

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

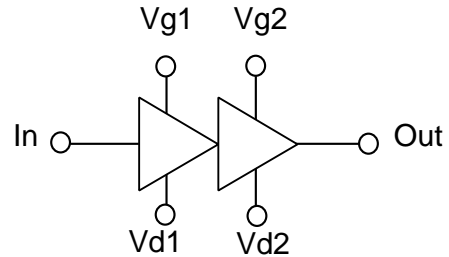
DESCRIPTION

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 : $V_d = 5\text{ V}$, $I_{d1} + I_{d2} = 270\text{ mA}$

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				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

PRELIMINARY

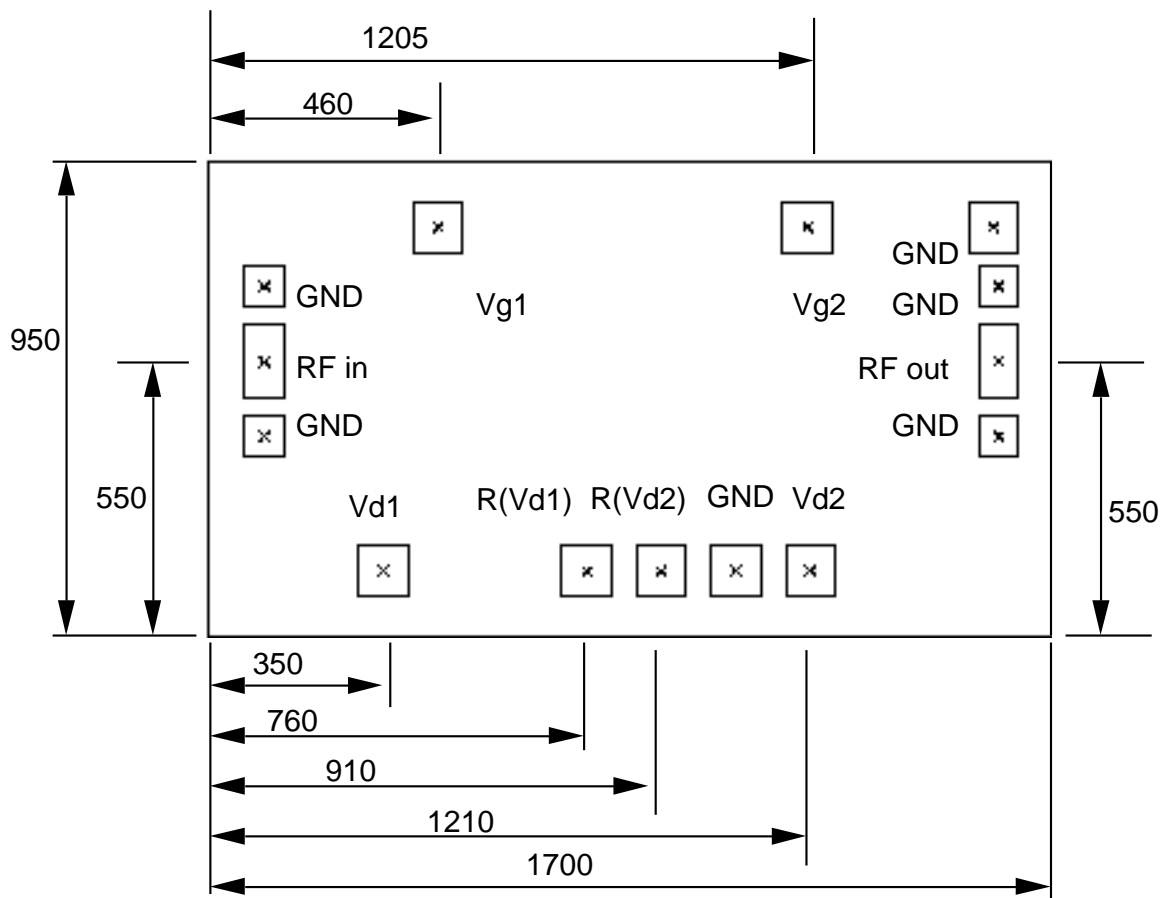
Notice : This is not a final specification
Some parametric limits are subject to change.

MITSUBISHI SEMICONDUCTOR <GaAs MMIC>

MGFC5215

K-Band 2-Stage Power Amplifier

DIE SIZE AND BOND PAD LOCATION(UNIT : μM)



X Dimension 1.70 mm

Y Dimension 0.95 mm

PRELIMINARY

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

MITSUBISHI SEMICONDUCTOR <GaAs MMIC>

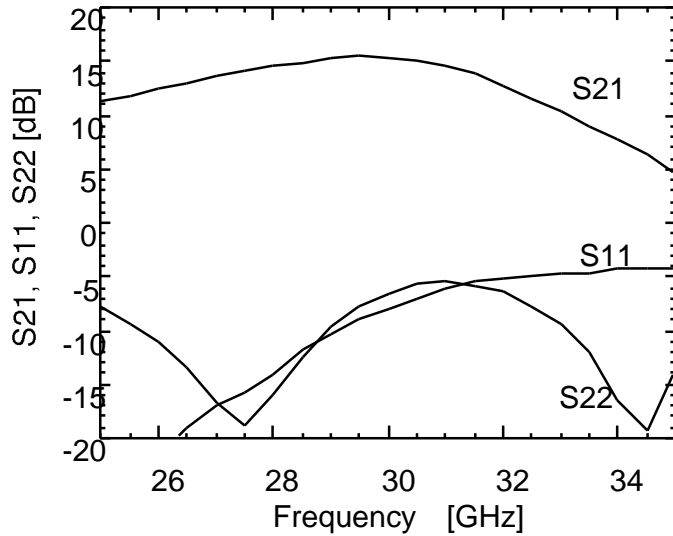
MGFC5215

K-Band 2-Stage Power Amplifier

TYPICAL CHARACTERISTICS

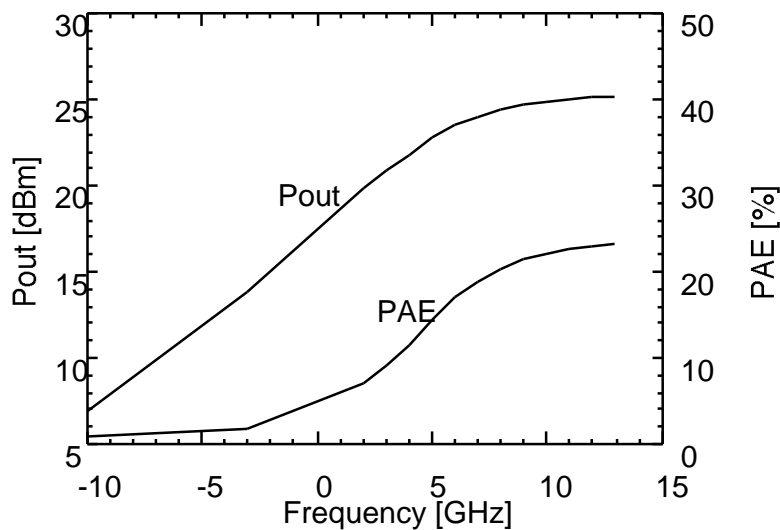
Small Signal Performances

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



Output Power Performances

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



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

AN EXAMPLE OF TEST CIRCUIT

