becker nachrichtentechnik

AMP300600043-R

20 W Power Amplifier 300 … 6000 MHz

Features
- compact 19”, 2 U rack device
- output power +45 dBm typ.
- high OIP3 +49 dBm typ.
- high dynamic
- self test function
- optical power indication
- status signaling contact (floating)

Applications
- EMC compliance testing
- GSM, UMTS, LTE, 5G, Wifi
- UHF, SHF

At a Glance

AMP300600043-R from Becker Nachrichtentechnik is a compact amplifier in 50 ohms technology designed for the use in professional applications. The robust electric and mechanic design gives 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 presence of power is indicated by a LED at the front panel. The amplifier is designed for mounting in 19-inch cabinets or as table top unit. The integrated mains ac converter with its wide input voltage range and integrated cooling makes the device easy to use.

Special Features

The high output power and the ultra-wide operation frequency range makes the medium power amplifier suitable in EMC compliance testing and in systems for cellular and Wifi applications including 5G (FR1).

An internal self-test function monitors current consumption and temperature of the two integrated modules. In the case of exceeding the limits a floating contact is opened.

Tolerant to Mismatches

Using power transistors with enough head room to maximum ratings make the amplifier module robust against reverse power and therefore robust against loads at the output which are not matched.

Rugged Design

The aluminium housing of the AMP300600043-R protects the device against mechanical impacts and gives a good shielding. The internal amplifier modules have milled aluminium housings. These shielding properties makes the AMP300600043-R amplifier suitable for professional applications with high demands in RF dynamic properties also in EMC requirements.

RF Specification

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{in} / Z_{out}		50		Ω	
low frequency	f_{LOW}			300	MHz	
high frequency	f_{HIGH}	6.0			GHz	
linear gain	S_{21}	46	51	56	dB	f < 0.7 GHz
	S_{21}	46	48	52	dB	0.7 GHz ≤ f ≤ 5.0 GHz
	S_{21}	43	47	52	dB	f > 5.0 GHz
input return loss	S_{11}		-15	-8	dB	
saturation power	P_{SAT} 1)	+42	+45		dBm	f ≤ 5.0 GHz
	P_{SAT} 1)	+40	+42		dBm	f > 5.0 GHz
1 dB compression	P_{1dB}		+41		dBm	
harmonics	D		-27		dBc	P = +40dBm
3rd order intercept	OPIP3 2)	+46	+49		dBm	f ≤ 5.0 GHz
	OPIP3 2)	+44	+47		dBm	f > 5.0 GHz
noise figure	NF		7	10	dB	
input power	P_{in}			+10	dBm	no damage
DC voltage	U_{DCI}			20	V	RF input
	U_{DCO}			0	V	RF output
ESD discharge resistor	R_{ESD}		4.7		kΩ	RF ports

Note 1: Tested at P_{IN} = +5 dBm

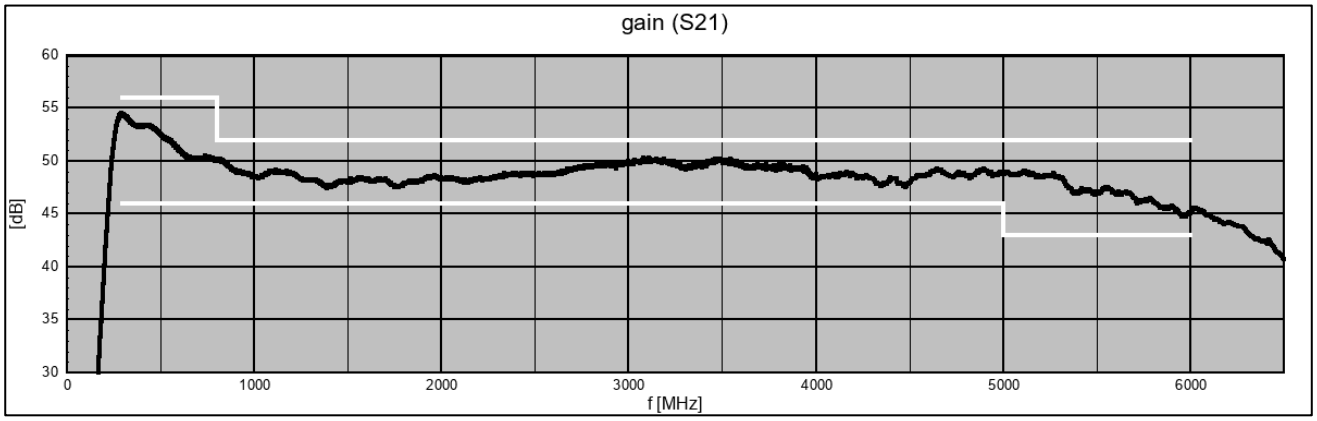
Note 2: Tested at P_{out} = 2 x +25 dBm; 400M / 500M, 750M / 850M, 950M / 1050M, 1750M / 1850M, 1950M / 2050M, 2950M / 3050M, 3950M / 4050M, 4950M / 5050M, 5450M / 5550M, 5800M / 5900M

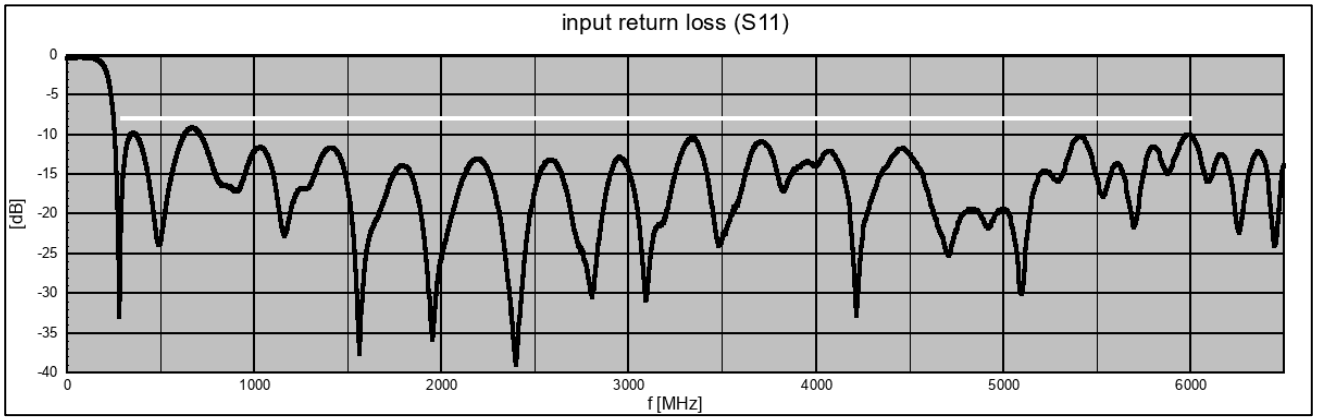
Common Specification

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
RF connector type	X_{RF}		N female			
impedance	Z_{IN}/Z_{OUT}		50		Ω	
power supply	U_{AC}	90		260	V	AC, 50 … 400 Hz
power consumption	P_{AC}		220		W	
power socket	X_{AC}		IEC-60320 C14			country specific power cable
status signaling			floating relay contact			
relay current	$I_{\_STAT}$			1	A	
relay voltage	$U_{\_STAT}$			42	V	
status socket	X_{STAT}					rear side
dimensions	W x H x D		approx. 483 x 89 x 265		mm	without connectors, 19”, 2 U
weight	m		6.15		kg	
operating temp. range	T_o	+5		+40	°C	
storage temp. range	T_s	-40		+70	°C	
ordering information	AMP300600043-R			2200.5522.1		

S-Parameters

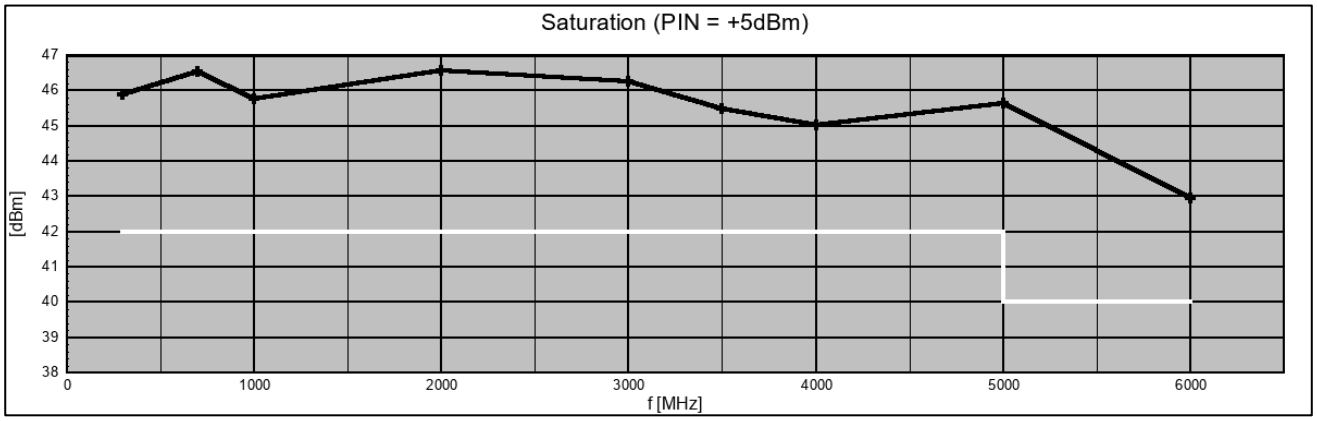
typical responses

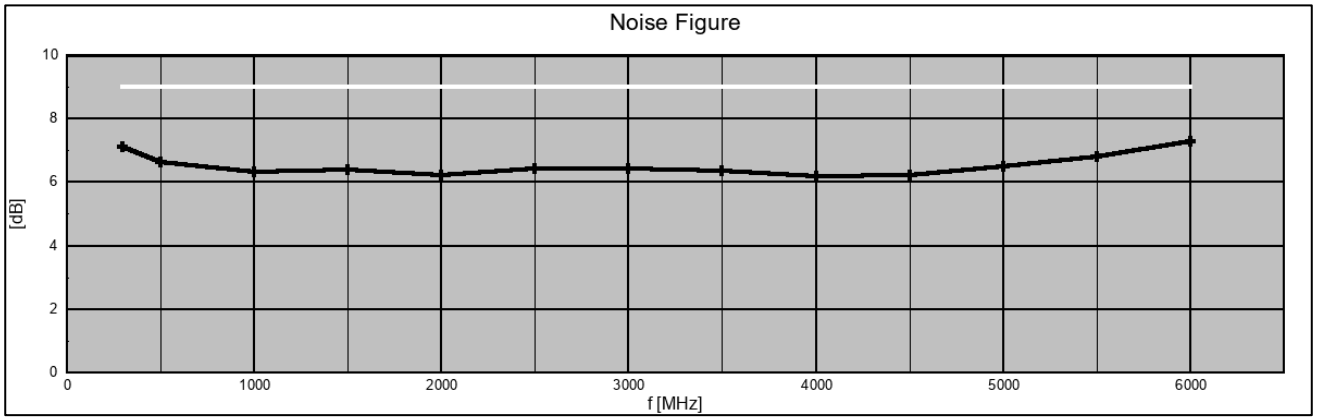




Dynamic Range

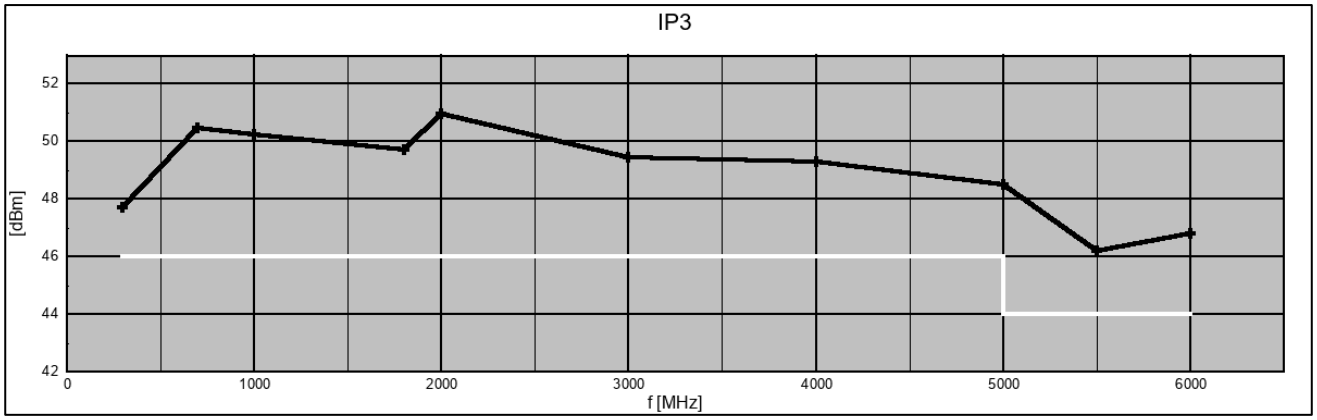
typical responses





Linearity

typical responses



Appearances

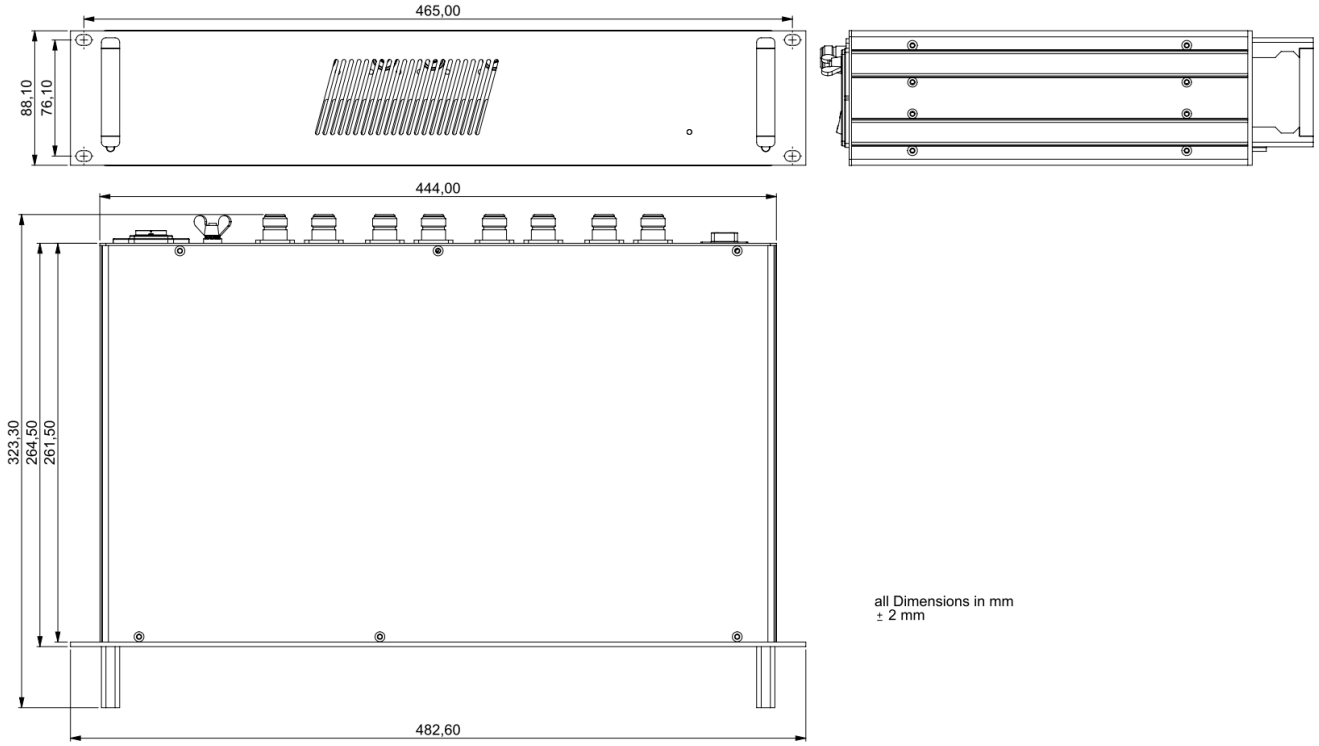
number of N-connectors on the back depends on product variant

Front View

Rear View

Dimensions

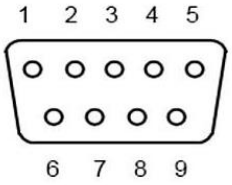
number of N-connectors on the back depends on product variant



PIN Assignment STATUS

floating contacts

PIN	Designation	Remark
3	REL_COM_A	relay common (AMP A)
4	REL_OK_A	OK when closed (AMP A)
5	REL_FAIL_A	failure when closed (AMP A)
7	REL_COM_B	relay common (AMP B)
8	REL_OK_B	OK when closed (AMP B)
9	REL_FAIL_B	failure when closed (AMP B)
1,2,6	n.c.	Not connected



Related Products

Product	Form factor	Description	P/N
AMP300600040	Module with external heat sink	10 W Power Amplifier Module, 300 … 6000 MHz	1801.5101.1
AMP300600040L	Module for mounting on external heat sink	10 W Power Amplifier Module, 300 … 6000 MHz	1801.5001.1
AMP300600040-R	19”-2U rack device	10 W Power Amplifier Module, 300 … 6000 MHz	2200.5512.1
AMP300600043-R	19”-2U rack device	20 W Power Amplifier Module, 300 … 6000 MHz	2200.5522.1
AMP-LR SERIES	19”-2U rack device	Universal Rack Amplifier Platform	2200.5502