

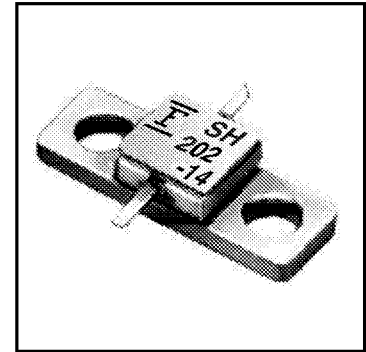
FLK202MH-14

X-Ku Band Power GaAs FETs



FEATURES

- High Output Power: $P_{1dB} = 32.5\text{dBm(Typ.)}$
- High Gain: $G_{1dB} = 6.0\text{dB(Typ.)}$
- High PAE: $\eta_{add} = 27\%\text{(Typ.)}$
- Proven Reliability
- Hermetic Metal/Ceramic Package



DESCRIPTION

The FLK202MH-14 is a power GaAs FET that is designed for general purpose applications in the Ku-Band frequency range as it provides superior power, gain, and efficiency.

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 | $T_C = 25^\circ\text{C}$ | 12.5 | 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 4.0 and -1.0 mA respectively with gate resistance of 250Ω .

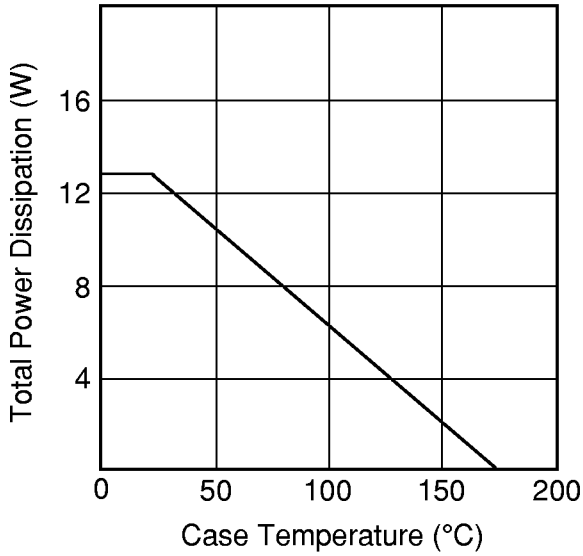
ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

| Item | Symbol | Test Conditions | Limit | | | Unit |
|-------------------------------|--------------|--|-------|------|------|--------------------|
| | | | Min. | Typ. | Max. | |
| Saturated Drain Current | I_{DSS} | $V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$ | - | 800 | 1200 | mA |
| Transconductance | g_m | $V_{DS} = 5\text{V}, I_{DS} = 500\text{mA}$ | - | 400 | - | mS |
| Pinch-off Voltage | V_p | $V_{DS} = 5\text{V}, I_{DS} = 40\text{mA}$ | -1.0 | -2.0 | -3.5 | V |
| Gate Source Breakdown Voltage | V_{GSO} | $I_{GS} = -40\mu\text{A}$ | -5 | - | - | V |
| Output Power at 1dB G.C.P. | P_{1dB} | $V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS} \text{(Typ.)},$ $f = 14.5 \text{GHz}$ | 31.5 | 32.5 | - | dBm |
| Power Gain at 1dB G.C.P. | G_{1dB} | | 5.0 | 6.0 | - | dB |
| Power-added Efficiency | η_{add} | | - | 27 | - | % |
| Thermal Resistance | R_{th} | Channel to Case | - | 10 | 12 | $^\circ\text{C/W}$ |

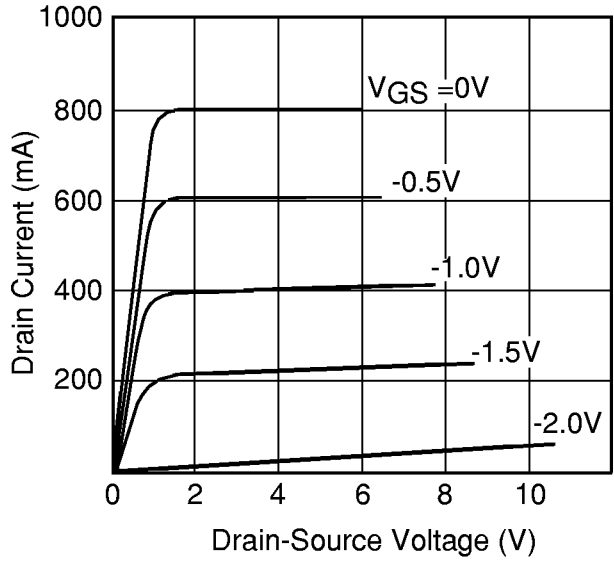
CASE STYLE: MH

G.C.P.: Gain Compression Point

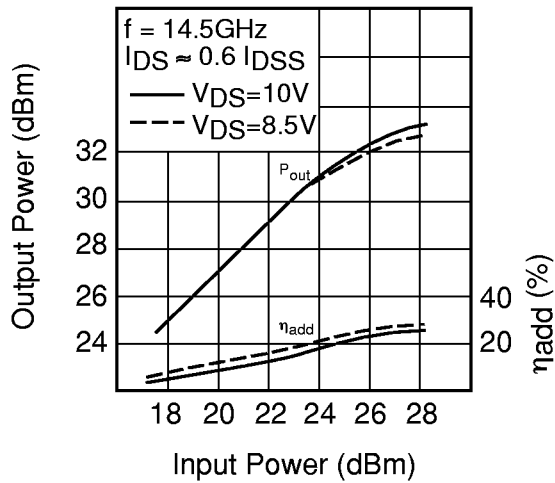
POWER DERATING CURVE



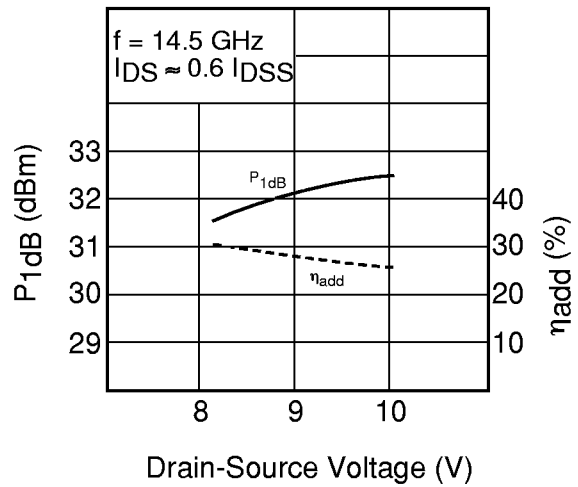
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



OUTPUT POWER vs. INPUT POWER

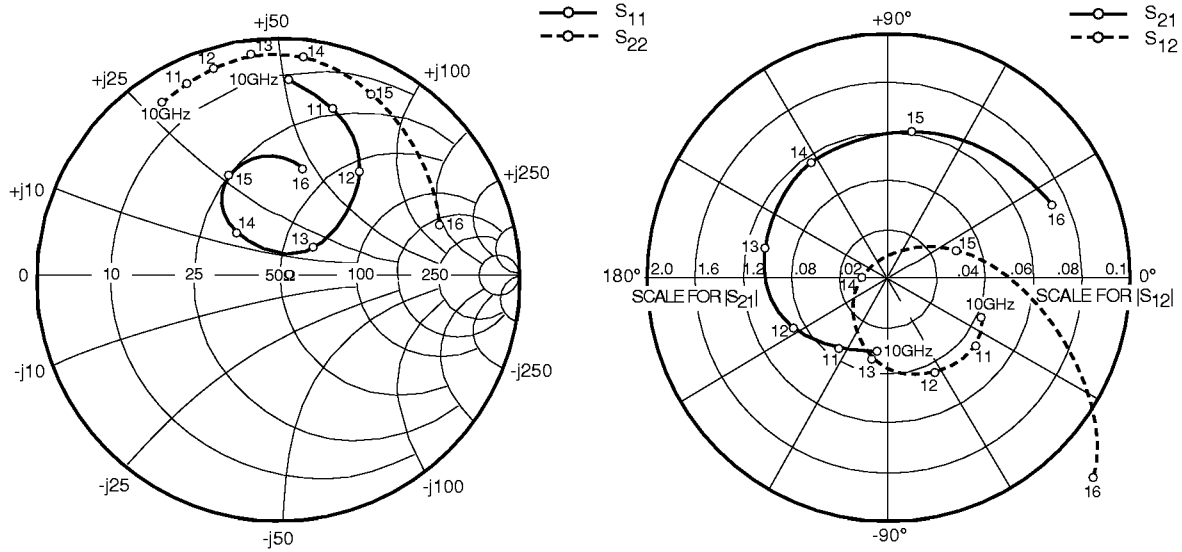


P_{1dB} & η_{add} vs. V_{DS}



FLK202MH-14

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S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 500mA$

| FREQUENCY (MHZ) | S11 | | S21 | | S12 | | S22 | |
|--------------------|------|--------|-------|--------|------|--------|------|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 500 | .868 | -122.9 | 8.227 | 113.3 | .022 | 26.4 | .252 | -147.3 |
| 1000 | .918 | -158.9 | 4.468 | 84.0 | .025 | 9.7 | .313 | -156.9 |
| 10000 | .814 | 85.3 | .640 | -101.2 | .043 | -22.0 | .849 | 121.2 |
| 10500 | .779 | 78.3 | .680 | -111.7 | .045 | -29.2 | .860 | 117.3 |
| 11000 | .732 | 70.2 | .737 | -124.1 | .046 | -37.9 | .871 | 113.5 |
| 11500 | .659 | 61.1 | .816 | -138.2 | .046 | -49.1 | .883 | 109.6 |
| 12000 | .549 | 50.4 | .907 | -154.6 | .045 | -62.7 | .897 | 105.4 |
| 12500 | .392 | 40.1 | .998 | -173.7 | .041 | -81.8 | .913 | 100.6 |
| 13000 | .202 | 38.5 | 1.068 | 165.5 | .033 | -103.9 | .922 | 94.8 |
| 13500 | .101 | 104.2 | 1.110 | 144.1 | .022 | -131.1 | .923 | 88.7 |
| 14000 | .243 | 135.0 | 1.132 | 122.5 | .010 | 179.1 | .909 | 81.8 |
| 14500 | .378 | 128.2 | 1.156 | 100.9 | .013 | 63.5 | .881 | 72.9 |
| 15000 | .465 | 115.0 | 1.206 | 78.8 | .031 | 18.5 | .844 | 61.1 |
| 15500 | .498 | 98.6 | 1.305 | 54.0 | .063 | -12.5 | .793 | 44.4 |
| 16000 | .457 | 75.6 | 1.476 | 23.1 | .120 | -45.8 | .706 | 15.7 |

Case Style "MH"
Metal-Ceramic Hermetic Package

