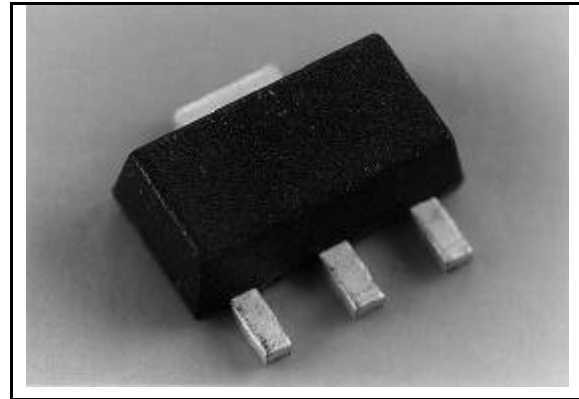


MONOLITHIC BROADBAND AMPLIFIER, 0.5 - 3.0GHz

Features

- Broadband operation
- Self biased. Single positive supply.
- Input and output matched to 50Ω
- SOT-89 miniature surface mount plastic package



Description

The P35-4103-P21-200 is a high performance, low cost, broadband amplifier designed for use in a wide range of telecommunications applications. The amplifier gives over 8.0dB of gain over the 500MHz to 3.0 GHz frequency range. 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 MCL's F20 Gallium Arsenide MESFET MMIC process. It is fully protected using Silicon Nitride passivation for excellent performance and reliability. This device is packaged in a small, low cost, SOT-89 plastic surface mount package.

Electrical Performance

Ambient temperature = $22\pm 3^{\circ}\text{C}$, $Z_0 = 50\Omega$, $V_d = 5\text{V}$, $P_{in} = -20\text{dBm}$

Parameter	Condition	Min	Typ	Max	Units
Small Signal Gain	0.5GHz - 3.0GHz	8.0	8.5	-	dB
Gain Flatness	0.5GHz - 3.0GHz	-	± 0.5	± 0.75	dB
Input Return Loss	0.5GHz - 3.0GHz	7	8	-	dB
Output Return Loss	0.5GHz - 3.0GHz	7	8	-	dB
Noise Figure	0.5GHz - 3.0GHz	-	5.5	-	dB
Output Power at 1dB compression	0.5GHz - 3.0GHz	-	20	-	dBm
Saturated Output Power	0.5GHz - 3.0GHz	-	22	-	dBm
Supply Voltage		-	5	6	Volts
Current	$V_d = 5\text{V}$	80	100	120	mA

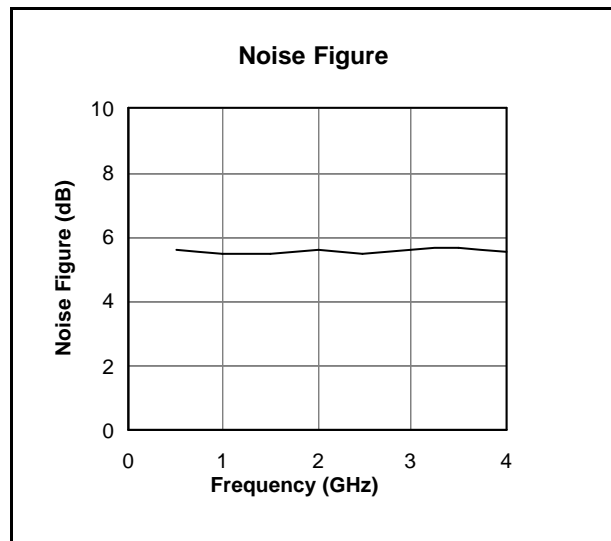
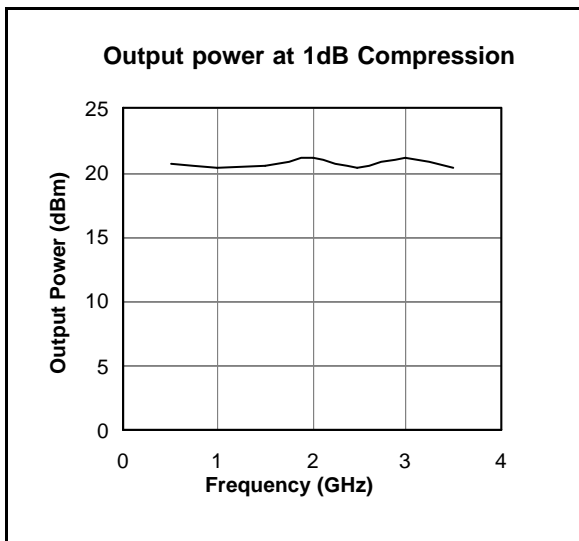
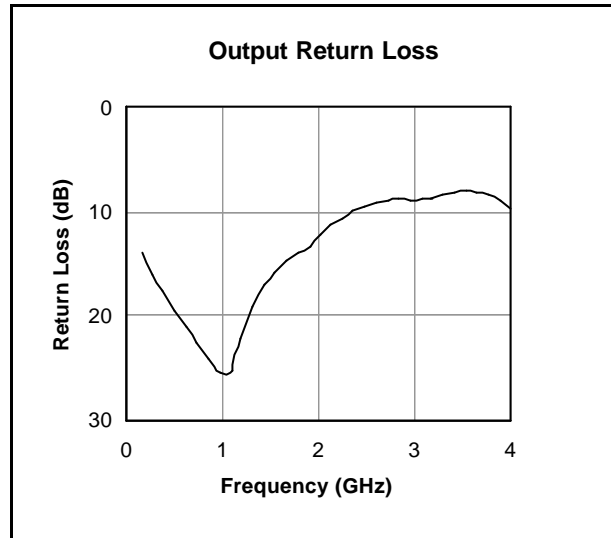
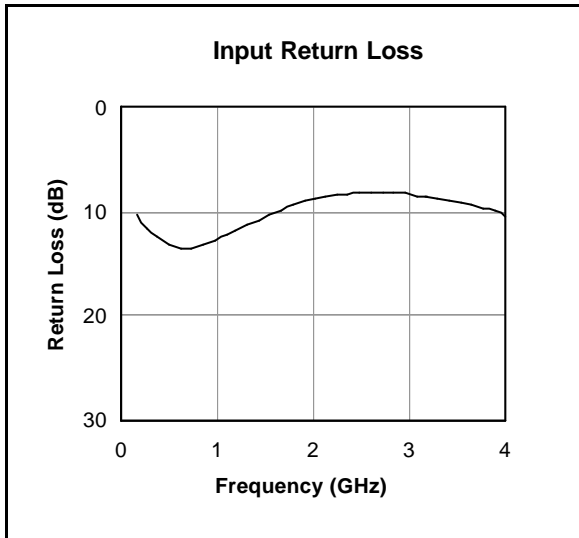
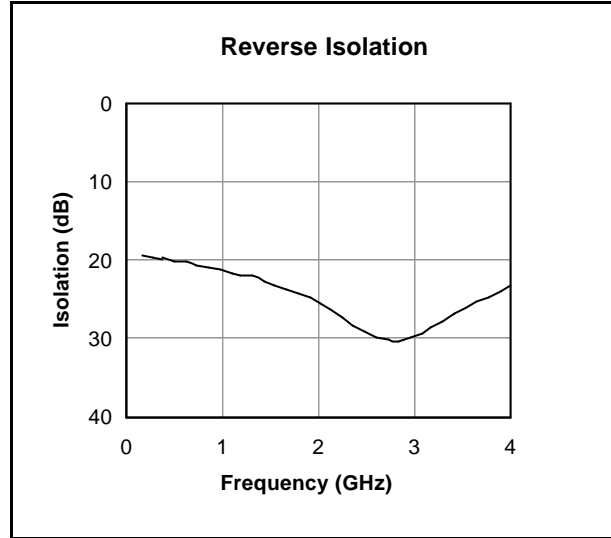
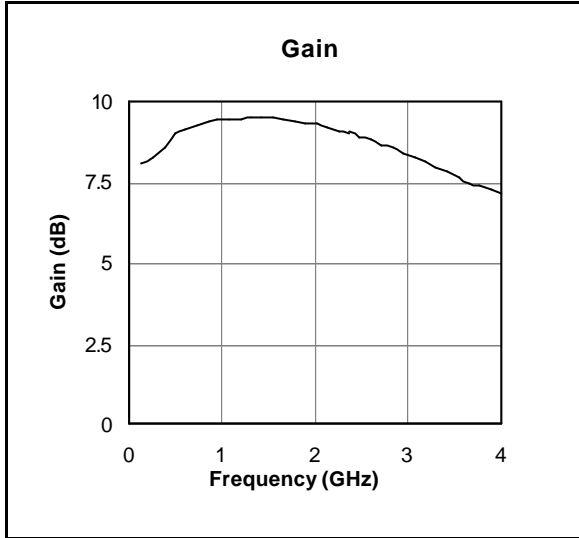
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Typical Performance at 22°C



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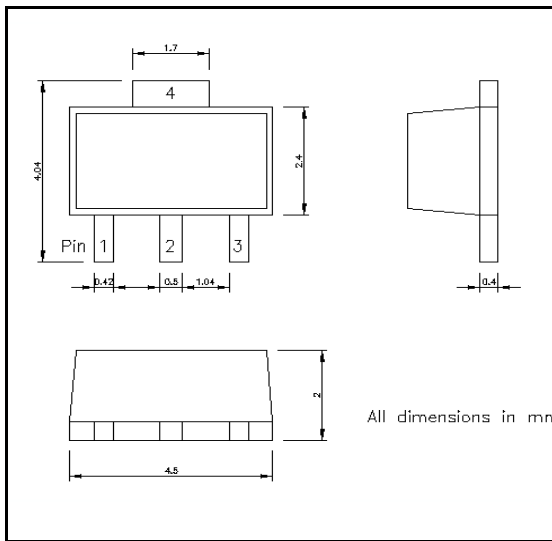
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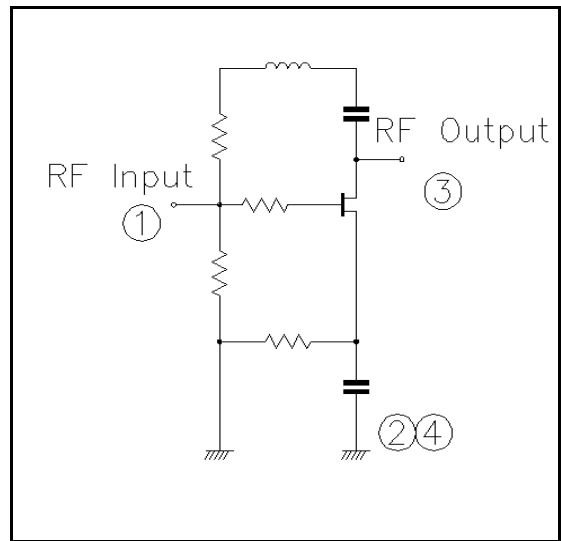
Operation

To operate the P35-4103-P21-200, 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 100mA at 5V. A DC blocking capacitor of 330pF should be used at both the input and output. The ground leads must be connected to a good DC and RF ground.

Package Outline



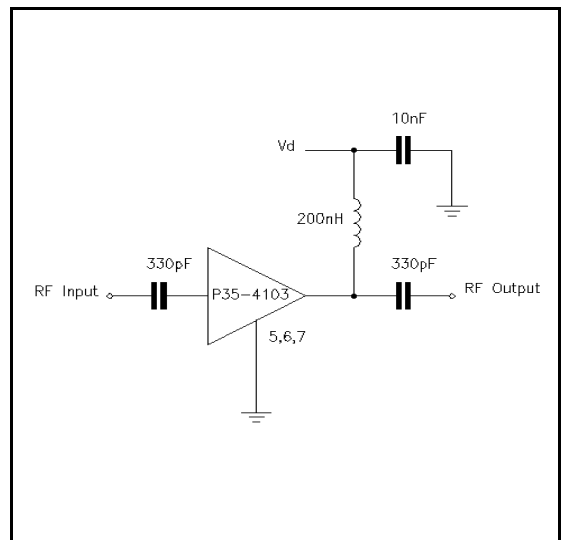
Circuit Diagram



Pin Details

Pin	Function
1	RF Input
2	GND
3	RF Output & Vd
4	GND

Package Bias Connections



Absolute maximum Ratings

Max Vd	+6.0V
Operating temperature	-40°C to 85°C
Storage temperature	-65°C to +150°

Ordering Information

P35-4103-P21-200