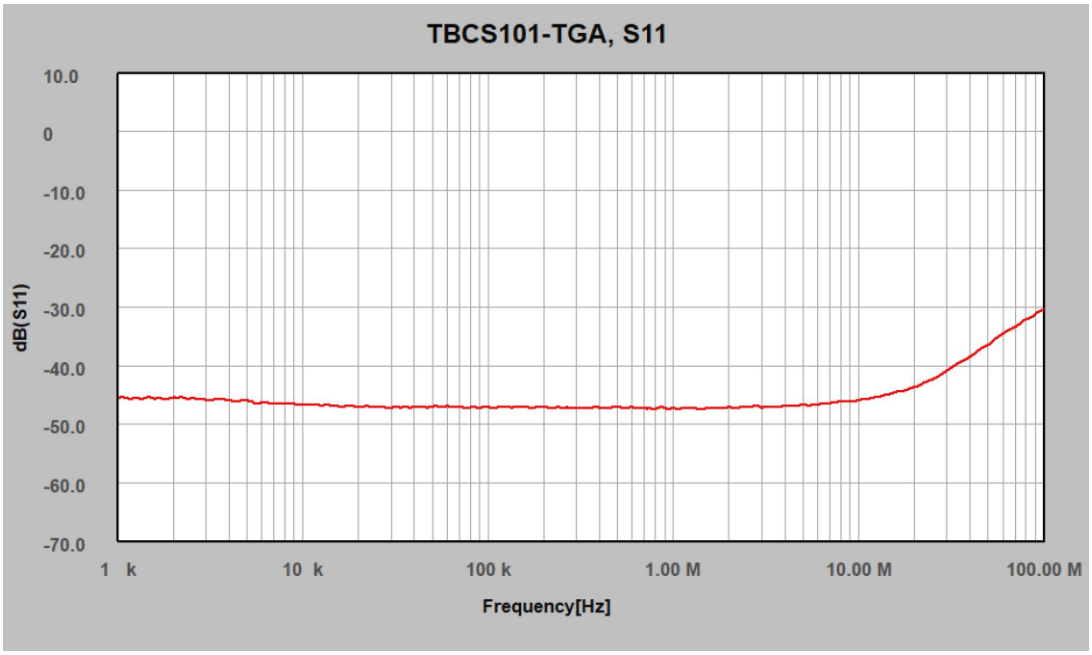
3 Measurement Plots

3.1 Gain

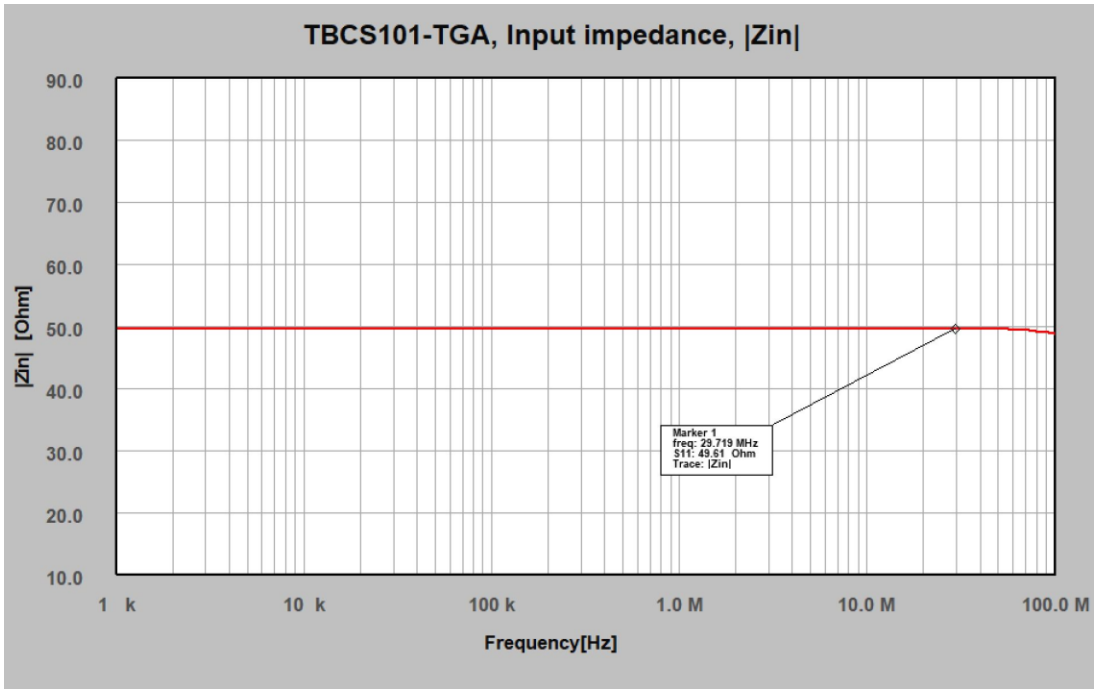


TBCS101-TGA, Gain, DC – 100 MHz, typ.

3.2 Input return loss and impedance

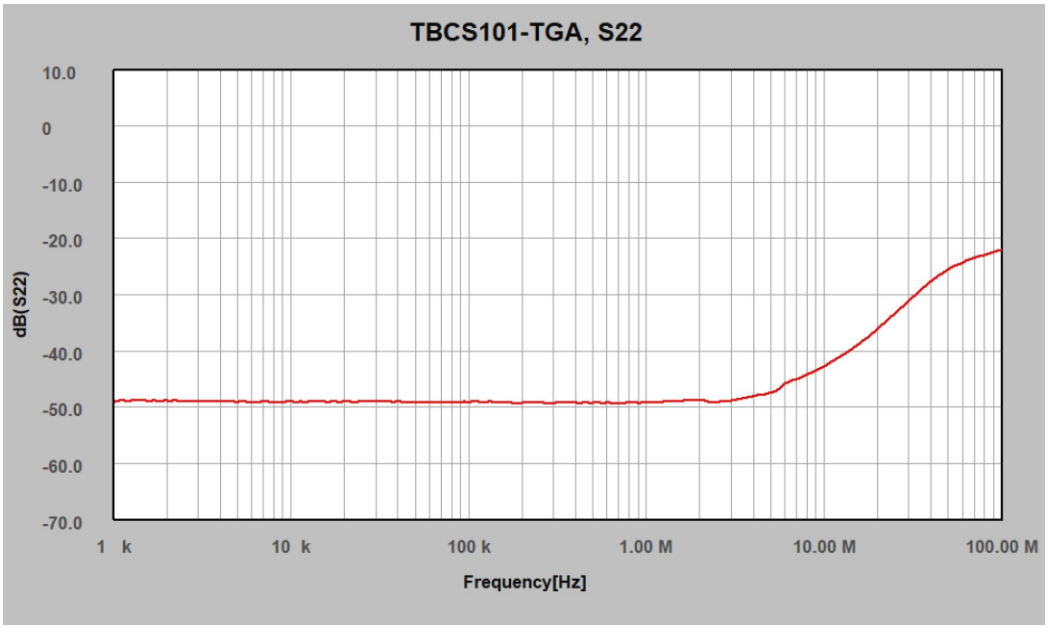


TBCS101-TGA, S11, 1 kHz – 100 MHz, typ.

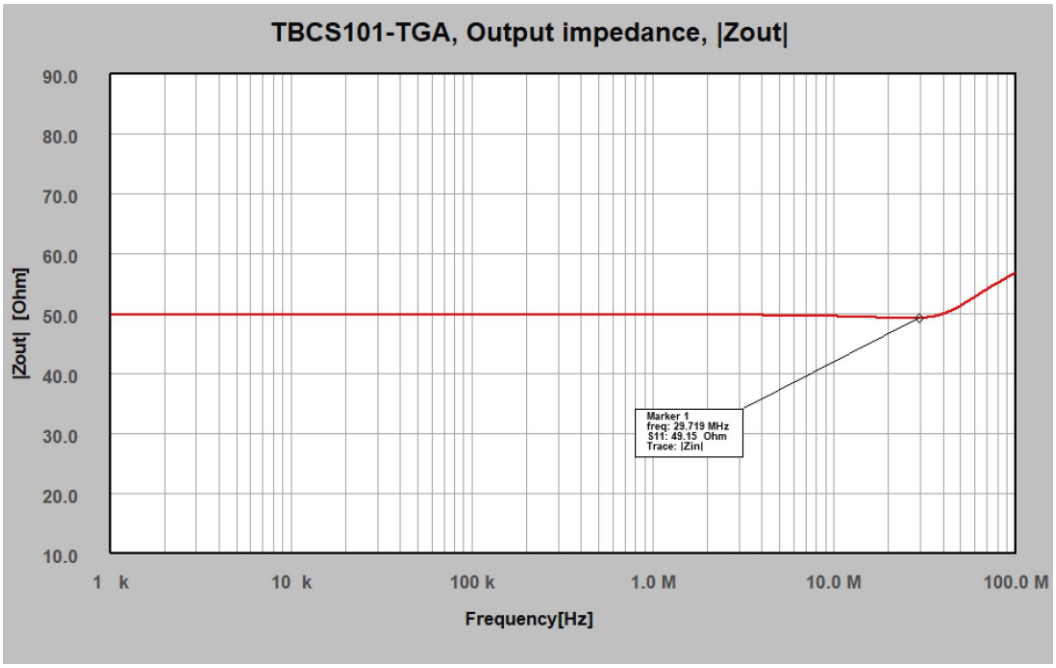


TBCS101-TGA, Input Impedance, 1 kHz – 100 MHz, typ.

3.3 Output return loss and impedance



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



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

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