

# PRELIMINARY

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

MITSUBISHI SEMICONDUCTOR <GaAs MMIC>

# MGFC5214

Q-Band 2-Stage Power Amplifier

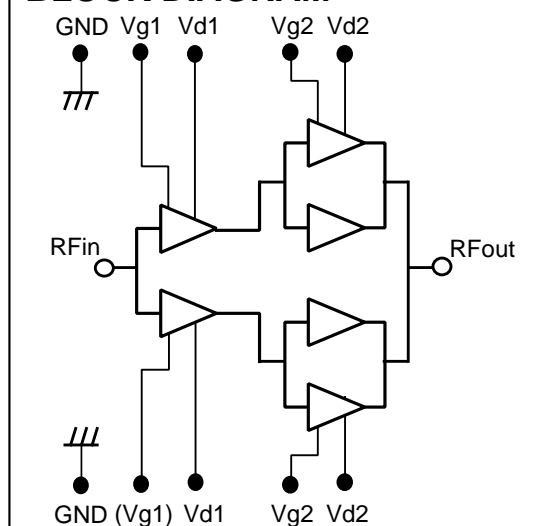
## DESCRIPTION

The MGFC5214 is a GaAs MMIC chip especially designed for 37.0 ~ 40.0 GHz band High Power Amplifier (HPA) .

## FEATURES

- RF frequency : 37.0 to 43.0 GHz
- Linear gain : 12 dB (TYP.) @ 37 to 40 GHz  
10 dB(TYP.) @ 40 to 43 GHz
- P1dB : 23 dBm(min.) @ 37 to 40 GHz  
23 dBm(target) @ 40 to 43 GHz

## BLOCK DIAGRAM

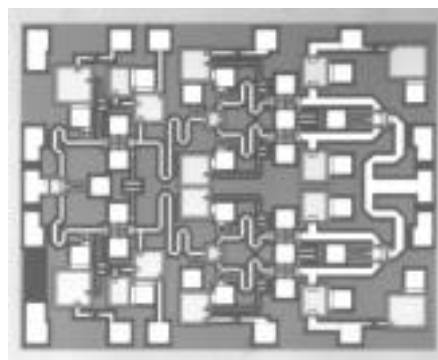


## TARGET SPECIFICATIONS (Ta=25°C)

Parameter	Min.	Typical	Max.	Unit
Frequency	37	—	40	GHz
Linear Gain	—	12	—	dB
P1dB	23	—	—	dBm
Input VSWR	—	—	2.0	—
Output VSWR	—	—	2.0	—
Vd	Vd1=4.5, Vd2=6			V
Vg	-0.2			V
Chip Size	1.99x1.60			mm <sup>2</sup>

Parameter	Min.	Typical	Max.	Unit
Frequency	40	—	43	GHz
Linear Gain	—	10	—	dB
P1dB	(23)	—	—	dBm
Input VSWR	—	—	2.2	—
Output VSWR	—	—	2.3	—
Vd	Vd1=4.5, Vd2=6			V
Vg	-0.2			V
Chip Size	1.99x1.60			mm <sup>2</sup>

## PHOTOGRAPH



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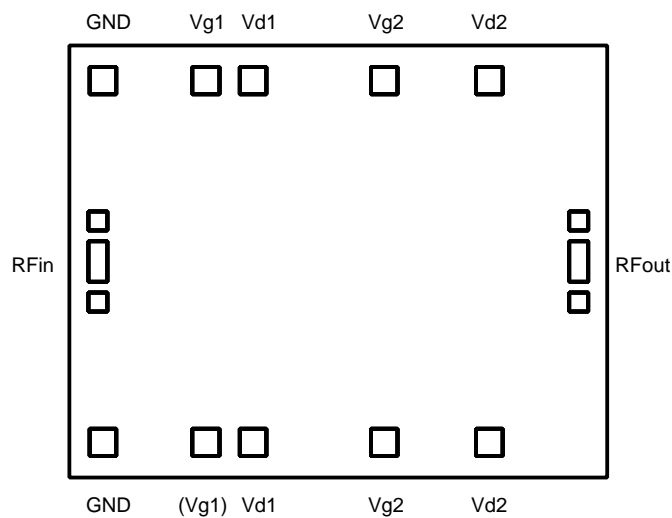
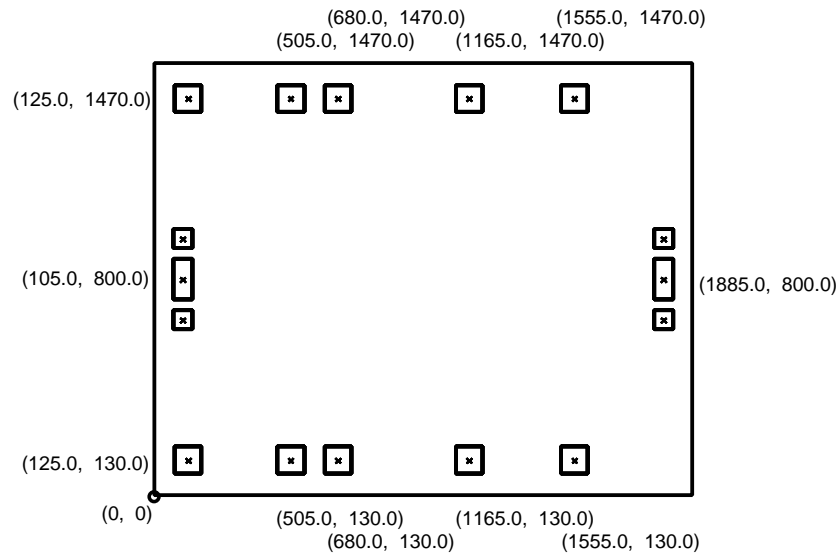
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## DIE SIZE AND BOND PAD LOCATION(UNIT : $\mu\text{M}$ )

X=1.99 mm  
Y=1.60 mm  
Bond Pad Dimension=0.07 x 0.15 mm<sup>2</sup> (RF)  
0.10 x 0.10 mm<sup>2</sup> (DC)



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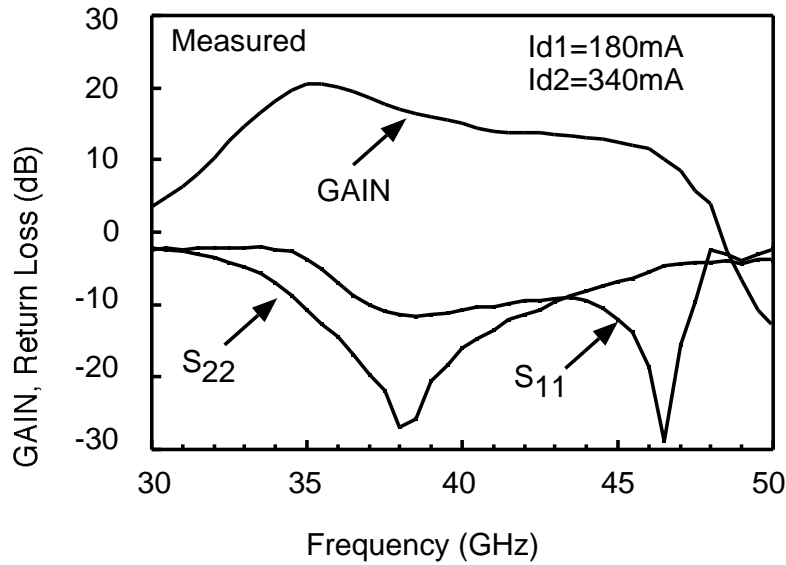
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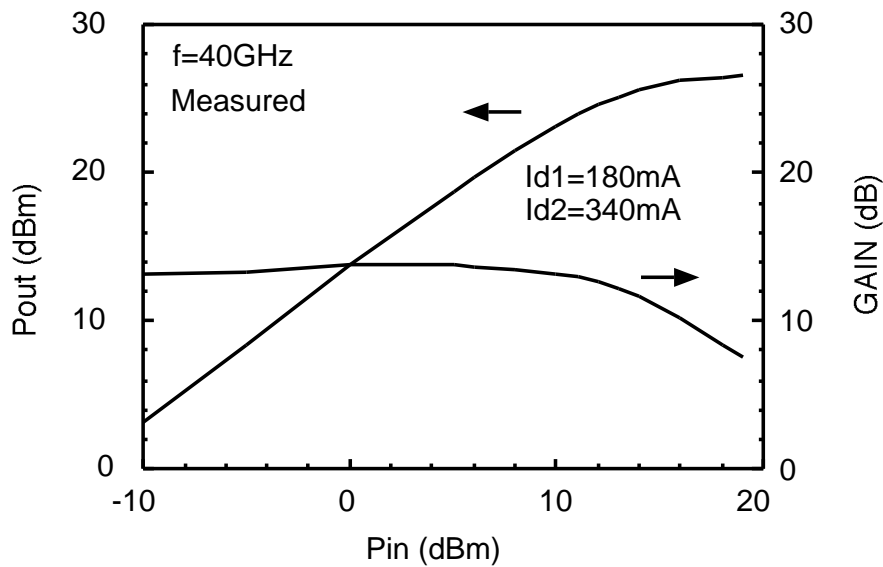
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## TYPICAL CHARACTERISTICS

### S-Parameter vs. Frequency



### Output Power Performances



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## AN EXAMPLE OF TEST CIRCUIT

