



**TEKBOX**  
DIGITAL SOLUTIONS

powered by ...



I [VVS` V 6qhv3\_ b^XVd

More Infos: [www.alldaq.com/tekbox](http://www.alldaq.com/tekbox) | Email: [info@alldaq.com](mailto:info@alldaq.com)  
Sales hotline: +49 (0)89/894 222 474 | We like to help you!

## Wideband Driver Amplifiers

### 1 Introduction

TBDA1 wideband driver amplifiers are versatile building blocks that can easily be integrated into laboratory setups. With a frequency range of 40MHz to 3GHz and an output power of + 22 dBm at 1dB compression, they are ideal to boost the amplitude of low power RF sources or to drive power amplifier stages. The TBDA1 wideband amplifiers are available with 14dB or 28dB gain.



Picture 1 – TBDA1 wideband driver amplifiers front view



Picture 2 – TBDA1 wideband driver amplifiers rear view

#### **Application:**

general purpose gain block

RF driver amplifier

## Wideband Driver Amplifiers

### 2 Electrical Specifications

#### 2.1 TBDA1/14dB

**Technical Data:**

Input: 50 Ohm, SMA female

Output: 50 Ohm, SMA female

Nominal supply Voltage: 5V, typ. 115mA, Mini-USB-B connector

Maximum supply voltage: 5.5V

Maximum input power: +20dBm

1dB output compression point @ 40MHz: +21.5dBm

1dB output compression point @ 2 GHz: +22.5dBm

3<sup>rd</sup> order output intercept point @ 40 MHz: +40dBm

3<sup>rd</sup> order output intercept point @ 2 GHz: +43dBm

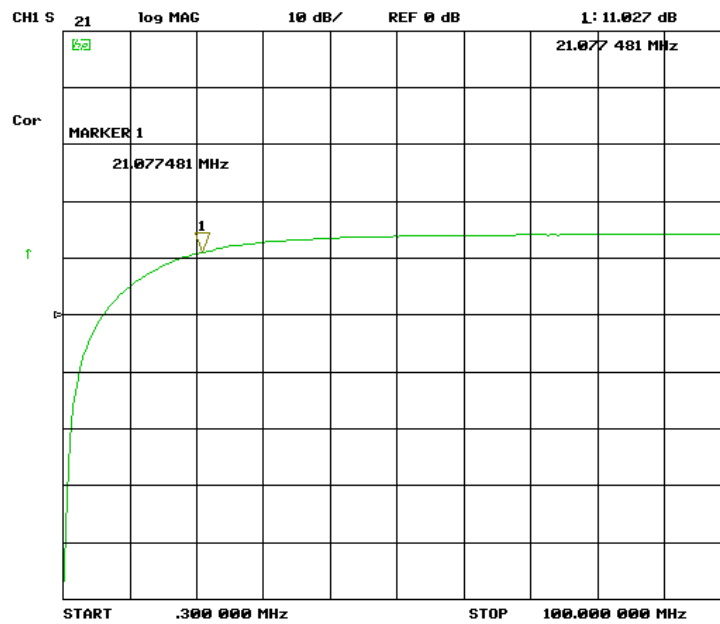
Reverse isolation S12: -20dB

Noise Figure: 3 ... 4 dB

Gain:

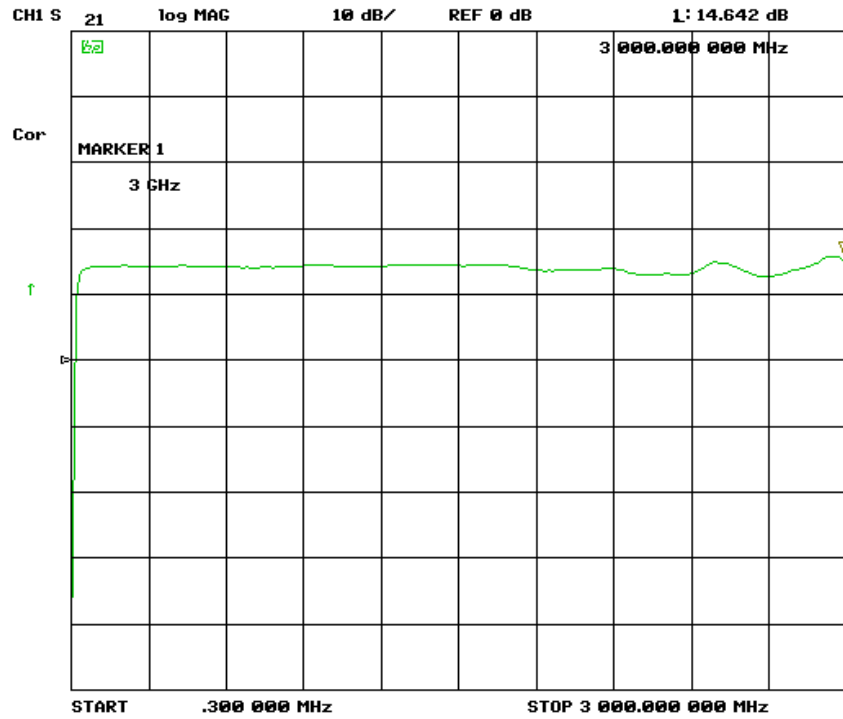
| 25 MHz | 50 MHz  | 100 MHz | 500 MHz | 1 GHz   | 1.5 GHz | 2 GHz   | 2.5 GHz | 3 GHz   |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 12 dB  | 13.8 dB | 14.2 dB | 14.2 dB | 14.3 dB | 14.3 dB | 13.7 dB | 14.8 dB | 14.6 dB |

Table 1 – TBDA1/14dB gain

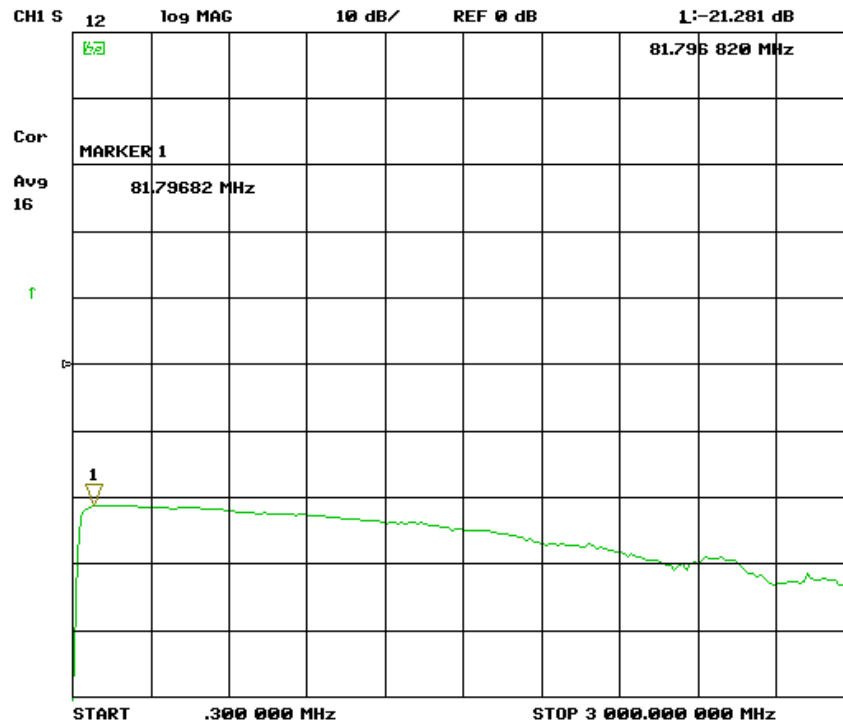


Picture 3 – TBDA1/14dB, gain, 300 kHz – 100 MHz, lin.

# Wideband Driver Amplifiers

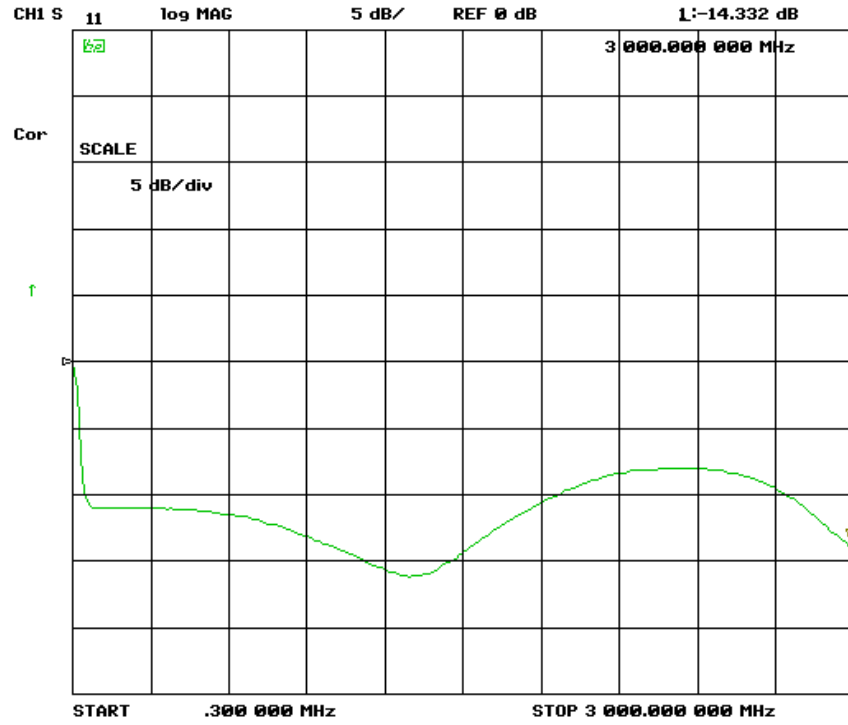


Picture 4 – TBDA1/14dB, gain, 300 kHz – 3 GHz, lin.

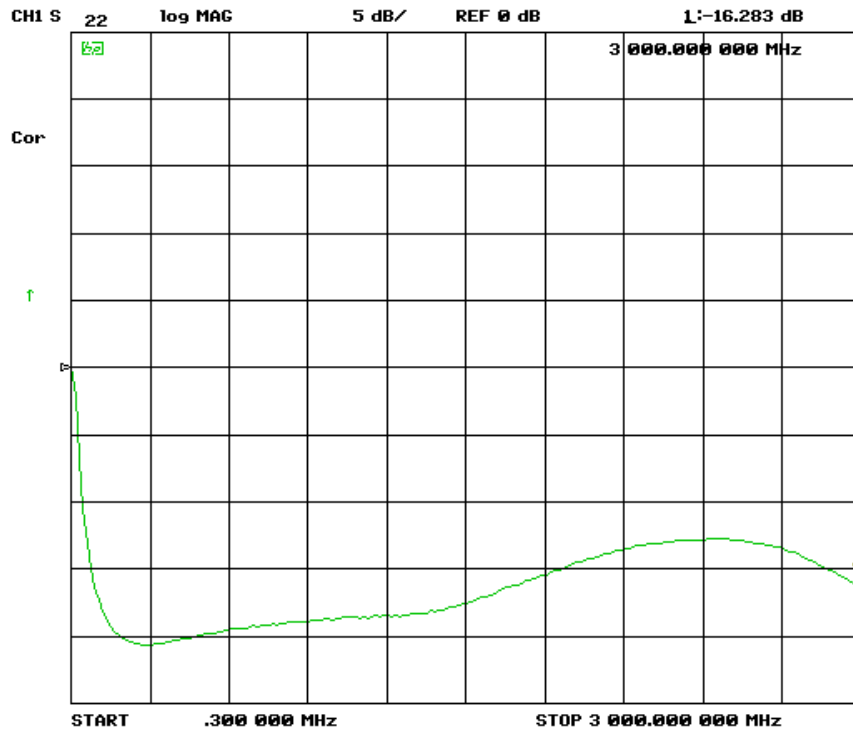


Picture 5 – TBDA1/14dB, reverse isolation, 300 kHz – 3 GHz, lin.

# Wideband Driver Amplifiers



Picture 6 – TBDA1/14dB, input return loss, IS11I, 300 kHz – 3 GHz, lin.



Picture 7 – TBDA1/14dB, output return loss, IS22I, 300 kHz – 3 GHz, lin.

## Wideband Driver Amplifiers

### 2.2 TBDA1/28dB

#### Technical Data:

Input: 50 Ohm, SMA female

Output: 50 Ohm, SMA female

Nominal supply Voltage: 5V, typ. 225mA, Mini-USB-B connector

Maximum supply voltage: 5.5V

Maximum input power: +6 dBm

1dB output compression point @ 40MHz: +21.5dBm

1dB output compression point @ 2 GHz: +22.5dBm

3<sup>rd</sup> order output intercept point @ 40 MHz: +39.8dBm

3<sup>rd</sup> order output intercept point @ 2 GHz: +42.8dBm

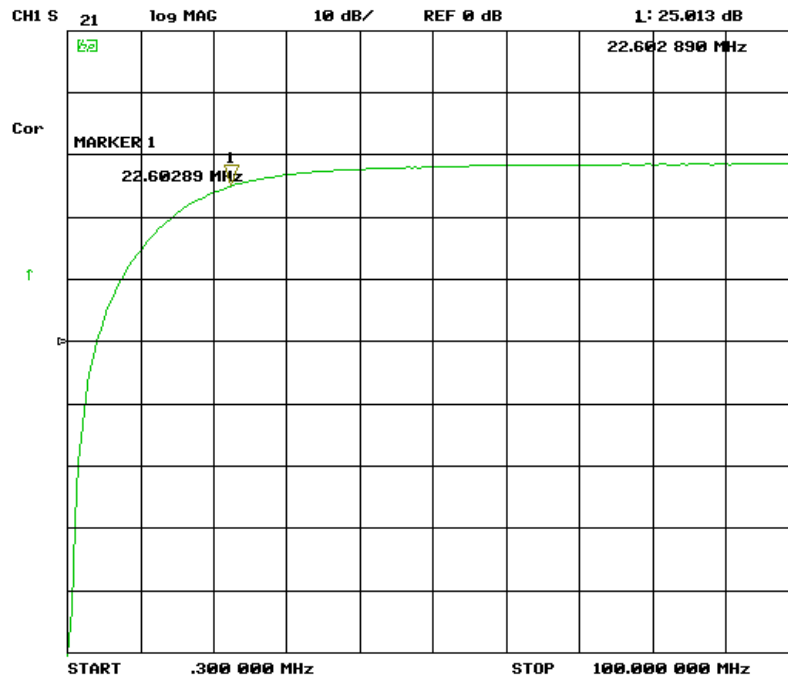
Reverse isolation S12: < -40dB

Noise Figure: 3.1 ... 4.1 dB

Gain:

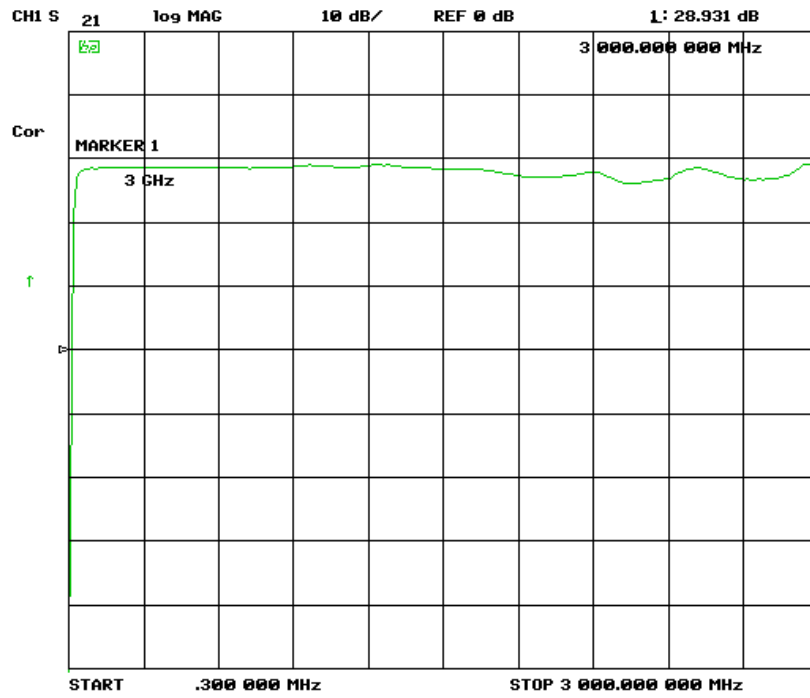
| 25 MHz | 50 MHz  | 100 MHz | 500 MHz | 1 GHz   | 1.5 GHz | 2 GHz  | 2.5 GHz | 3 GHz   |
|--------|---------|---------|---------|---------|---------|--------|---------|---------|
| 26 dB  | 28.4 dB | 28.6 dB | 28.6 dB | 28.8 dB | 28.3 dB | 27.2dB | 28.5 dB | 28.9 dB |

Table 2 – TBDA1/28dB gain

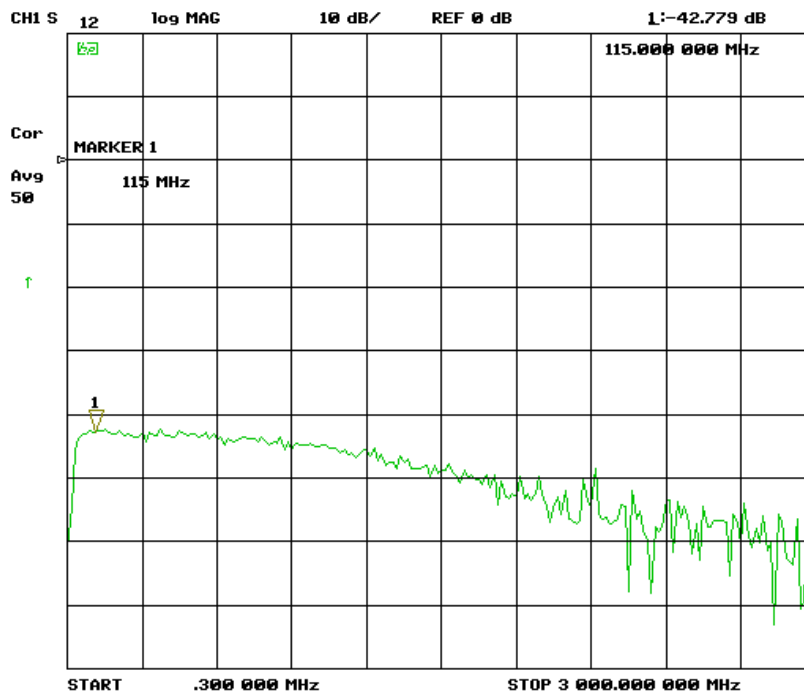


Picture 8 – TBDA1/28dB, gain, 300 kHz – 100 MHz, lin.

# Wideband Driver Amplifiers

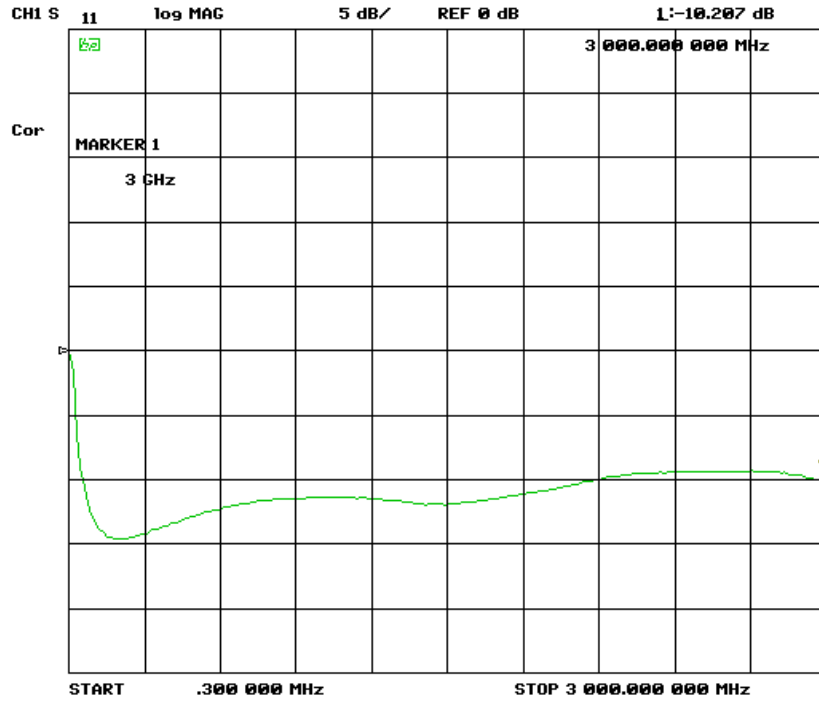


Picture 9 – TBDA1/28dB, gain, 300 kHz – 3 GHz, lin.

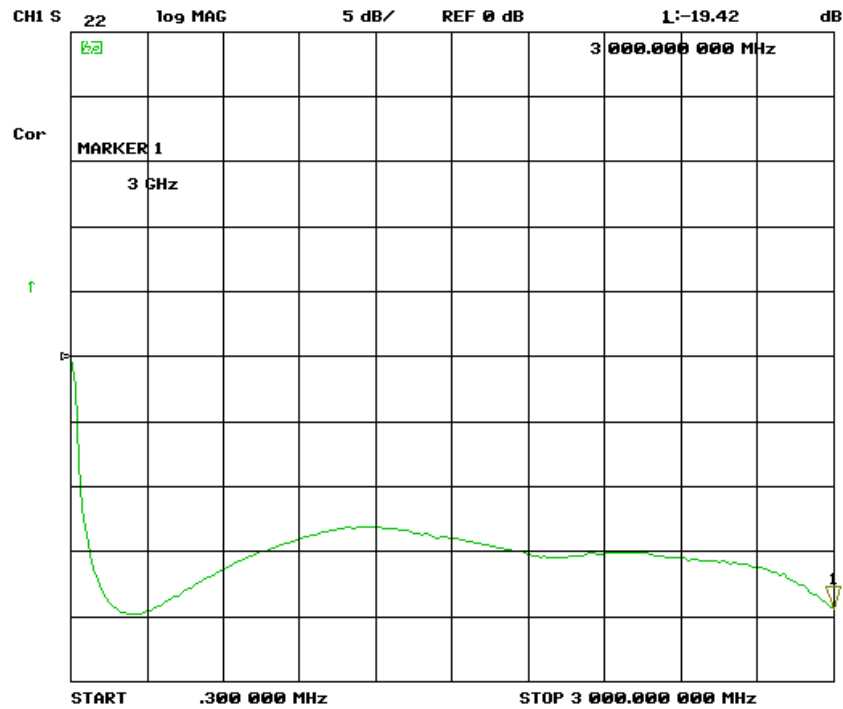


Picture 10 – TBDA1/28dB, reverse isolation, 300 kHz – 3 GHz, lin.

# Wideband Driver Amplifiers



Picture 11 – TBDA1/28dB, input return loss, IS11I, 300 kHz – 3 GHz, lin.



Picture 12 – TBDA1/28dB, output return loss, IS22I, 300 kHz – 3 GHz, lin.



## Wideband Driver Amplifiers

### 3 Ordering Information

| Part Number | Description   |
|-------------|---|
| TBDA1/14dB  | 14 dB driver amplifier, 1 pc 25cm SMA-male to SMA-male cable, 1 pc 75cm SMA- male to N-male cable. 1 pc SMA-female to N-male coaxial adapter, USB cable, measurement plot |
| TBDA1/28dB  | 28 dB driver amplifier, 1 pc 25cm SMA-male to SMA-male cable, 1 pc 75cm SMA- male to N-male cable. 1 pc SMA-female to N-male coaxial adapter, USB cable, measurement plot |

*Table 3 – Ordering Information*

### 4 History

| Version | Date       | Author     | Changes                         |
|---------|------------|------------|---------------------------------|
| V1.0    | 16.6.2016  | Mayerhofer | Creation of the document        |
| V1.1    | 14.11.2016 | Mayerhofer | Updated chapter 3, deliverables |

*Table 4 – History*