

AMP101800030

1 W Ultra-Wideband Linear Amplifier Module 10 ... 18000 MHz

Features

- output power +31 dBm typ.
- high OIP3 +40 dBm typ.
- high dynamic
- reverse polarity protected
- self test function
- temperature monitor
- optical power and status indication
- status signaling contact (floating)
- heat sink for passive cooling

Applications

- instrumentation and measurement
- broadband communications
- military and aerospace
- software radio
- research and development
- remote sensing

At a Glance

AMP101800030 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 has an integrated heat sink.



Special Features

Using modern semiconductor technologies give the amplifier module high dynamic properties over a wide operating bandwidth. Due the ultra-wide operation bandwidth the amplifier is suitable in military and aerospace software radio applications.

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 signalled by the LED on the module.

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.

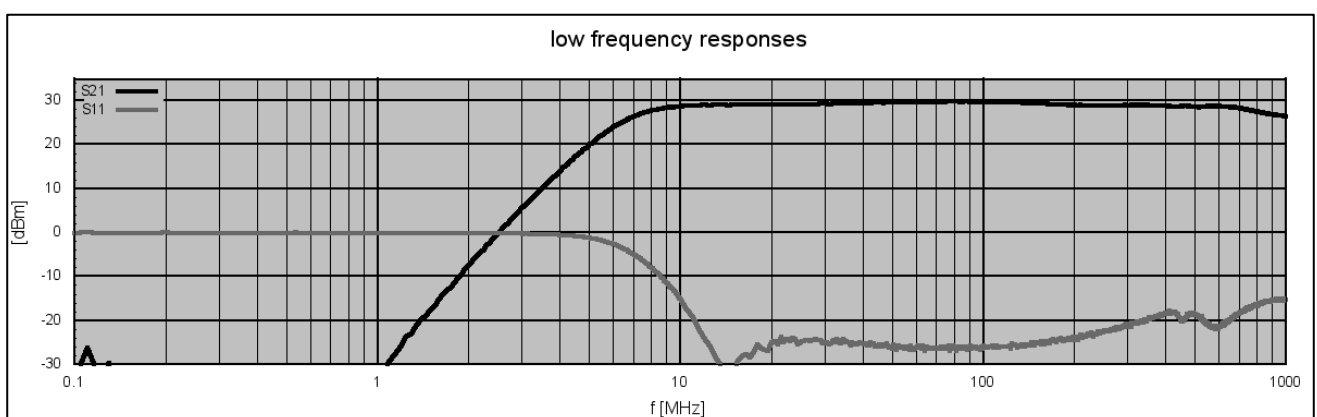
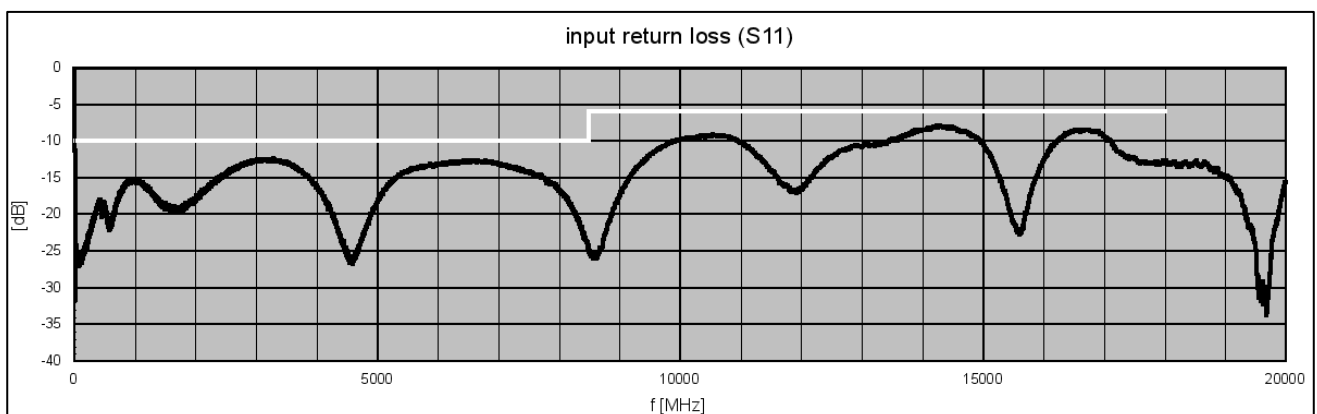
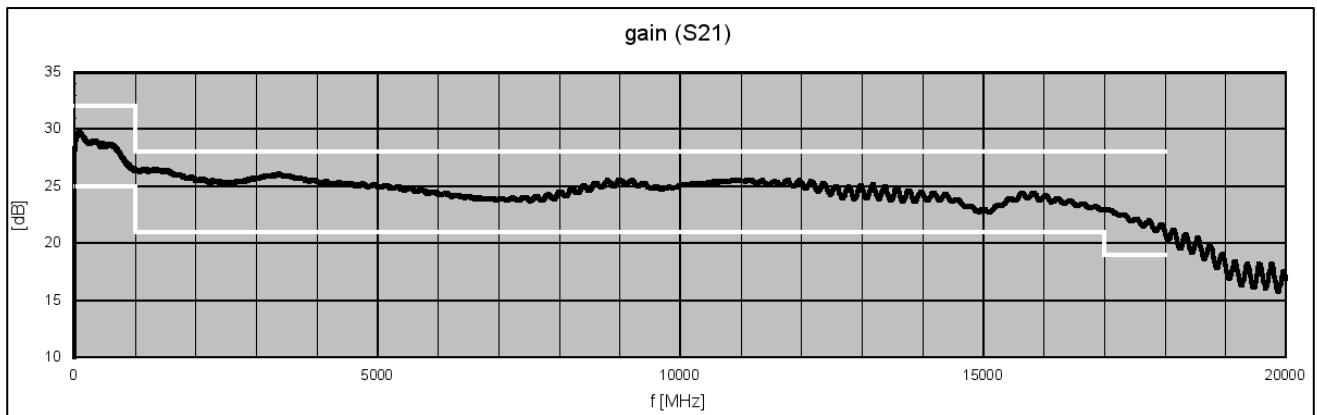
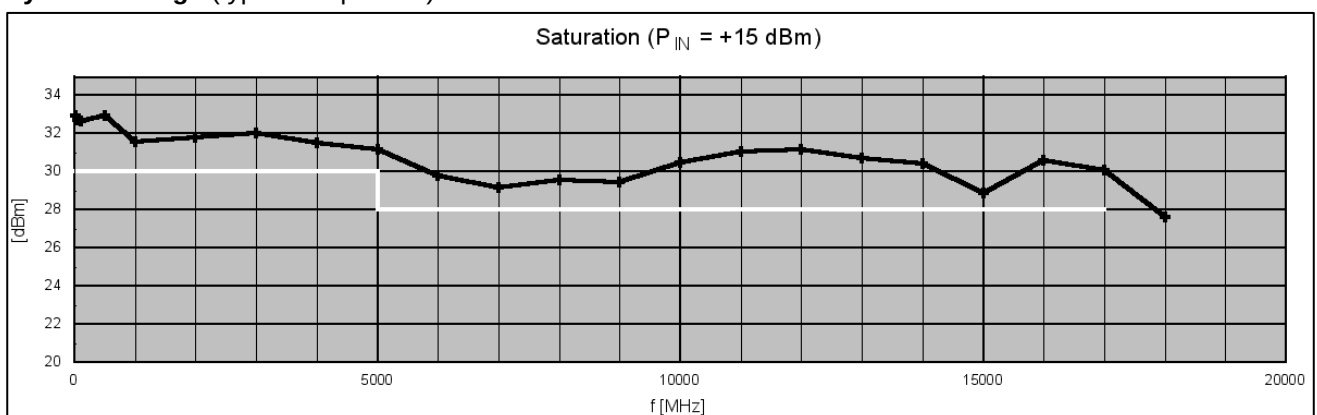
RF Specification

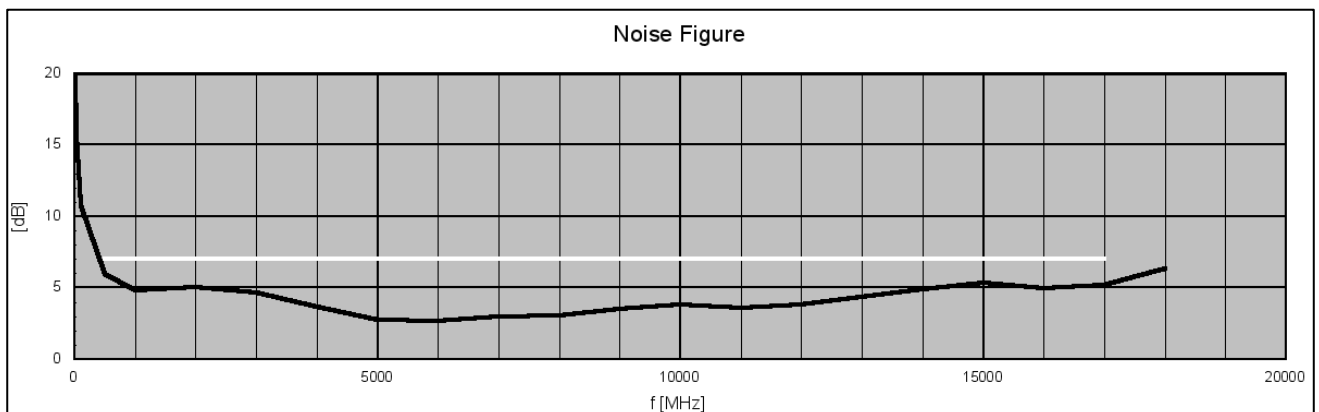
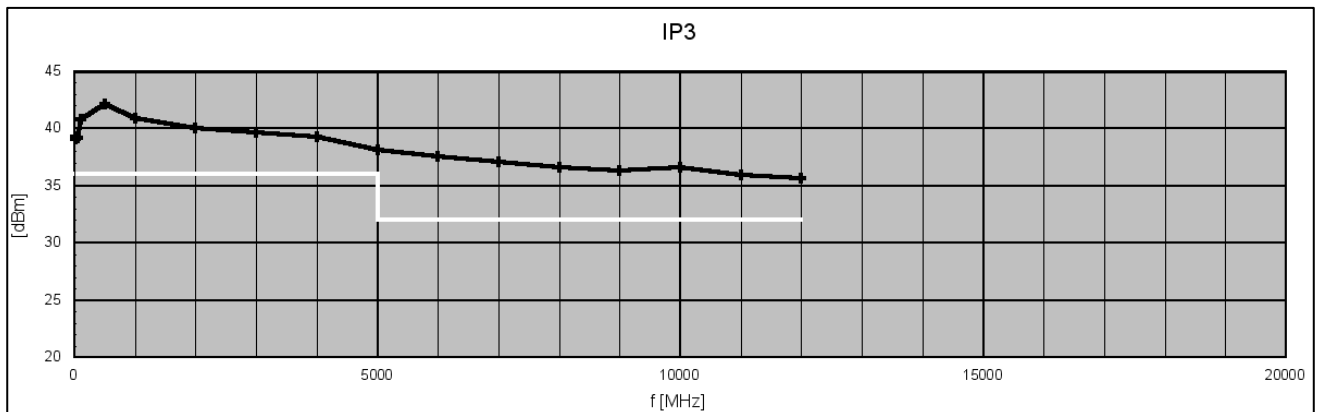
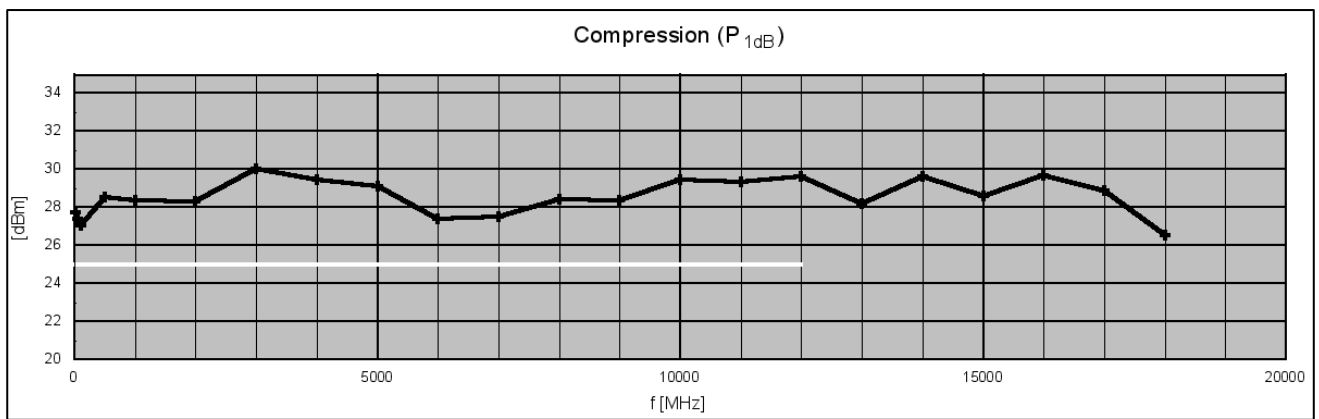
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{IN}/Z_{OUT}		50		Ω	
frequency	f_{LOW}			10	MHz	
	f_{HIGH}	18000			MHz	
linear gain	S_{21}	25	28	32	dB	$f \leq 1 \text{ GHz}$
	S_{21}	21	25	28	dB	$1 \text{ GHz} < f \leq 17 \text{ GHz}$
	S_{21}	19	22	28	dB	$f > 17 \text{ GHz}$
input return loss	S_{11}		-15	-10	dB	$f \leq 8.5 \text{ GHz}$
	S_{11}		-10	-6	dB	$f > 8.5 \text{ GHz}$
reverse isolation	S_{12}		-70		dB	
3 rd order intercept	$OIP3^{(1)}$	+36	+40		dBm	$f \leq 5 \text{ GHz}$
	$OIP3^{(1)}$	+32	+37		dBm	$5 \text{ GHz} < f \leq 12 \text{ GHz}$
saturation power	P_{SAT}	+30	+32		dBm	$f \leq 5 \text{ GHz}, P_{IN} = +15 \text{ dBm}$
	P_{SAT}	+28	+30		dBm	$5 \text{ GHz} < f \leq 17 \text{ GHz}, +15 \text{ dBm}$
	P_{SAT}		+27		dBm	$f = 18 \text{ GHz}, P_{IN} = +15 \text{ dBm}$
1 dB compression	P_{1dB}	+25	+28		dBm	$f \leq 12 \text{ GHz}$
	P_{1dB}		+28		dBm	$f \geq 12 \text{ GHz}$
noise figure	NF		5	7	dB	$500 \text{ MHz} \leq f < 17 \text{ GHz}$
input power	P_{IN}			+15	dBm	no damage
DC voltage	U_{DC}			15	V	
ESD discharge resistor	R_{ESD}		4.7		k Ω	RF ports
RF connectors	X_{RF}	SMA female				

Note 1: Tested at 2x +17dBm, $\Delta f = 2 \text{ MHz}$ **Common Specification**

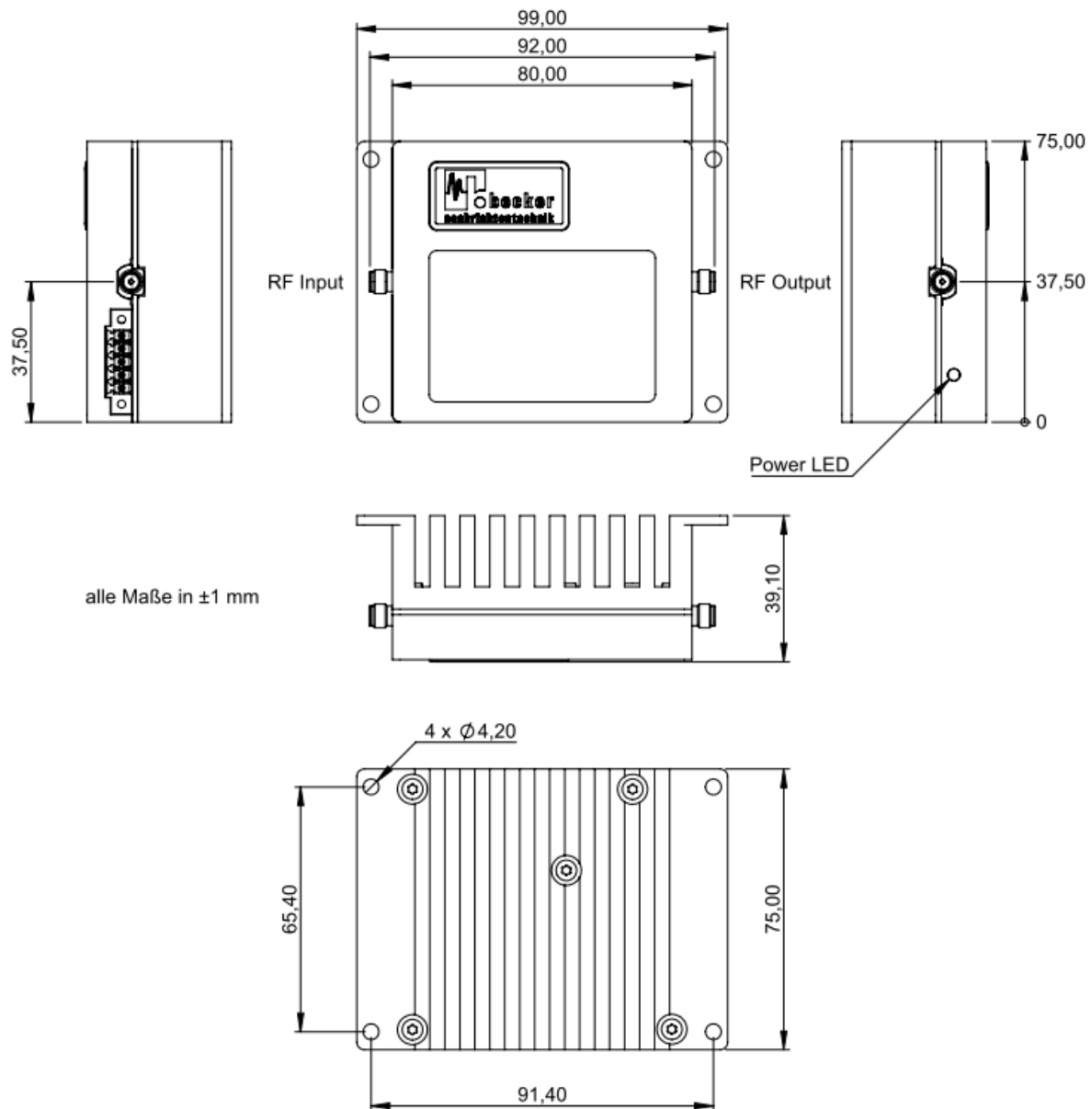
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
supply voltage	U_{DC}	22	24	33	V	DC
current consumption	I_{DC}		0.5	1	A	@ 24 V DC
dimensions	$W \times H \times D$	approx. 99 x 36 x 75			mm	without connectors
weight	m		390		g	
current threshold	I_{THRES}		± 20		%	failure if current consumption exceeds
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	$^{\circ}\text{C}$	
ordering information	AMP101800030			2106.5001.1		



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

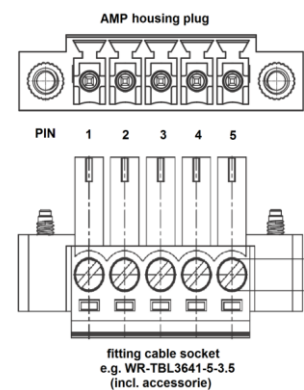


Dimensions



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



Appearance



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.

