

KEY FEATURES

- ▶ output power +31 dBm typ.
- ▶ high OIP3 +40 dBm typ.
- ▶ high dynamic
- ▶ self test function
- ▶ temperature monitoring
- ▶ passive cooling
- ▶ AC mains supply

TYPICAL APPLICATIONS

- ▶ research & development (R&D)
- ▶ EMC pre-amplifier
- ▶ instrumentation and measurement
- ▶ broadband communication
- ▶ military and aerospace
- ▶ software defined radio (SDR)
- ▶ remote sensing



AT A GLANCE

AMP101800030-T from Becker Nachrichtentechnik is a compact ultra-wideband amplifier device in 50 ohms technology. The robust electrical and mechanical design provides solid operations over a long time. The amplifier works stable over a wide frequency range with many octaves. Internal filters and low noise voltage supplies guarantee high suppression of spurious. The RF connectors are located on the front panel of the device. The presence of AC mains power is indicated by a LED on the front panel.

Special Features

Using modern semiconductor technologies gives the amplifier module high dynamic properties over a wide operating bandwidth. Due to the ultra-wide operation frequency range the amplifier is suitable in many cellular, Wi-Fi, research and military applications.

An internal self-test function monitors current consumption and module temperature.

High Dynamic

The low noise figure combined with the high output compression gives the amplifier device excellent dynamic range properties.

Rugged Design

The amplifier is housed in a milled aluminium case. This protects the circuits against mechanical damage and gives best shielding for avoiding EMI influences caused by radio signals coming from the environment.

RF SPECIFICATIONS

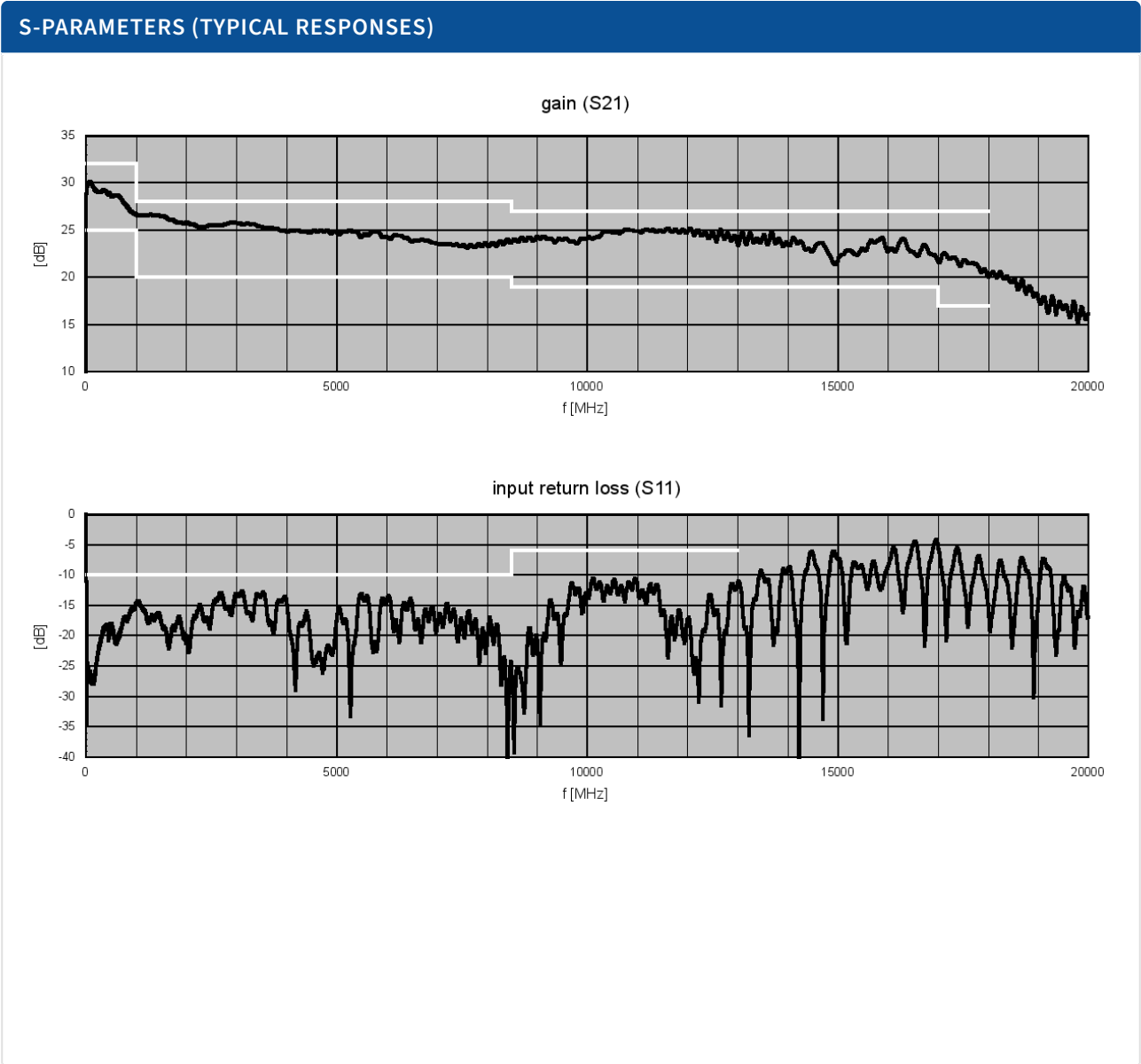
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	CONDITIONS
impedance	Z	–	50	–	Ω	
low frequency	f_{MIN}	–	–	10.0	MHz	
high frequency	f_{MAX}	18000	–	–	MHz	
linear gain	S_{21}	25.0	28.0	32.0	dB	$f \leq 1 \text{ GHz}$
	S_{21}	20.0	25.0	28.0	dB	$1 \text{ GHz} < f \leq 17 \text{ GHz}$
	S_{21}	17.0	21.0	27.0	dB	$f > 17 \text{ GHz}$
input return loss	S_{11}	–	-15.0	-10.0	dB	$f \leq 8.5 \text{ GHz}$
	S_{11}	–	-11.0	-6.0	dB	$8.5 \text{ GHz} < f \leq 13 \text{ GHz}$
	S_{11}	–	-6.0	–	dB	$f > 13 \text{ GHz}$
reverse isolation	S_{12}	–	-70.0	–	dB	
3rd order intercept	$OIP3^1$	35.0	40.0	–	dBm	$f \leq 5 \text{ GHz}$
	$OIP3^1$	31.0	36.0	–	dBm	$5 \text{ GHz} < f \leq 12 \text{ GHz}$
saturation power	P_{SAT}	29.0	32.0	–	dBm	$f \leq 5 \text{ GHz}$, PIN = +15dBm
	P_{SAT}	27.0	29.0	–	dBm	$5 \text{ GHz} < f \leq 17 \text{ GHz}$, +15dBm
	P_{SAT}	–	26.0	–	dBm	$f > 17 \text{ GHz}$, PIN = +15dBm
1 dB compression	$P_{1\text{dB}}$	24.0	28.0	–	dBm	$f \leq 12 \text{ GHz}$
	$P_{1\text{dB}}$	–	28.0	–	dBm	$f \geq 12 \text{ GHz}$
noise figure	NF	–	5.0	8.0	dB	$0.5 \text{ GHz} \leq f \leq 17 \text{ GHz}$
input power	P_{IN}	–	–	15.0	dBm	no damage
DC voltage	U_{DC}	–	–	15	V	RF ports
ESD discharge resistor	R_{ESD}	–	4.7	–	k Ω	RF ports
RF connector type	X_{RF}	N female				rear panel

Note 1: tested at 2x +17dBm, $\Delta f = 2 \text{ MHz}$

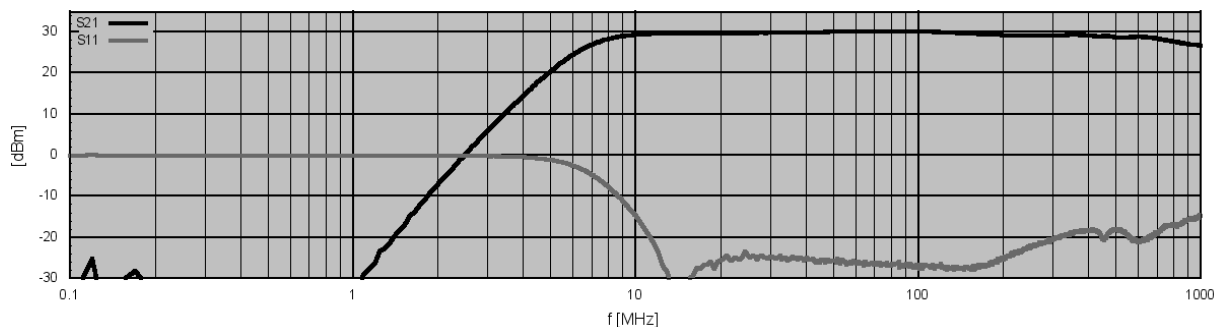
COMMON SPECIFICATIONS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	CONDITIONS
weight	m	–	1.6	–	kg	
dimensions	$W \times H \times D$	approx. 115 x 100 x 190			mm	without connectors
voltage supply range	U_{AC}	90	230	260	V	AC, 50 ... 400 Hz
power consumption	P_{AC}	–	15	–	W	variant with AC supply
power socket	X_{AC}	IEC-60320 C14				country specific power cable
operating temp. range	T_{O}	5	–	40	°C	housing surface
storage temp. range	T_{S}	-40	–	70	°C	

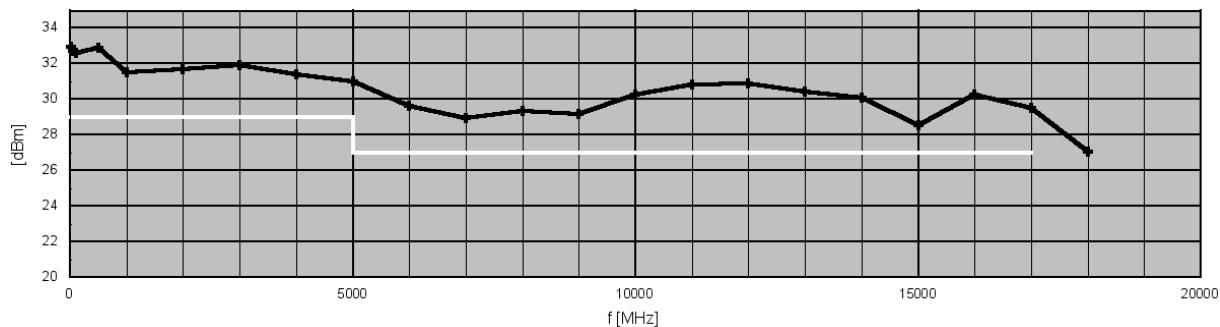
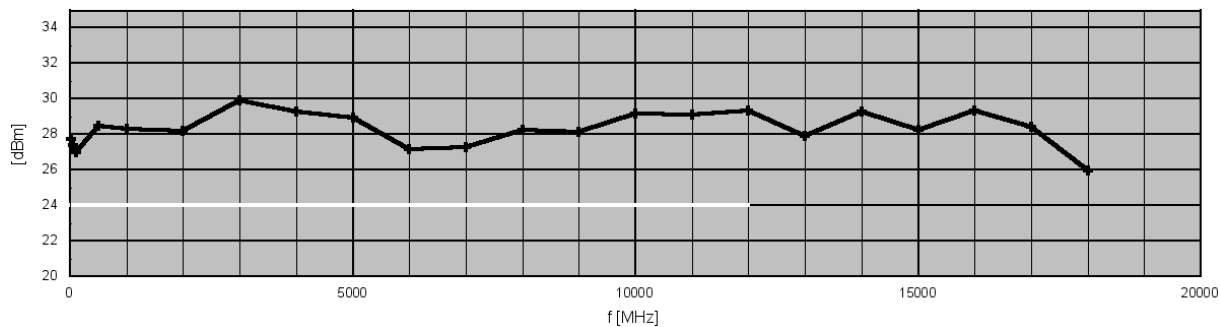
COMPLIANCE SPECIFICATIONS						
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	CONDITIONS
material compliance		RoHS compliant in accordance with EU Directive 2011/65/EU and 2015/863/EU				applied harmonized standards: EN 63000:2018
electrical safety		EU: in line with low voltage directive (2014/35/EC)				applied harmonized standard: EN 61010-1
electromagnetic compatibility		EU: in line with EMC directive (2014/30/EC)				applied harmonized standards: EN 61326-1 (for use in industrial environment), EN 61326-2-1, EN 55011 (class B), EN 61000-3-2, EN 61000-3-3

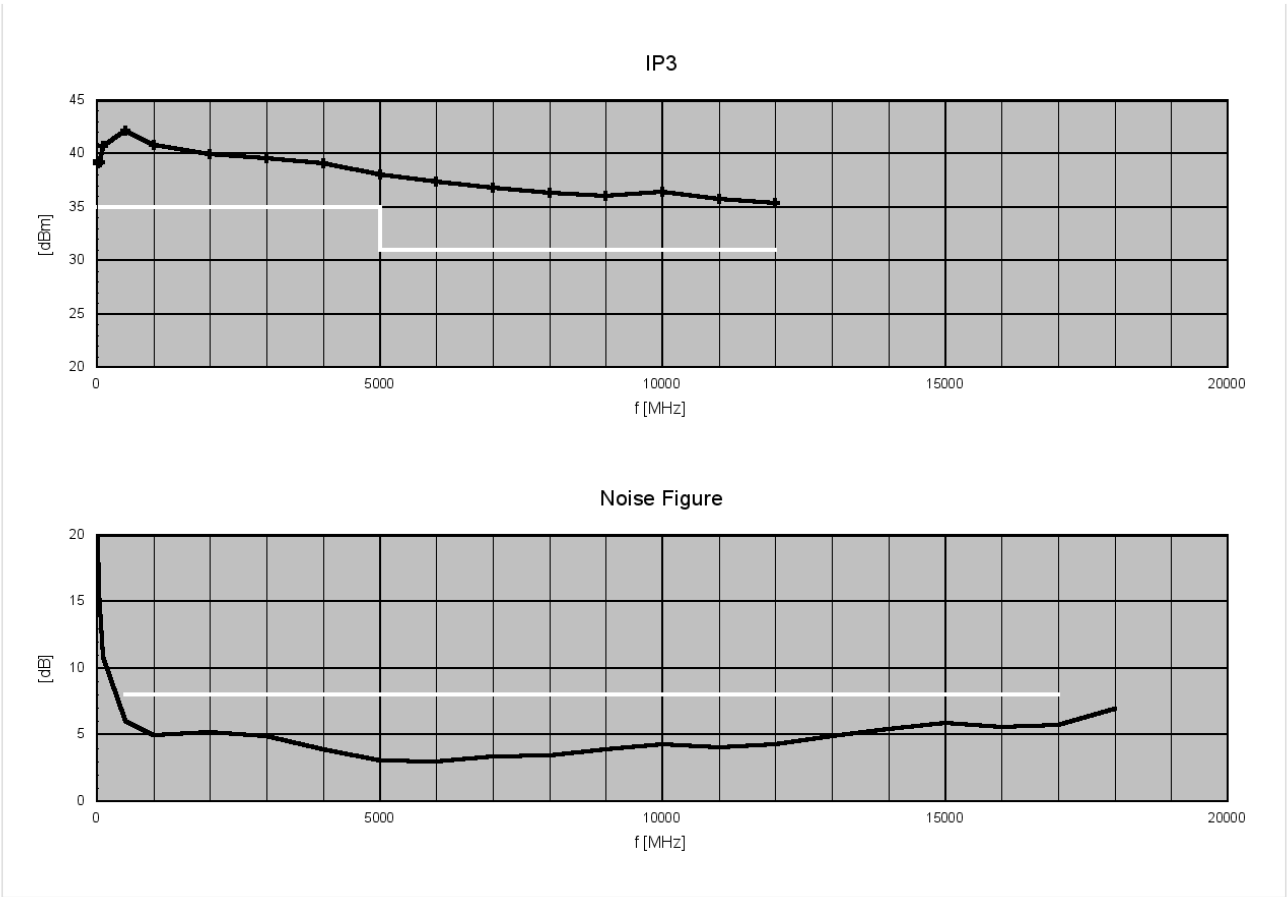


low frequency responses

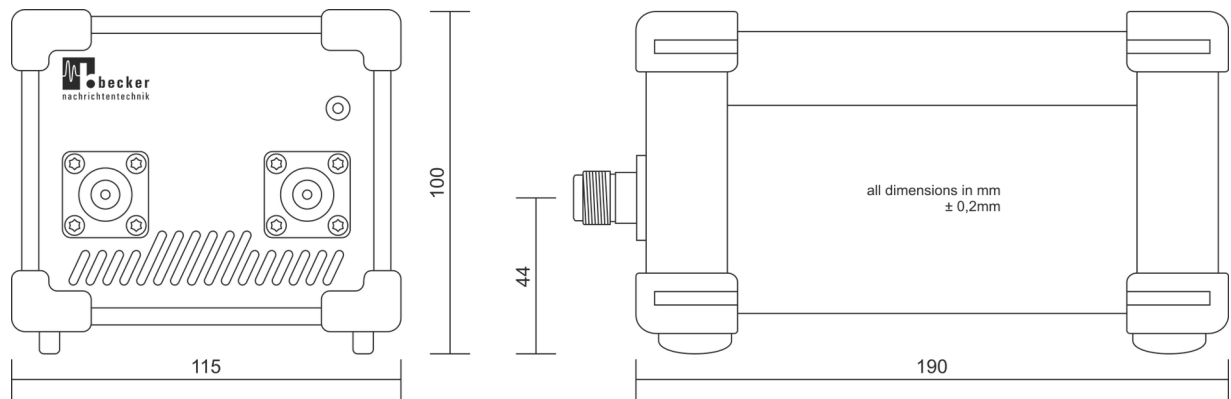


DYNAMIC RANGE (TYPICAL RESPONSES)

Saturation ($P_{IN} = +15$ dBm)Compression (P_{1dB})



DIMENSIONS



APPEARANCES



Front View



Rear View

ORDERING INFORMATION		
PART NUMBER	VARIANT	DESCRIPTION
2106.5003.1	Table Top Unit	1 W Ultra-Wideband Linear Amplifier, Table Top Device, 10...18000 MHz

RELATED PRODUCTS

PART NUMBER	PRODUCT	DESCRIPTION
1002.5703.1	AMP018032-T	1.5 W High-Dynamic Amplifier Table Top Device 100 kHz ... 80 MHz
2106.5002.1	AMP101800030-R	1 W Ultra-Wideband Linear Amplifier 1 U 19" rack device 10...18000 MHz
1209.5203.1	AMP20280035B-T	4.5 W Wideband Amplifier Device Table Top Device 20...2800 MHz
1209.5002.1	AMP40100034-R	4 W Wideband Amplifier 19" Device 40...1000 MHz
1005.5103.1	AMP5220031-T	1.25 W High Dynamic Range Amplifier Table Top Device 5...2200 MHz
0901.5013.1	AMP590033-T	2 W Booster Amplifier Module Table Top Device 5...900 MHz
0901.5002.1	AMP590033H-R	2 W HiIP3 Power Amplifier, 1 U 19" rack device 5...900 MHz
0901.5003.1	AMP590033H-T	2 W HiIP3 Power Amplifier Table Top Device 5...900 MHz
0901.5503.1	LNA1080014-T	600 mW Low Noise Amplifier Table Top Device 10...800 MHz