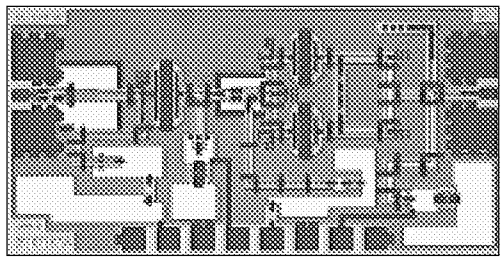
GaAs 38GHz Medium Power Amplifier MMIC

- 2 Stage Monolithic Microwave Integrated Circuit (MMIC) HEMT Amplifier
- Input/Output matched to 50 Ohm
- Frequency range: 35 GHz to 38 GHz
- Gain > 12 dB
- P_{-1dB} > 20 dBm
- P_{sat} > 22 dBm



chip size: 2.2 mm x 1.1 mm

ESD: Electrical discharge sensitive device, observe handling precautions!

Description:

This 2 stage GaAs MMIC medium power amplifier is intended for use in radio link applications. It provides an output power of 20 dBm at 1 dB gain compression. The device is fabricated with a 0.18 micron Pseudomorphic InGaAs/AlGaAs/GaAs High Electron Mobility Transistor processing technology.

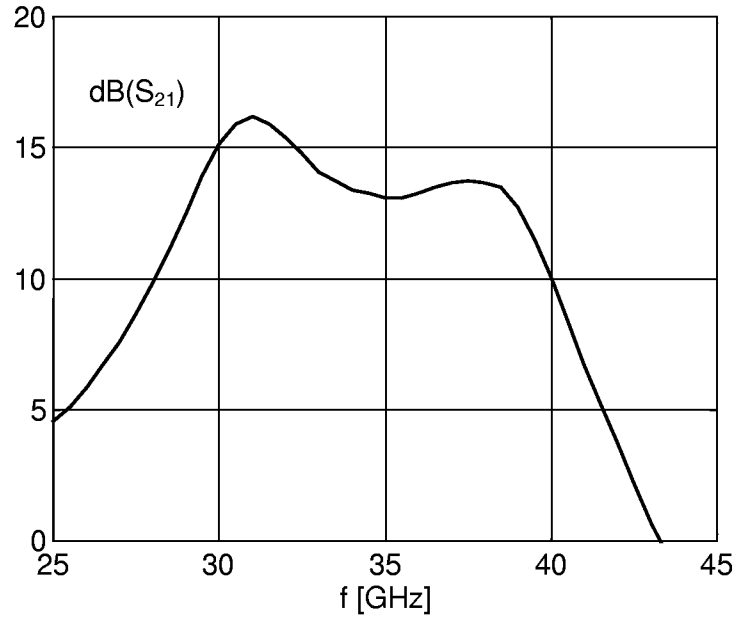
Type	Ordering Code	Package
T485B_MPA_2	tbd	Chip

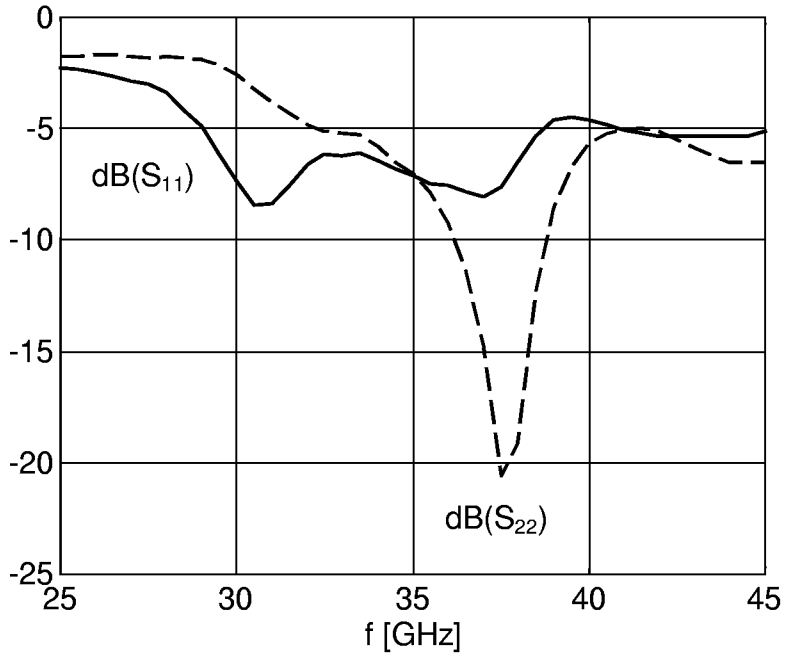
Electrical Specifications: (V_G = 0.3 V, V_D = 5 V, I_D = 240 mA)

Parameter	Min	Typ	Max	Unit
Frequency Range	35		38	GHz
P_{-1dB} @ 38GHz	20	21		dBm
P_{sat} @ 38GHz	22	23		dBm
Gain @ 38GHz	12	13		dB
Input Return Loss @ 38GHz		-7		dB
Output Return Loss @ 38GHz		-10		dB

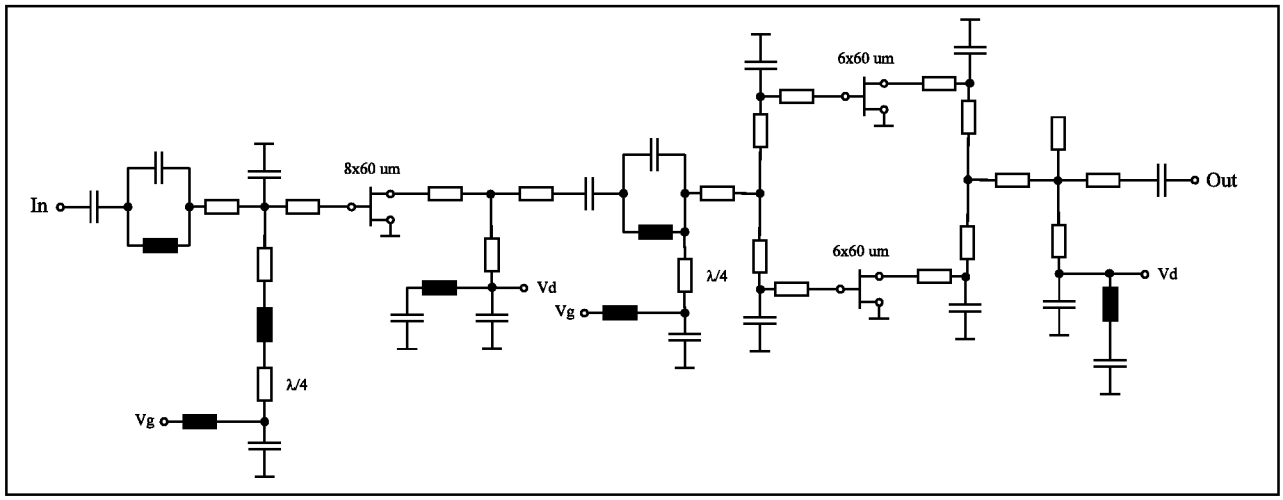
Measured data: (on chip measurments)

V_{GS} = 0,34 V, V_{DS} = 5 V, I_{DS1} = 96 mA, I_{DS2} = 144 mA, unless otherwise specified





Application Circuit:

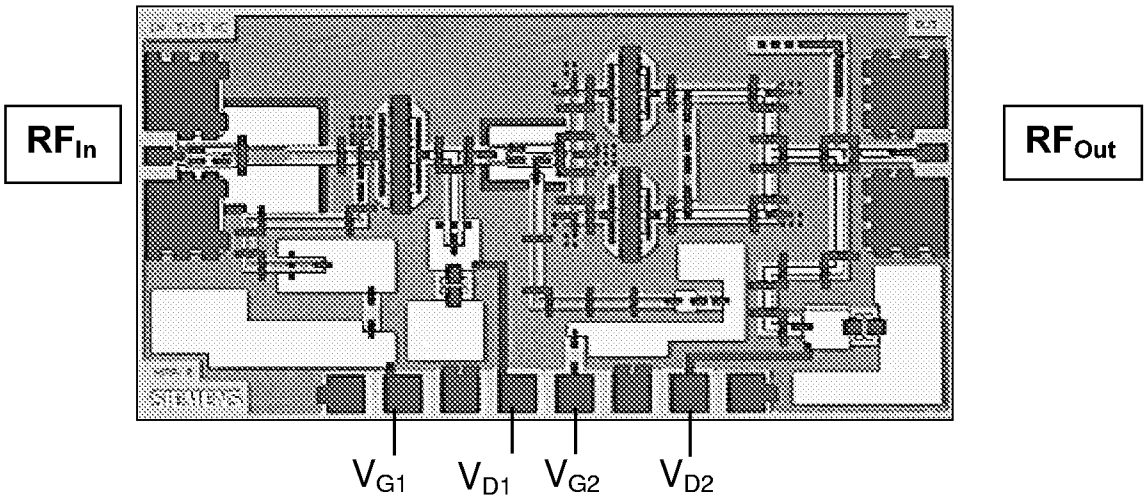


Maximum Ratings:

Characteristics	Symbol		Unit
Drain voltage	V_D	5	V
Gate voltage	V_G	- 2 .. + 0.8	V

Technology data:

Chip thickness	95µm
Chip size	2,2 mm * 1,1 mm
DC / RF Bond pads	100 µm * 100 µm / 80 µm * 50 µm
Bond pad material	Au (plated gold)
Chip passivation	SiN (silicon nitride)



Recommendation of Bonding Conditions:

	Thermocompression Nailhead, without ultrasonic	**Wedge Bonding**	**Bond Pull Test Mil 883, >2 g**
Table Temp.	250°C	250°C	1: 2,5 g 2: 3,1 g 3: 3,2 g 4: 3,0 g 5: 2,8 g
Tool Temp.	180°C	150°C	
Scrub	100 Hz		
Bond Force	50 g	25 g	
Wire Diameter	25 µm	17 µm	