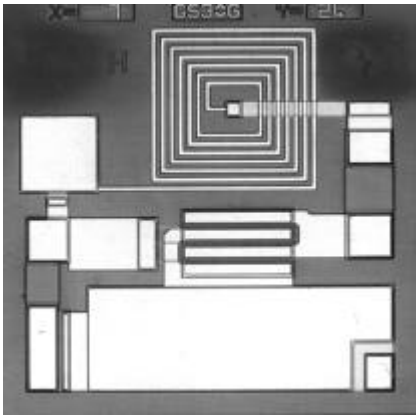
MONOLITHIC BROADBAND AMPLIFIER, 0.5 - 3.5GHz



Features

- Ultra Broadband
- Self Biased. No separate gate supply required
- 20dBm output power capability
- Input and output matched to 50?

Description

The P35-4101 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 10dB gain over the frequency range 500MHz to 3.5GHz. The design is self biased and requires the connection of a single 5V supply to the amplifier output.

The die is fabricated using MMT's F14 Gallium Arsenide MESFET MMIC process. It is fully protected using Silicon Nitride passivation for excellent performance and reliability.

Electrical Performance

RF Jig Measurement, Ambient temperature = 22 ±3 Deg C , Z_0 = 50 ohms, Vd = 5V, Id = 90mA

Parameter	Conditions	Min	Typ	Max	Units
Small signal gain	0.5GHz - 3.5GHz	8.9	10.0	-	dB
Gain Flatness	0.5GHz – 2.0GHz	-	±0.2	-	dB
	2.0GHz - 3.5GHz	-	±0.75	-	dB
Input Return Loss	0.5GHz – 2.0GHz	10	17	-	dB
	2.0GHz - 3.5GHz	6	12	-	dB
Output Return Loss	0.5GHz – 2.0GHz	8	12	-	dB
	2.0GHz - 3.5GHz	6	8	-	dB
Noise figure	0.5GHz - 3.5GHz	-	4.5	5	dB
Output Power at	-	-	-	-	-
1dB compression	0.5GHz - 3.5GHz	18	20	-	dBm
Drain Voltage Vd		+4.5	+5.0	+6.0	V
Drain Current Id	Vd = 5V	60	90	100	mA

Notes

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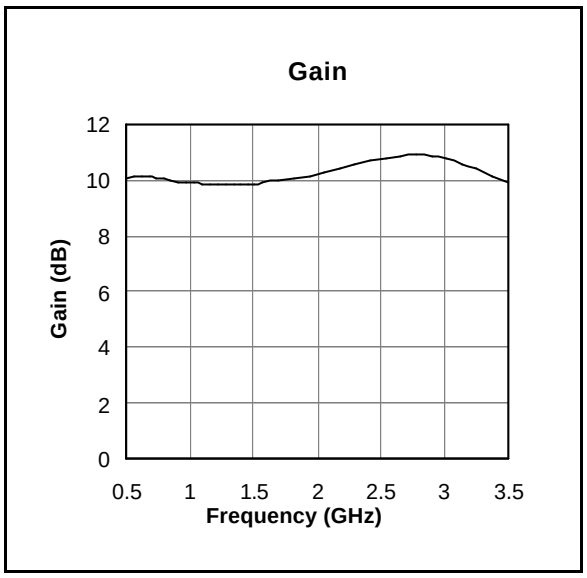
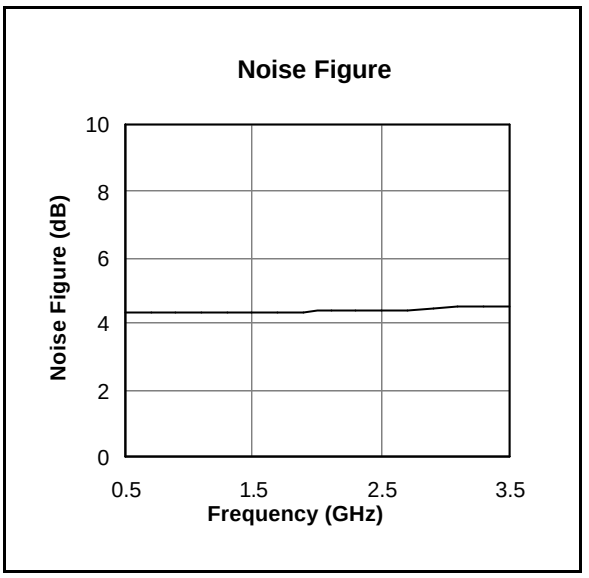
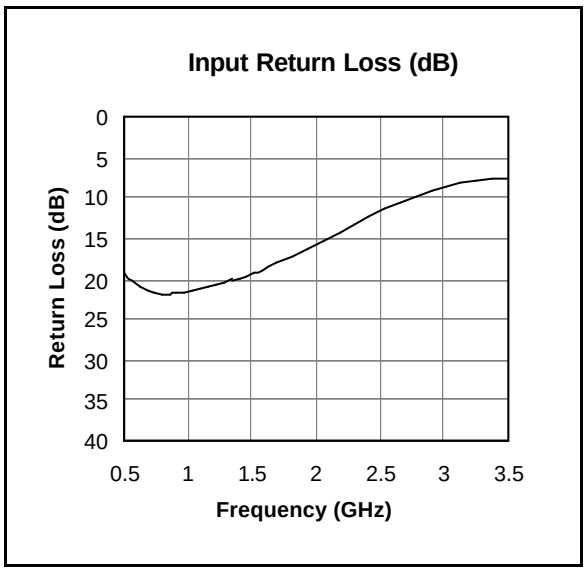
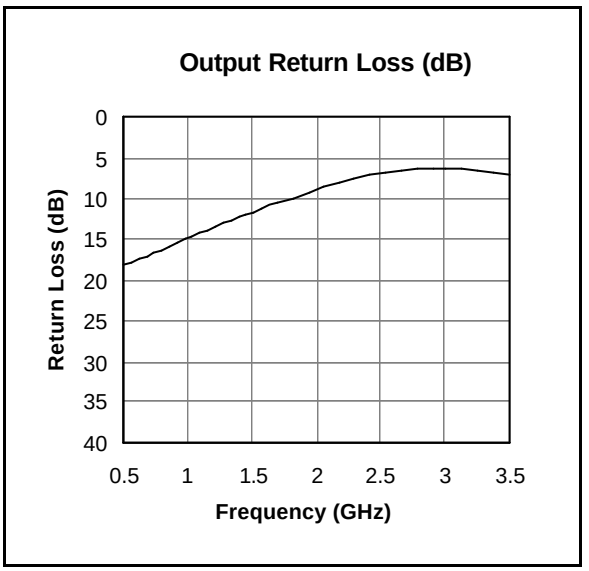
Typical Jig Performance at 22°C









Note:- Two SMA connectors and bondwires are included in the above data.

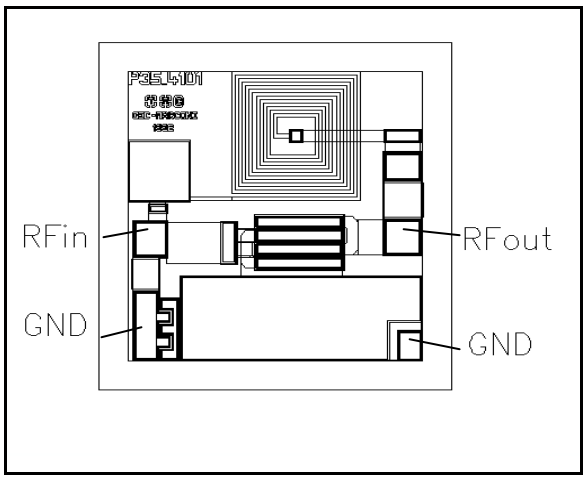
Absolute maximum Ratings

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

Operation

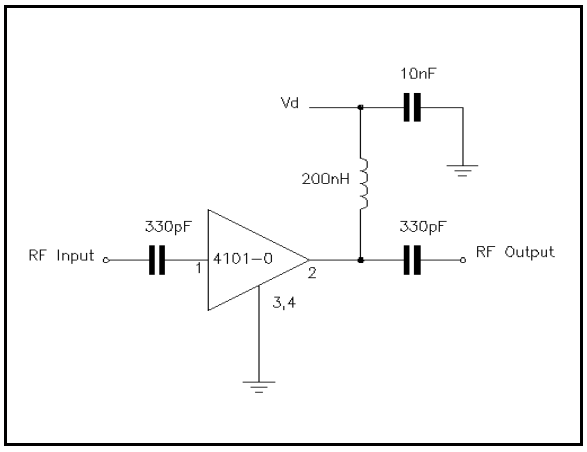
To operate the P35-4101-0, a drain supply of 5V is connected to the RFout via a suitable bias circuit. Typically a 200nH inductor and 10nF decoupling capacitor can be used. The amplifier circuit is self biased and the drain current will be typically 90mA at 5V. DC blocking capacitors of 330pF should be used at both the input and output. The ground pad 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 wire bonded to all pads with 25µm diameter gold wire using thermal compression bonding. See application note P35-41AN3 for more details.

Die Outline & Pad Details



Die size: 1.22 x 1.22mm
Bond pad size: 120µm square
Die thickness: 200µm

Die Bias Connections



Ordering Information

P35-4101-0 *Die*

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