

60 W DAB Linear Power Amplifier Module 170 ... 240 MHz

Features

- compact design
- high dynamic
- current and temperature monitoring
- STATUS signalling
- reverse polarity protection

Applications

- TX amplifier
- DAB
- Multicarrier
- Repeaters
- Driver for radiating cables



Designed for mounting on external heat sink.

At a Glance

AMP17024048L from Becker Nachrichtentechnik is a compact amplifier module specially designed for professional DAB broadcast radio applications. The robust electric and mechanic design guarantees solid operations over a long time. Internal filters and low noise voltage supplies offer high suppression of spurious. To avoid damages during installation the supply is protected against reverse polarity. The amplifier module is supplied with a single DC voltage, which presence is indicated by a LED on the module as well as the module status. The RF connectors are SMA female type. AMP17024048L is designed for mounting on an external heat sink. All amplifier models of the AMP series are designed in 50 Ohm technology.

Special Features

The high IP3 properties make the amplifier module suitable in professional applications where digital modulated signals or multi carrier signals must amplified without any distortion effects. An internal self-test function monitors current consumption and module temperature. In the case of exceeding limits an open drain output is opened and the status is signalized by the LED at the module.

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. The output of the amplifier module is robust against open and short load at the output.

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.

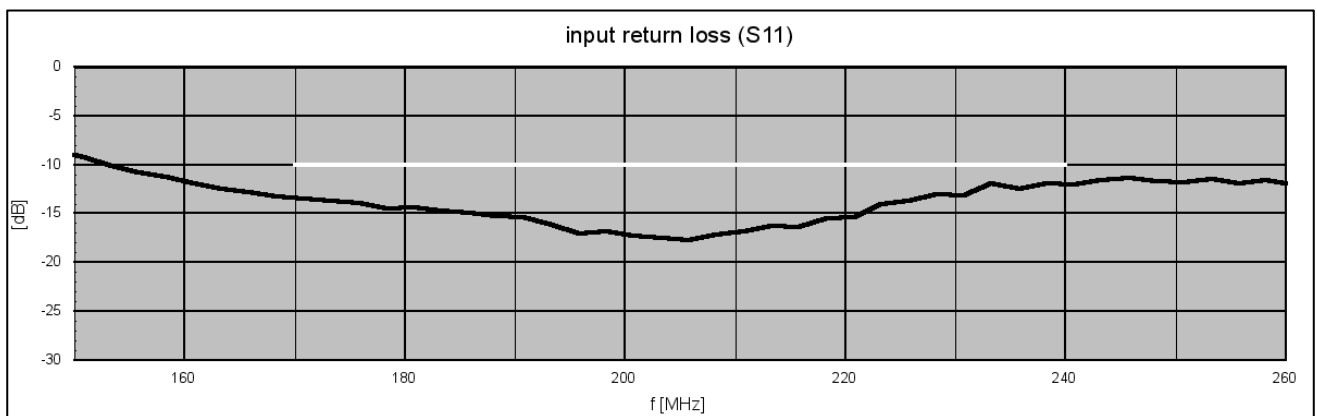
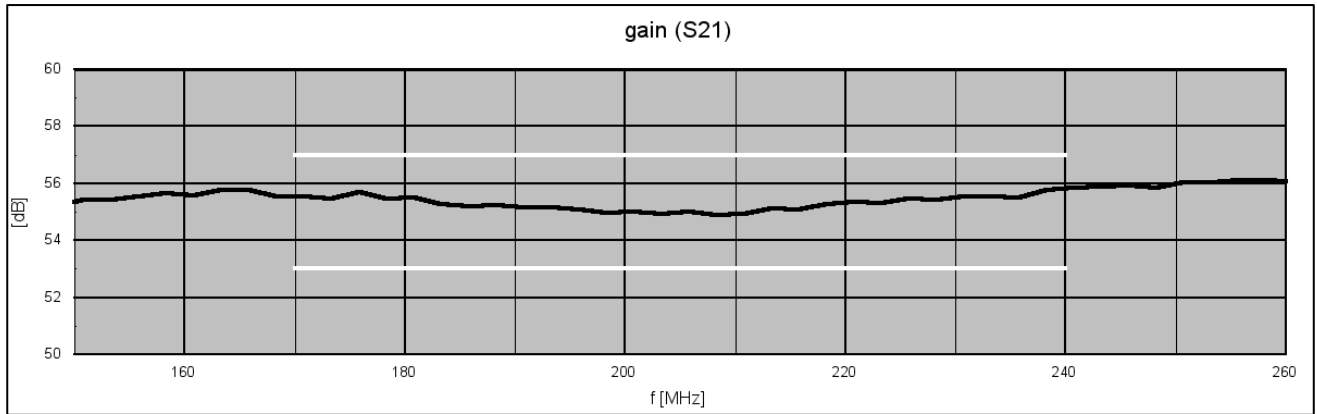
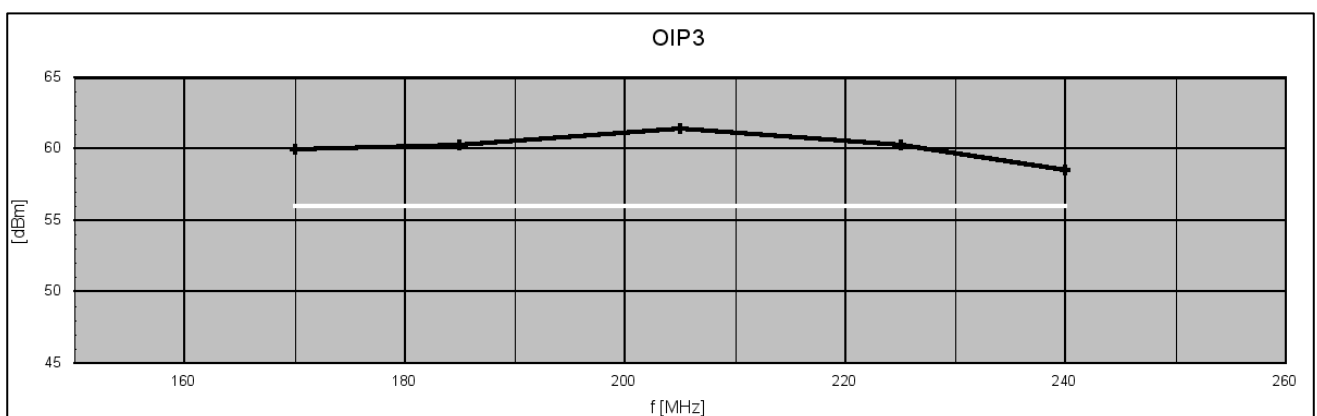
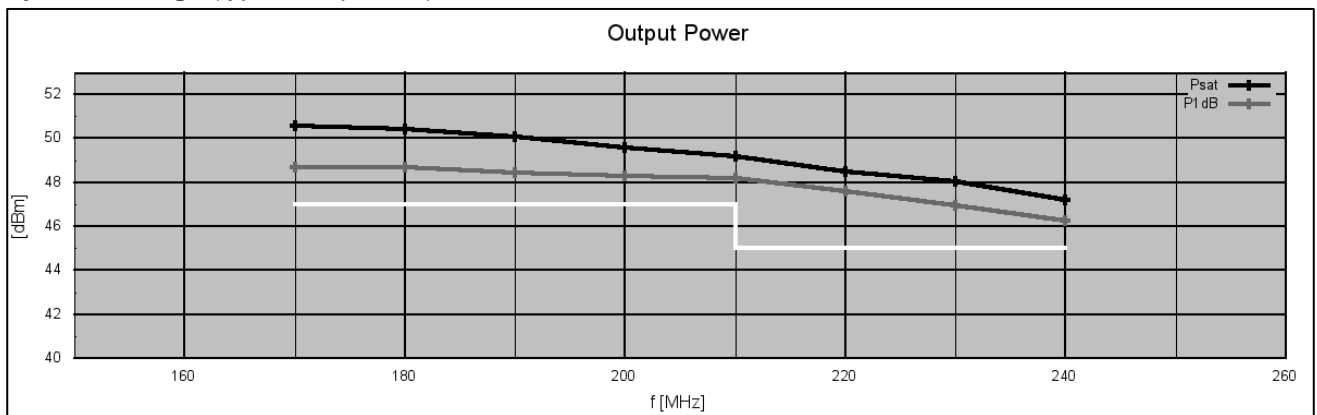
RF Specification

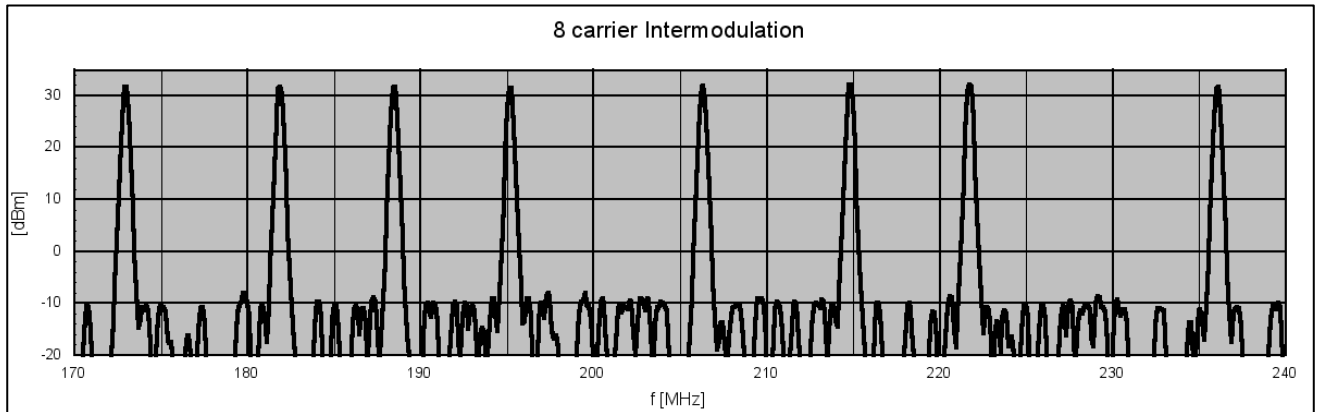
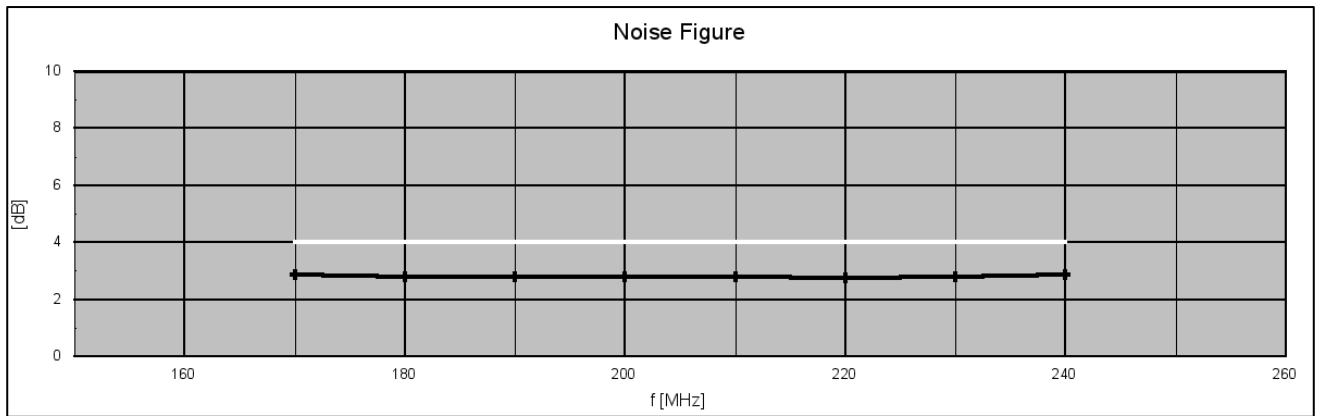
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{IN}/Z_{OUT}		50		Ω	
low frequency	f_{LOW}			170	MHz	
high frequency	f_{HIGH}	240			MHz	
linear gain	S_{21}	+53	+55	+57	dB	
reverse isolation	S_{12}		-75		dB	
input return loss	S_{11}		-13	-10	dB	
output compression	P_{1dB}	+47	+49		dBm	$f \leq 210$ MHz
	P_{1dB}	+45	+47		dBm	$f > 210$ MHz
saturated output power	P_{SAT}	+48	+50		dBm	$f \leq 210$ MHz, $P_{IN} = +5$ dBm
	P_{SAT}	+46	+48		dBm	$f > 210$ MHz, $P_{IN} = +5$ dBm
3 rd order intercept	OIP3 ¹	+56	+60		dBm	note 1
IM3 rejection	IM3		-50		dBc	2 x +35dBm
	IM3		-42		dBc	8 x +32 dBm (note 1)
noise figure	NF		3	4	dB	
input power	P_{IN}			+10	dBm	
maximum DC voltage	UDC			20	V	RF ports
ESD discharge resistor	RES D		4.7		k Ω	RF ports
RF connectors	X_{RF}	SMA female				input and output

1) 2 carrier, each +35 dBm, $\Delta f = 200$ kHz

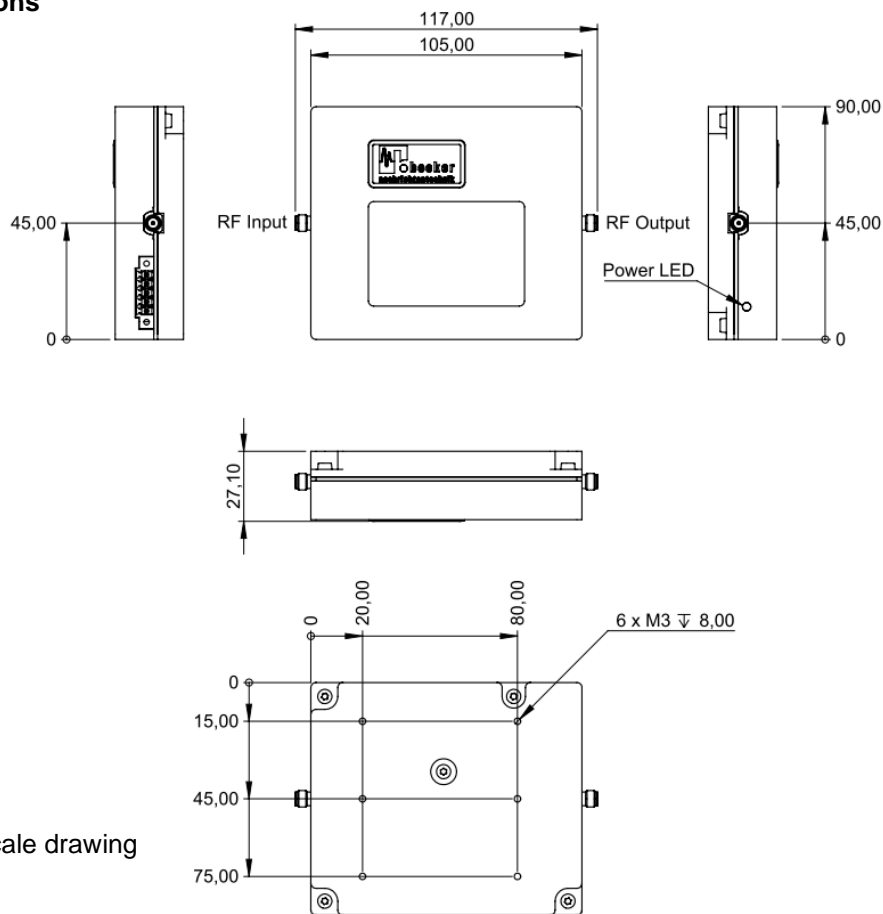
Common Specification

Parameter	Symbol	Min.	Typ.	Max.	Unit	
supply voltage	U_{DC}	47	48	49	V	
current consumption	I_{DC}		2.2		A	quiescent current
	I_{DC}		4.0	4.5	A	@ P_{SAT}
dimensions	W x H x D	approx. 105 x 27 x 90			mm	without connectors
weight	m		460		g	
Open drain status output						
switching current	I_{SW}			100	mA	DC
switching voltage	U_{SW}			42	V	DC
on resistance	R_{ON}			10	Ohms	normally closed
current threshold	I_{thres}		± 20		%	failure if current consumption exceeds
temperature threshold	T_{thres}		+80		$^{\circ}C$	failure if temperature exceeds, hysteresis approx. 5 K
failure signalling		STATUS LED				gn / rd
power and status socket		Würth 691 325 110 005				5 pole
counterpart		Würth 691 364 100 005				5 pole; part of delivery
operating temp. range	$T_{HEATSINK}$	+10		+75	$^{\circ}C$	module surface
storage temp. range	T_s	-40		+75	$^{\circ}C$	
recommend heat sink		SK92 + FAN (30 cfm)				Fischer Elektronik
	R_{TH}		0.2	0.4	K/W	
ordering information	AMP17024048L			2104.5001.4		

S-Parameters (typical responses)**Dynamic Range (typical responses)**



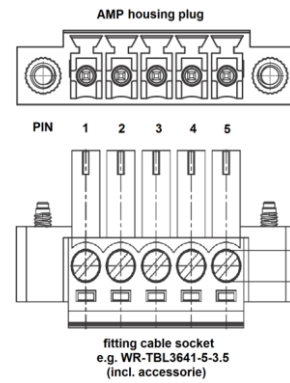
Dimensions



Do not scale drawing

PIN Assignment DC / STATUS (floating contacts)

PIN	Designation	Remark
1	GND	Ground
2	GND	Ground
3	+UB	DC supply voltage
4	+UB	DC supply voltage
5	STATUS	Open drain, closed in normal operation

**Appearance****Related Products**

Product	Description	P/N
AMP7610849L	80 W FM Linear Power Amplifier Module 76 ... 108 MHz	2104.5001.3
AMP17024048L	60 W DAB Linear Power Amplifier Module 170 ... 240 MHz	2104.5001.4
AMP38047048L	60 W BOS/TETRA Linear Power Amplifier Module 380 ... 470 MHz	2104.5001.2
AMP1053045	30 W Linear Power Amplifier Module 10 ... 530 MHz	1908.5001.1
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
AMP101800030	1 W Ultra-Wideband Linear Amplifier Module 10 ... 18000 MHz	2106.5001.x
AMP5270026	400 mW High Dynamic Amplifier Module 5 ... 2700 MHz	1005.5201.x
LNA1080014	400 mW Low Noise Amplifier Module 10 ... 800 MHz	0901.5501.x