FLM8596-8F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 39.0dBm (Typ.)
- High Gain: G_{1dB} = 7.5dB (Typ.)
- High PAE: η_{add} = 29% (Typ.)
- Low IM_3 = -45dBc@Po = 29.5dBm
- Broad Band: 8.5 ~ 9.6GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed

DESCRIPTION

The FLM8596-8F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

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

ABSOLUTE MAXIMUM RATING (Ambient Temperature Ta=25°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°C	42.8	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 10 volts.
2. The forward and reverse gate currents should not exceed 32.0 and -4.4 mA respectively with gate resistance of 50Ω.

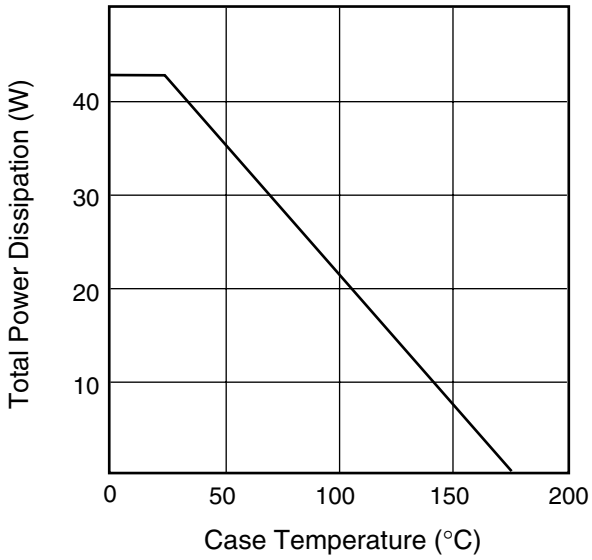
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	3400	5200	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 2200mA	-	3400	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 170mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -170μA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} =10V, I_{DS} = 0.65 I_{DSS} (Typ.), f = 8.5 ~ 9.6 GHz, Z_S=Z_L= 50 ohm	38.5	39.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		6.5	7.5	-	dB
Drain Current	I_{dsr}		-	2200	2600	mA
Power-added Efficiency	η_{add}		-	29	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 9.6 GHz, Δf = 10 MHz 2-Tone Test P_{out} = 28.5dBm S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	3.0	3.5	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

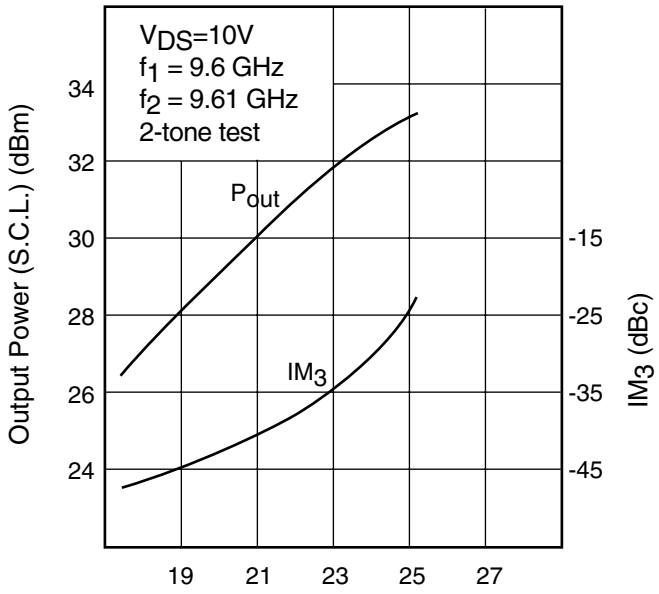
CASE STYLE: IB

G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level

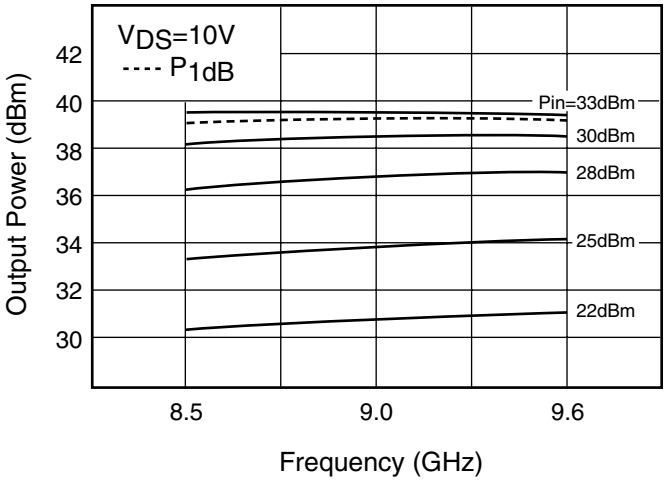
POWER DERATING CURVE



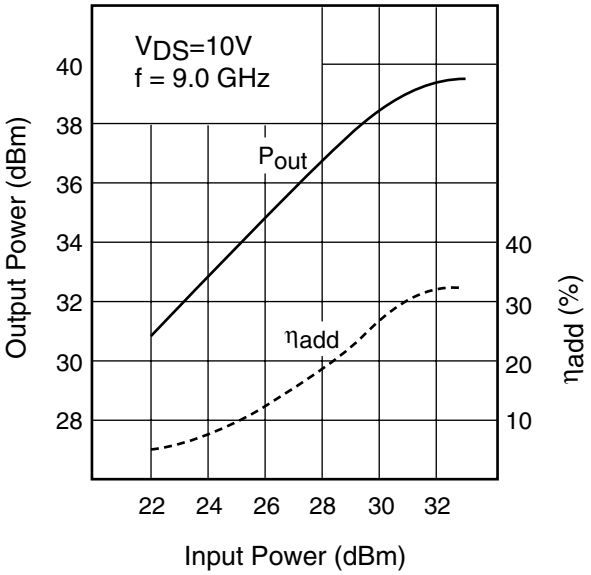
OUTPUT POWER & IM_3 vs. INPUT POWER

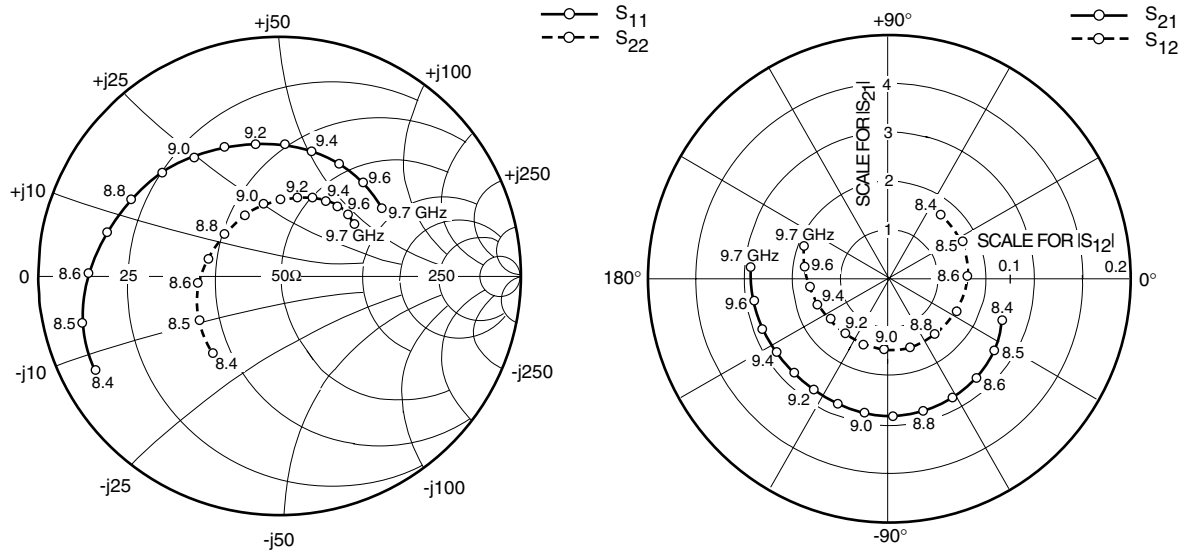


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





S-PARAMETERS

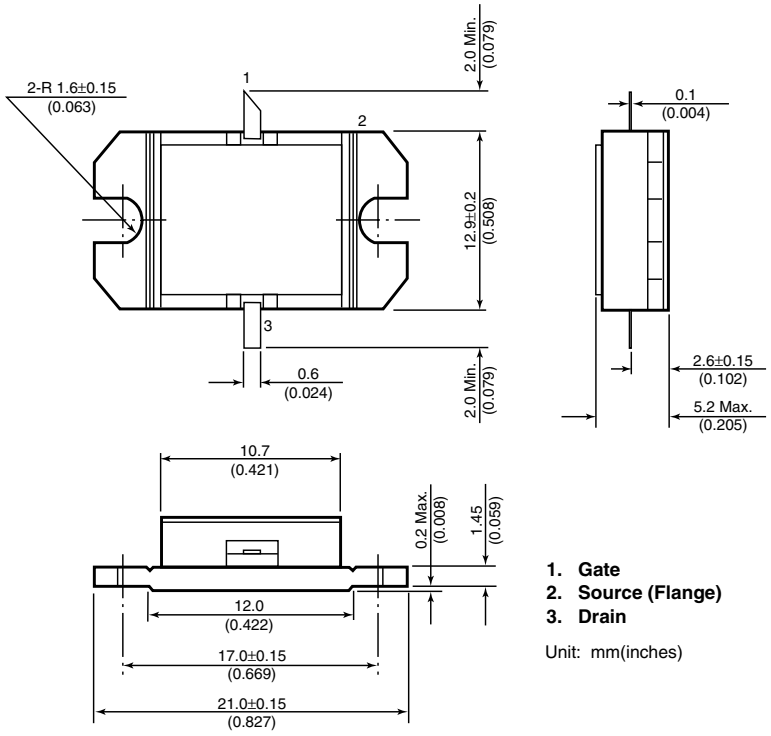
V_{DS} = 10V, I_{DS} = 2200mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
8400	.868	-152.7	2.480	-19.5	.068	50.9	.426	-131.3
8500	.843	-166.6	2.616	-33.7	.068	25.4	.381	-151.8
8600	.800	179.4	2.717	-47.9	.065	0.9	.340	-174.9
8700	.751	165.6	2.761	-61.7	.062	-25.7	.307	164.9
8800	.701	152.1	2.781	-75.3	.059	-49.8	.289	141.5
8900	.653	138.8	2.784	-88.2	.059	-72.2	.290	120.3
9000	.615	126.1	2.781	-100.6	.057	-93.0	.308	103.1
9100	.586	113.4	2.772	-112.8	.058	-112.2	.320	89.5
9200	.561	101.0	2.775	-124.5	.058	-129.4	.338	77.9
9300	.547	88.4	2.777	-136.0	.059	-146.0	.356	68.0
9400	.532	75.9	2.792	-147.5	.064	-160.7	.364	58.4
9500	.525	62.6	2.819	-159.2	.066	-173.1	.376	50.4
9600	.513	49.0	2.846	-170.9	.071	171.9	.383	42.8
9700	.503	34.5	2.890	177.1	.075	158.9	.375	35.9

Download S-Parameters, click here

Case Style "IB"

Metal-Ceramic Hermetic Package



1. **Gate**
2. **Source (Flange)**
3. **Drain**

Unit: mm(inches)

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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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