

## AMP17001300038L

### 6 W Power Amplifier Module 1700 ... 13000 MHz

#### Features

- output power +38 dBm typ.
- high OIP3 +42 dBm typ.
- high dynamic
- reverse polarity protected
- self test function
- optical power and status indication
- status signaling contact (floating)
- designed for mounting on external heat sink for passive cooling

#### Applications

- research & development
- cellular, Wi-Fi
- military
- intelligence service
- jamming



#### At a Glance

AMP17001300038L from Becker Nachrichtentechnik is a compact amplifier module 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. To avoid damages during installation, the supply is protected against reverse polarity. The presence of DC power and the module status is indicated by a LED at the module. The health status of the module can also be queried by floating relay contacts for remote operation. The amplifier module is designed for mounting on a heat sink provided by the user for passive cooling.

#### Special Features

Using modern semiconductor technologies give the amplifier module high dynamic properties over a wide operating bandwidth. Due the ultra-wide operation frequency range the amplifier is suitable in many cellular, Wi-Fi, research and military applications. For minimizing dissipation power and heat generation of the module, the supply voltage can be adapted in a wide range to the desired RF output power.

An internal self-test function monitors current consumption and module temperature. In the case of exceeding the limits, a floating contact is opened and the status is signaled by the LED at the module.

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

**RF Specification (32 V supply voltage)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	$Z_{in} / Z_{out}$		50		$\Omega$	
low frequency	$f_{LOW}$			1.7	GHz	
	$f_{HIGH}$	12	13		GHz	
linear gain	$S_{21}$		38		dB	
input return loss	$S_{11}$		-13		dB	
saturation power	$P_{SAT}$		+38		dBm	$P_{IN} = +10\text{dBm}$
1 dB compression	$P_{1dB}$		+35		dBm	
harmonics	d		-20		dBc	$P_{OUT} = +37\text{dBm}$
3 <sup>rd</sup> order intercept	OIP3 <sup>1)</sup>		+42		dBm	
noise figure	NF		3		dB	
input power	$P_{INRF}$			+13	dBm	no damage
DC voltage	$U_{DC}$			20	V	
ESD discharge resistor	$R_{ESD}$		4.7		k $\Omega$	RF ports
RF connectors	$X_{RF}$	SMA female				

Note 1: Tested at  $P_{out} = 2 \times +27 \text{ dBm}$ ;  $\Delta f = 100\text{MHz}$

**Common Specification**

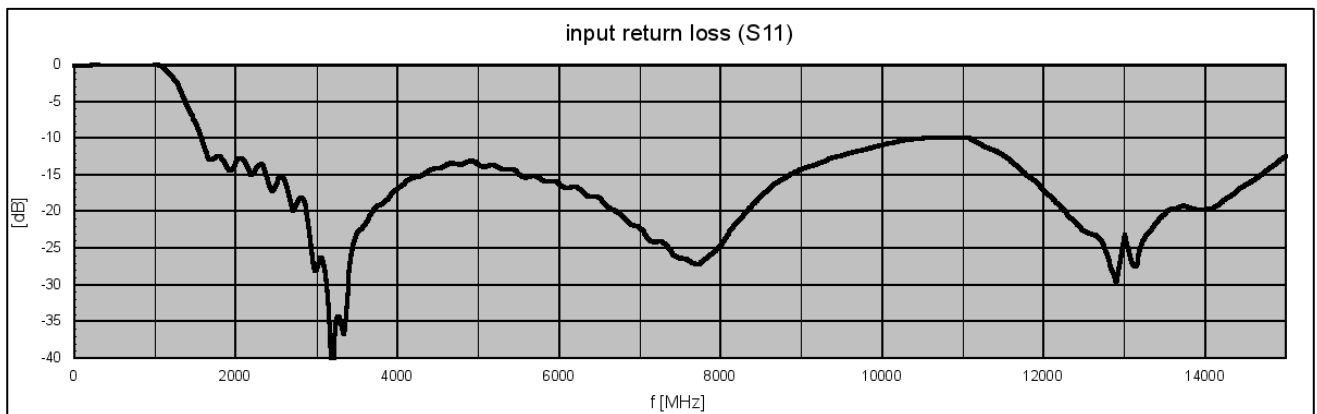
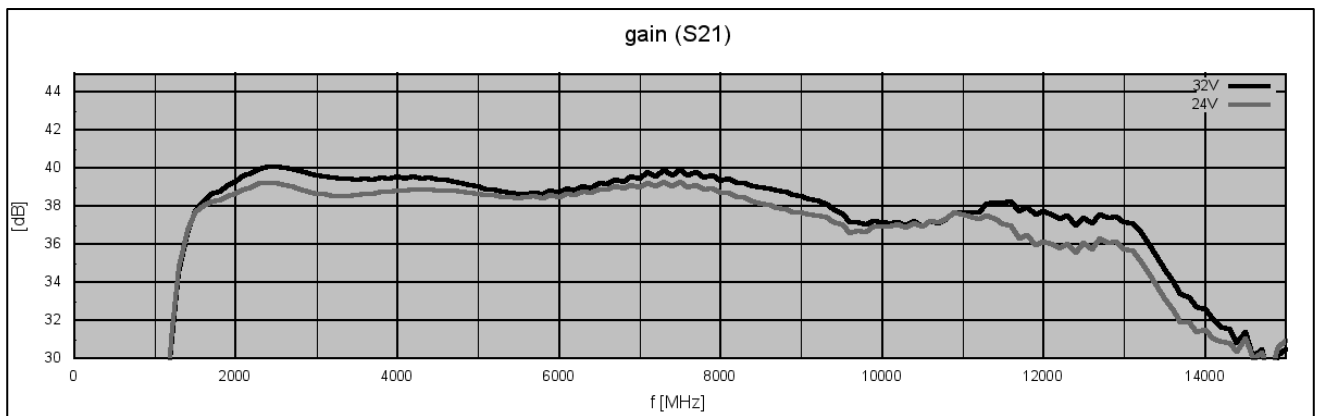
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
supply voltage	$U_{DC}$	22	32	33	V	DC
current consumption	$I_{DC}$		1.3*	2	A	@ 32 V DC, *quiescent current
dimensions	W x H x D	approx. 105 x 20 x 90			mm	without connectors
weight	m		370		g	
current threshold	$I_{THRES}$		$\pm 20$		%	failure if current consumption exceeds
temperature threshold	$T_{THRES}$		+80		$^{\circ}\text{C}$	failure if temperature exceeds, hysteresis approx. 5 K
failure signalling		STATUS LED				gn / rd
		floating relay contacts				SPDT
SPDT switching current	$I_{SW}$			1	A	DC
SPDT switching voltage	$U_{SW}$			42	V	DC
power socket	$X_{DC}$	Würth WR-TBL3251-5-3.5-W				
power plug	$X_{DCP}$	Würth WR-TBL3641-5-3.5				part of delivery
operating temp. range	$T_O$	0		+70	$^{\circ}\text{C}$	module surface, please comply required cooling
storage temp. range	$T_s$	-40		+70	$^{\circ}\text{C}$	
thermal emission	$P_{TH}$		35W			24V
	$P_{TH}$		42W			32V
required cooling	$R_{TH}$		0.9	1.3 <sup>3)</sup>	K/W	24V
	$R_{TH}$		0.7	1.1 <sup>3)</sup>	K/W	32V
heat sink (example)		SK 479 100 SA (400x100x40mm)				Fischer Elektronik
fixed with		4x M3x16 + washer + spring washer				
ordering information		AMP17001300038L		2004.5011.1		

Note 3: effective thermal resistance,  $T_{AMB} \leq +30^{\circ}\text{C}$

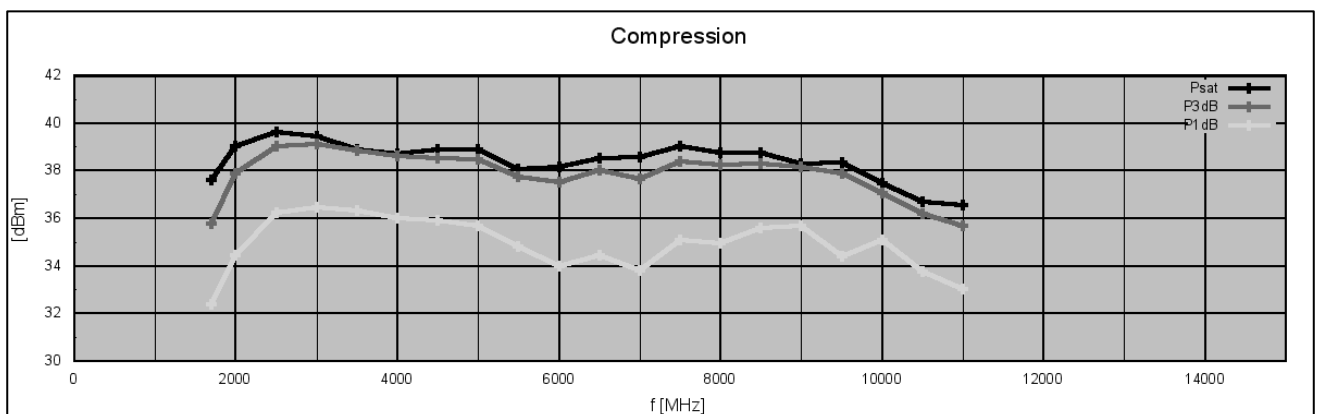


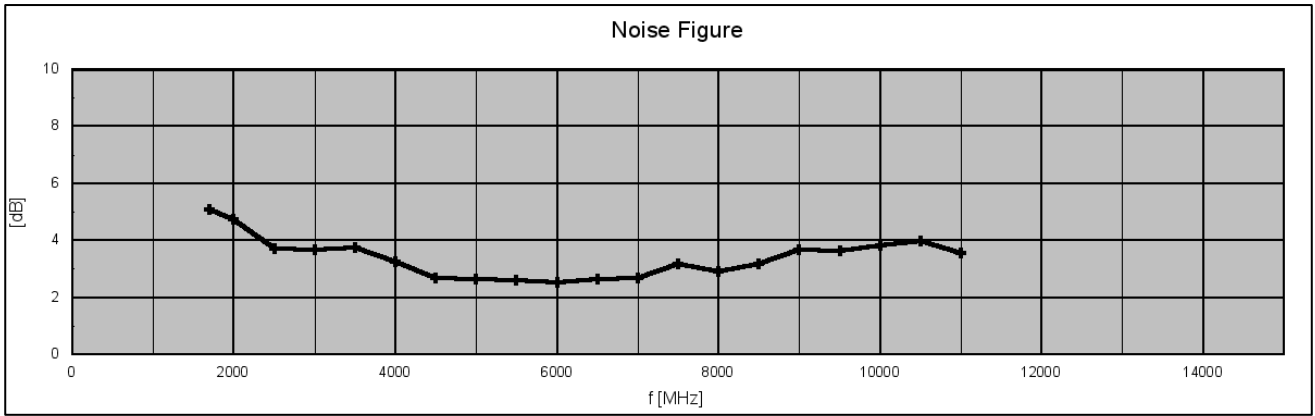
**S-Parameters** (typical responses)

S21 versus supply voltage (24V and 32V)

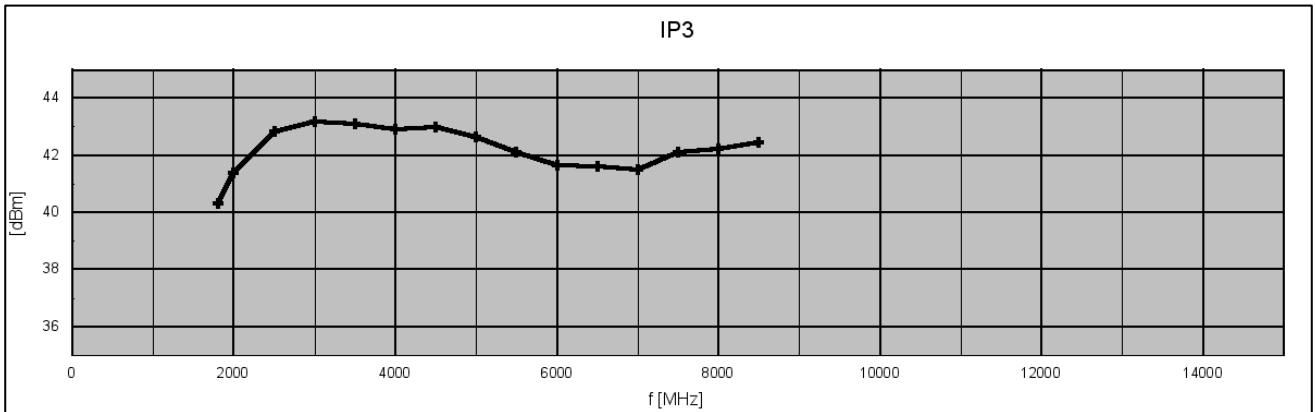
**Dynamic Range** (typical responses)

Output power (32V)

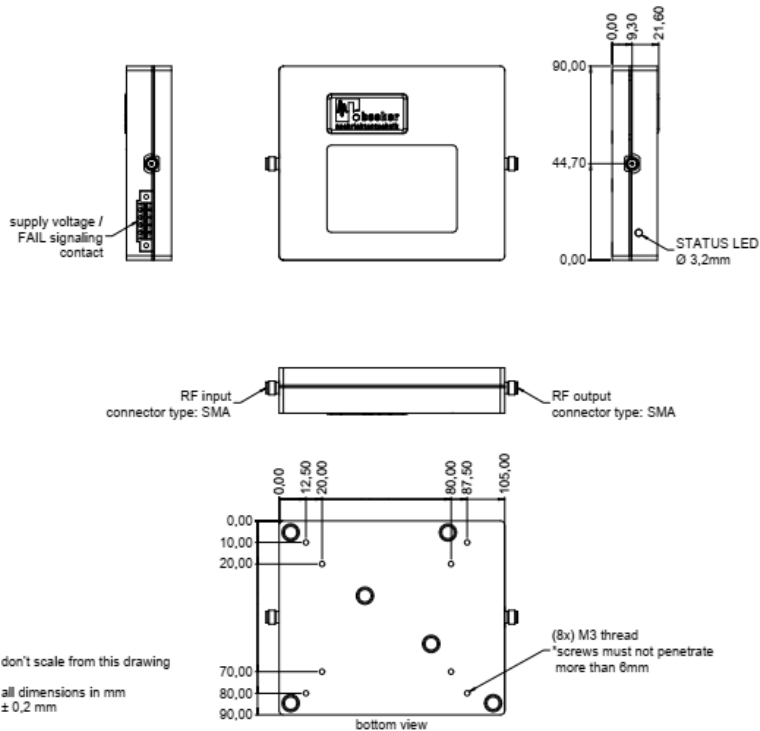




### Linearity (typical responses)

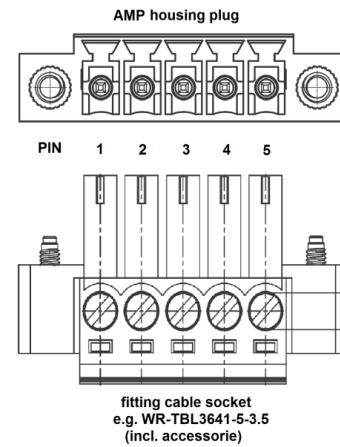


### Dimensions

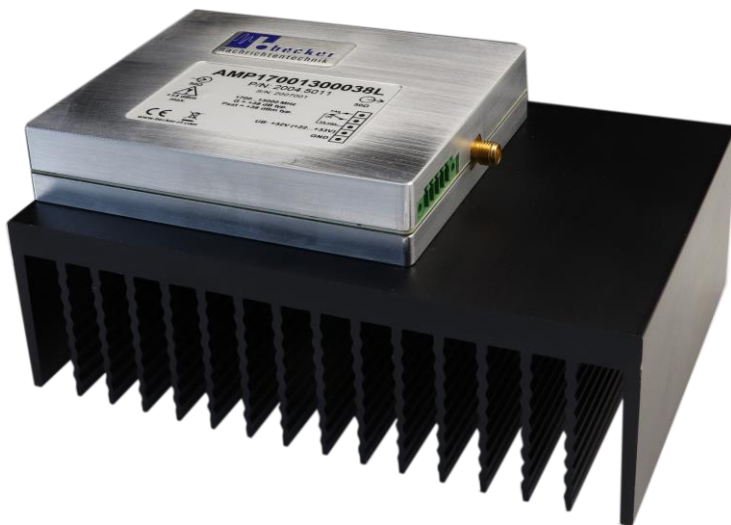


## PIN Assignment DC / STATUS (floating contacts)

PIN	Designation	Remark
1	GND	Ground
2	+UB	DC supply voltage
3	REL_COM	relay common
4	REL_OK	OK when closed
5	REL_FAIL	failure when closed



## Mounting Example



Appearance: Amplifier module mounted on heat sink (SK 479 100 SA), suitable for passive cooling.

## Related Products

Product	Description	P/N
AMP1053045	30 W Linear Power Amplifier Module 10 ... 530 MHz	1908.5001.1
AMP1053043H	20 W Power Amplifier Module 10 ... 530 MHz	1001.5001.x
AMP2000600040L	13 W Power Amplifier Module 2000 ... 6000 MHz	1711.5001.1
AMP300600040L	10 W Power Amplifier Module 300 ... 6000 MHz	1801.5001.1
AMP20280035	4.5 W Wideband Amplifier Module 20 ... 2800 MHz	1209.5001.x
AMP3060036	4 W Ultra High Linearity, Full Redundant, Wideband Amplifier Module 30 ... 600 MHz with heat sink	1602.5001.1
AMP3060036L	4 W Ultra High Linearity, Full Redundant, Wideband Amplifier Module 30 ... 600 MHz for mounting on heat sink	1602.5001.2
AMP590033	2 W Booster Amplifier Module 5 ... 900 MHz	0901.5011.x
AMP590033H	2 W Amplifier Module 5 ... 900 MHz	0901.5001.x
AMP5170033	2 W Amplifier Module 5 ... 1700 MHz	1401.5011.1
AMP5220031	1 W High Dynamic Amplifier Module 5 ... 2200 MHz	1005.5101.x
AMP018032	1.3 W High Linearity Amplifier Module 100 kHz...80 MHz	1002.5701.x
AMP5270026	400 mW High Dynamic Amplifier Module 5 ... 2700 MHz	1005.5201.x
AMP10850026	400 mW Ultra Wideband Amplifier Module 10 ... 8500 MHz	1305.5001.x
LNA1080014	400 mW Low Noise Amplifier Module 10 ... 800 MHz	0901.5501.x

Remark: All modules with P/N extension with ".x" are available with horizontal or vertical orientated DC power connector.

