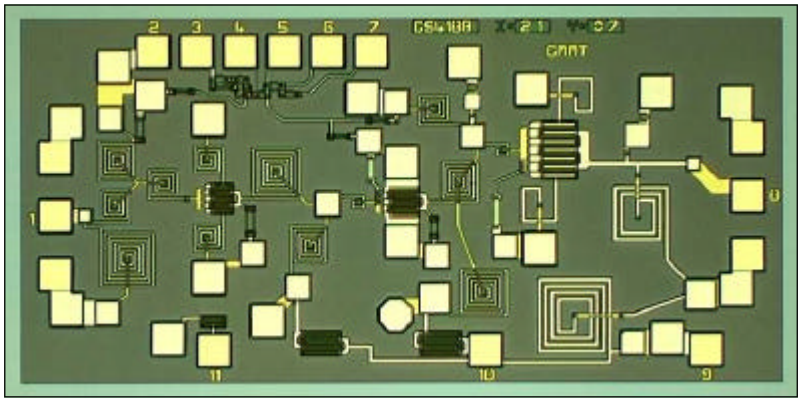
GaAs MMIC Driver Amplifier, 5-6GHz



Features

· 24 dB Gain typical
· F20 MESFET Technology
· 21dBm Output Power Typ @6V
· High & Low Gain States
· PAE (Max) 25%

Description

The P35-4720-000-200 is a high performance Gallium Arsenide Driver Amplifier MMIC. It is primarily intended for wireless applications in the 5-6 GHz bandwidth such as U-NII (Unlicensed National Information Infrastructure) and HIPERLAN (High Performance Local Area Network).

The three-stage amplifier requires plus and minus 5V power supplies. Also incorporated into the design is the ability to switch between two gain states, High and Low Gain, as well as a chip standby mode which typically draws 0.1mA. In addition the design has been optimised for the effects of a single bondwire at both the input and output.

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

Electrical Performance

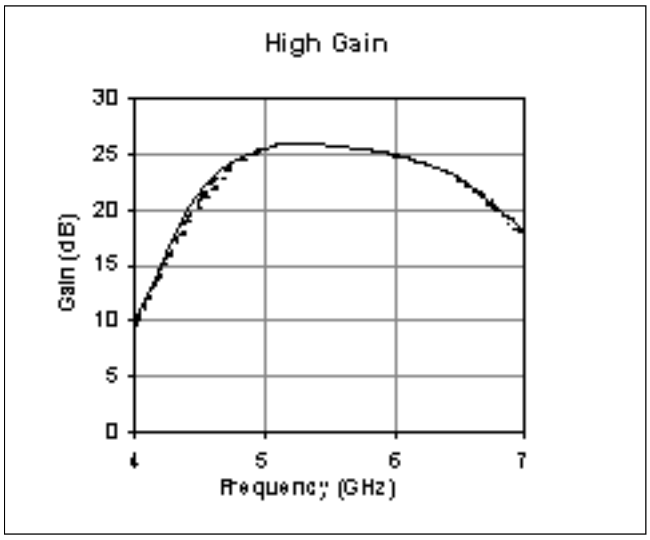
Ambient temperature = 22±3° C, Z_O = 50Ω, Vgg = -5V, Vdd = +5V

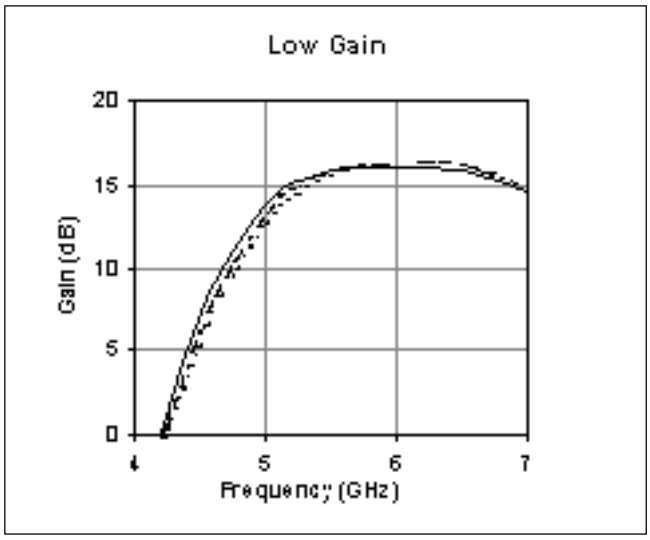
Parameter	Conditions	Min	Typ	Max	Units
Small signal gain 1,2	5GHz - 6GHz	22	24	-	dB
Gain Flatness1,2	5GHz - 6GHz	-	±1.0	-	dB
Input Return Loss1,2	5GHz - 6GHz	10	20	-	dB
Output Return Loss1,2	5GHz - 6GHz	8	12	-	dB
Noise Figure1,2	5GHz - 6GHz	-	4.5	-	dB
P-1dB Output Power1,2	5GHz - 6GHz	-	19	-	dBm
TOI1,2	5.5GHz	-	29	-	dBm
Supply current (Idd) 2	Disabled	-	0.1	1	mA
Supply current (Idd) 1,2	Enabled (No RF)	-	118		mA

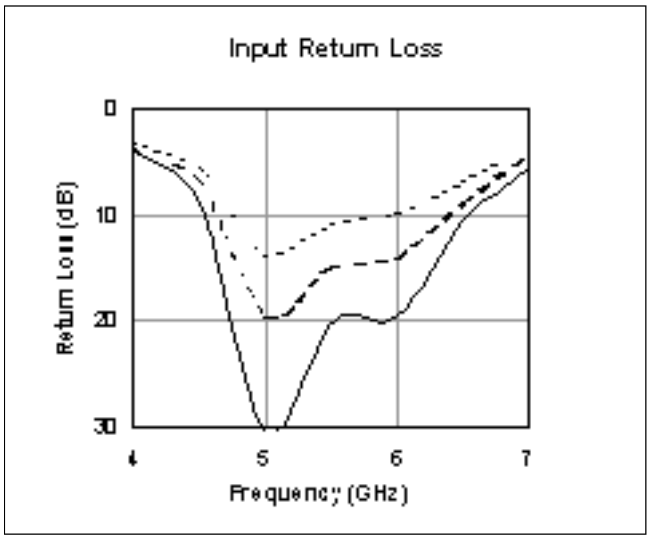
Notes

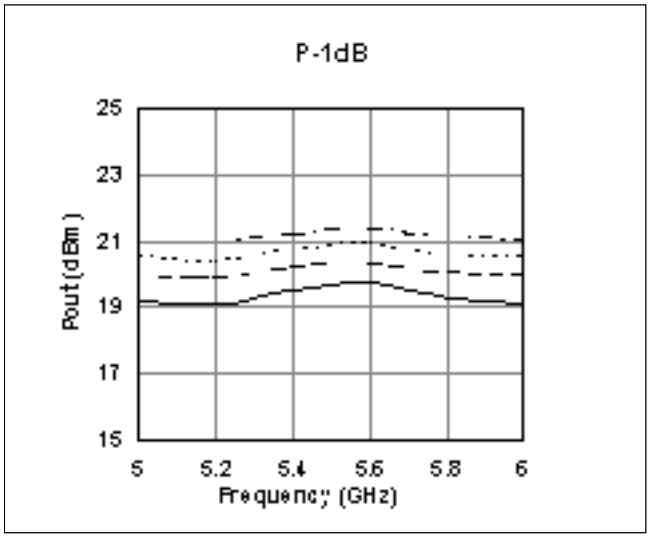
1 High Gain State
2 All Parameters Measured on Wafer

Typical Performance at 22°C







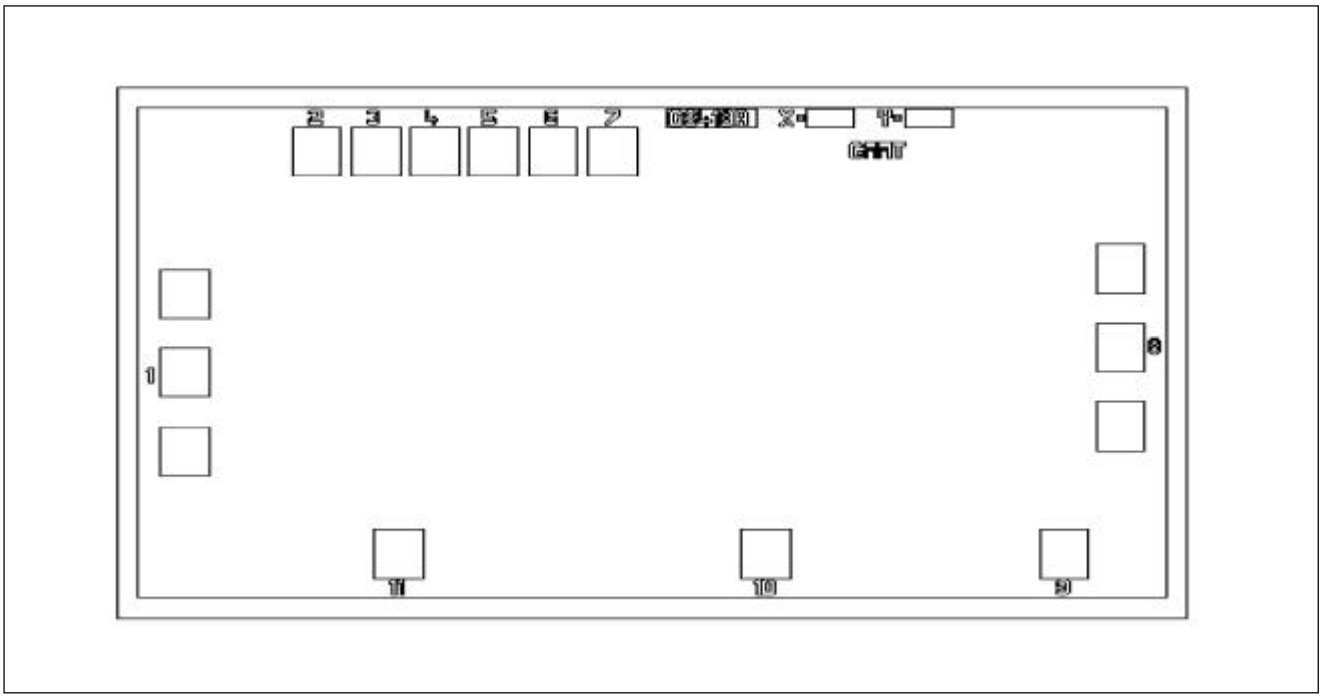


RFOW Result
0.3nH Inductance on both RF input and output
0.7nH Inductance on both RF input and output

P-1dB

5V
5.5V
6V
6.5V

Die Outline



Die size:	1.34 x 2.71 mm
DC Bond pad size:	120µm square
RF Bond pad size:	120µm square
Die thickness:	200µm

Pad Details

Pad	Function
1	RF Input
2	NC
3	Vgg = -5V
4	Vg1 Sense N/C
5	Vg2 Vg3 Sense N/C
6	High/ Low Enable
7	High/ Low Enable
8	RF Output
9	Gnd
10	Vdd = +5V
11	Gnd

Switching Truth Table

Pad 6	Pad 7	Function
0V	O/C	High Gain Enabled
O/C	0V	Low Gain Enabled
-5V	0V	Amplifier Disabled

Absolute Maximum Ratings

Max Vd	+7.0V
Max Vgg	-5.0V
Operating temperature	-55°C to 125°C
Storage temperature	-65°C to +150°

Ordering Information: P35-4720-000-200

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The data and product specifications are subject to change without notice. These devices should not be used for device qualification and production without prior notice.

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