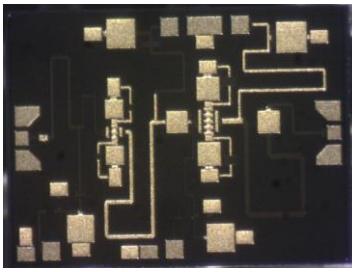


VWA 50035 AC

7.5 to 13GHz – 22dB – 24dBm
Single Bias
Medium Power Amplifier MMIC

Description

The **VWA 50035 AC** is an 2 Stages analog medium power MMIC amplifier operating in the frequency range 7.5 to 13GHz.

The device is a cascaded 2 stages auto biased amplifier designed in 0.25µm pHEMT process.

The device is capable of more than +24dBm output power at Psat, and provide more than 22dB of gain from 7.5 to 13GHz with less than 1dB of Gain variation. The Design has been optimized to provide high efficiency, supply current is as low as 120mA with VD=+8V, when delivering +24dBm output power.

S2P file can be provided for system design simulation.

GDSII file is also available for mechanical design.

Features

- 2 stages Medium Power pHEMT GaAs MMIC
- Single Bias, Low power consumption < 0,9W
- Wide band : 7.5 to 13GHz
- High Output Psat : +24dBm
- High P1dB > + 22dBm
- High gain: 22dB min
- 50Ω, AC coupled RF input and output,
- Power supply: 120mA @ +8V
- Gain control capability in linear mode
- Small size: 1.97 x 1.47 x 0.10mm

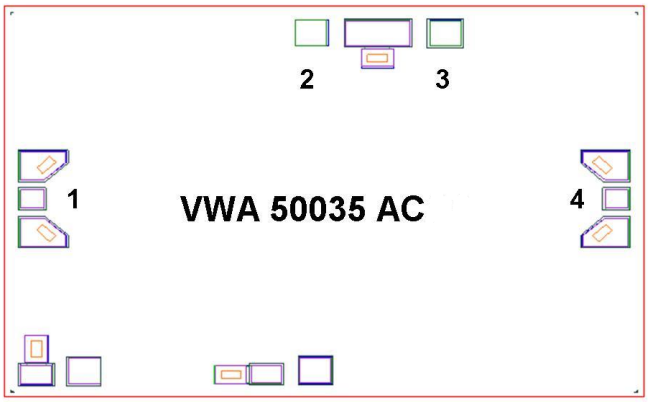
Applications

- X band Medium Power amplifier
- Radar / ECM / ECCM
- Test and measurement
- Broadband communication

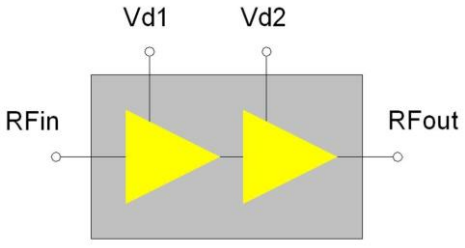
Ordering information

Product code
VWA 50035 AC

Pin out and dimensions (1.97 X 1.47 X 0.10 mm)



Functional Block Diagram



Typical Characteristics: Tamb = 25°C, Vdd = +8V, Idd = 120mA.

Parameter	Symbol	Min	Typ	Max	Unit
Frequency range @3dB	F	7,5		13	GHz
Gain from 8 to 12GHz	G	22	23		dB
Gain flatness from 8 to 12GHz	ΔG		+/-0,5		dB
Noise figure @ 10GHz	NF		7		dB
Input adaptation from 8 to 12GHz	S11		10		dB
Output adaptation from 8 to 12GHz	S22		10		dB
Output power @ 1dB compression	P1dB		22		dBm
Saturated output power	PSat		24		dBm
Drain supply voltage	Vdd		8		V
Supply current	Idd		120		mA

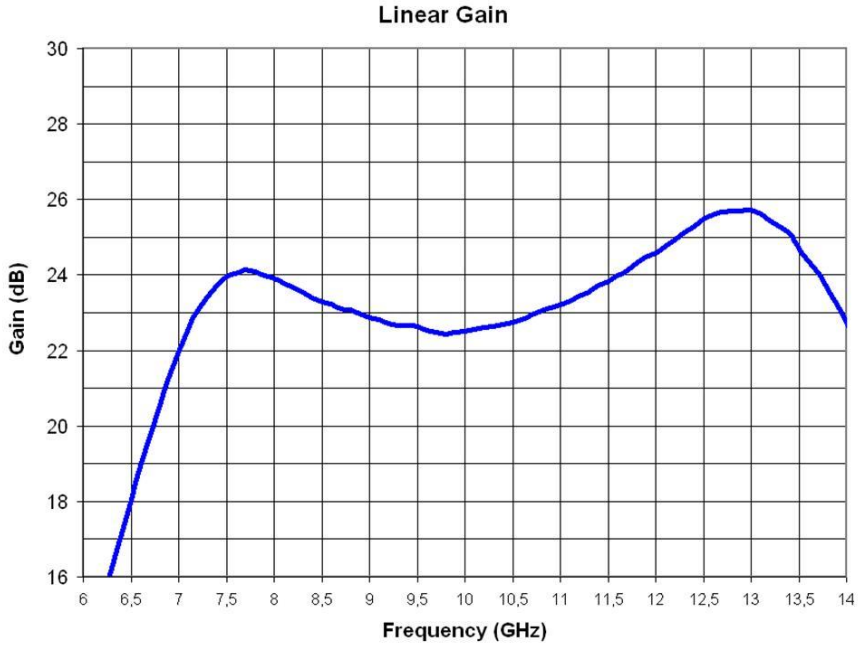
Environment Parameters	Symbols	Min	Max	Units
Storage temperature	Tst	-65	+150	°C
Operating temperature	Top	-55	+85	°C

Absolute maximum ratings

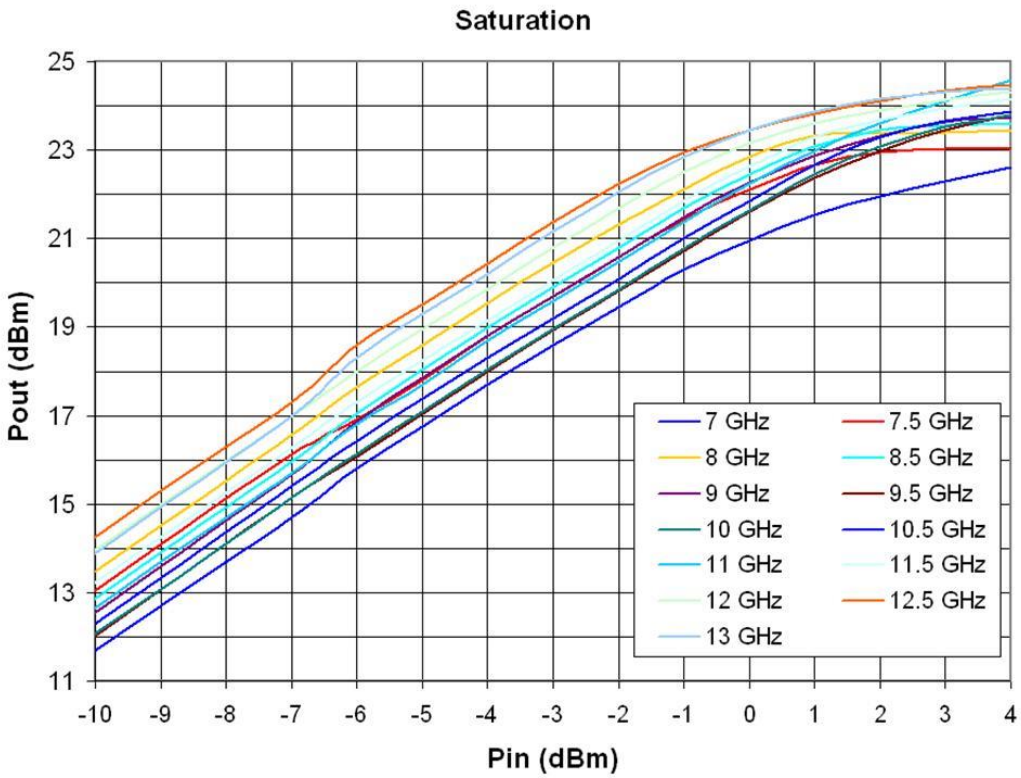
Maximum ratings	Symbols	Min	Max	Units
Positive External DC bias voltage	Vdd		8	V
RF input power (In)	Pin max		+20	dBm
Junction temperature	Tj		150	°C
Temperature process max 10 secondes	T process		290	°C
Continuous power dissipation (@ 85°C)	Pcw		1.2	W

Care should be taken to avoid supply transient and over voltage. Over voltage above the maximum specified in absolute maximum rating section may cause permanent damage to the device.

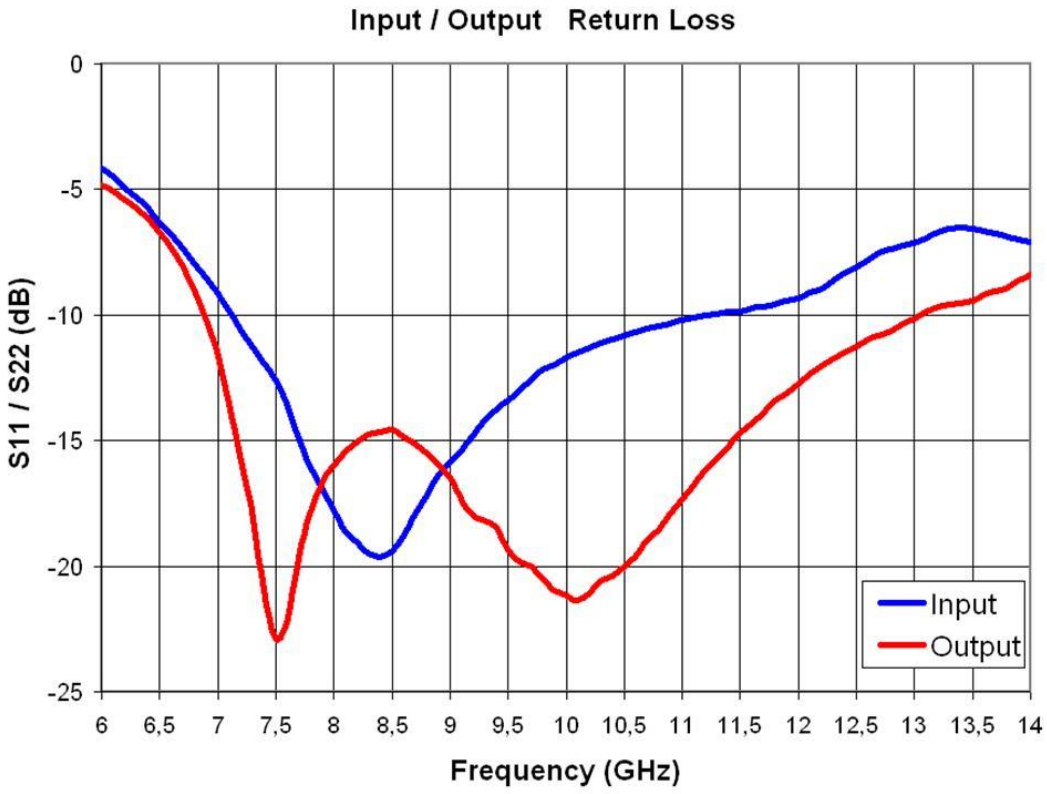
RF "Probe Measurement": Typical curves (Vdd=8V)



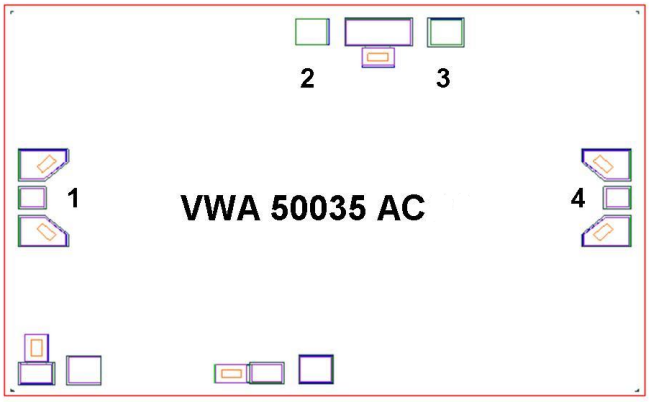
Pout function of frequency (GHz)



Small signal Gain and Input RL, Output RL function of frequency (GHz)



Pin out and pad description



PAD	Function	X (µm)	Y (µm)	Size (µm*µm)
1	RFin	82	742	75*75
2	Vd1	948	1370	100*100
3	Vd2	1356	1370	100*100
4	RFout	1880	742	75*75

- **Die size: 1.97 X 1.47 X 0.10 mm**
- Bias pads dimensions = 100 x 100 µm²
- RF in and RF out pad dimensions =75 x 75 µm²
- Die thickness = 100µm
- Die bottom must be connected to ground (RF and DC)

Handling

This product is sensitive to electrostatic discharge and should not be handled except at a static free workstation. Take precautions to prevent ESD; use wrist straps, grounded work surfaces and recognized anti-static techniques when handling the **VWA 50035 AC** MMIC.