

MGFX36V0717

10.7~11.7GHz BAND 4W INTERNALLY MATCHED GaAs FET

DESCRIPTION

The MGFX36V0717 is an internally impedance matched GaAs power FET especially designed for use in 10.7~11.7 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES

- Internally impedance matched
- High output power
 $P_{1dB} = 4.0W$ (TYP.) @ $f = 10.7 \sim 11.7GHz$
- High linear power gain
 $G_{LP} = 8.0$ dB (TYP.) @ $f = 10.7 \sim 11.7GHz$
- High power added efficiency
 $\eta_{add} = 28\%$ (TYP.) @ $f = 10.7 \sim 11.7GHz$, P_{1dB}

APPLICATION

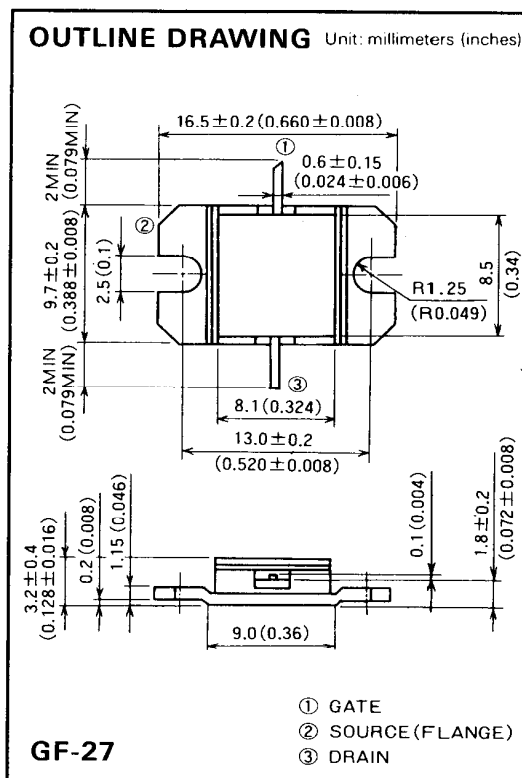
For use in 10.7~11.7GHz band amplifiers

QUALITY GRADE

- IG

RECOMMENDED BIAS CONDITIONS

- $V_{DS} = 10V$
- $I_D = 1.2A$
- Refer to Bias Procedure



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

| Symbol | Parameter | Rating | Unit |
|-----------|----------------------------|------------|------------|
| V_{GDO} | Gate to drain voltage | -15 | V |
| V_{GSO} | Gate to source voltage | -15 | V |
| I_D | Drain current | 2.8 | A |
| I_{GR} | Reverse gate current | -9.0 | mA |
| I_{GF} | Forward gate current | 18.0 | mA |
| P_T | Total power dissipation *1 | 27.2 | W |
| T_{ch} | Channel temperature | 175 | $^\circ C$ |
| T_{stg} | Storage temperature | -65 ~ +175 | $^\circ C$ |

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

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

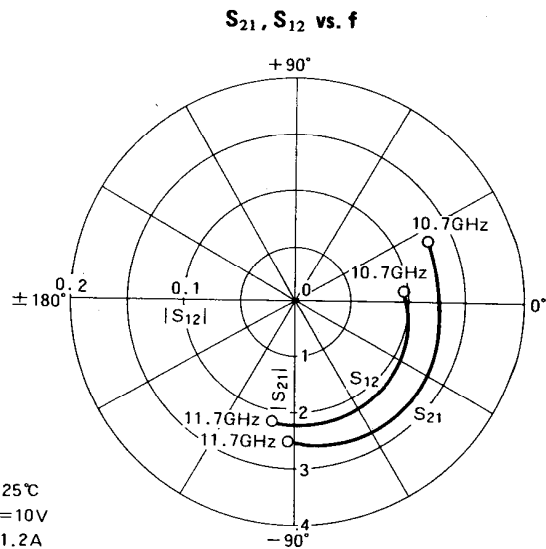
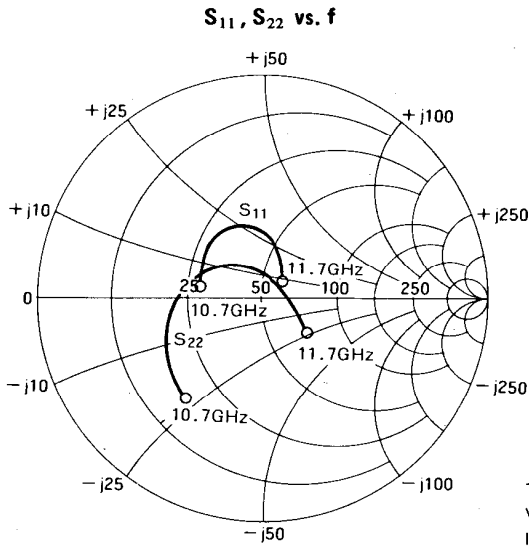
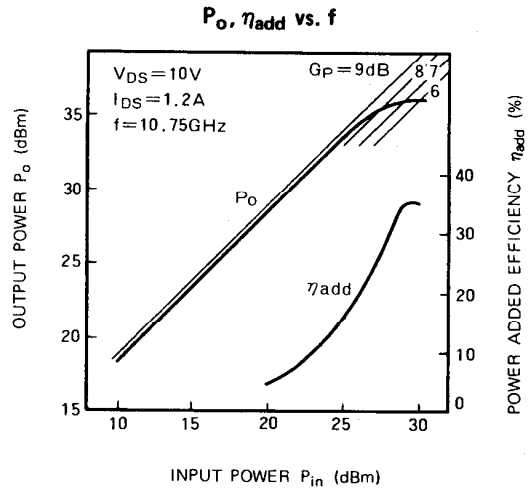
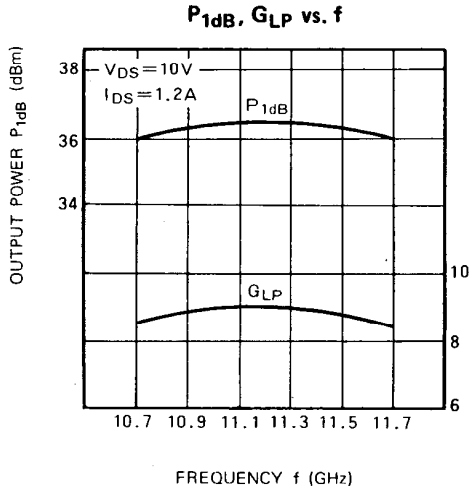
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|----------------|--------------------------------------|---|--------|-----|-----|--------------|
| | | | Min | Typ | Max | |
| I_{DSS} | Saturated drain current | $V_{DS} = 3V, V_{GS} = 0V$ | — | 2.0 | 2.8 | A |
| g_m | Transconductance | $V_{DS} = 3V, I_D = 1.1A$ | — | 1.0 | — | S |
| $V_{GS(off)}$ | Gate to source cut-off voltage | $V_{DS} = 3V, I_D = 10mA$ | -2 | -3 | -4 | V |
| P_{1dB} | Output power at 1dB gain compression | $V_{DS} = 10V, I_D = 1.2A, f = 10.7 \sim 11.7GHz$ | 34.5 | 36 | — | dBm |
| G_{LP} | Linear power gain | | 7.0 | 8.0 | — | dB |
| η_{add} | Power added efficiency | | — | 28 | — | % |
| $R_{th(ch-o)}$ | Thermal resistance *1 | ΔV_f method | — | — | 5.5 | $^\circ C/W$ |

* 1: Channel to case

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TYPICAL CHARACTERISTICS (Ta=25°C)



S PARAMETERS (Ta=25°C, V_{DS}=10V, I_{DS}=1.2A)

| f (GHz) | S Parameters (TYP.) | | | | | | | |
|------------|---------------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|
| | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | |
| | Magn. | Angle (deg.) | Magn. | Angle (deg.) | Magn. | Angle (deg.) | Magn. | Angle (deg.) |
| 10.7 | 0.27 | 173 | 2.52 | 25 | 0.099 | -5 | 0.62 | -130 |
| 10.9 | 0.27 | 148 | 2.57 | -3 | 0.115 | -13 | 0.52 | -148 |
| 11.1 | 0.28 | 122 | 2.67 | -28 | 0.118 | -35 | 0.36 | -173 |
| 11.3 | 0.28 | 98 | 2.73 | -51 | 0.120 | -59 | 0.14 | 145 |
| 11.5 | 0.24 | 72 | 2.61 | -73 | 0.119 | -79 | 0.18 | 35 |
| 11.7 | 0.14 | 35 | 2.51 | -91 | 0.115 | -101 | 0.32 | -35 |