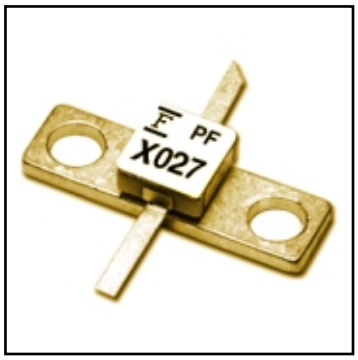
FSX027WF

General Purpose GaAs FET

FEATURES

- Medium Power Output: P_{1dB}=24.5dBm(Typ.)@8.0GHz
- High Power Gain: G_{1dB}=10dB(Typ.)@8.0GHz
- Hermetic Metal/Ceramic Package
- Proven Reliability



DESCRIPTION

The FSX027WF 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 RATINGS (Ambient Temperature Ta = 25°C)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		12	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_T	T_C = 25°C	1.5	W
Storage Temperature	T_{STG}		-65 to 175	°C
Channel Temperature	T_{CH}		175	°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 1.4 and -0.2 mA respectively with gate resistance of 1000Ω.
3. The operating channel temperature (T_{ch}) should not exceed 145°C.

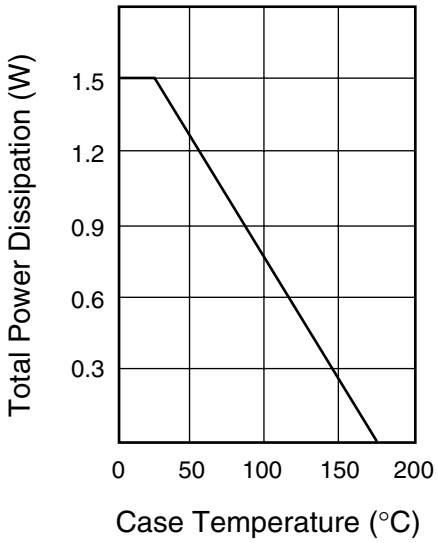
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions		Limit Min.	Limit Typ.	Limit Max.	Unit
Saturated Drain Current	I_{DSS}	V_{DS} = 3V, V_{GS} = 0V		70	110	150	mA
Transconductance	g_m	V_{DS} = 3V, I_{DS} = 54mA		-	100	-	mS
Pinch-off Voltage	V_p	V_{DS} = 3V, I_{DS} = 5.4mA		-0.7	-1.2	-1.7	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -5.4μA		-5.0	-	-	V
Noise Figure	NF	V_{DS} = 3V, I_{DS} = 30mA f = 8GHz		-	2.5	-	dB
Associated Gain	G_{as}			-	9.5	-	dB
Output Power at 1 dB G.C.P.	P_{1dB}	V_{DS} = 8V, I_{DS} = 0.7I_{DSS}	f = 4GHz	-	24.5	-	dBm
			f = 8GHz	23.5	24.5	-	dBm
			f = 12GHz	-	23.5	-	dBm
Power Gain at 1 dB G.C.P.	G_{1dB}	V_{DS} = 8V, I_{DS} = 0.7I_{DSS}	f = 4GHz	-	14.0	-	dB
			f = 8GHz	9.0	10.0	-	dB
			f = 12GHz	-	6.5	-	dB
Thermal Resistance	R_{th}	Channel to Case		-	70	100	°C/W

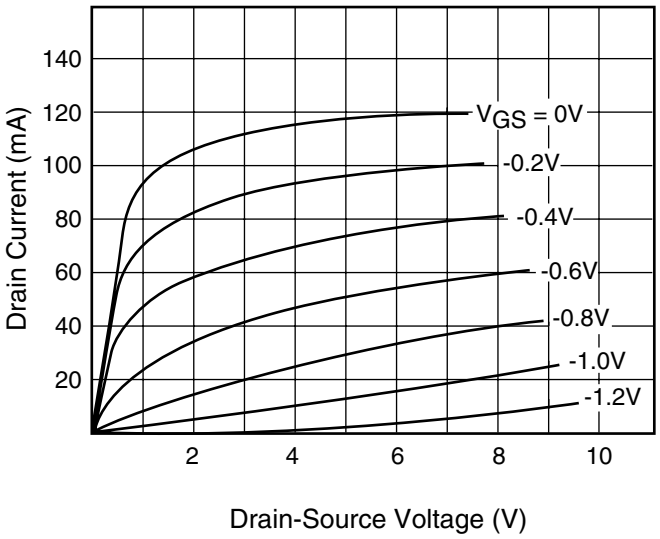
CASE STYLE: WF

G.C.P.: Gain Compression Point

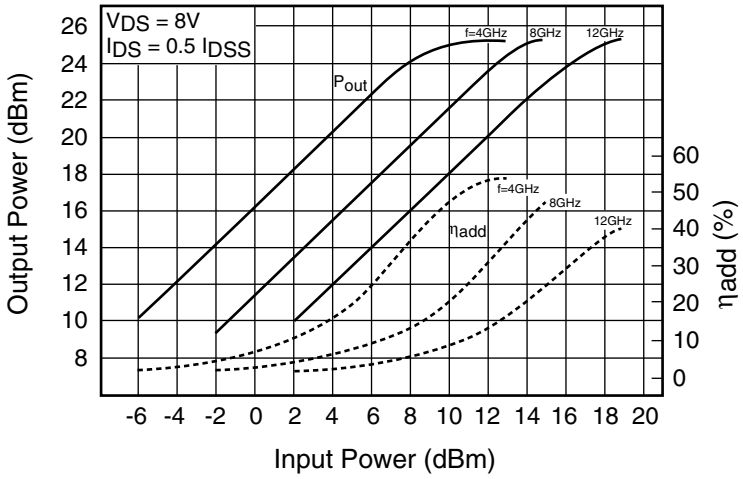
POWER DERATING CURVE



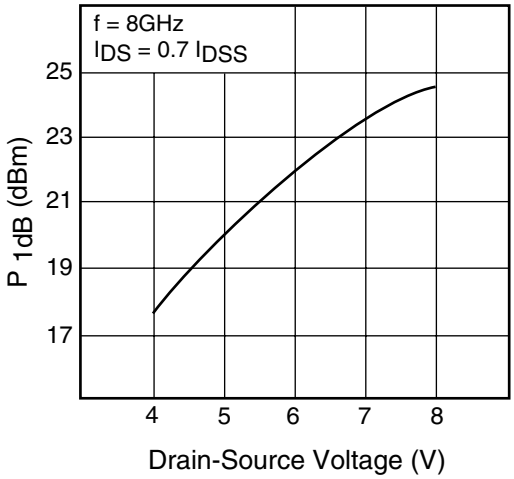
DRAIN CURRENT vs. DRAIN-SOURCE VOLTA

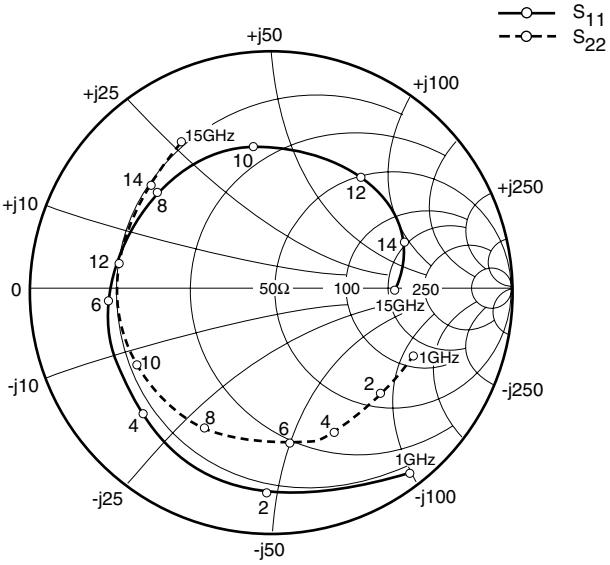


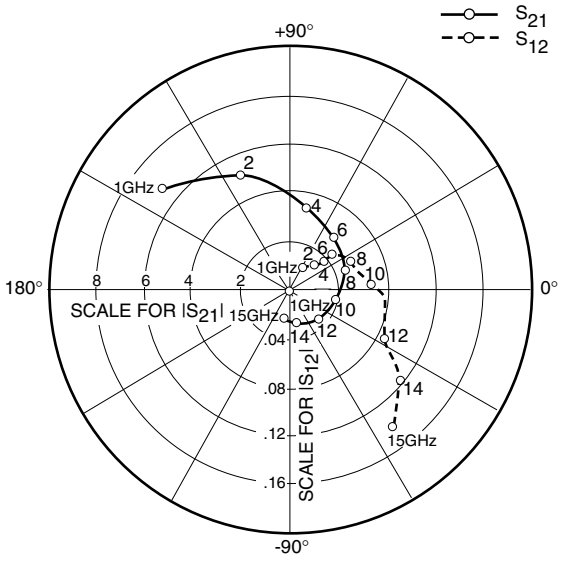
OUTPUT POWER vs. INPUT POWER



P 1dB vs. VDS







S-PARAMETERS

V_{DS} =8V, I_{DS} = 75mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1000	.942	-53.2	6.773	142.1	.021	62.8	.651	-25.8
2000	.852	-91.2	5.211	114.2	.030	47.6	.628	-43.7
3000	.782	-116.0	3.993	94.6	.033	43.1	.635	-56.5
4000	.745	-135.8	3.335	80.7	.035	41.5	.651	-66.8
5000	.710	-155.2	2.994	66.2	.037	44.2	.652	-73.6
6000	.683	-176.8	2.747	51.7	.040	41.3	.642	-83.7
7000	.656	-159.9	2.532	36.2	.048	38.2	.634	-97.6
8000	.638	139.7	2.323	20.2	.054	26.4	.638	-115.9
9000	.618	119.4	2.089	1.4	.057	17.1	.636	-134.5
10000	.601	97.2	1.838	-14.7	.065	3.9	.642	-150.7
11000	.592	73.4	1.639	-30.5	.078	-5.1	.646	-168.5
12000	.591	51.8	1.646	-48.3	.087	-28.1	.647	172.6
13000	.600	33.6	1.401	-67.1	.093	-31.1	.651	155.2
14000	.582	19.1	1.409	-82.1	.117	-38.7	.668	139.4
15000	.499	-0.7	1.246	-103.6	.139	-53.2	.705	121.8

Download S-Parameters, click here

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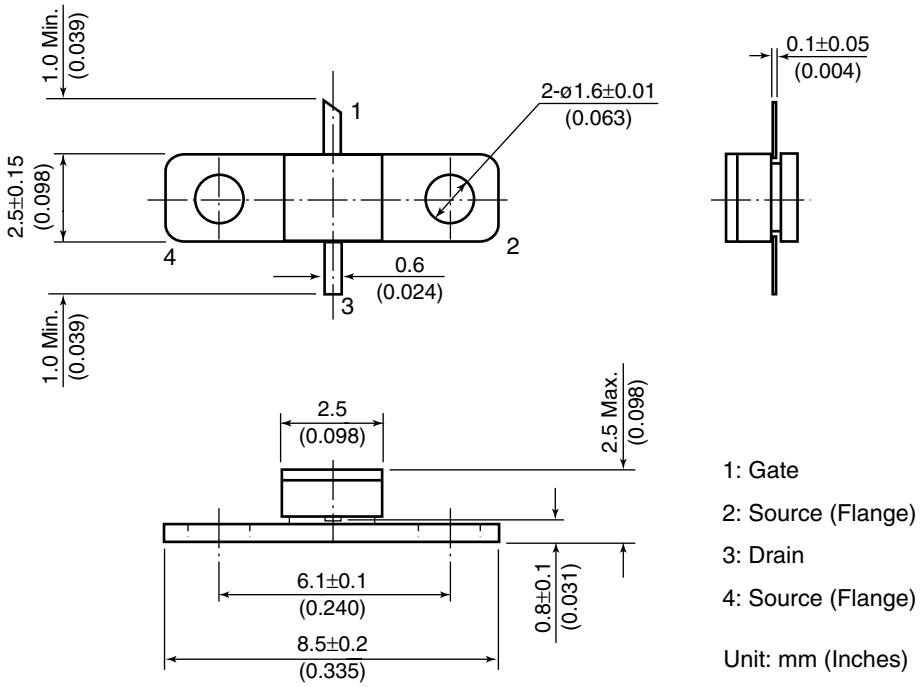
Case Style "WF"
Metal-Ceramic Hermetic Package



1: Gate
2: Source (Flange)
3: Drain
4: Source (Flange)

Unit: mm (Inches)

For further information please contact:

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CAUTION

Fujitsu Compound Semiconductor Products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- **Do not put these products into the mouth.**
- **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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