

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.
P _{1dB} Out:	+15 dBm ($\cong$ 3.5 V _{pp}); output saturation

DC-coupled driver amplifier

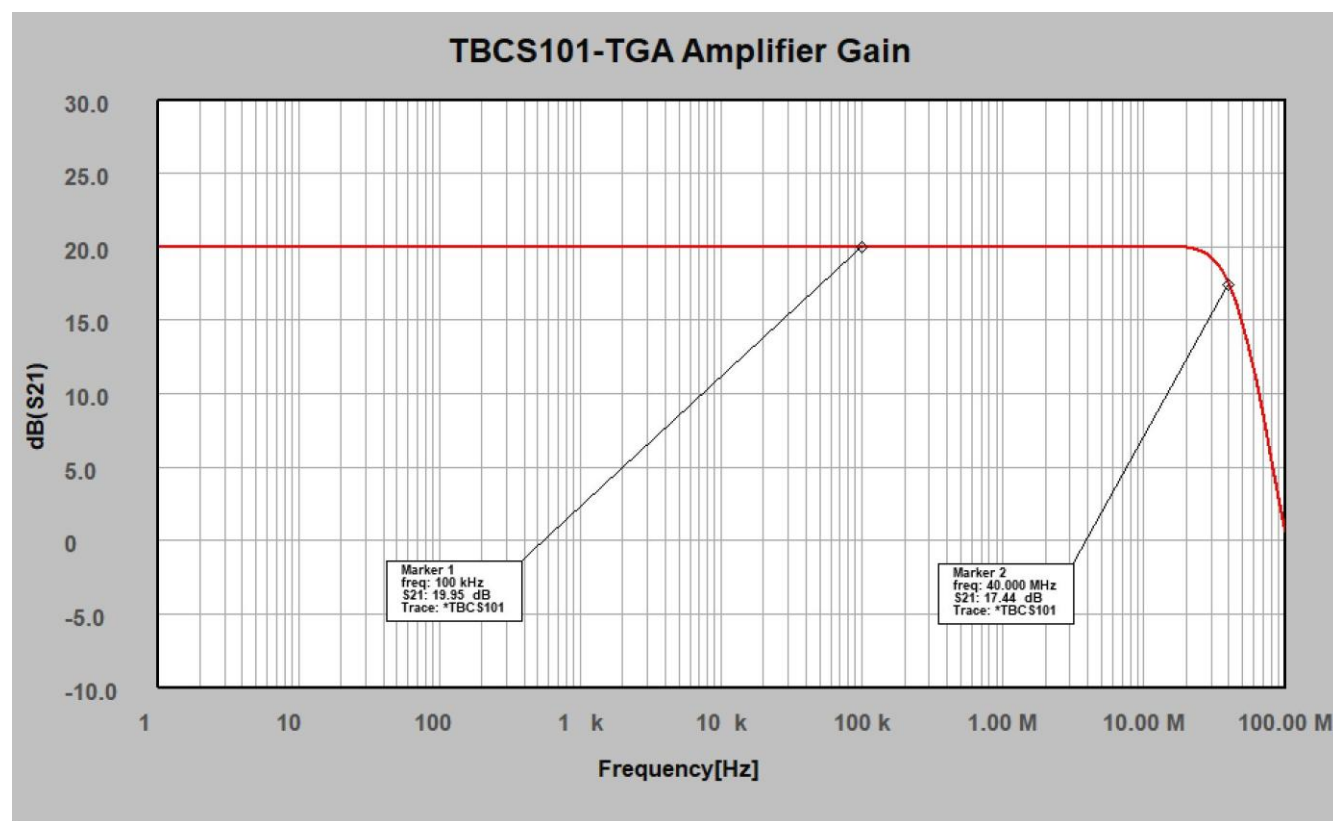
IP3_{out}: +25 dBm
 DC offset: < 100mV at output; input terminated with 50 Ohm

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

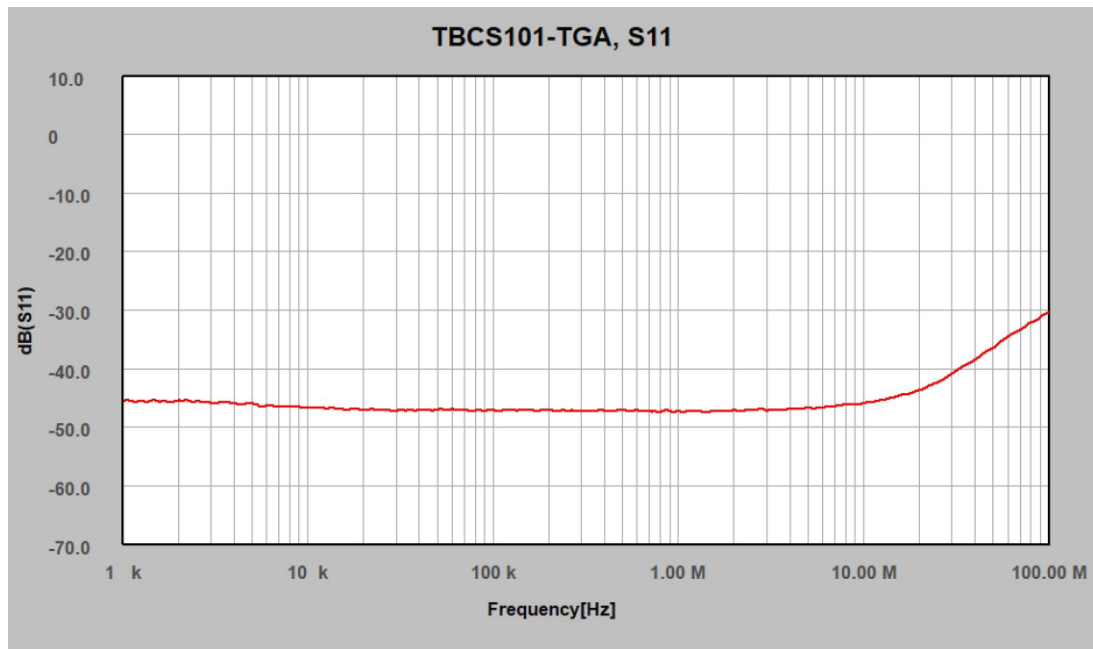
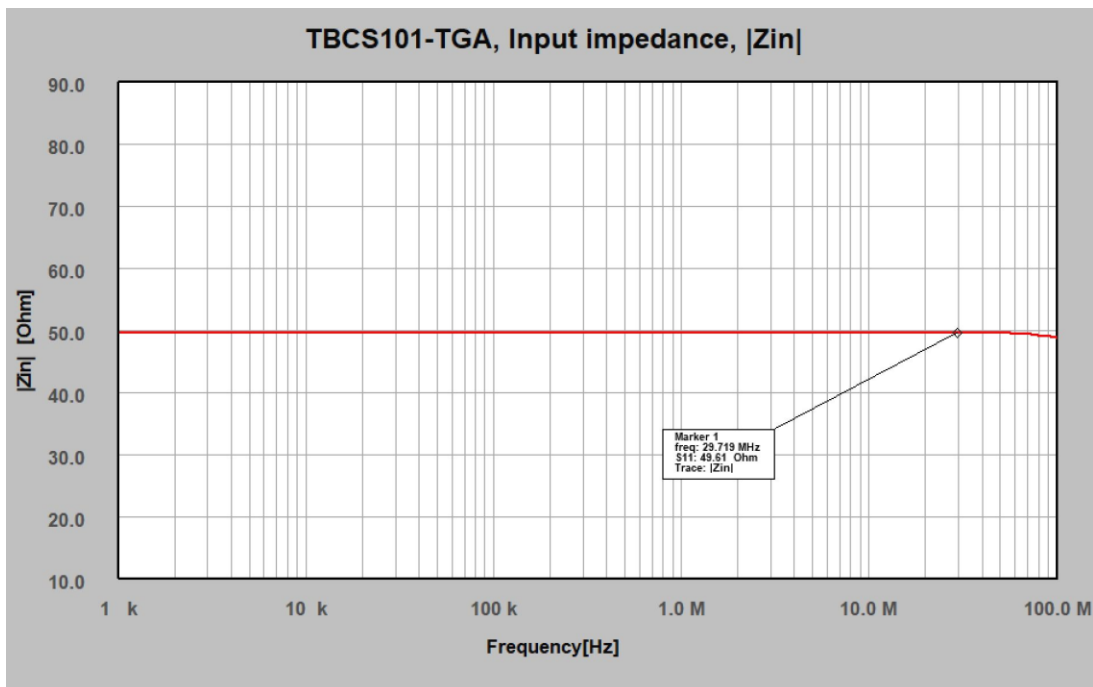
3.1 Gain



TBCS101-TGA, Gain, DC – 100 MHz, typ.

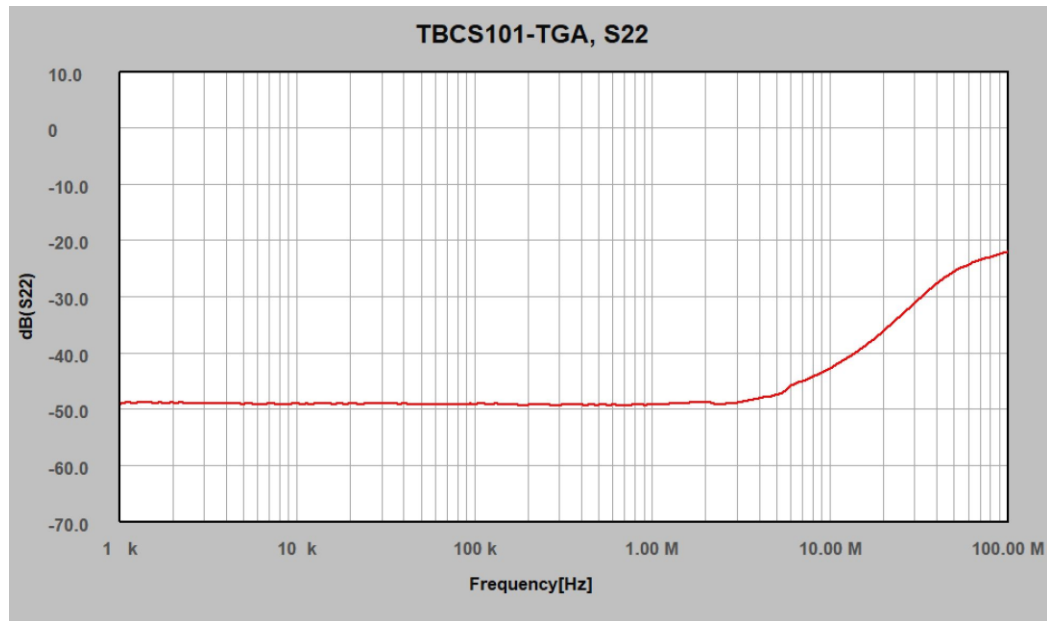
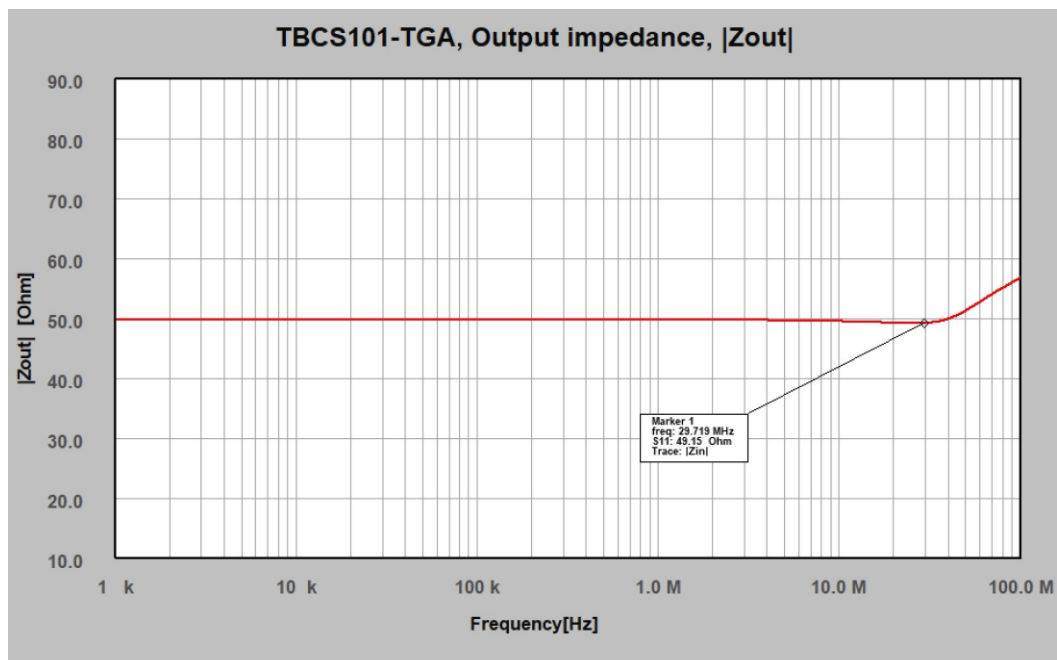
DC-coupled driver amplifier

3.2 Input return loss and impedance

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

DC-coupled driver amplifier

3.3 Output return loss and impedance

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

DC-coupled driver amplifier

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