

# PRELIMINARY

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

MITSUBISHI SEMICONDUCTOR <GaAs MMIC>

# MGFC5212

K-Band 2-Stage Power Amplifier

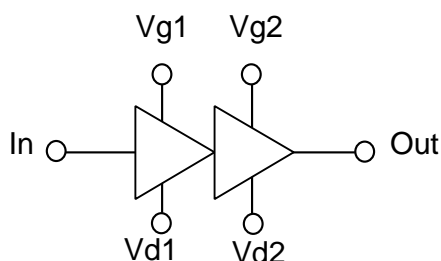
## DESCRIPTION

The MGFC5212 is a GaAs MMIC chip especially designed for 24.5 ~ 26.5 GHz band High Power Amplifier (HPA) .

## FEATURES

- RF frequency : 24.5 to 26.5 GHz
- Linear gain : 13 dB
- P1dB : 23 dBm
- DC power :  $V_d = 5\text{ V}$ ,  $I_{d1} + I_{d2} = 270\text{ mA}$

## BLOCK DIAGRAM



## ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

Symbol	Parameter	Ratings	Units
Vd1, Vd2	Drain supply voltage	6	V
Vg1, Vg2	Gate supply voltage	-3 ~ 0.5	V
Id1	Drain current 1	120	mA
Id2	Drain current 2	240	mA
Pin	RF input power	16	dBm
Ta	Backside ambient temp.	-20 ~ +70	°C
Tstg	Storage temp.	-65 ~ +175	°C
Tmax	Maximum assembly temp.	+300	°C

## ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

Symbol	Parameter	Conditions	Limits			Units
			Min.	Typ.	Max.	
Gain	Gain	$V_d = 5\text{ V}$ $I_{d1} = 90\text{ mA}$ $I_{d2} = 180\text{ mA}$ (RF off)	13.0			dB
VSWR in	Input VSWR				2.2	-
VSWR out	Output VSWR				2.2	-
P1dB	Output power at 1 dB compression point	$f = 24.5, 26.5\text{ GHz}$ Single tone	23.0			dBm
IM3	Inter modulation level	$f = 24.5, 26.5\text{ GHz}$ Two tone(10MHz off) $P_{out} = 20\text{ dBm}$	(22.0)			dBc

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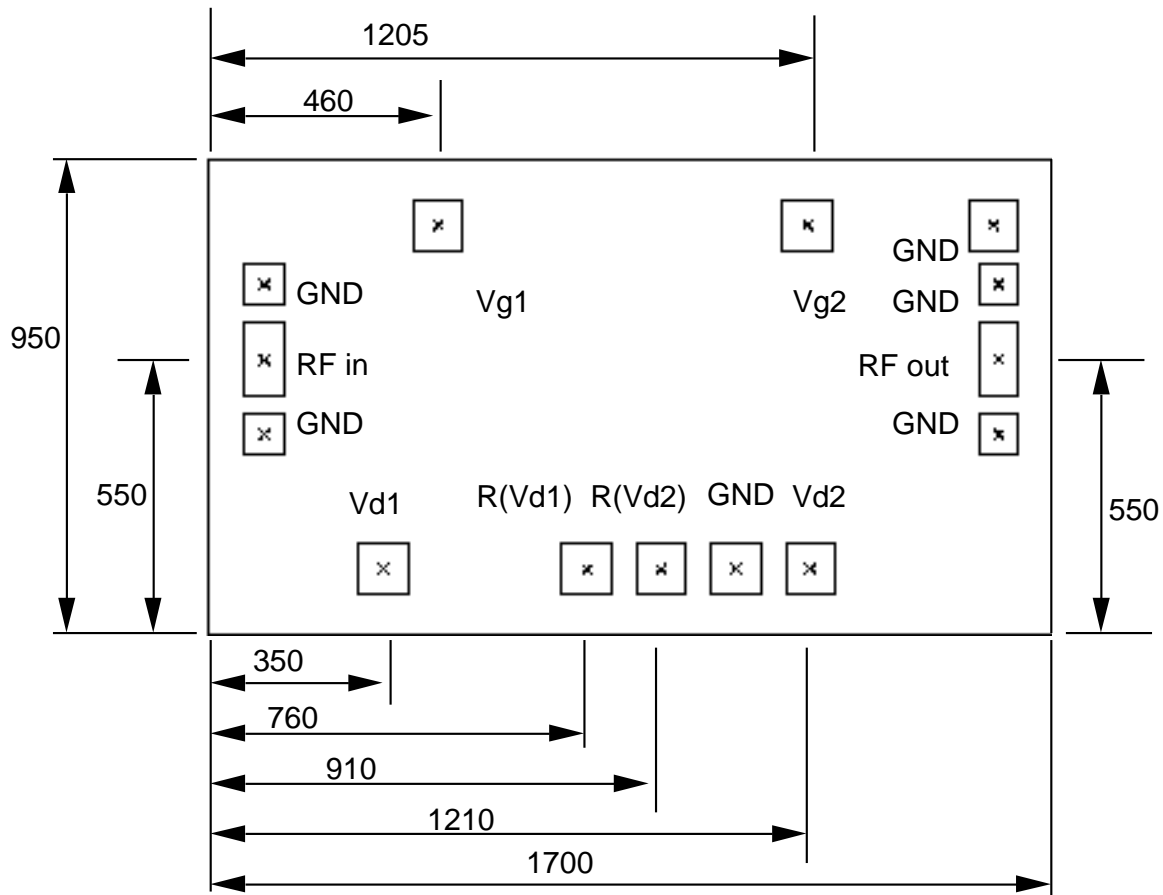
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## DIE SIZE AND BOND PAD LOCATION(UNIT : $\mu\text{M}$ )



X Dimension 1.70 mm  
Y Dimension 0.95 mm

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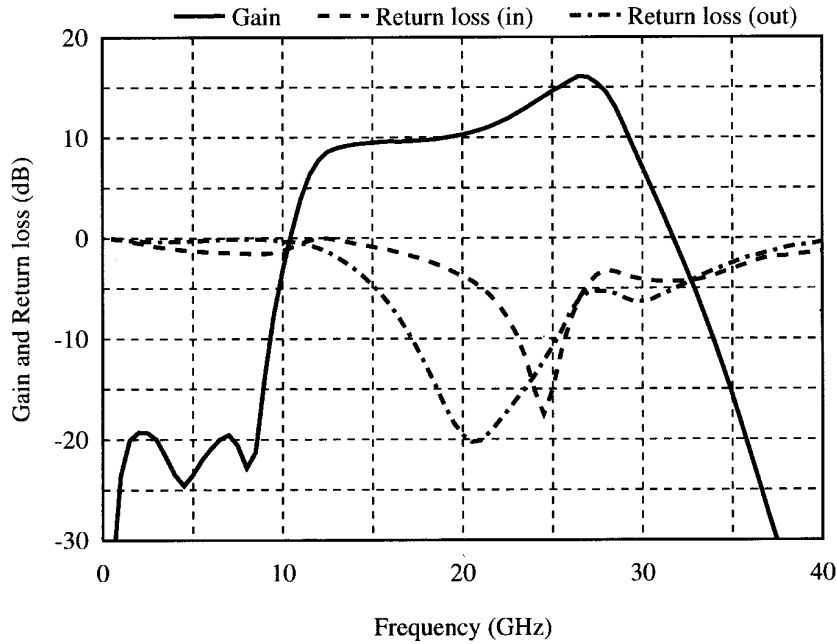
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## TYPICAL CHARACTERISTICS

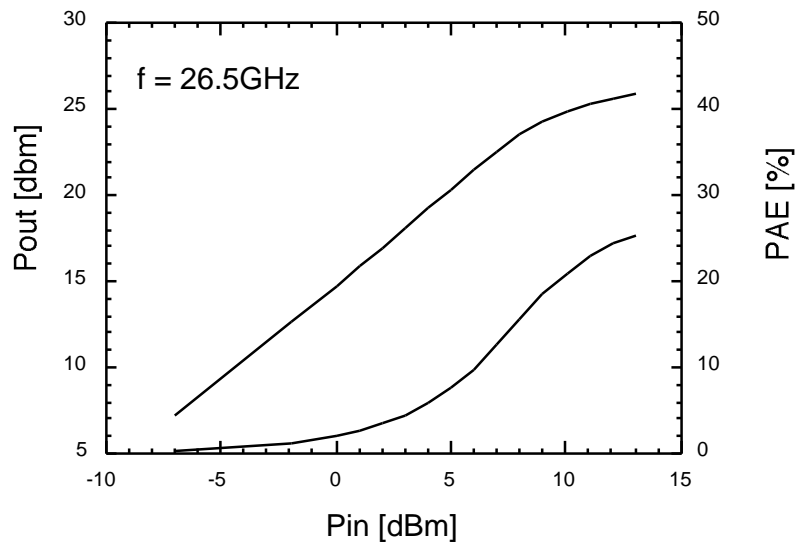
### Small Signal Performances

(Vd = 5 V, Id1 = 90 mA, Id2 = 180 mA, Ta = 25 °C)



### Output Power Performances

(Vd = 5 V, Id1 = 90 mA, Id2 = 180 mA, Ta = 25 °C)



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## AN EXAMPLE OF TEST CIRCUIT

