

PRELIMINARY

Notice : This is not a final specification
Some parametric limits are subject to change.

MITSUBISHI SEMICONDUCTOR <GaAs MMIC>

MGFC5107

Ka-Band 3-Stage Self Bias Low Noise Amplifier

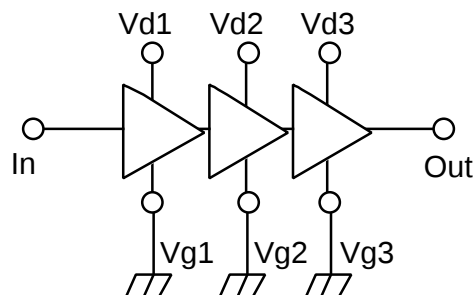
DESCRIPTION

The MGFC5107 is a GaAs MMIC chip especially designed for 21.0 ~ 24.0 GHz band Low Noise Amplifier.(LNA) .

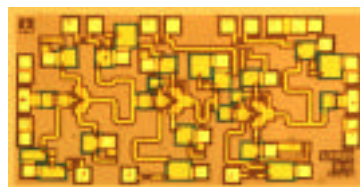
FEATURES

- RF frequency : 21.0 to 24.0 GHz
- Super Low Noise NF=2.5dB (TYP.)
- Single voltage operation

BLOCK DIAGRAM



PHOTOGRAPH



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Values	Unit
Vd	Drain bias voltage	5	V
Id	Drain bias current	30	mA
Vg	Gate bias voltage	-	V
Pin	Maximum peak input power overdrive (Duration < 1sec)	TBD	dBm
Ta	Operating temperature range	TBD	°C

TARGET SPECIFICATIONS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
Fop	Operating frequency range	On-wafer measurement	21.0		24.0	GHz
Gain	Small signal gain		17.0	18.0		dB
Delta gain	Small signal gain flatness			1.5		dB
NF	Noise figure			2.5	3.5	dB
VSWR in	Input VSWR				2.0:1	
VSWR out	Output VSWR				2.0:1	
P1dB	Output power at 1 dB compression	Freq=22GHz Vd=5V,Id=30mA		(5) TBD		dBm
Output IP3	Output power at 3rd-order intercept point			(17) TBD		dBm
Vd	Drain bias voltage			5		V
Id	Drain bias current			30		mA
Vg	Gate bias voltage			No need		V



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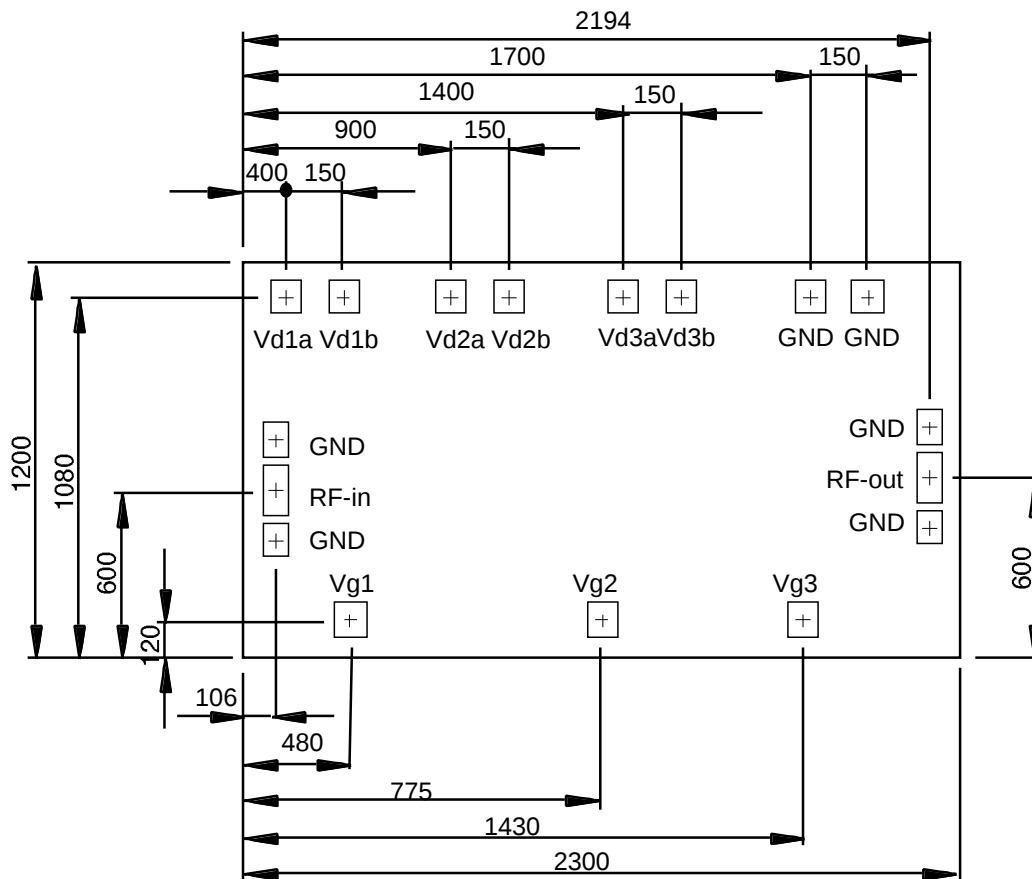
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DIE SIZE AND BOND PAD LOCATION(UNIT : μm)



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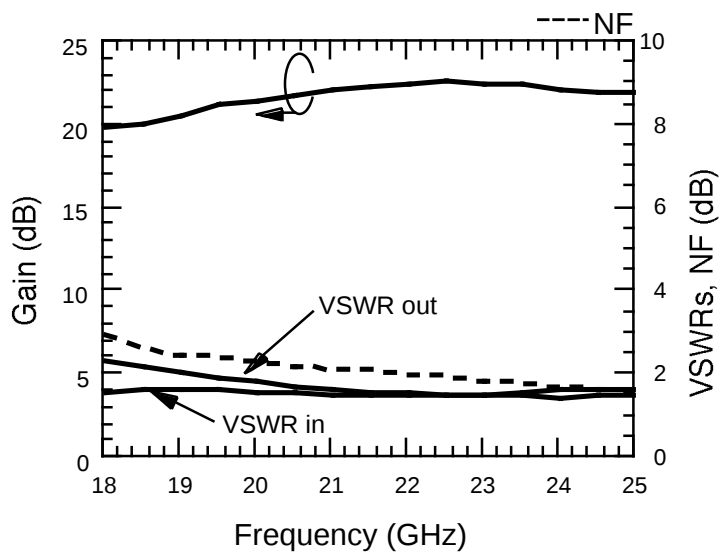
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TYPICAL CHARACTERISTICS

Small Signal Performances

($V_d = 5.0\text{ V}$, $I_d = 30\text{ mA}$, $T_a = 25\text{ }^\circ\text{C}$)



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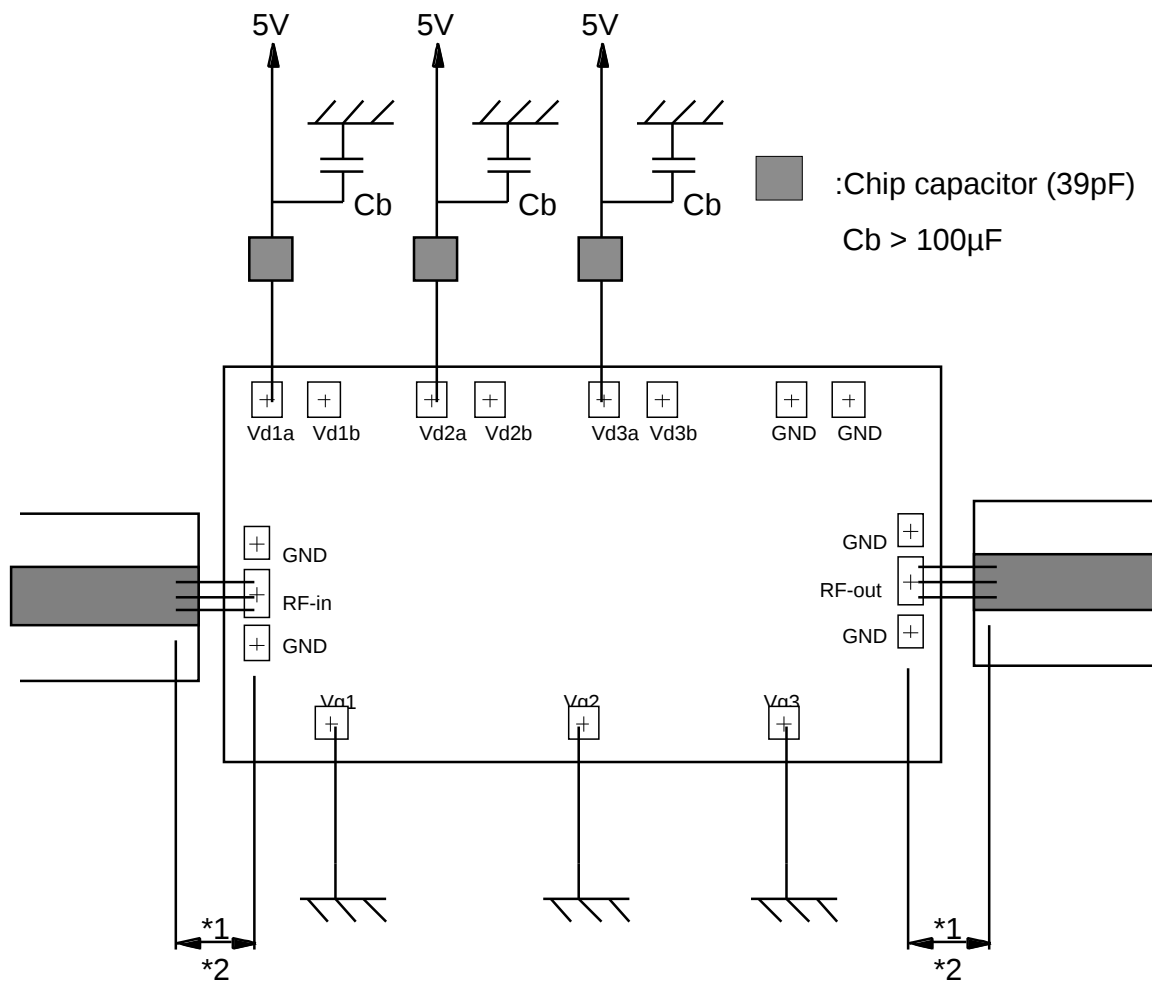
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AN EXAMPLE OF TEST CIRCUIT



*1 Length of bonding wire < 200 μm

*2 Number of bonding wire ≥ 3



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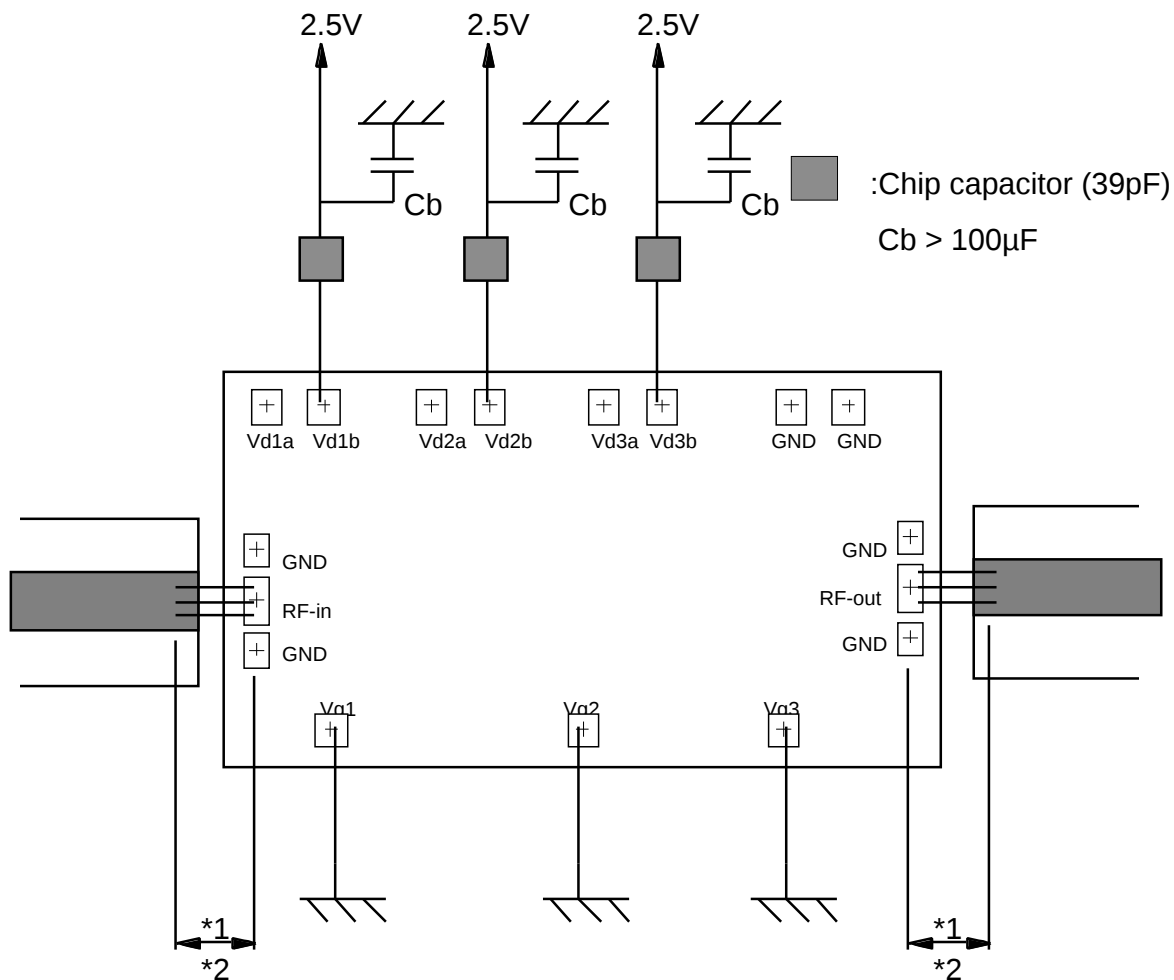
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