

PRELIMINARY

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

MITSUBISHI SEMICONDUCTOR <GaAs MMIC>

MGFC5215

K-Band 2-Stage Power Amplifier

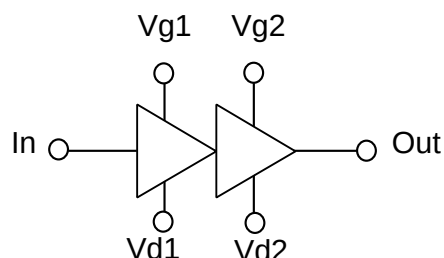
DESCRIPTION

The MGFC5215 is a GaAs MMIC chip especially designed for 27.5 ~ 30.0 GHz band Middle Power Amplifier (MPA) .

FEATURES

- RF frequency : 27.5 to 30.0 GHz
- Linear gain : ≥ 13 dB
- P1dB : ≥ 23 dBm
- DC power : $V_d = 5$ V, $I_{d1} + I_{d2} = 270$ 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	Vd = 5 V Id1 = 90 mA Id2 = 180 mA (RF off)	13.0			dB
VSWR in	Input VSWR				3.0	-
VSWR out	Output VSWR				3.0	-
P1dB	Output power at 1 dB compression point	f = 27.5, 30.0 GHz Single tone	23.0			dBm
IM3	Inter modulation level	f = 27.5, 30.0 GHz Two tone(10MHz off) Pout = 20 dBm	(22.0)			dBc



MITSUBISHI
ELECTRIC

as of July '98

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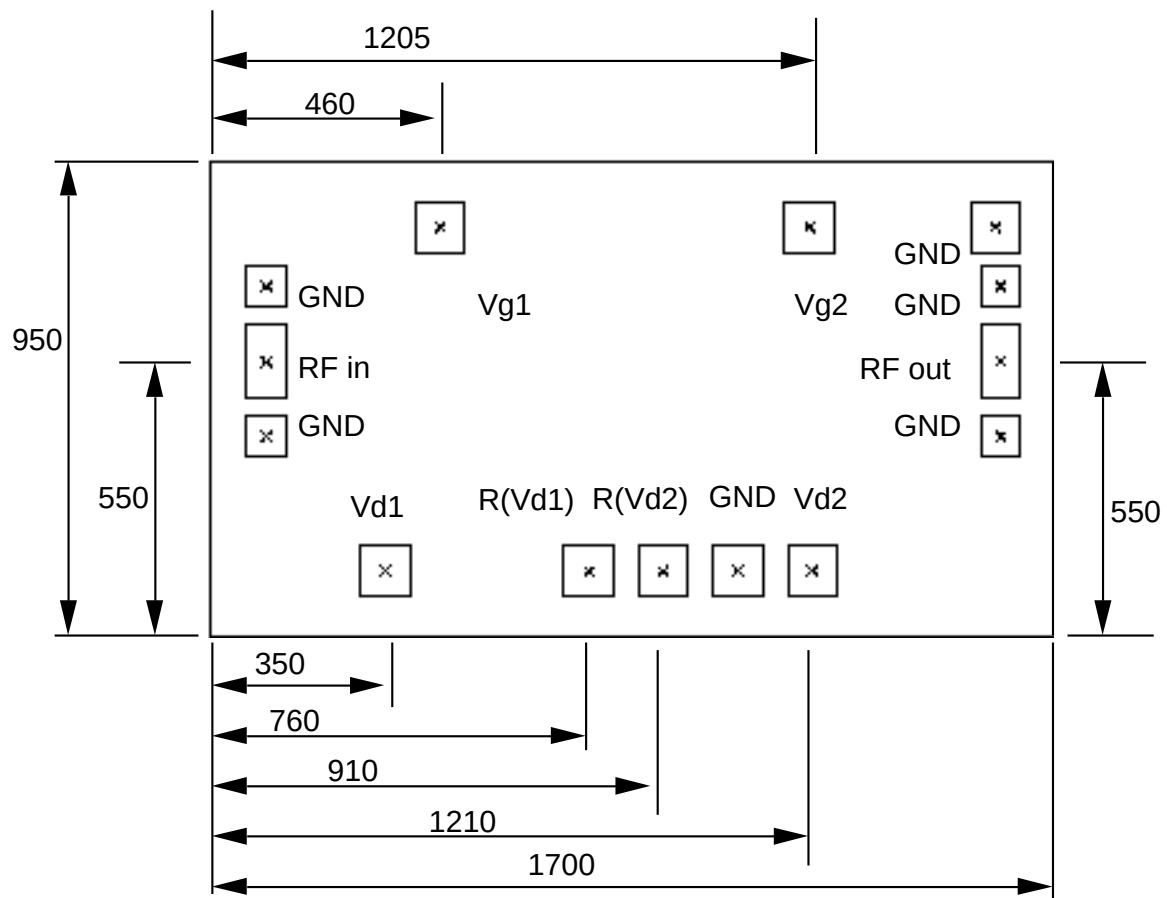
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DIE SIZE AND BOND PAD LOCATION(UNIT : μM)



X Dimension 1.70 mm

Y Dimension 0.95 mm



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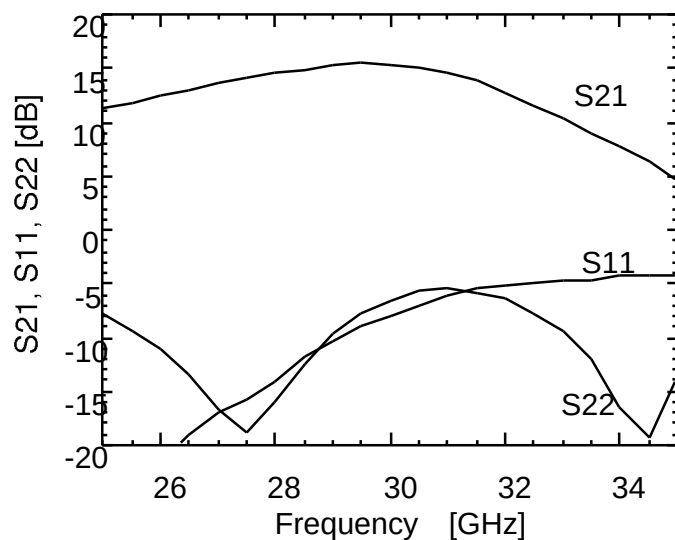
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TYPICAL CHARACTERISTICS

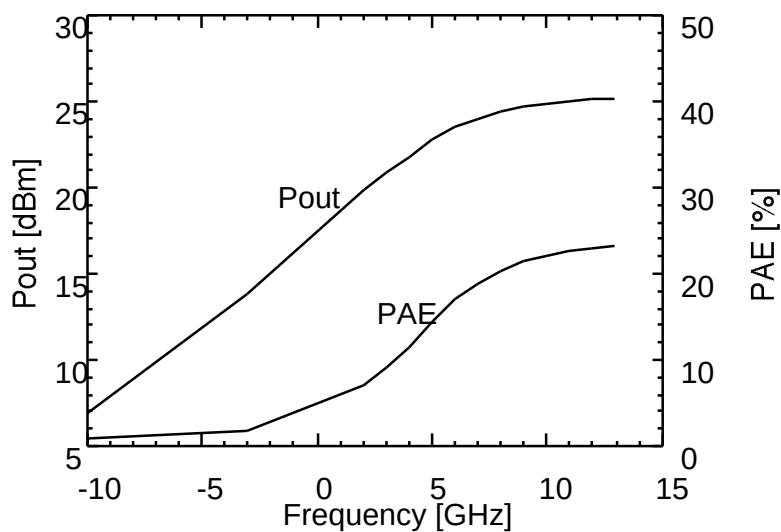
Small Signal Performances

($V_d = 5\text{ V}$, $I_{d1} = 90\text{ mA}$, $I_{d2} = 180\text{ mA}$, $T_a = 25\text{ }^\circ\text{C}$)



Output Power Performances

($V_d = 5\text{ V}$, $I_{d1} = 90\text{ mA}$, $I_{d2} = 180\text{ mA}$, $T_a = 25\text{ }^\circ\text{C}$)



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AN EXAMPLE OF TEST CIRCUIT

