

Ultra High Linearity, Full Redundant, Wideband Amplifier Module 50 ... 500 MHz, 50 Ω

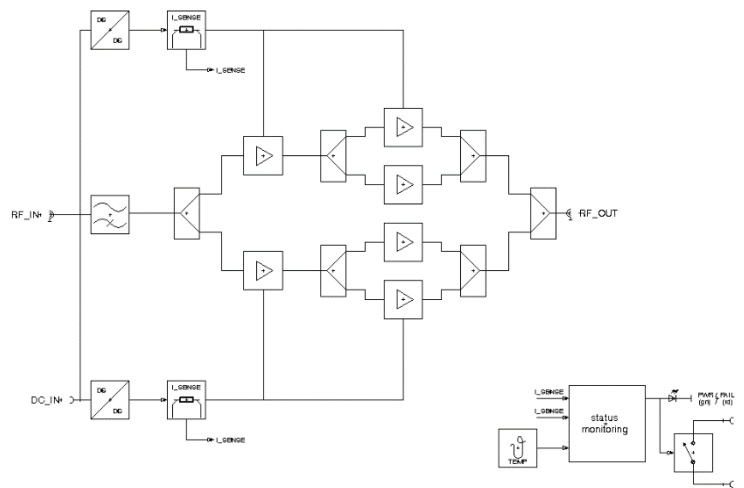
Features

- ultra high linearity
OIP3 +55 dBm typ.
- peak power +39 dBm typ.
- open/short stable
- VLF suppression
- optical supply and status indication
- wide supply range 11.5 V...28 V
- redundant design
- reverse polarity protection
- status signalling contact (floating)



Applications

- FM, BOS / TETRA, DAB3, ISM433
- tunnel radio
- driver amplifier for radiating cables



At a Glance

The compact ultra-high dynamic wideband amplifier module AMP5050039L is designed for multi signal applications where high adjacent channel suppressions are required.

Highest Reliability

Power supply and amplifiers stages of the AMP5050039L are duplicated; therefore it has an excellent reliability. A possible defect does not lead to total loss of function.

Robust Design

AMP5050039L features a rugged aluminum milling housing. The characteristics of the amplifier allow the use in demanding areas of application such as tunnel radio. The housing includes holes for mounting on a heat sink.

Built-in Test

For monitoring purposes, module temperature and operating currents of the power amplifier stages are monitored.

If the module temperature or the supply current is not within the specified range, the error will be indicated by a LED "FAIL".

For remote monitoring purposes of the amplifier status, the module offers floating switching contacts.

RF Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{in} / Z_{out}		50		Ohm	
low frequency	f_{min}			50	MHz	
high frequency	f_{min}	500			MHz	
gain	S_{21}		35		dB	
input return loss	S_{11}		-14		dB	
output return loss	S_{22}		-10		dB	
reverse isolation	S_{12}		-45		dB	
3 rd order intercept	OPIP3		+55		dBm	Note 1
2 nd order intercept	OPIP2		+80		dBm	Note 2
1 dB compression	P_{1dB}		+39		dBm	
noise figure	NF		4		dB	
input power	P_{in}			+5	dBm	no damage
RF connectors		SMA female				

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

Note 2: Tested at $P_{out} 2 \times +27$ dBm; $f = 49/51; 99/101; 149/151; 199/201; 249/251; 300/350; 450/500$ MHz, in-band products only

Common Specifications

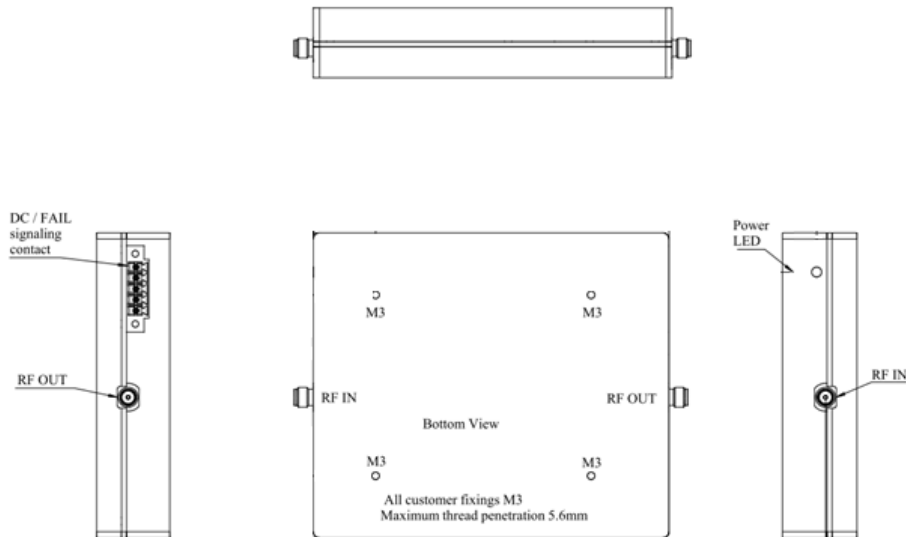
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
supply voltage	U	11.5		28	V	DC
current consumption	I_{12V}		3200		mA	@ 12 V DC
dimensions	W x H x D	approx. 130 x 23 x 110			mm	without connectors
weight	m		350		g	
current threshold	I_{thres}		± 20		%	failure if current consumption exceeds
temperature threshold	T_{thres}		+80		°C	failure if temperature exceeds, hysteresis approx. 5 K
failure signalling		STATUS LED				gn / rd
		floating relay contacts				
switching current	I_{sw}			1	A	DC
switching voltage	U_{sw}			42	V	DC
recommend plug		Würth WR-TBL3641-5-3.5				5 pole; included accessories
operating temp. range	T_{AMB}	0		+55	°C	ambiance
	$T_{HOUSING}$			+75	°C	housing (Note 1)
storage temp. range	T_s	-40		+70	°C	
recommend heat sink		SK510/111,5/SA				Fischer Elektronik
fixed with		4x M3x16 + washer + spring washer				
ordering information		1805.5001.1				

Note 1: guaranteed under the following conditions:

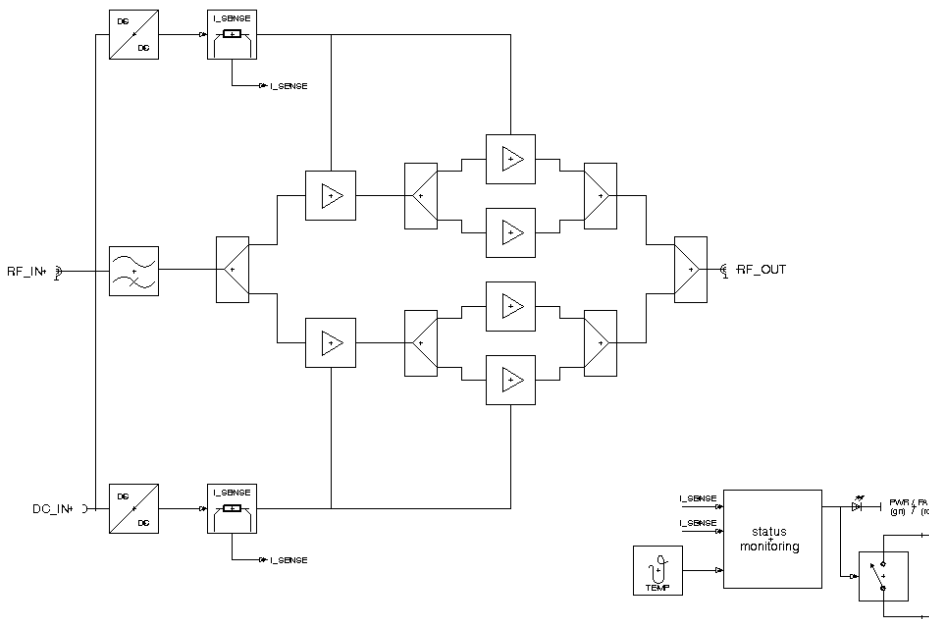
- a heat sink according specification (length ≥ 110 mm) is used
- the AMP module is mounted on the heat sink with sufficient temperature coupling
- the cooling fins are in vertical position
- air convection is ensured by a distance of at least 40 mm above and below the heatsink
- no other source of heat is radiating to the amplifier or heatsink
- the ambiance temperature is within the specified range



Mechanical Drawing



Block Diagram



PIN Assignment (Supply voltage / STATUS-signalling contact)

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

