

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

Features

- compact design
- high dynamic
- current and temperature monitoring
- STATUS signalling
- reverse polarity protection
- appropriate heat-sink available

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 be 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 signaled 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. The standard module is designed for mounting on a heat sink provided by the customer. Alternatively, an appropriate heat-sink is available.

RF Specification

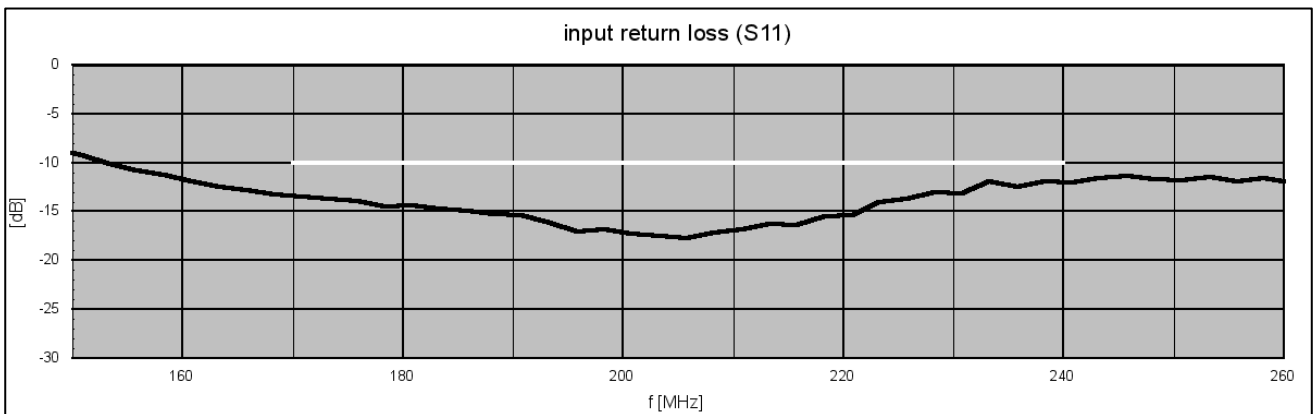
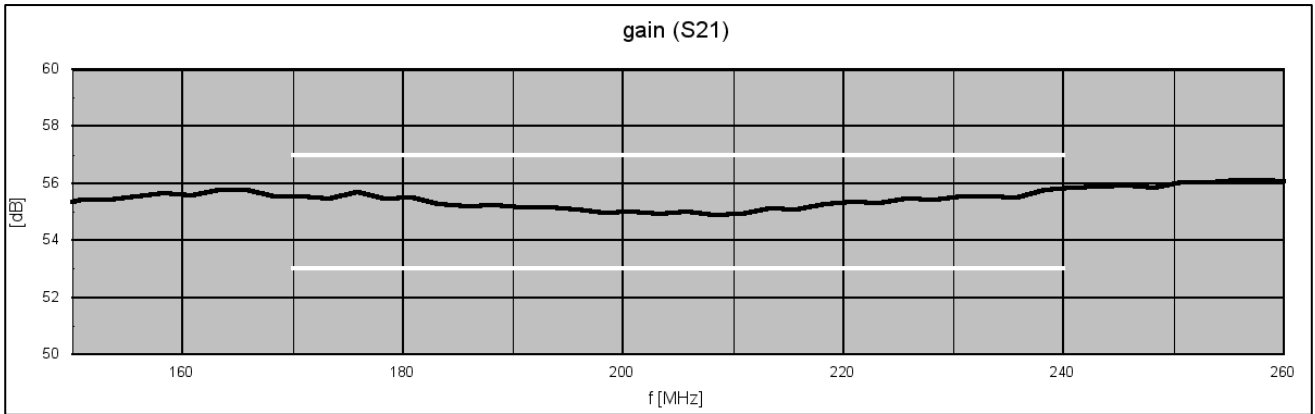
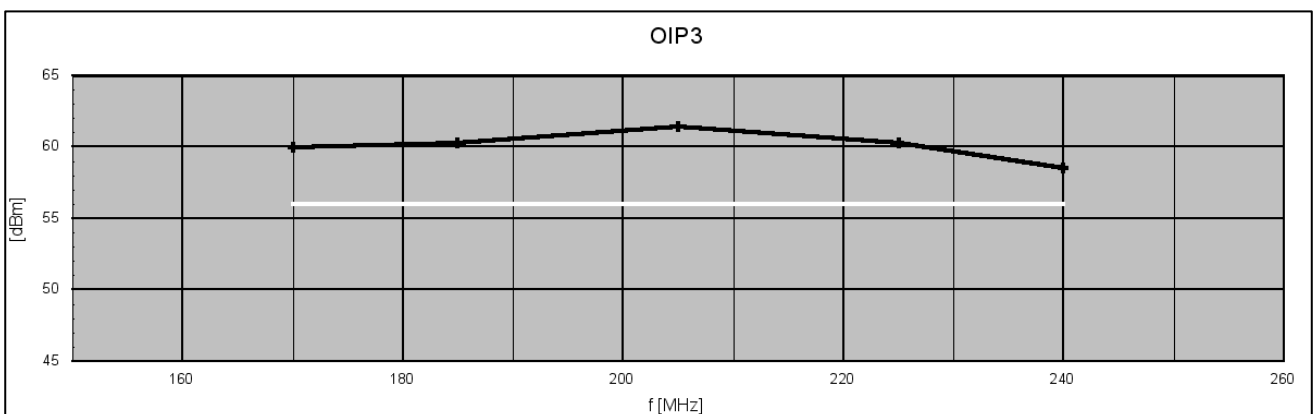
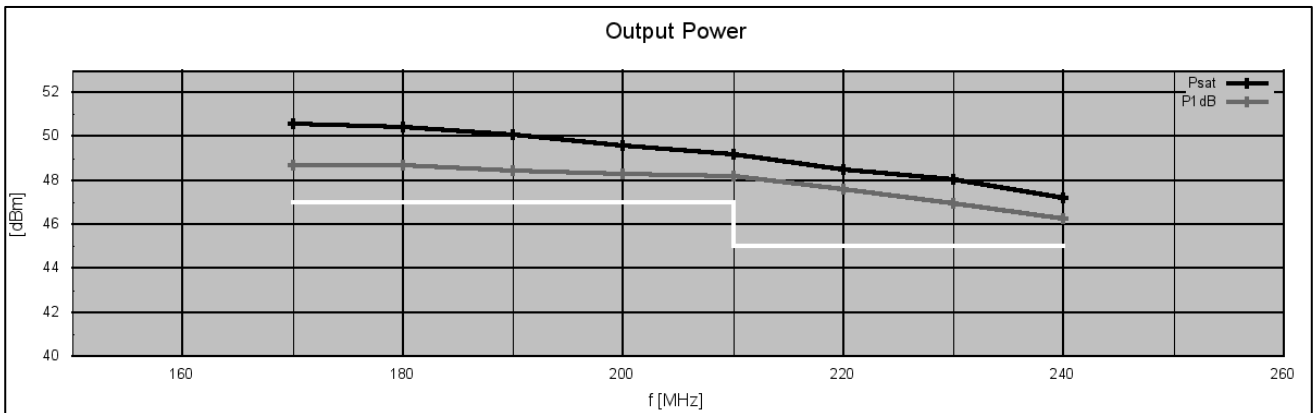
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z _{IN} /Z _{OUT}		50		Ω	
low frequency	f _{LOW}			170	MHz	
high frequency	f _{HIGH}	240			MHz	
linear gain	S ₂₁	+53	+55	+57	dB	
reverse isolation	S ₁₂		-75		dB	
input return loss	S ₁₁		-13	-10	dB	
output compression	P _{1dB}	+47	+49		dBm	f ≤ 210 MHz
	P _{1dB}	+45	+47		dBm	f > 210 MHz
saturated output power	P _{SAT}	+48	+50		dBm	f ≤ 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 ¹		-50		dBc	2 x +35dBm (note 1)
	IM3		-42		dBc	8 x +32 dBm
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		kΩ	RF ports
RF connectors	X _{RF}	SMA female				input and output

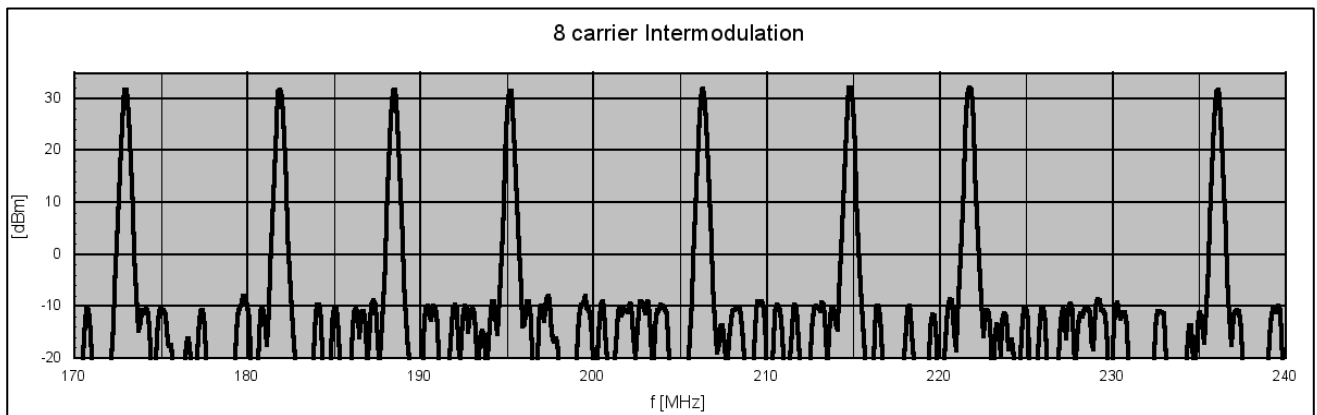
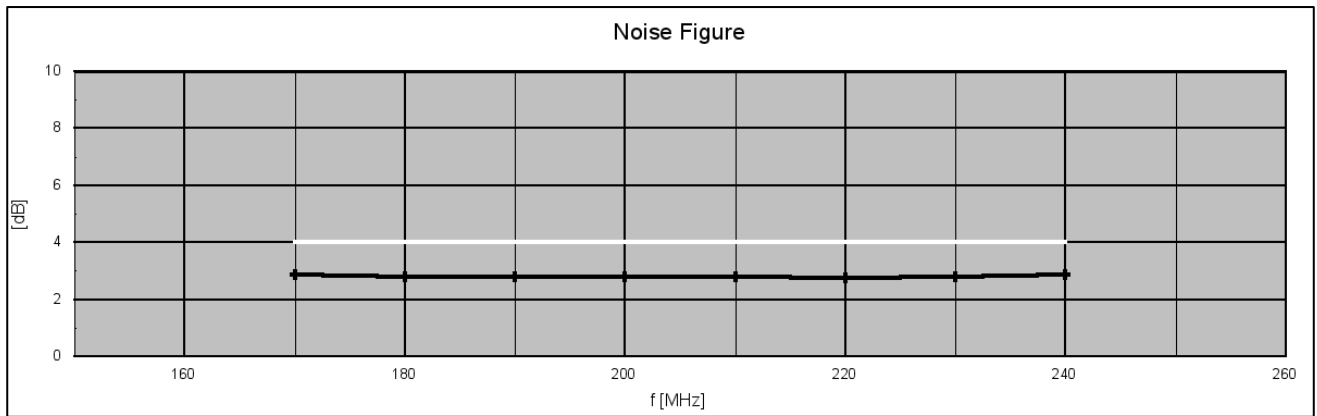
1) 2 carrier, each +35 dBm, Δf = 200kHz

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		°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	°C	module surface
storage temp. range	T _s	-40		+75	°C	
required cooling	R _{TH}		0.2	0.4	K/W	
Variant with fan supply						
fan supply voltage	U _{DC_FAN}		12		V	
fan current consumption	I _{DC_FAN}			400	mA	
fan supply socket		push in clamping connector diameter: 0.2 ... 1.5 mm ² pitch: 3.50 mm				
Ordering information						
AMP7610849L		2104.5001.4	module for mounting on ext. heat sink			
AMP17024048L		2104.5011.4	module for mounting on ext. heat sink, variant with fan supply			
AMP17024048		2104.5101.4	setup with universal heat sink UHS-1			
Accessories						
UHS-1		2200.550M.1	universal heat sink for AMP-L modules			



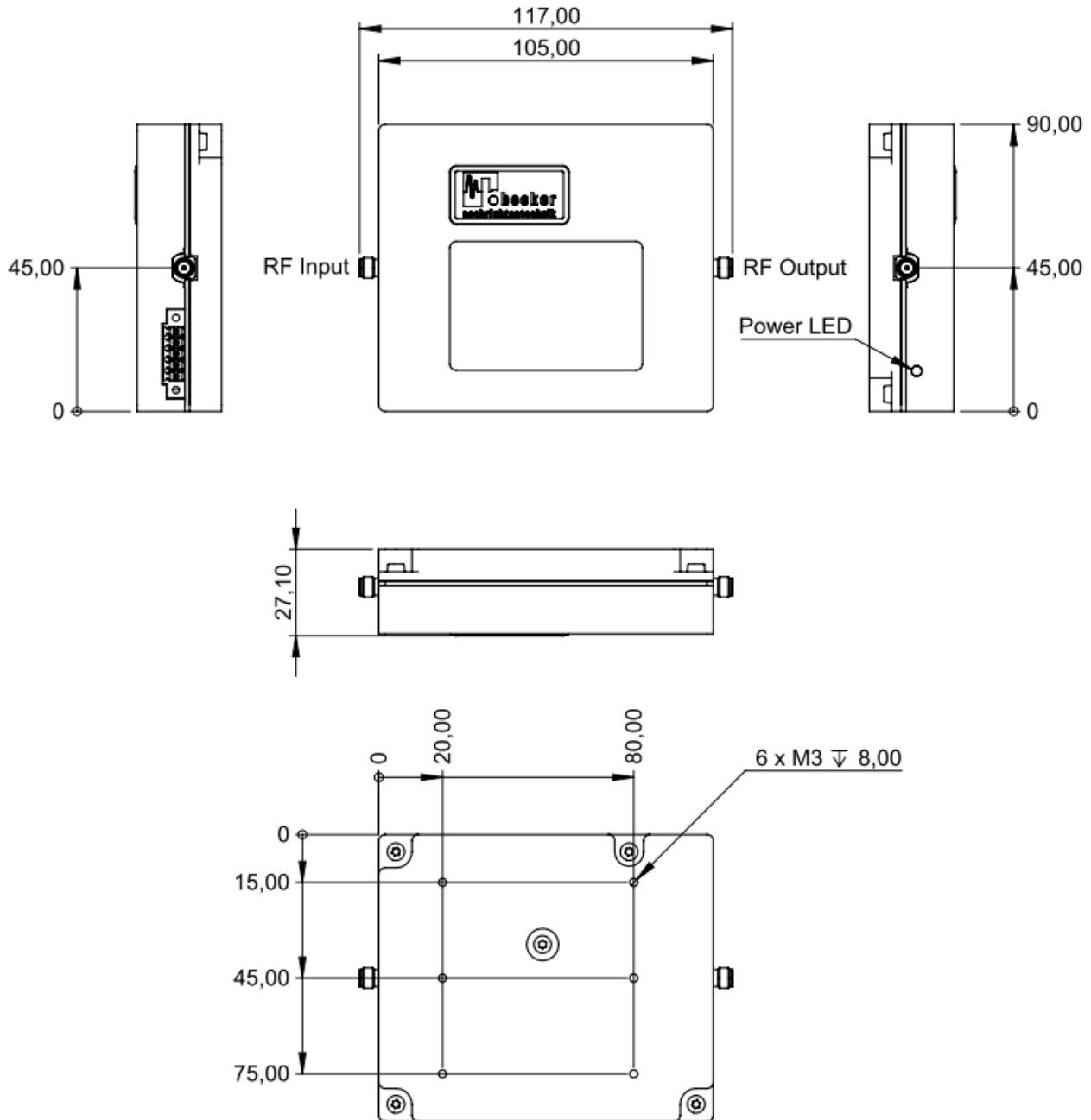
S-Parameters (typical responses)**Dynamic Range (typical responses)**



Appearance

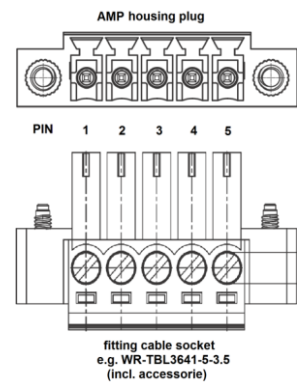


Dimensions

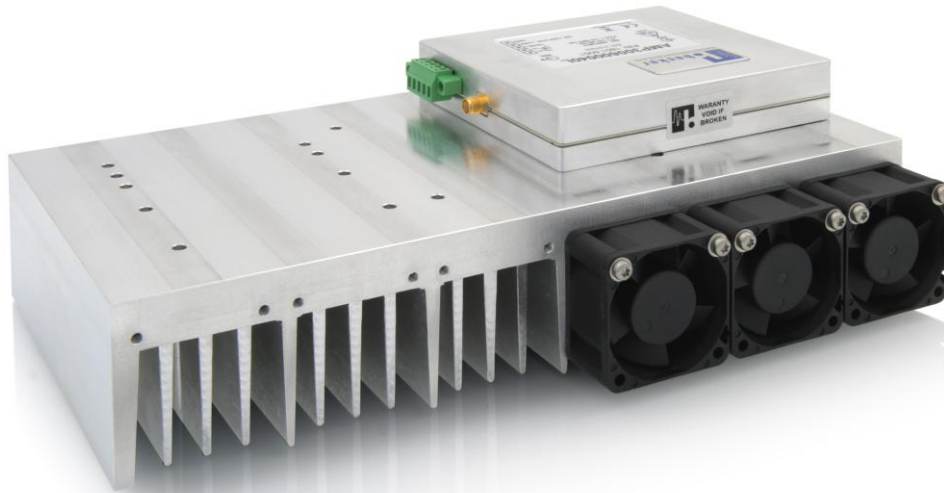


PIN Assignment DC / STATUS (floating contacts)

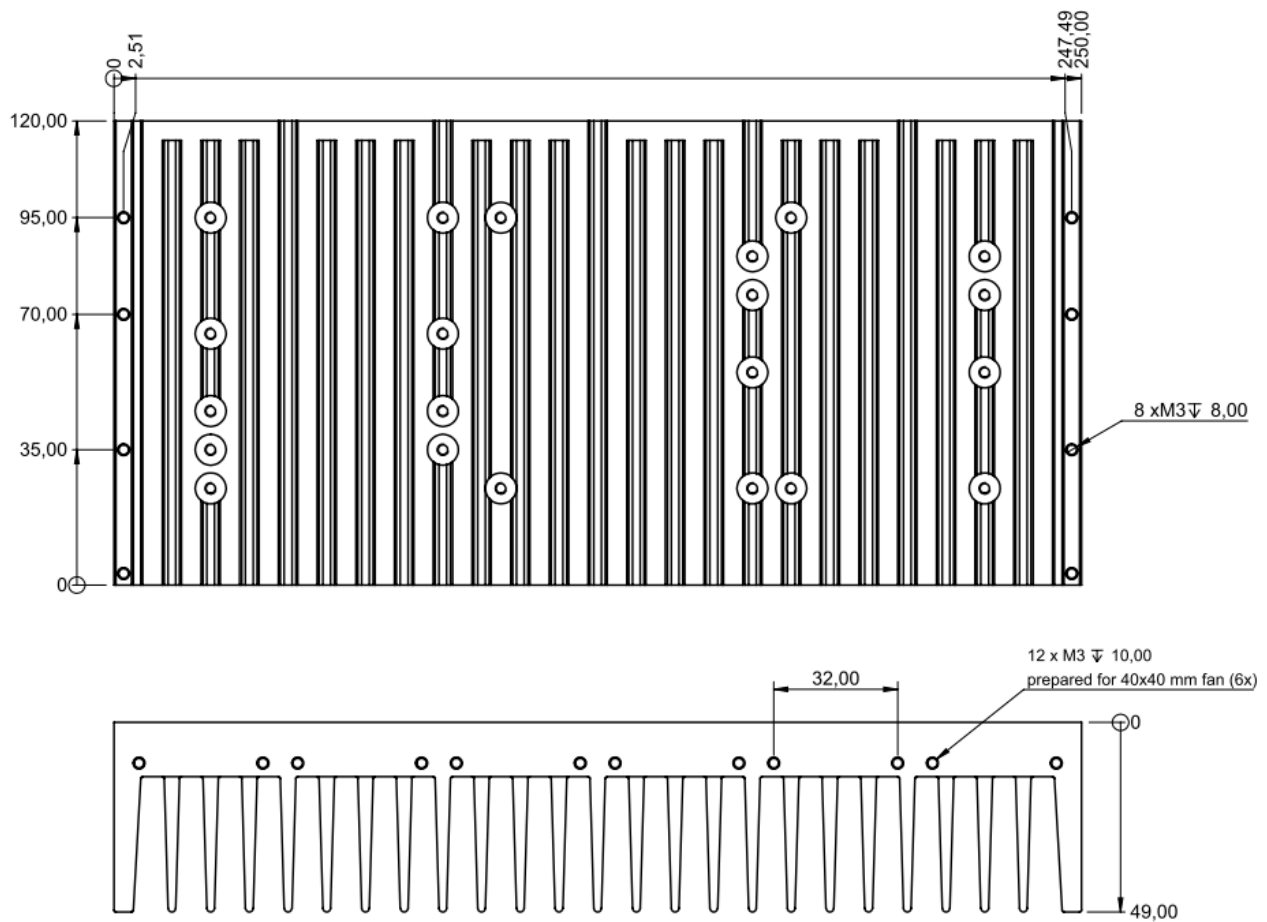
PIN	Designation	Remark
1	GND	Ground
2	GND	Ground
3	+UB	DC supply voltage
4	+UB	DC supply voltage
5	STATUS	Open drain, closed in normal operation



Setup with Universal Heat Sink UHS-1 Appearance



Dimensions



Related Products

Product	Description	P/N
AMP20002000042	10 W Power Amplifier Module, 2000 MHz ... 20 GHz Module with external heat sink	2301.5111.1
AMP20002000042L	10 W Power Amplifier Module, 2000 MHz ... 20 GHz Module for mounting on external heat sink	2301.5101.1
AMP101800030	1 W Ultra-Wideband Linear Amplifier Module, 10 ... 18000 MHz	2106.5001.x
AMP17001300038	6 W Power Amplifier Module, 1700 ... 13000 MHz Module with external heat sink	2004.5111.1
AMP17001300038L	6 W Power Amplifier Module, 1700 ... 13000 MHz Module for mounting on external heat sink	2004.5011.1
AMP300600040	10 W Power Amplifier Module, 300 ... 6000 MHz Module with external heat sink	1801.5101.1
AMP300600040L	10 W Power Amplifier Module, 300 ... 6000 MHz Module for mounting on external heat sink	1801.5001.1
AMP01600017B	50 mW Wideband Amplifier, 100 kHz ... 6000 MHz	1604.5001.2
AMP51505925-TRX	Wi-Fi TX/RX Booster Amplifier for Radiating Cables	1802.5001.1
AMP51505925-TRX-K	Kit for 5 GHz Wi-Fi Coverage Extension using Radiating Cables	1802.5011.1
AMP20280035B	4.5 W Wideband Amplifier Module, 20 ... 2800 MHz	1209.5201.x
AMP5270026	400 mW High Dynamic Amplifier Module, 5 ... 2700 MHz	1005.5201.x
AMP5220031	1 W High Dynamic Amplifier Module, 5 ... 2200 MHz	1005.5101.x
AMP5170033	2 W Amplifier Module 5 ... 1700 MHz	1401.5011.1
AMP50130036	4 W High Linearity, Full Redundant, UHF Wideband Amplifier, 50...1300 MHz Module with heat sink	1602.5001.4
AMP50130036L	4 W High Linearity, Full Redundant, UHF Wideband Amplifier, 50...1300 MHz Module for mounting in external heat sink	1602.5001.5
AMP590033	2 W Booster Amplifier Module 5 ... 900 MHz Module with heat sink	0901.5011.x
AMP590033L	2 W Booster Amplifier Module 5 ... 900 MHz Module for mounting in external heat sink	0901.5011.x
AMP590033H	2 W Amplifier Module 5 ... 900 MHz Module with heat sink	0901.5001.x
AMP590033HL	2 W Amplifier Module 5 ... 900 MHz Module for mounting in external heat sink	0901.5001.x
LNA1080014	400 mW Low Noise Amplifier Module 10 ... 800 MHz	0901.5501.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
AMP1053045	30 W Linear Power Amplifier Module 10 ... 530 MHz	1908.5001.1
AMP17024048L	60 W DAB Linear Power Amplifier Module 170 ... 240 MHz Module for mounting on external heat sink	2104.5001.4
AMP17024048	60 W DAB Linear Power Amplifier Module 170 ... 240 MHz Module with external heat sink	2104.5101.4
AMP7610849L	80 W FM Linear Power Amplifier Module 76 ... 108 MHz Module for mounting on external heat sink	2104.5001.3
AMP7610849	80 W FM Linear Power Amplifier Module 76 ... 108 MHz Module with external heat sink	2104.5101.3
AMP018032	1.3 W High Linearity Amplifier Module 100 kHz...80 MHz	1002.5701.x

Note: Sorted descending by upper limit frequency.

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

