

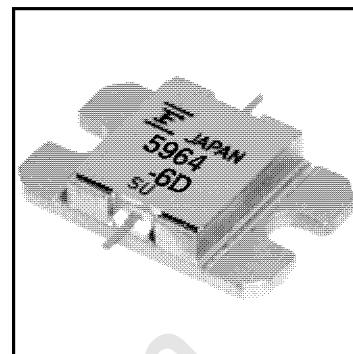
FLM5964-6D

Internally Matched Power GaAs FETs

FUJITSU

FEATURES

- High Output Power: $P_{1dB} = 38.0\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 10.0\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 36\%$ (Typ.)
- Low $IM_3 = -45\text{dBc}$ @ $P_o = 27\text{dBm}$
- Broad Band: 5.9 ~ 6.4GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package



DESCRIPTION

The FLM5964-6D is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

Fujitsu's stringent Quality Assurance Program assures the highest reliability and consistent performance.

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

| Item | Symbol | Condition | Rating | Unit |
|-------------------------|-----------|--------------------------|-------------|------------------|
| Drain-Source Voltage | V_{DS} | | 15 | V |
| Gate-Source Voltage | V_{GS} | | -5 | V |
| Total Power Dissipation | P_T | $T_C = 25^\circ\text{C}$ | 31.2 | W |
| Storage Temperature | T_{stg} | | -65 to +175 | $^\circ\text{C}$ |
| Channel Temperature | T_{ch} | | 175 | $^\circ\text{C}$ |

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

1. The drain-source operating voltage (V_{DS}) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 6.0 and -2.8 mA respectively with gate resistance of 100Ω .

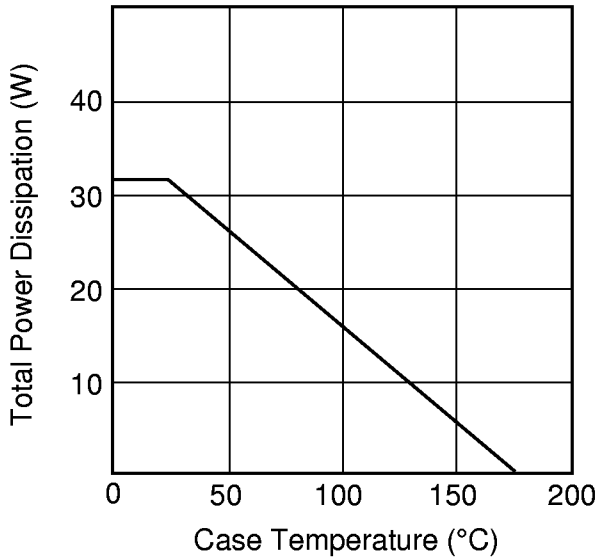
ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

| Item | Symbol | Test Conditions | Limit | | | Unit | |
|--------------------------------------|-----------------|--|--|------|-----------|------------------|--------------------|
| | | | Min. | Typ. | Max. | | |
| Saturated Drain Current | I_{DSS} | $V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$ | - | 2850 | 4250 | mA | |
| Transconductance | g_m | $V_{DS} = 5\text{V}, I_{DS} = 1700\text{mA}$ | - | 1450 | - | mS | |
| Pinch-off Voltage | V_p | $V_{DS} = 5\text{V}, I_{DS} = 150\text{mA}$ | -1.0 | -2.0 | -3.5 | V | |
| Gate Source Breakdown Voltage | V_{GSO} | $I_{GS} = -150\mu\text{A}$ | -5 | - | - | V | |
| Output Power at 1dB G.C.P. | P_{1dB} | $V_{DS} = 10\text{V},$ $I_{DS} = 0.55 I_{DSS}$ (Typ.), $f = 5.9 \sim 6.4\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$ | 37.0 | 38.0 | - | dBm | |
| Power Gain at 1dB G.C.P. | G_{1dB} | | 9.0 | 10.0 | - | dB | |
| Drain Current | I_{dsr} | | - | 1550 | 1990 | mA | |
| Power-added Efficiency | η_{add} | | - | 36 | - | % | |
| Gain Flatness | ΔG | | - | - | ± 0.6 | dB | |
| 3rd Order Intermodulation Distortion | IM_3 | | $f = 6.4\text{GHz}, \Delta f = 10\text{MHz}$ 2-Tone Test $P_{out} = 27\text{dBm S.C.L.}$ | -42 | -45 | - | dBc |
| Thermal Resistance | R_{th} | | Channel to Case | - | 4.0 | 4.8 | $^\circ\text{C/W}$ |
| Channel Temperature Rise | ΔT_{ch} | $10\text{V} \times I_{dsr} \times R_{th}$ | - | - | 80 | $^\circ\text{C}$ | |

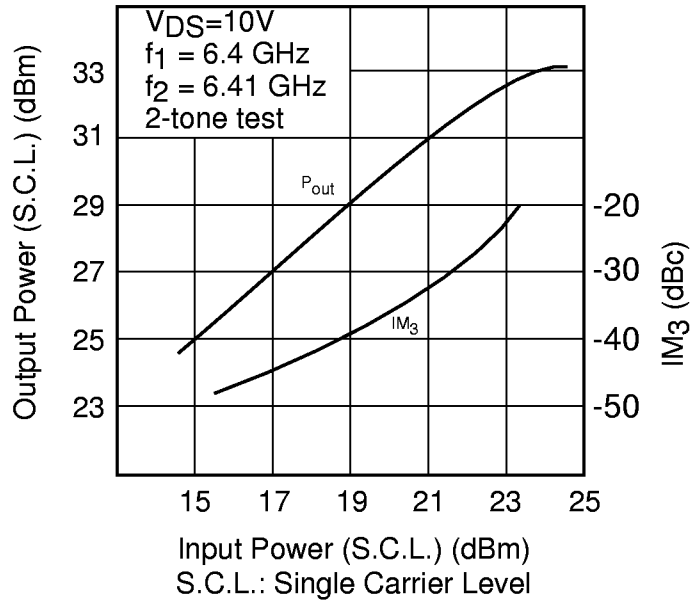
CASE STYLE: IB

G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level

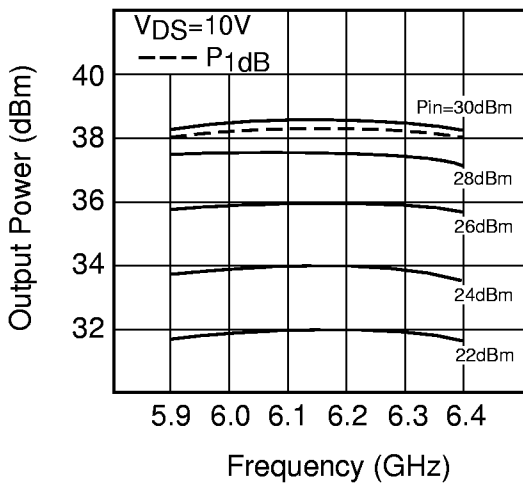
POWER DERATING CURVE



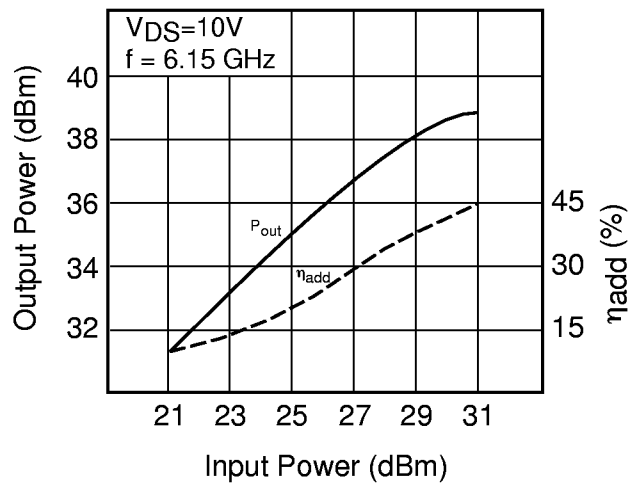
OUTPUT POWER & IM₃ vs. INPUT POWER

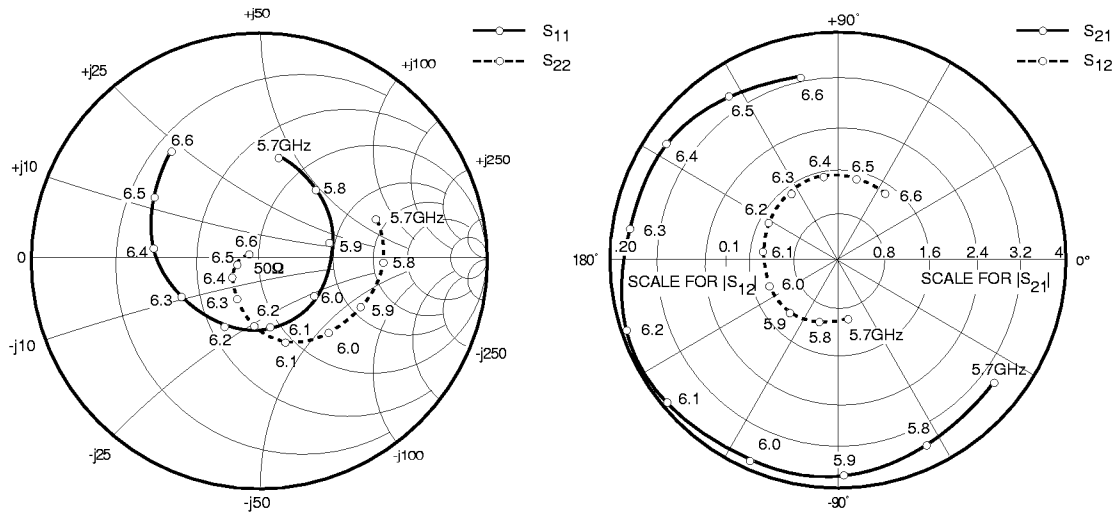


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER



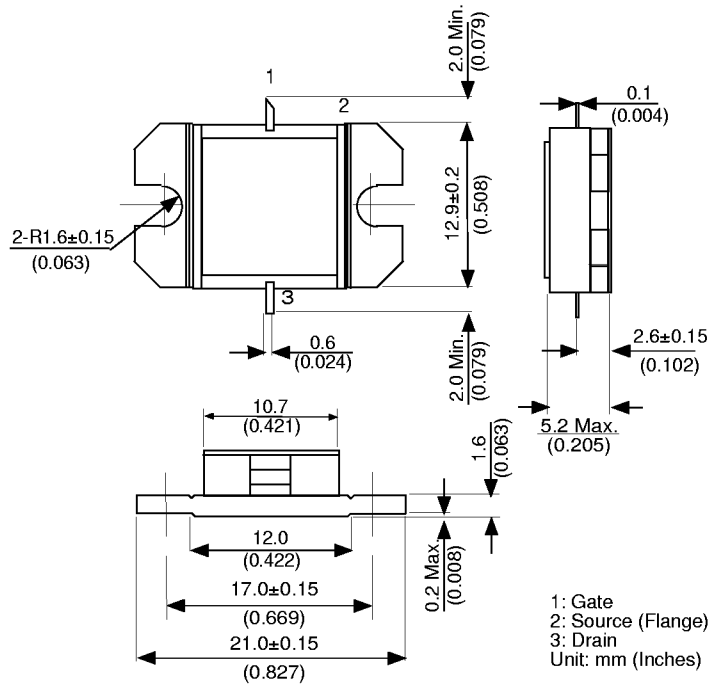


S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 1550mA$

| FREQUENCY (MHZ) | S11 | | S21 | | S12 | | S22 | |
|--------------------|------|--------|-------|--------|------|--------|------|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 5700 | .469 | 80.1 | 3.454 | -39.5 | .050 | -79.4 | .561 | 19.0 |
| 5800 | .397 | 49.7 | 3.559 | -64.4 | .056 | -106.4 | .537 | -3.0 |
| 5900 | .335 | 13.1 | 3.852 | -88.6 | .061 | -132.4 | .497 | -26.3 |
| 6000 | .301 | -31.5 | 3.891 | -112.5 | .067 | -159.2 | .441 | -49.3 |
| 6100 | .315 | -78.1 | 3.953 | -140.0 | .070 | 175.5 | .380 | -72.9 |
| 6200 | .368 | -120.0 | 3.963 | -163.5 | .072 | 150.7 | .300 | -96.4 |
| 6300 | .445 | -154.5 | 3.752 | 171.3 | .077 | 124.3 | .227 | -119.5 |
| 6400 | .511 | 176.1 | 3.653 | 146.5 | .077 | 99.0 | .150 | -144.1 |
| 6500 | .571 | 150.7 | 3.467 | 123.2 | .075 | 74.9 | .089 | -165.9 |
| 6600 | .612 | 127.8 | 3.276 | 100.2 | .071 | 54.6 | .036 | 152.3 |

Case Style "IB"
Metal-Ceramic Hermetic Package



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