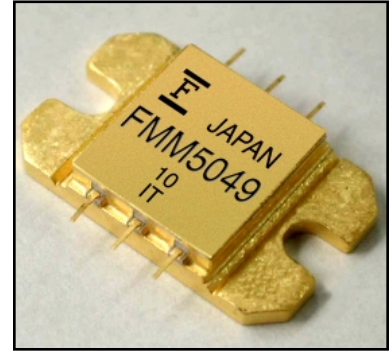


### FEATURES

- High Output Power:  $P_{out} = 41.0\text{dBm}$  (Typ.)
- High Linear Gain:  $GL = 33.0\text{dB}$  (Typ.)
- Broad Band: 1.8 to 2.3GHz
- Hermetically Sealed Package

### DESCRIPTION

The FMM5049VT is a high-gain, wide band, three-stage MMIC amplifier designed for PCS/PCN and W-CDMA applications as a driver or output stage in the 1.8-2.3GHz band. The output stage is partially matched for this device. This product is uniquely suited for use in base station amplifiers as it offers high gain, long term reliability and ease of use.



### ABSOLUTE MAXIMUM RATING (Ambient Temperature $T_a=25^\circ\text{C}$ )

| Item                           | Symbol    | Condition | Rating      | Unit             |
|--------------------------------|-----------|-----------|-------------|------------------|
| Drain-Source Voltage           | $V_{DD}$  |           | +12         | V                |
| Gate-Source Voltage            | $V_{GG}$  |           | -7          | V                |
| Input Power                    | $P_{in}$  |           | +15         | dBm              |
| Storage Temperature            | $T_{stg}$ |           | -55 to +125 | $^\circ\text{C}$ |
| Operating Backside Temperature | $T_{op}$  |           | -40 to +85  | $^\circ\text{C}$ |

Fujitsu recommends the following conditions for the long term reliable operation of GaAs FETs:

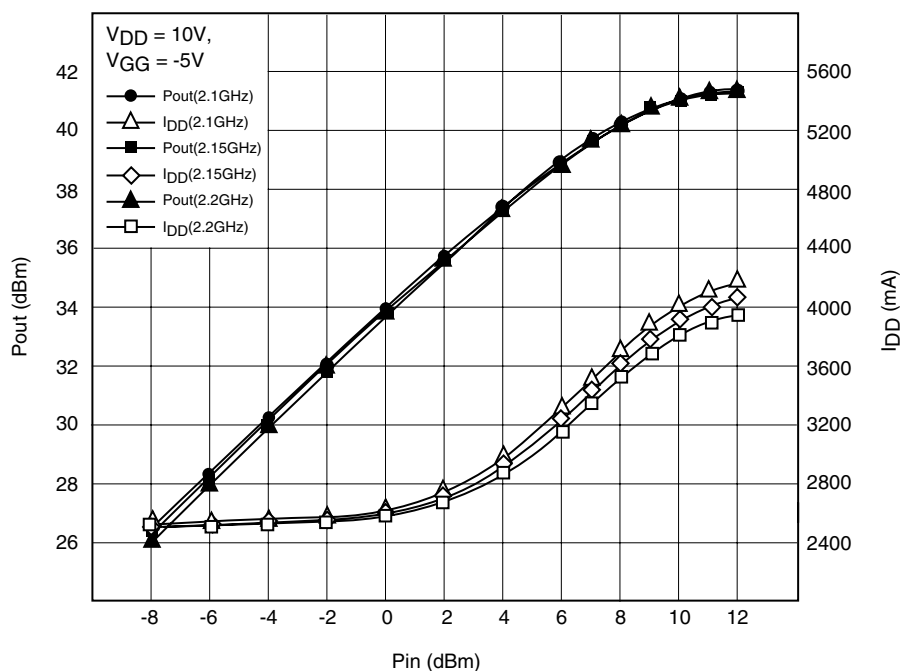
1. The drain-source operating voltage ( $V_{DD}$ ) should not exceed 10 volts.
2. The drain-source operating voltage ( $V_{GG}$ ) should not exceed -5 volts.

### ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$ )

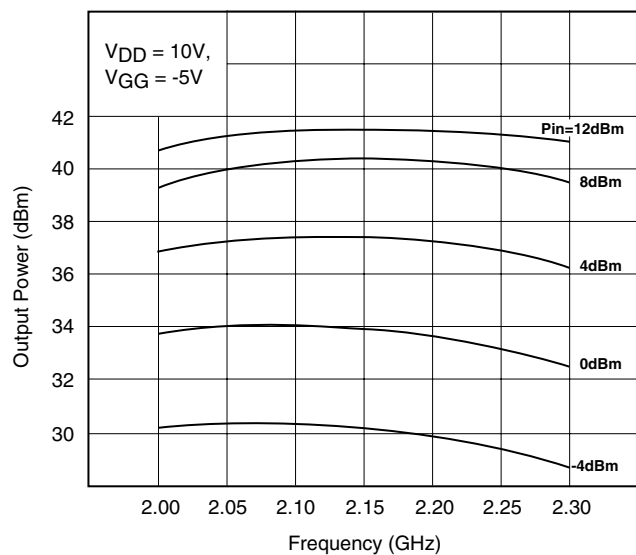
| Item                 | Symbol              | Conditions                                                                 | Limits |      |      | Unit |
|----------------------|---------------------|----------------------------------------------------------------------------|--------|------|------|------|
|                      |                     |                                                                            | Min.   | Typ. | Max. |      |
| Output Power         | $P_{out}$           | $V_{DD1,2} = 10\text{V}$<br>$f = 2.2\text{GHz}$<br>$P_{in} = 12\text{dBm}$ | 39.0   | 41.0 | -    | dBm  |
| Linear Gain (Note 1) | $G_L$               |                                                                            | 30.0   | 33.0 | -    | dB   |
| Drain Current        | $I_{DD}$            |                                                                            | -      | 4000 | -    | mA   |
| Gate Current         | $I_{GG}$            |                                                                            | -      | 70   | -    | mA   |
| DC Input Current     | $I_{DD}(\text{DC})$ | Without RF                                                                 | -      | 2500 | -    | mA   |

Note 1  $P_{in} \leq -6\text{dBm}$

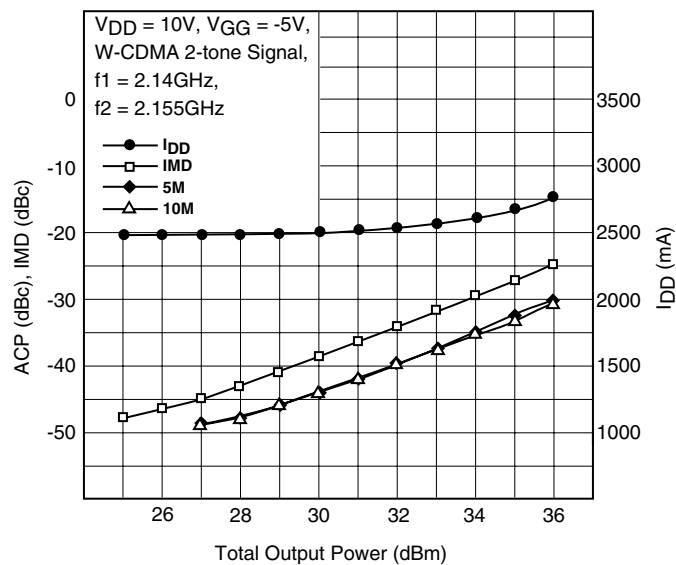
OUTPUT POWER, IDD vs. INPUT POWER @ W-CDMA BAND(TUNED)

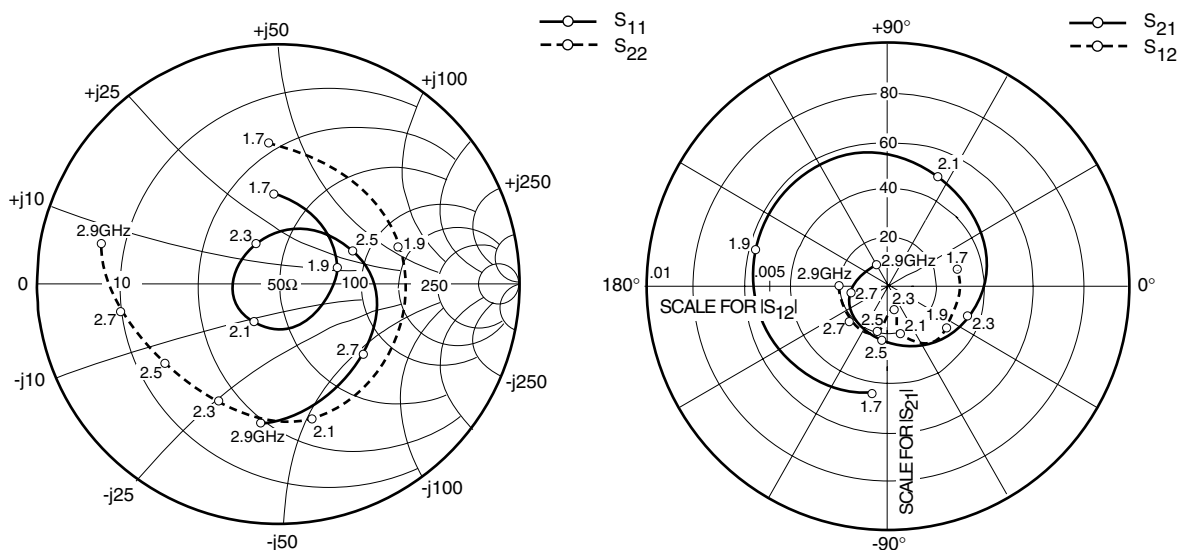


OUTPUT POWER vs. FREQUENCY @ W-CDMA BAND(TUNED)



ACP, IMD & IDD vs. OUTPUT POWER @ W-CDMA BAND(TUNED)





### S-PARAMETERS

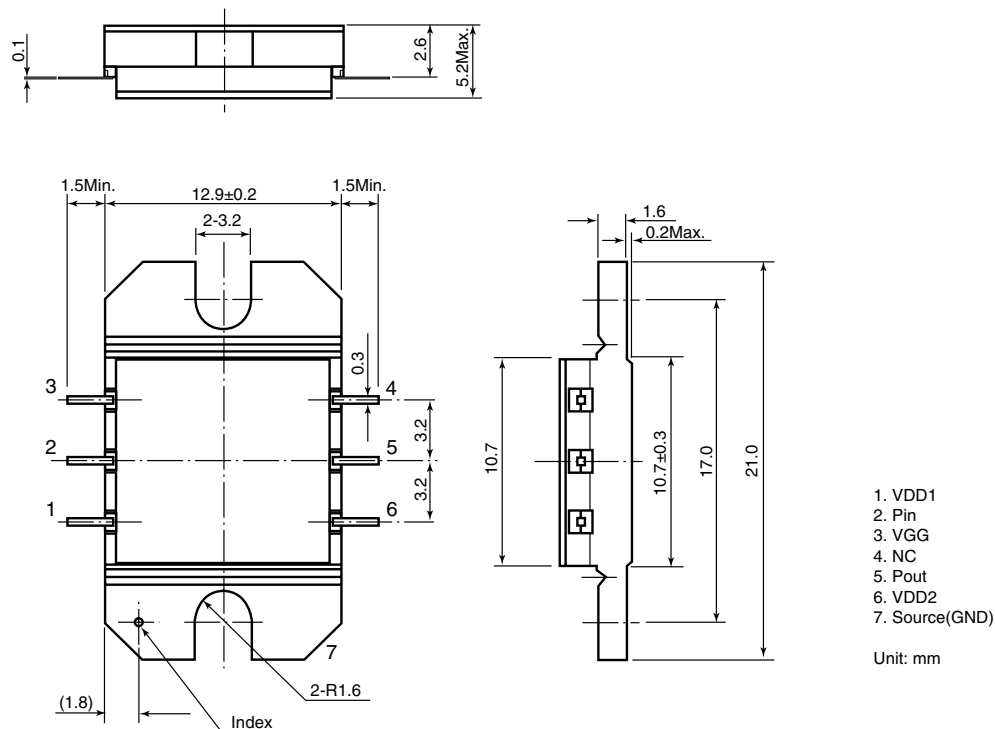
$V_{DD1,2} = 10V$ ,  $V_{GG} = -5V$

| FREQUENCY<br>(MHZ) | S11  |        | S21    |        | S12  |        | S22  |        |
|--------------------|------|--------|--------|--------|------|--------|------|--------|
|                    | MAG  | ANG    | MAG    | ANG    | MAG  | ANG    | MAG  | ANG    |
| 1700               | .374 | 92.6   | 44.398 | -99.2  | .003 | 14.1   | .594 | 93.0   |
| 1800               | .322 | 65.1   | 51.515 | -144.4 | .003 | -4.0   | .543 | 63.0   |
| 1900               | .252 | 15.6   | 57.842 | 165.5  | .003 | -34.5  | .523 | 17.2   |
| 2000               | .195 | -55.3  | 56.725 | 114.1  | .003 | -51.8  | .562 | -36.7  |
| 2100               | .188 | -121.9 | 49.890 | 65.6   | .002 | -73.8  | .578 | -75.4  |
| 2200               | .182 | 179.1  | 41.985 | 21.2   | .001 | -69.6  | .567 | -99.7  |
| 2300               | .192 | 118.2  | 35.139 | -20.9  | .001 | -78.6  | .543 | -116.1 |
| 2400               | .241 | 65.6   | 28.492 | -62.0  | .001 | -73.6  | .559 | -128.5 |
| 2500               | .338 | 23.9   | 22.187 | -96.5  | .002 | -102.5 | .570 | -144.0 |
| 2600               | .408 | -11.0  | 19.007 | -134.8 | .002 | -125.7 | .604 | -156.5 |
| 2700               | .463 | -39.6  | 14.903 | -167.5 | .002 | -136.7 | .663 | -170.2 |
| 2800               | .523 | -68.2  | 11.450 | 155.9  | .002 | -163.6 | .709 | 177.1  |
| 2900               | .580 | -96.6  | 9.734  | 122.1  | .002 | 179.7  | .747 | 167.1  |

# FMM5049VT

Power Amplifier MMIC

## Case Style "VT"



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