

PRELIMINARY

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

MITSUBISHI SEMICONDUCTOR <GaAs MMIC>

MGFC5213

K-Band 2-Stage Power Amplifier

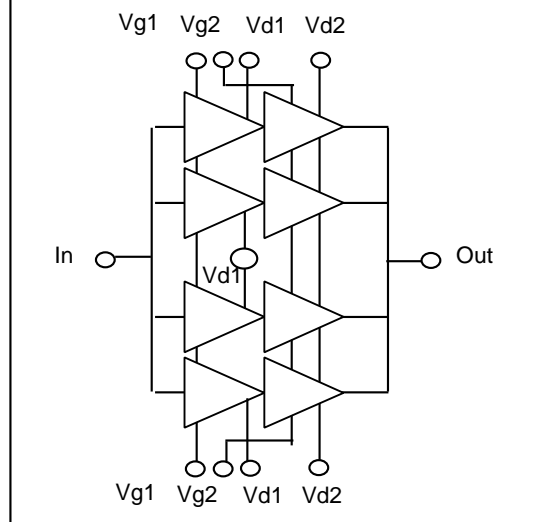
DESCRIPTION

The MGFC5213 is a GaAs MMIC chip especially designed for 27.5 ~ 30.0 GHz band High Power Amplifier (HPA) .

FEATURES

- RF frequency : 27.5 to 30.0 GHz
- Linear gain : 9 dB
- P1dB : 29 dBm
- DC power : $V_d = 5\text{ V}$, $I_{d1} + I_{d2} = 1080\text{ mA}$

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 | 480 | mA |
| Id2 | Drain current 2 | 960 | mA |
| Pin | RF input power | 25 | 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 = 360 mA Id2 = 720 mA (RF off) | 9.0 | | | 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 | 29.0 | | | dBm |

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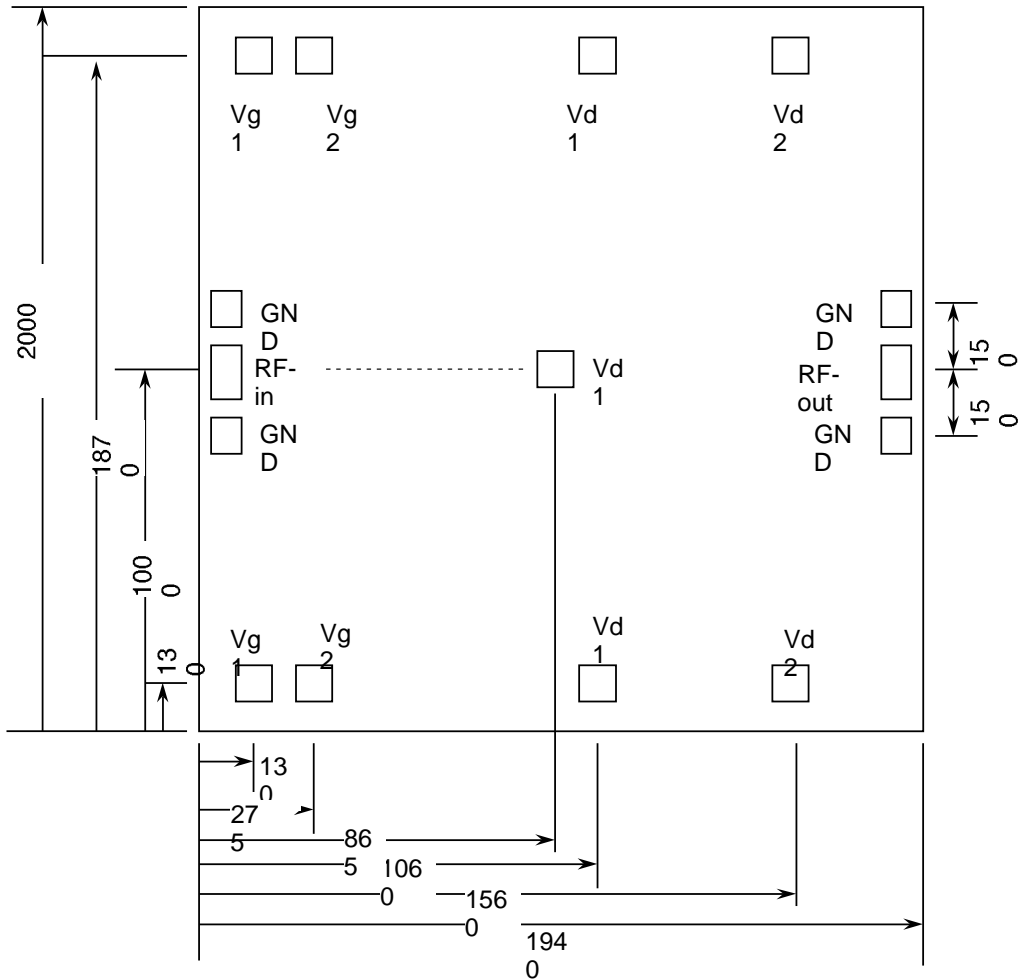
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DIE SIZE AND BOND PAD LOCATION(UNIT : μM)



X Dimension 1.94 mm

Y Dimension 2.00 mm

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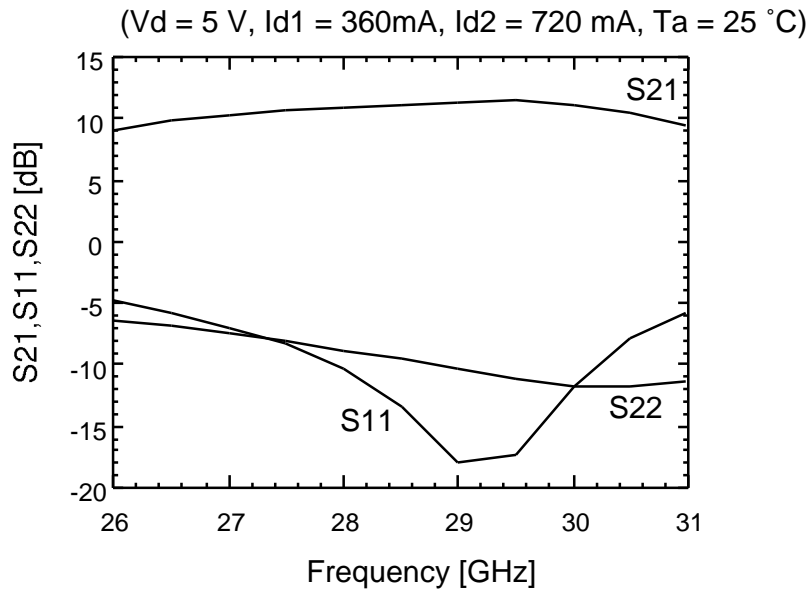
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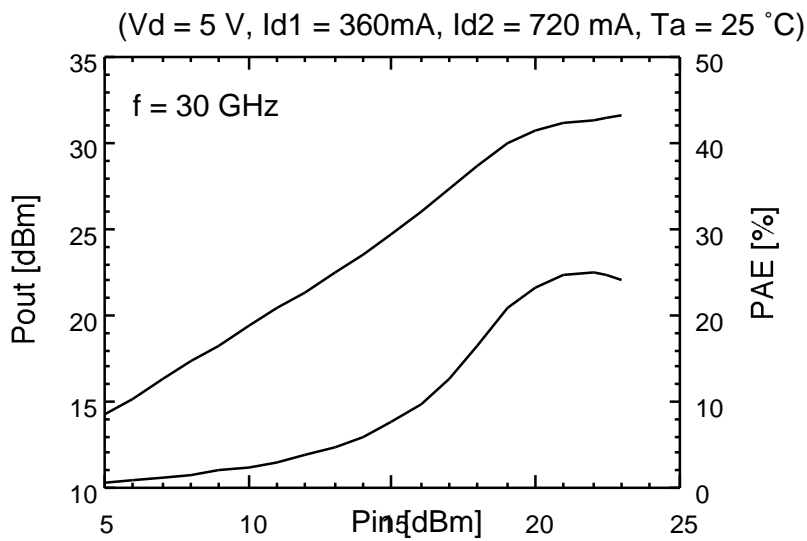
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TYPICAL CHARACTERISTICS

Small Signal Performances



Output Power Performances



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AN EXAMPLE OF TEST CIRCUIT

