FSX52WF
General Purpose GaAs FETs

ABSOLUTE MAXIMUM RATING (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_{tot}	T_C = 25°C	1.5	W
Storage Temperature	T_{stg}		-65 ~ +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 10 volts.
2. The forward and reverse gate currents should not exceed 0.2 and -0.2 mA respectively with gate resistance of 1000Ω.

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		100	150	220	mA
Transconductance	g_m	V_{DS} = 3V, I_{DS} = 60mA		-	50	-	mS
Pinch-off Voltage	V_P	V_{DS} = 3V, I_{DS} = 2mA		-1.5	-3.0	-	V
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS} = -10 μA		-5	-	-	V
Noise Figure	NF	V_{DS} = 3V, I_{DS} ≈ 30 mA, f = 8GHz		-	2.5	-	dB
Associated Gain	G_{as}			-	8.5	-	dB
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} = 8V, I_{DS} ≈ 0.5 I_{DSS}	f = 4GHz	-	23	-	dBm
			f = 8GHz	22	23	-	dBm
			f = 12GHz	-	21	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}	V_{DS} = 8V, I_{DS} ≈ 0.5I_{DSS}	f = 4GHz	-	14	-	dB
			f = 8GHz	9	10	-	dB
			f = 12GHz	-	6	-	dB
Maximum Available Gain	Ga(max)	V_{DS} = 8V, I_{DS} = 75mA	f = 8GHz	-	12	-	dB
			f = 12GHz	-	8.5	-	dB
Thermal Resistance	R_{th}	Channel to Case		-	70	100	°C/W

CASE STYLE: WF

G.C.P.: Gain Compression Point

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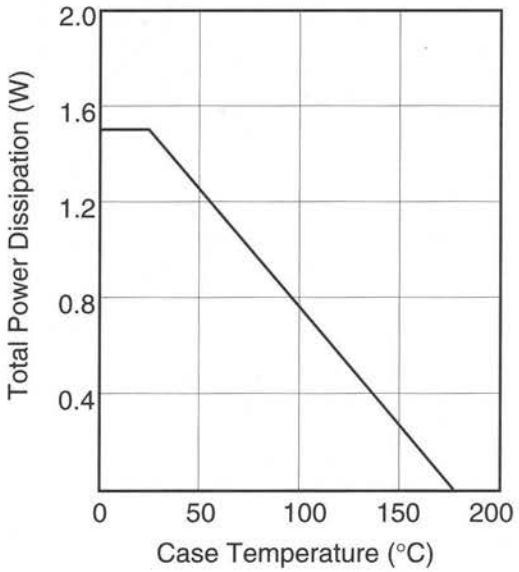
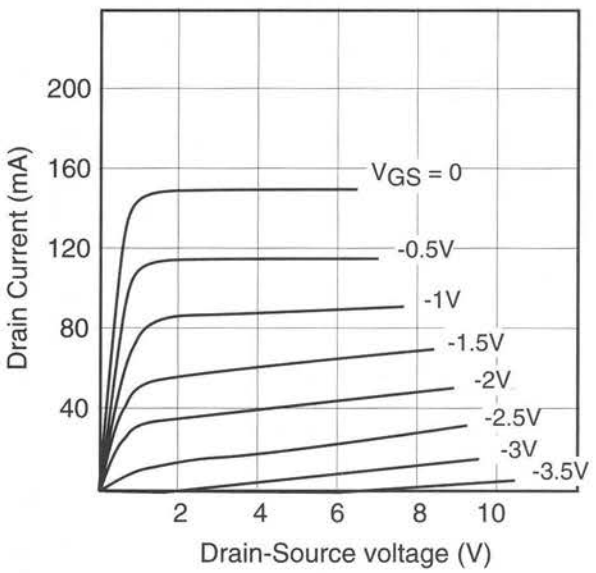
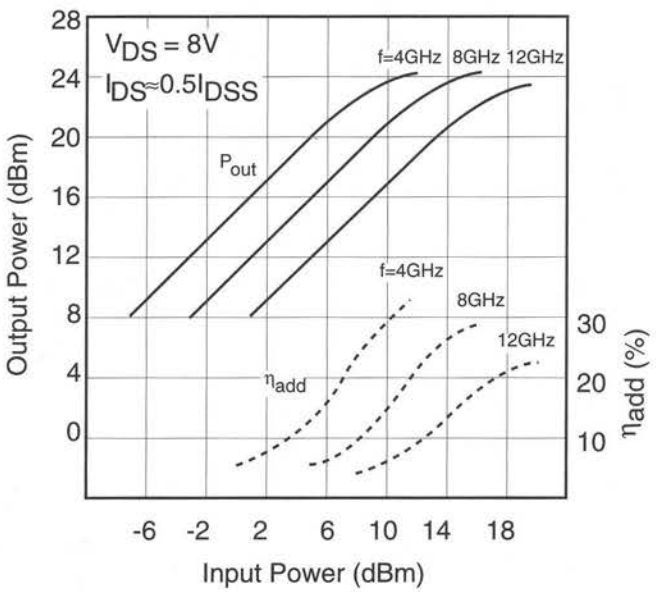
POWER DERATING CURVE



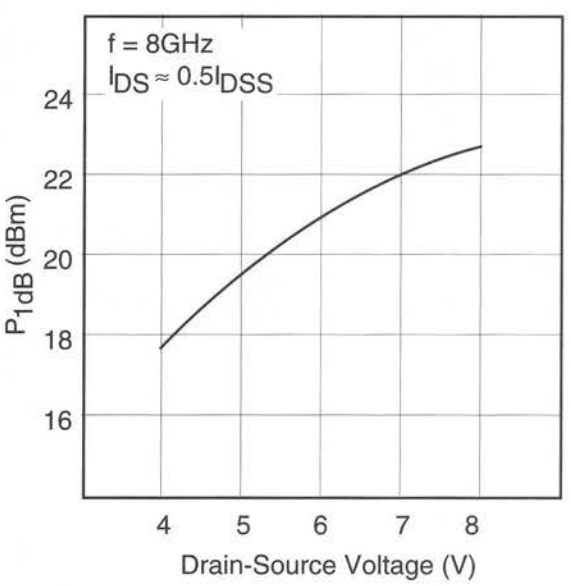
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



OUTPUT POWER vs. INPUT POWER



P_{1dB} vs. V_{DS}



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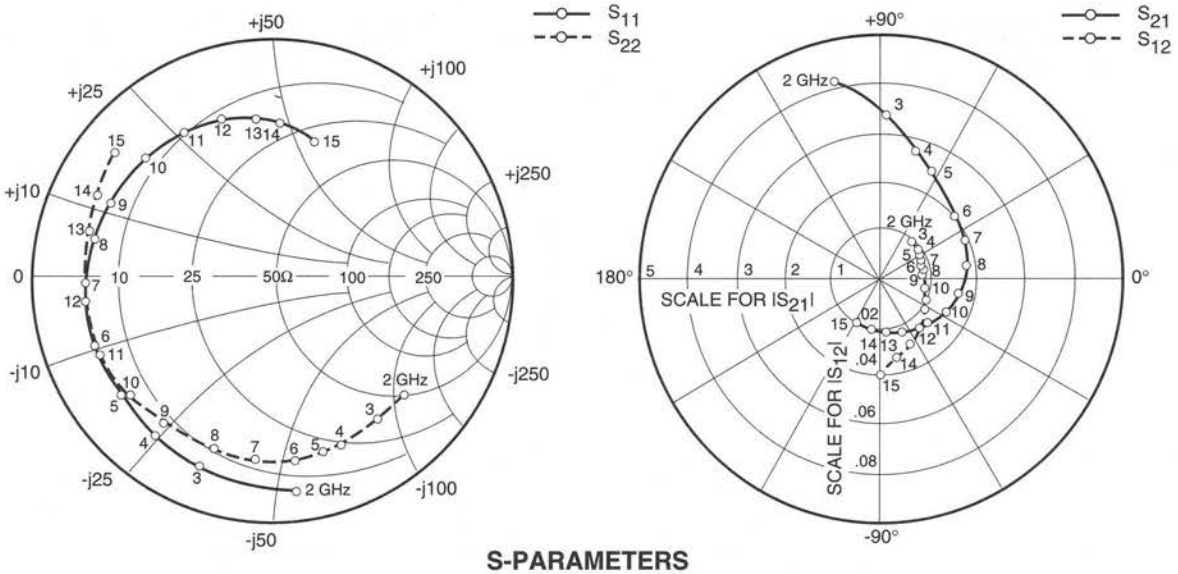
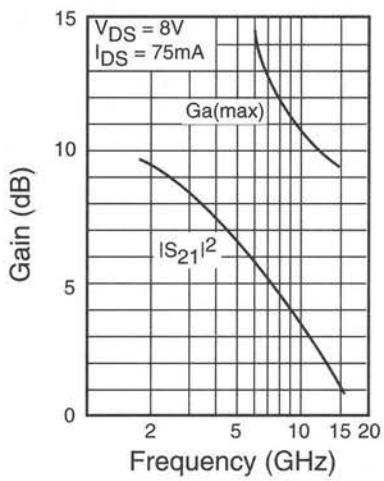


S-PARAMETERS

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

FREQUENCY (MHz)	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.972	-24.1	6.011	160.5	.014	73.6	.815	-12.1
1000	.947	-47.2	5.429	141.6	.025	59.6	.788	-23.0
2000	.875	-85.6	4.165	111.2	.036	38.3	.748	-40.8
3000	.849	-112.7	3.217	87.8	.036	24.9	.733	-54.7
4000	.818	-129.2	2.544	70.4	.035	18.9	.744	-65.9
5000	.799	-142.7	2.166	56.6	.033	15.8	.754	-75.7
6000	.782	-155.6	1.999	42.2	.031	13.3	.768	-83.1
7000	.759	-172.8	1.840	24.8	.030	11.6	.783	-92.8
8000	.739	169.9	1.691	8.2	.033	5.1	.769	-106.6
9000	.730	153.8	1.581	-10.8	.036	-10.4	.759	-125.5
10000	.723	137.9	1.412	-30.2	.040	-23.0	.763	-141.1
11000	.713	123.0	1.279	-48.5	.047	-37.2	.783	-156.7
12000	.688	110.7	1.181	-66.0	.050	-55.2	.785	-175.7
13000	.671	97.1	1.077	-85.2	.056	-67.9	.765	166.5
14000	.649	86.3	1.005	-101.1	.066	-77.8	.796	154.0
15000	.583	74.5	.985	-119.6	.079	-86.8	.838	140.0

Ga(max) AND $|S_{21}|^2$ vs. FREQUENCY



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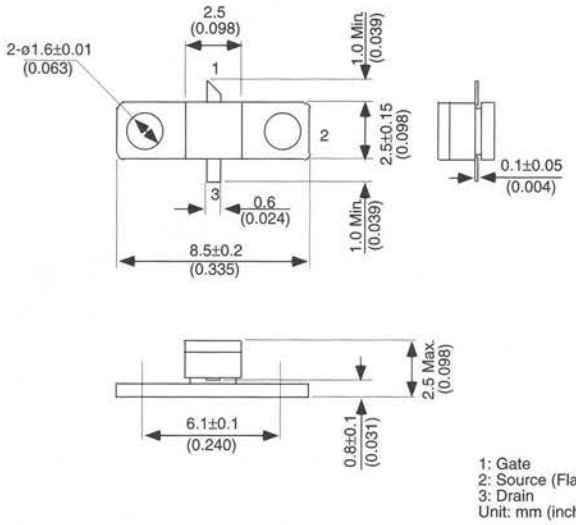
Case Style "WF"
Metal-Ceramic Hermetic Package



1: Gate
2: Source (Flange)
3: Drain
Unit: mm (inches)