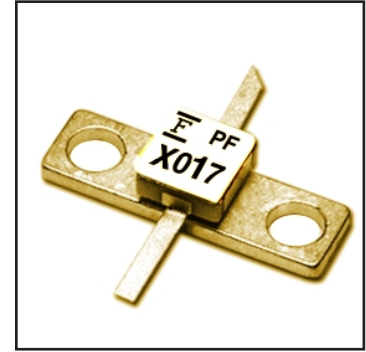


FEATURES

- Medium Power Output: $P_{1dB}=21.5dB$ (Typ.)@8.0GHz
- High Power Gain: $G_{1dB}=11dB$ (Typ.)@8.0GHz
- Hermetic Metal/Ceramic Package
- Proven Reliability

DESCRIPTION

The FSX017WF is a general purpose GaAs FET designed for medium power applications up to the 12GHz. These devices have a wide dynamic range and are suitable for use in medium power, wide band, linear drive amplifiers or oscillators.



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

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

| Item | Symbol | Condition | Rating | Unit |
|-------------------------|-----------|--------------------|-------------|------------|
| Drain-Source Voltage | V_{DS} | | 12 | V |
| Gate-Source Voltage | V_{GS} | | -5 | V |
| Total Power Dissipation | P_{tot} | $T_c = 25^\circ C$ | 1.0 | W |
| Storage Temperature | T_{stg} | | -65 to +175 | $^\circ C$ |
| Channel Temperature | T_{ch} | | 175 | $^\circ C$ |

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

1. The drain - source operating voltage (V_{DS}) should not exceed 8 volts.
2. The forward and reverse gate currents should not exceed 0.7 and -0.1 mA respectively with gate resistance of 2000 Ω .
3. The operating channel temperature (T_{ch}) should not exceed 145 $^\circ C$.

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

| Item | Symbol | Test Conditions | Limit | | | Unit | |
|-------------------------------|-----------|--|-------------|------|------|--------------|-----|
| | | | Min. | Typ. | Max. | | |
| Saturated Drain Current | I_{DSS} | $V_{DS} = 3V, V_{GS} = 0V$ | 35 | 55 | 75 | mA | |
| Transconductance | g_m | $V_{DS} = 3V, I_{DS} = 27mA$ | - | 50 | - | mS | |
| Pinch-off Voltage | V_p | $V_{DS} = 3V, I_{DS} = 2.7mA$ | -0.7 | -1.2 | -1.7 | V | |
| Gate Source Breakdown Voltage | V_{GSO} | $I_{GS} = -2.7\mu A$ | -5.0 | - | - | V | |
| Noise Figure | NF | $V_{DS} = 3V, I_{DS} = 10mA$ $f = 8GHz$ | - | 2.5 | - | dB | |
| Associated Gain | G_{as} | | - | 10.5 | - | dB | |
| Output Power at 1 dB G.C.P. | P_{1dB} | $V_{DS} = 8V,$ $I_{DS} = 0.7I_{DSS}$ | $f = 4GHz$ | - | 21.5 | - | dBm |
| | | | $f = 8GHz$ | 20.5 | 21.5 | - | dBm |
| | | | $f = 12GHz$ | - | 20.5 | - | dBm |
| Power Gain at 1 dB G.C.P. | G_{1dB} | $V_{DS} = 8V,$ $I_{DS} = 0.7I_{DSS}$ | $f = 4GHz$ | - | 15.0 | - | dB |
| | | | $f = 8GHz$ | 10.0 | 11.0 | - | dB |
| | | | $f = 12GHz$ | - | 7.5 | - | dB |
| Thermal Resistance | R_{th} | Channel to Case | - | 120 | 150 | $^\circ C/W$ | |

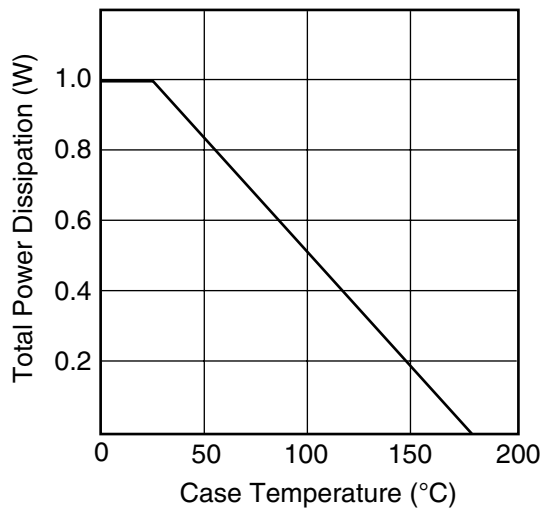
CASE STYLE: WF

G.C.P.: Gain Compression Point

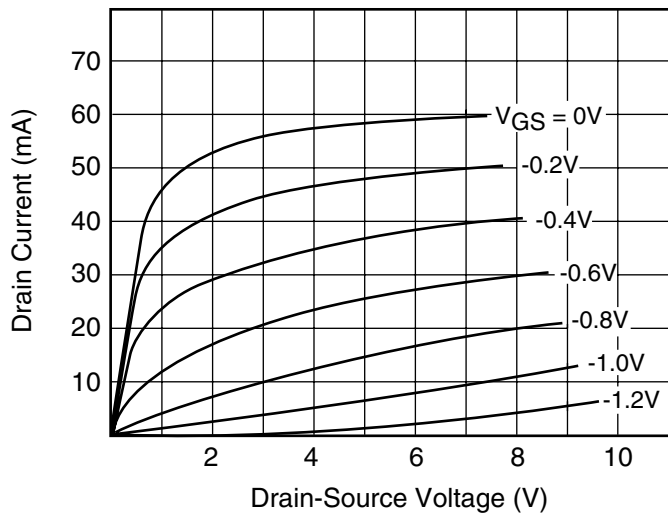
FSX017WF

General Purpose GaAs FET

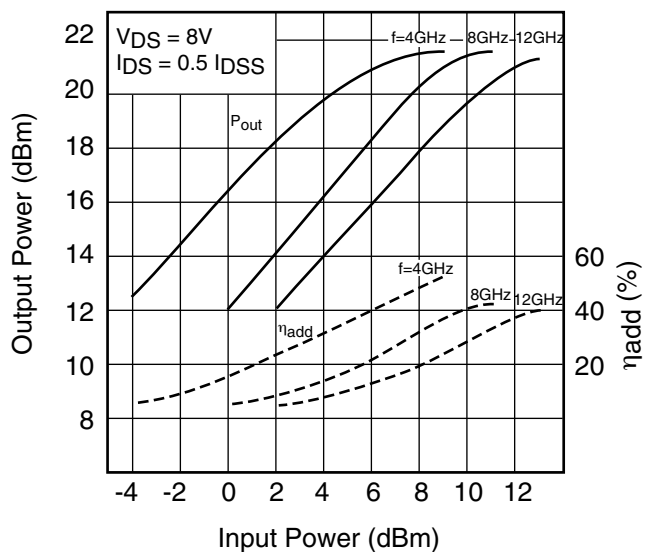
POWER DERATING CURVE



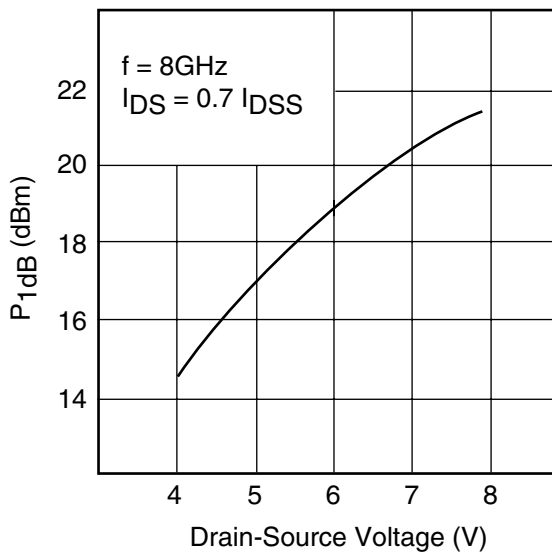
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



OUTPUT POWER vs. INPUT POWER

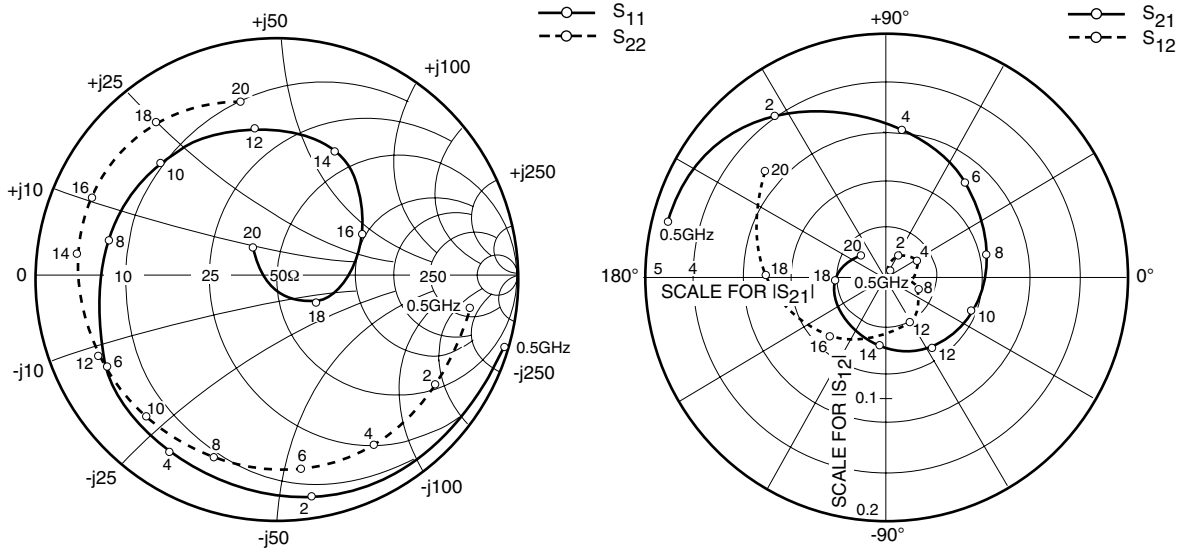


P_{1dB} vs. V_{DS}



FSX017WF

General Purpose GaAs FET



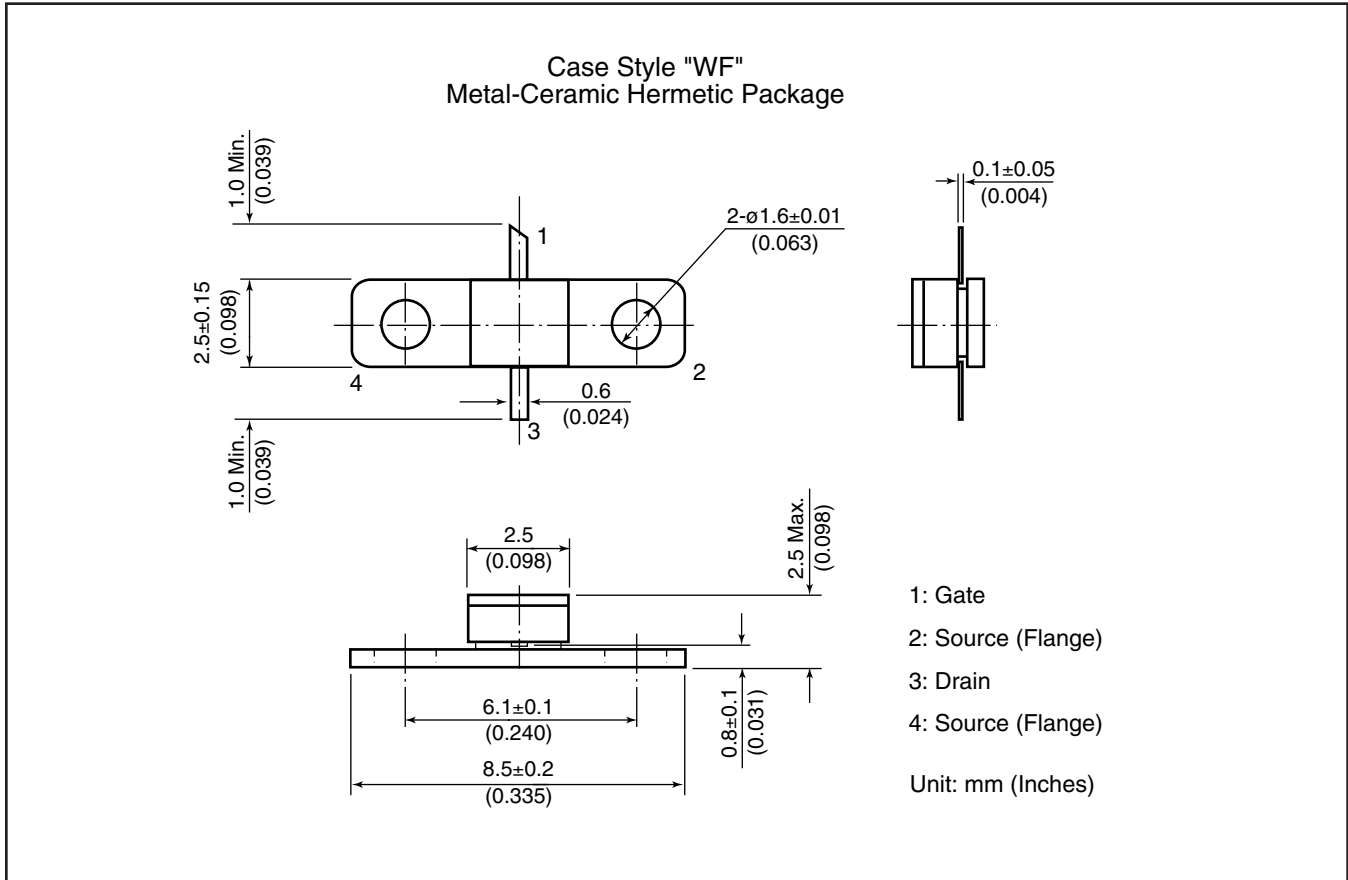
S-PARAMETERS

$V_{DS} = 8V, I_{DS} = 35mA$

| FREQUENCY (MHZ) | S11 | | S21 | | S12 | | S22 | |
|--------------------|------|--------|-------|--------|------|--------|------|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 500 | .994 | -17.5 | 4.666 | 165.0 | .007 | 75.3 | .826 | -8.4 |
| 1000 | .982 | -33.7 | 4.499 | 151.2 | .013 | 69.9 | .819 | -17.3 |
| 2000 | .936 | -66.2 | 4.066 | 124.2 | .022 | 47.3 | .808 | -33.3 |
| 3000 | .891 | -92.7 | 3.486 | 101.1 | .026 | 30.2 | .799 | -47.7 |
| 4000 | .855 | -112.9 | 3.001 | 82.3 | .027 | 17.5 | .796 | -59.2 |
| 5000 | .817 | -131.0 | 2.706 | 66.1 | .026 | 7.6 | .795 | -67.5 |
| 6000 | .778 | -150.4 | 2.555 | 49.2 | .026 | 0.0 | .791 | -76.3 |
| 7000 | .738 | -172.0 | 2.407 | 30.3 | .026 | -12.8 | .778 | -88.8 |
| 8000 | .705 | 167.8 | 2.206 | 12.0 | .022 | -20.7 | .774 | -102.1 |
| 9000 | .693 | 150.3 | 2.020 | -5.3 | .025 | -24.2 | .777 | -115.7 |
| 10000 | .679 | 135.1 | 1.894 | -20.9 | .028 | -31.8 | .780 | -127.6 |
| 11000 | .655 | 117.2 | 1.842 | -38.1 | .035 | -43.3 | .791 | -140.5 |
| 12000 | .631 | 96.4 | 1.750 | -57.3 | .042 | -60.2 | .798 | -155.2 |
| 13000 | .610 | 78.9 | 1.595 | -76.9 | .047 | -79.6 | .809 | -173.0 |
| 14000 | .573 | 64.6 | 1.422 | -94.9 | .050 | -96.0 | .830 | 172.1 |
| 15000 | .503 | 48.0 | 1.298 | -111.5 | .058 | -113.5 | .846 | 163.3 |

FSX017WF

General Purpose GaAs FET



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- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.

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