

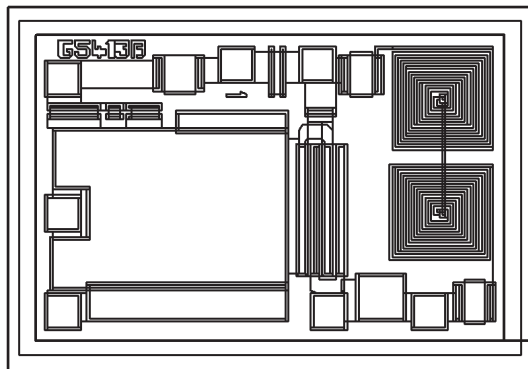
MMIC Broadband Amplifier, 0.5 - 3.5GHz

The **P35-4103-000-200** is a high performance monolithic broadband amplifier designed for use in a wide range of applications including telecommunications, instrumentation and electronic warfare. The amplifier gives typically 11dB gain over the frequency range 500MHz to 3.5 GHz. The design is self biased, operating from a single 5 volt supply applied to the RF output terminal through an external bias network.

The die is fabricated using Bookham Technology's F20 Gallium Arsenide MESFET MMIC process. It is fully protected using Silicon Nitride passivation for excellent performance and reliability.

Features

- Ultra Broadband
- Self biased. No separate gate supply required
- 19dBm output power capability
- Input and output matched to 50 Ω
- Very small chip size, 1.14 x 0.76mm



Electrical Performance

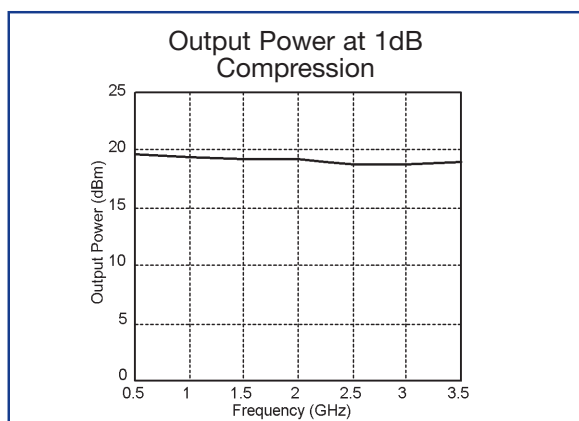
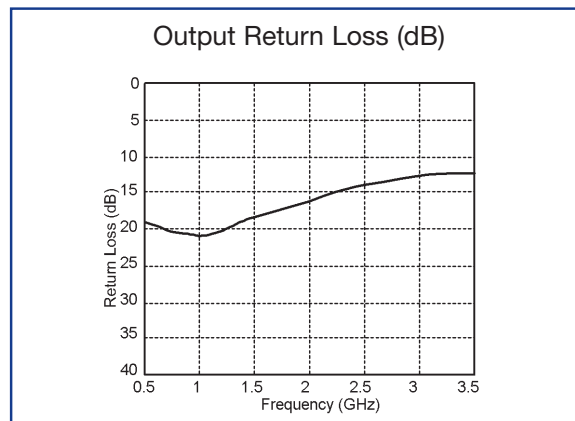
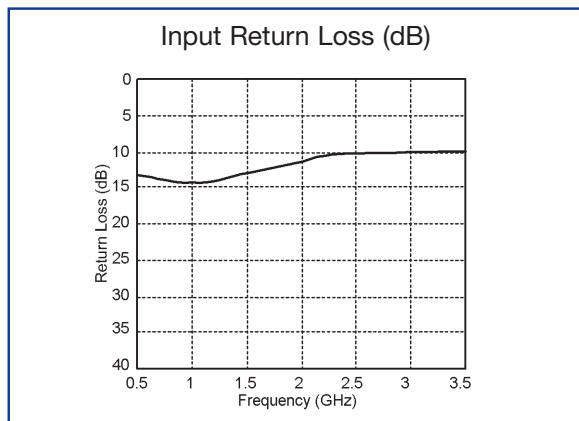
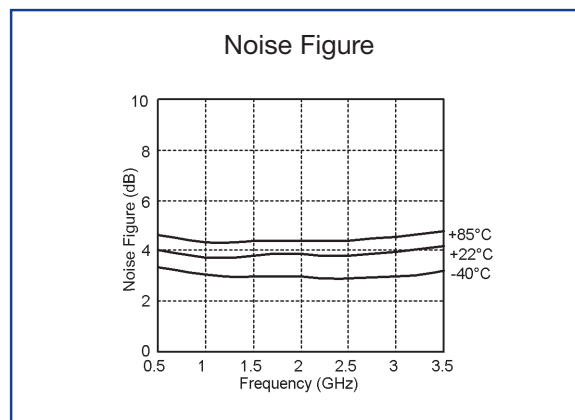
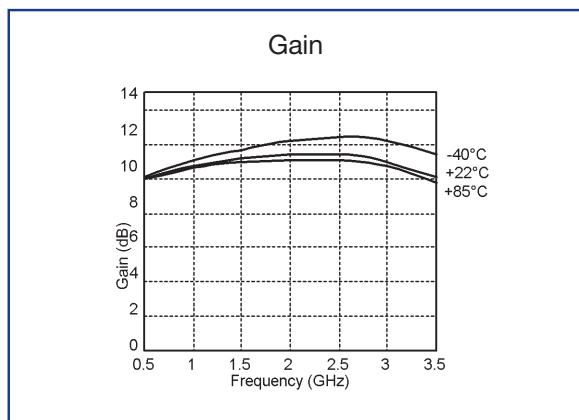
Ambient temperature = 22 ±3 Deg C , Zo = 50 ohms, Vd = 5V, Pin = -20dBm

Parameter	Conditions	Min	Typ	Max	Units
Small signal gain	0.5GHz - 3.5GHz	9	11	-	dB
Gain Flatness	0.5GHz - 3.5GHz	-	±0.75	±1.0	dB
Input Return Loss	0.5GHz - 3.5GHz	9	10	-	dB
Output Return Loss	0.5GHz - 3.5GHz	11	15	-	dB
Noise figure	0.5GHz - 3.5GHz	-	3.5	4.5	dB
Output Power at 1dB compression	0.5GHz - 3.5GHz	-	19	-	dBm
Output referred IP3	2GHz - 3.5GHz	-	30	-	dBm
Supply Voltage		-	5	6	Volts
Current	Vd = 5V	60	90	105	mA

Notes

1. All measurements on Wafer

Typical Performance at 22° C



Absolute maximum Ratings

- Max Vds +6.0V
- Max Vgs -5.0V
- Die operating temperature -55°C to 125°C
- Storage temperature 65°C to +150°

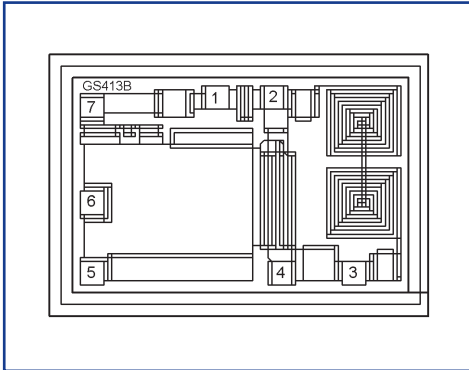
Operation

To operate the P35-4103-000-200, a drain supply of 5V is connected to the RFout via a suitable bias circuit. Typically a 200nH inductor and 10nF decoupling capacitor can be used. The amplifier circuit is self biased and the drain current will be typically 90mA at 5V. A DC blocking capacitor of 330pF should be used at both the input and output. A further blocking capacitor may be used at the output as appropriate. The ground pads must be bonded with minimum inductance to a good DC and RF ground. It is recommended that the die is mounted with silver loaded epoxy and bonding to all pads is with 25 µm diameter gold wire using thermal compression bonding.



Thinking RF solutions

Die Outline



Die size: 1.143 x 0.762mm
 Bond pad size: 90 µm square
 Die thickness: 200 µm

Pad Details

Pad	Function
1	RF Input
2	NC
3	NC
4	RF Output
5	GND
6	GND
7	GND

MMICS

Bookham Technology plc
 Caswell
 Towcester
 Northamptonshire
 NN12 8EQ
 UK

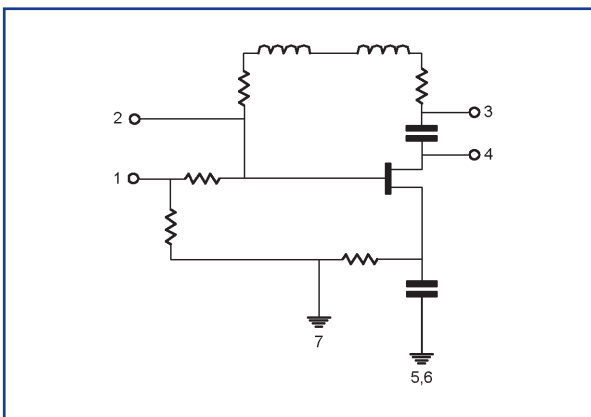
- Tel: +44 (0) 1327 356 789
- Fax: +44 (0) 1327 356 698

rfsales@bookham.com

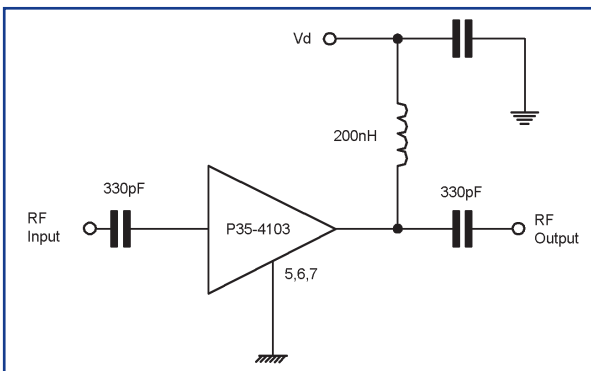
Important Notice

Bookham Technology has a policy of continuous improvement. As a result certain parameters detailed on this flyer may be subject to change without notice. If you are interested in a particular product please request the product specification sheet, available from any RF sales representative.

Circuit Diagram



Die Bias Connections



Ordering Information

P35-4103-000-200