

FLL171ME

Power GaAs FETs

ABSOLUTE MAXIMUM RATINGS (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 | $T_c=25^\circ\text{C}$ | 7.5 | 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:

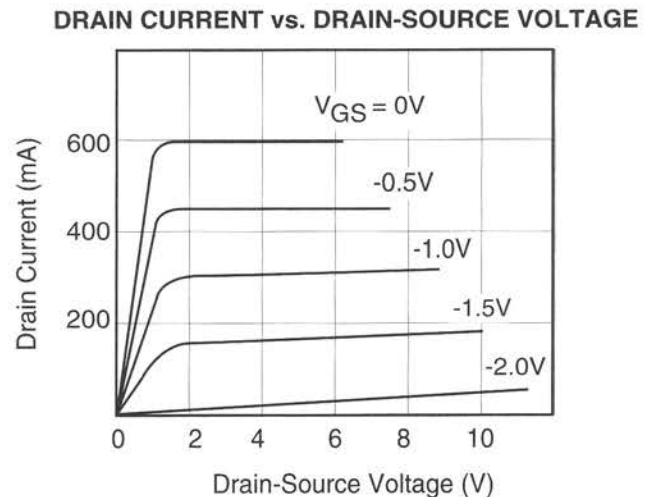
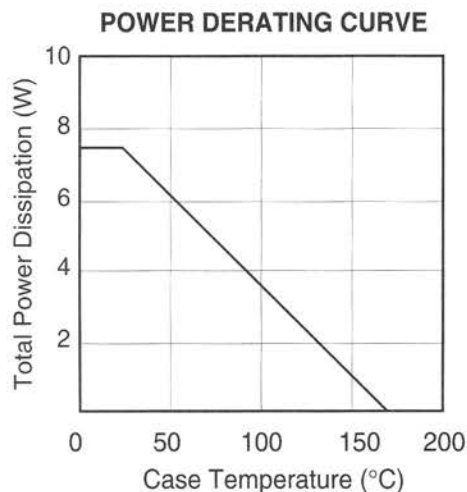
1. The drain - source operating voltage (V_{DS}) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 2.0 and -1.0 mA respectively with gate resistance of 200Ω .

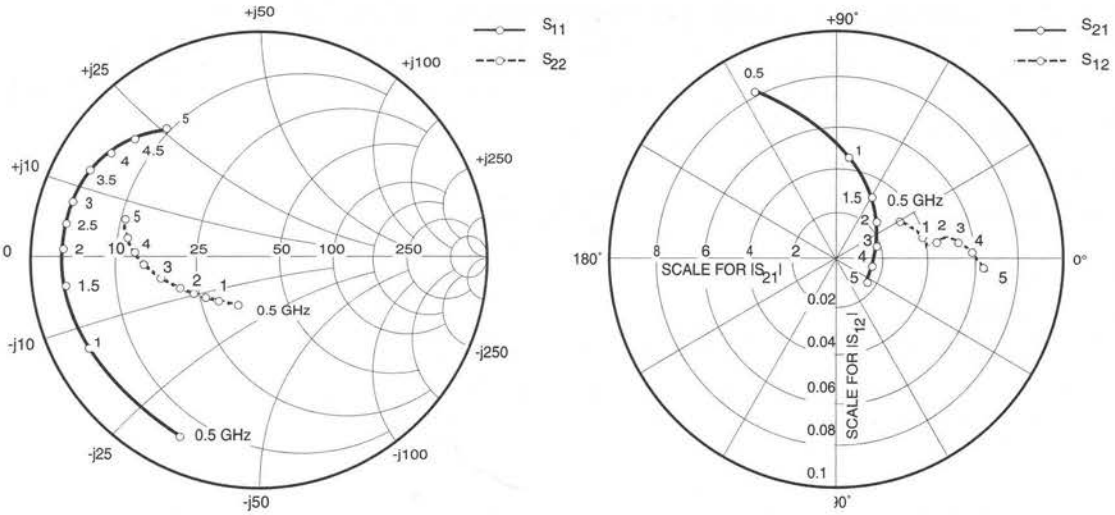
ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a = 25^\circ\text{C}$.)

| Item | Symbol | Test Conditions | Limit | | | Unit |
|-------------------------------|--------------|---|-------|------|------|---------------------------|
| | | | Min. | Typ. | Max. | |
| Saturated Drain Current | I_{DSS} | $V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$ | - | 600 | 900 | mA |
| Transconductance | g_m | $V_{DS} = 5\text{V}, I_{DS} = 400\text{mA}$ | - | 300 | - | mS |
| Pinch-off Voltage | V_P | $V_{DS} = 5\text{V}, I_{DS} = 30\text{mA}$ | -1.0 | -2.0 | -3.5 | V |
| Gate-Source Breakdown Voltage | V_{GSO} | $I_{GS} = -30\ \mu\text{A}$ | -5 | - | - | V |
| Output Power at 1dB G.C.P. | P_{1dB} | $V_{DS}=10\text{V},$ | 31.5 | 32.5 | - | dBm |
| Power Gain at 1dB G.C.P. | G_{1dB} | $I_{DS}=0.6 I_{DSS} (\text{Typ.}),$ | 11.5 | 12.5 | - | dB |
| Power added Efficiency | η_{add} | $f = 2.3\ \text{GHz}$ | - | 46 | - | % |
| Thermal Resistance | R_{th} | Channel to Case | - | 15 | 20 | $^\circ\text{C}/\text{W}$ |

CASE STYLE: ME

G.C.P.: Gain Compression Point



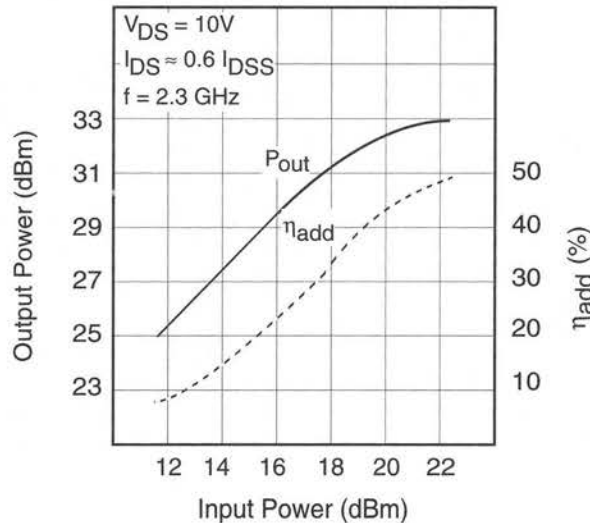


S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 360mA$

| FREQUENCY (MHz) | S ₁₁ | | S ₂₁ | | S ₁₂ | | S ₂₂ | |
|--------------------|-----------------|--------|-----------------|-------|-----------------|------|-----------------|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 100 | .982 | -37.4 | 14.143 | 157.3 | .014 | 65.7 | .171 | -46.2 |
| 500 | .844 | -112.0 | 8.154 | 114.0 | .033 | 32.4 | .227 | -116.1 |
| 1000 | .861 | -151.1 | 4.713 | 82.4 | .038 | 15.8 | .283 | -139.7 |
| 1500 | .863 | -169.2 | 3.265 | 62.2 | .040 | 10.4 | .330 | -149.0 |
| 2000 | .859 | 178.7 | 2.511 | 45.7 | .040 | 8.7 | .378 | -156.1 |
| 2500 | .855 | 169.5 | 2.075 | 31.1 | .041 | 8.5 | .427 | -162.4 |
| 3000 | .847 | 161.2 | 1.794 | 17.1 | .044 | 9.8 | .475 | -169.2 |
| 3500 | .832 | 152.9 | 1.608 | 3.2 | .047 | 9.7 | .519 | -176.3 |
| 4000 | .811 | 144.6 | 1.495 | -104 | .053 | 7.5 | .561 | -176.9 |
| 4500 | .781 | 135.7 | 1.440 | -24.5 | .059 | 2.7 | .601 | 170.2 |
| 5000 | .732 | 125.1 | 1.436 | -39.7 | .067 | -4.1 | .639 | 164.1 |

OUTPUT POWER vs. INPUT POWER



Case Style "ME" Metal-Ceramic Hermetic Package

