

# MGFC36V5964A

5.9~6.4GHz BAND 4W INTERNALLY MATCHED GaAs FET

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

## DESCRIPTION

The MGFC36V5964A is an internally impedance-matched GaAs power FET especially designed for use in 5.9~6.4GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

## FEATURES

- Class A operation
- Internally matched to 50Ω system
- High output power  
 $P_{1dB} = 4W(TYP) @ 5.9\sim 6.4GHz$
- High power gain  
 $GLP = 10dB(TYP) @ 5.9\sim 6.4GHz$
- High power added efficiency  
 $\eta_{add} = 30\%(TYP) @ 5.9\sim 6.4GHz$
- Hermetically sealed metal-ceramic package
- Low distortion [Item : - 51]  
 $IM_3 = -45dBc(TYP) @ P_o = 25(dBm) S.C.L.$

## APPLICATION

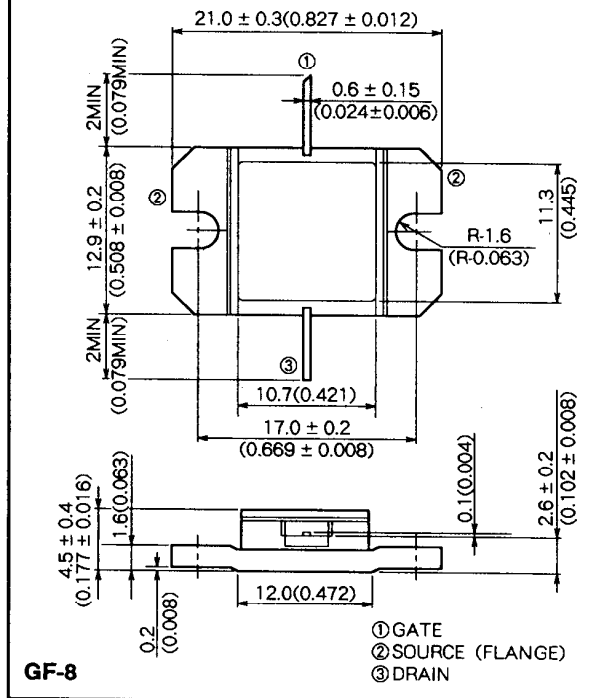
Item-01 : 5.9~6.4GHz band power amplifier  
Item-51 : Digital radio communication

## QUALITY GRADE

- IG

## OUTLINE DRAWING

Unit : millimeters (inches)



## RECOMMENDED BIAS CONDITIONS

- $V_{DS} = 10V$
- $I_D = 1.2A$
- $R_G = 100(\Omega)$
- Refer to Bias Procedure

## ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

| Symbol    | Parameter                   | Ratings      | Unit       |
|-----------|-----------------------------|--------------|------------|
| $V_{GDO}$ | Gate to drain voltage       | - 15         | V          |
| $V_{GSO}$ | Gate to source voltage      | - 15         | V          |
| $I_D$     | Drain current               | 3.75         | A          |
| $I_{GR}$  | Reverse gate current        | - 10         | mA         |
| $I_{GF}$  | Forward gate current        | 21           | mA         |
| $P_T$     | Total power dissipation * 1 | 25           | W          |
| $T_{ch}$  | Channel temperature         | 175          | $^\circ C$ |
| $T_{stg}$ | Storage temperature         | - 65 ~ + 175 | $^\circ C$ |

\* 1 :  $T_c = 25^\circ C$

## ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

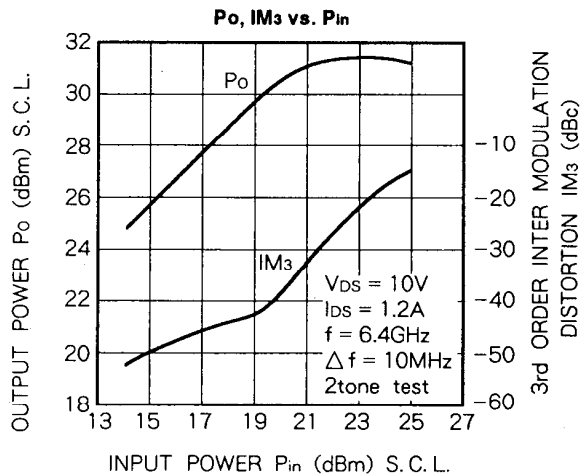
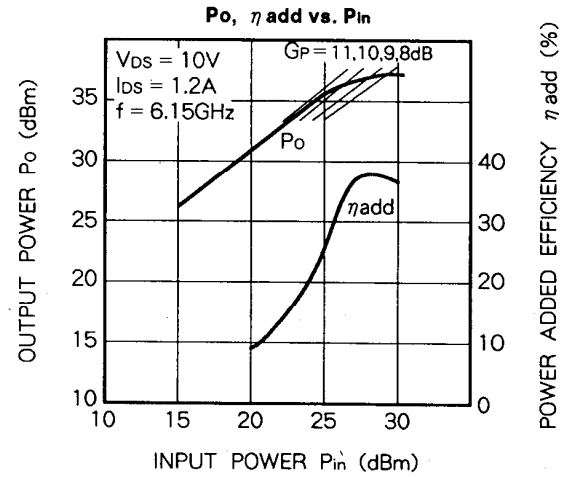
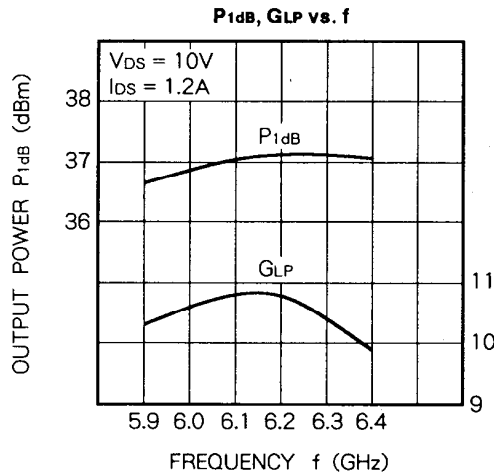
| Symbol         | Parameter                            | Test conditions                                | Limits |      |       | Unit         |
|----------------|--------------------------------------|------------------------------------------------|--------|------|-------|--------------|
|                |                                      |                                                | Min    | Typ  | Max   |              |
| $I_{OSS}$      | Saturated drain current              | $V_{DS} = 3V, V_{GS} = 0V$                     | -      | -    | 3.75  | A            |
| $g_m$          | Transconductance                     | $V_{DS} = 3V, I_D = 1.1A$                      | -      | 1    | -     | S            |
| $V_{GS(off)}$  | Gate to source cut-off voltage       | $V_{DS} = 3V, I_D = 10mA$                      | -      | -    | - 4.5 | V            |
| $P_{1dB}$      | Output power at 1dB gain compression | $V_{DS} = 10V, I_D = 1.2A, f = 5.9\sim 6.4GHz$ | 35     | 36   | -     | dBm          |
| $GLP$          | Linear power gain                    |                                                | 9      | 10   | -     | dB           |
| $I_D$          | Drain current                        |                                                | -      | -    | 1.8   | A            |
| $\eta_{add}$   | Power added efficiency               |                                                | -      | 30   | -     | %            |
| $IM_3$         | 3rd order IM distortion * 1          |                                                | - 42   | - 45 | -     | dBc          |
| $R_{th(ch-c)}$ | Thermal resistance * 2               | $\Delta V_f$ method                            | -      | 5    | 6     | $^\circ C/W$ |

\* 1 : Item-51, 2-tone test  $P_o = 25dBm$  Single Carrier Level  $f = 6.4GHz$   $\Delta f = 10MHz$  \* 2 : Channel to case

查询"MGFC36V5964A"供应商  
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TYPICAL CHARACTERISTICS



S PARAMETERS (T<sub>a</sub> = 25°C, V<sub>DS</sub> = 10V, I<sub>DS</sub> = 1.2A)

| f<br>(GHz) | S parameters    |             |                 |             |                 |             |                 |             |
|------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|-------------|
|            | S <sub>11</sub> |             | S <sub>21</sub> |             | S <sub>12</sub> |             | S <sub>22</sub> |             |
|            | Magn.           | Angle(deg.) | Magn.           | Angle(deg.) | Magn.           | Angle(deg.) | Magn.           | Angle(deg.) |
| 5.9        | 0.22            | -171        | 3.29            | -27         | 0.079           | -70         | 0.47            | -172        |
| 6.0        | 0.12            | 145         | 3.40            | -44         | 0.081           | -89         | 0.41            | 178         |
| 6.1        | 0.12            | 60          | 3.49            | -59         | 0.082           | -104        | 0.34            | 166         |
| 6.2        | 0.23            | 20          | 3.49            | -75         | 0.084           | -120        | 0.27            | 153         |
| 6.3        | 0.35            | -1          | 3.32            | -91         | 0.081           | -135        | 0.19            | 139         |
| 6.4        | 0.44            | -16         | 3.08            | -106        | 0.079           | -149        | 0.13            | 124         |