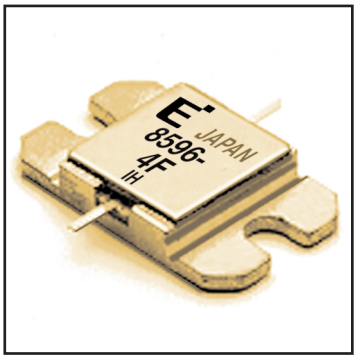
FLM8596-4F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 36.0dBm (Typ.)
- High Gain: G_{1dB} = 7.5dB (Typ.)
- High PAE: η_{add} = 29% (Typ.)
- Low IM_3 = -45dBc@Po = 25.5dBm
- Broad Band: 8.5 ~ 9.6GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed



DESCRIPTION

The FLM8596-4F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

Eudyna'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	25.0	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 16.0 and -2.2 mA respectively with gate resistance of 100Ω.

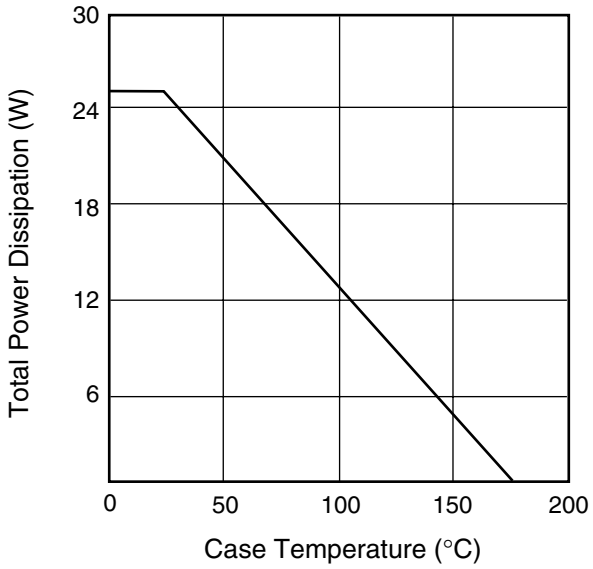
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	1700	2600	mA
Transconductance	gm	V_{DS} = 5V, I_{DS} =1100mA	-	1700	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 85mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -85μA	-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	35.5	36.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		6.5	7.5	-	dB
Drain Current	I_{dsr}		-	1100	1300	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} = 25.5dBm S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	5.0	6.0	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

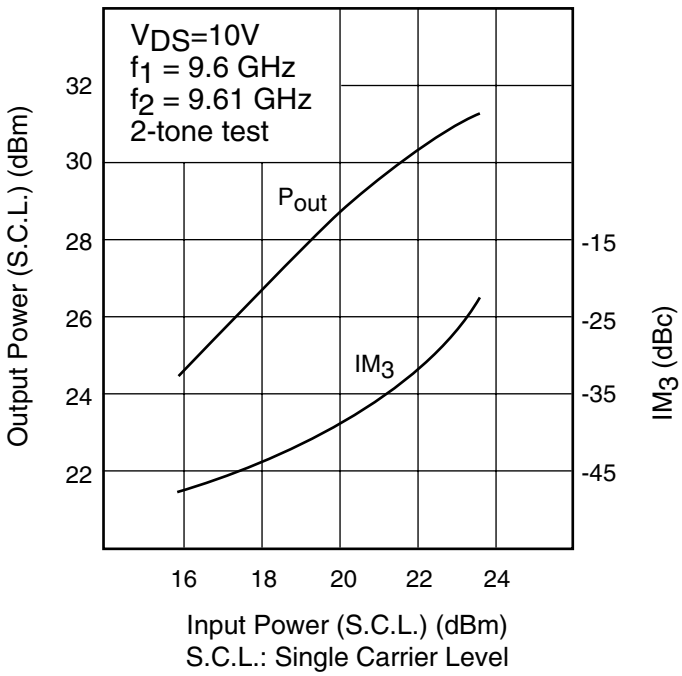
CASE STYLE: IA

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

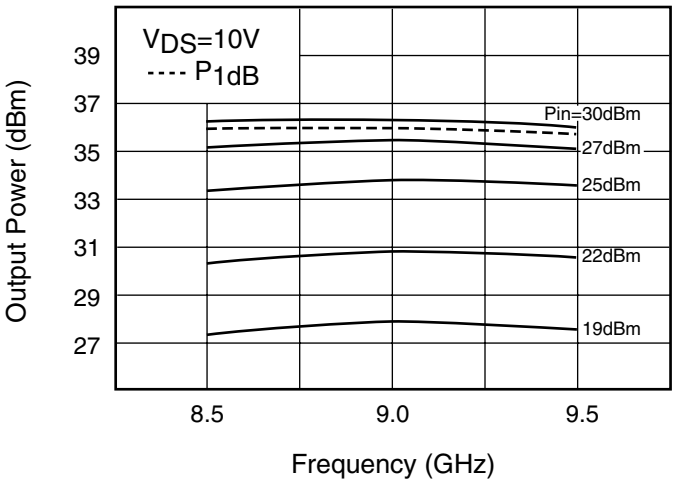
POWER DERATING CURVE



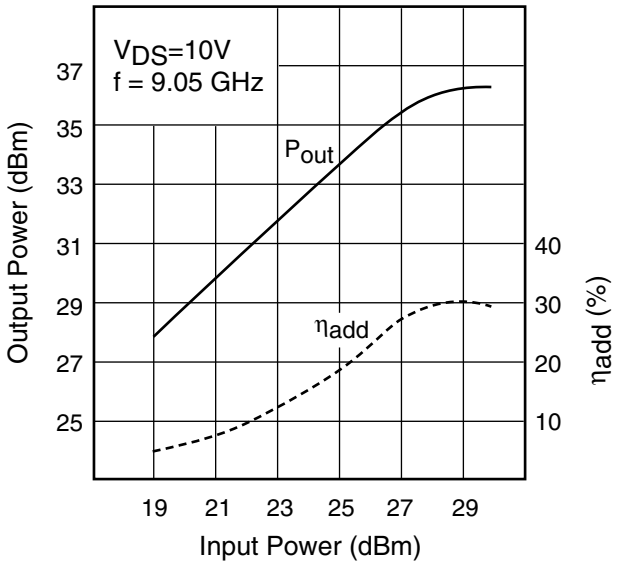
OUTPUT POWER & IM3 vs. INPUT POWER

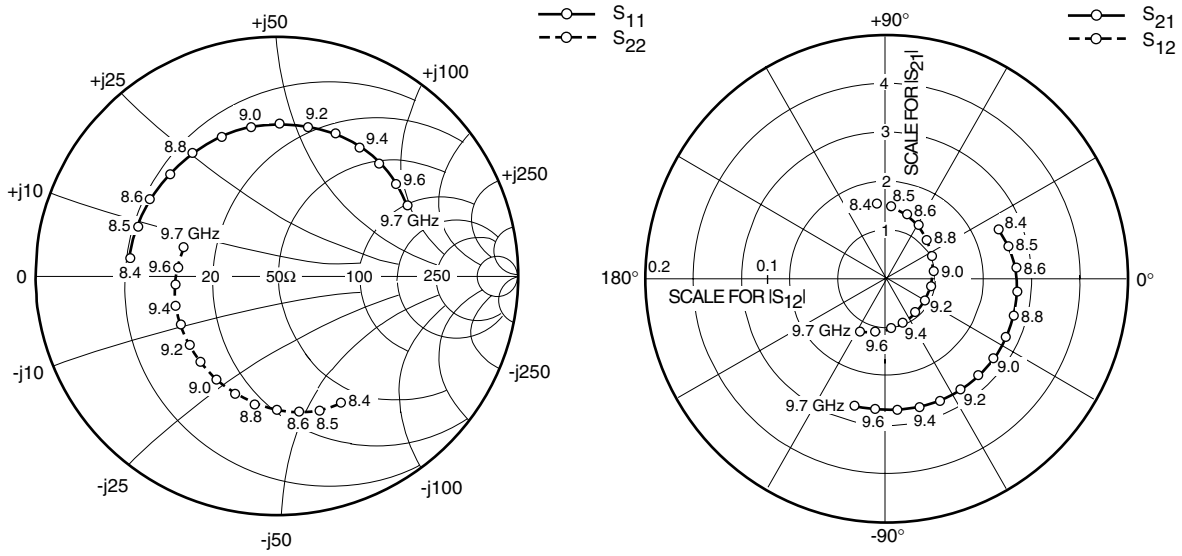


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





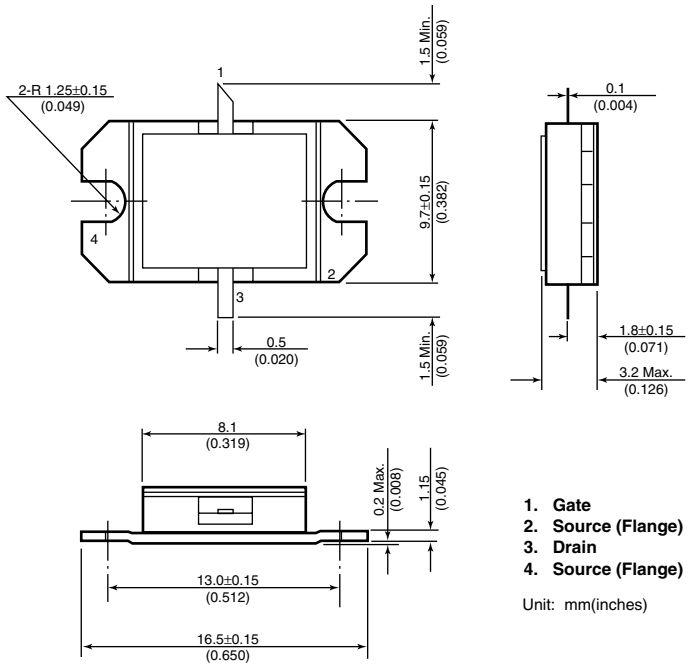
S-PARAMETERS

V_{DS} = 10V, I_{DS} = 1100mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
8400	.623	173.4	2.538	23.8	.062	97.5	.592	-63.5
8500	.620	161.3	2.602	14.2	.059	86.1	.588	-72.3
8600	.622	149.2	2.664	4.4	.056	72.2	.577	-81.1
8700	.622	137.0	2.708	-5.5	.052	58.5	.560	-90.2
8800	.625	124.6	2.748	-15.8	.046	42.4	.548	-99.7
8900	.630	112.4	2.763	-25.9	.042	26.6	.521	-109.8
9000	.632	100.7	2.767	-36.1	.040	10.2	.498	-120.3
9100	.638	89.3	2.764	-46.2	.037	-9.2	.485	-130.2
9200	.637	78.3	2.750	-56.1	.036	-28.0	.465	-141.5
9300	.638	68.0	2.729	-65.8	.037	-49.4	.450	-152.2
9400	.635	57.9	2.718	-75.6	.038	-68.2	.437	-162.7
9500	.631	48.3	2.695	-85.1	.040	-85.7	.420	-174.5
9600	.621	38.5	2.682	-94.8	.044	-103.1	.408	175.8
9700	.611	28.9	2.675	-104.2	.048	-117.1	.401	164.1

Case Style "IA"

Metal-Ceramic Hermetic Package



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

Unit: mm(inches)

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CAUTION

Eudyna Devices Inc. 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 this product 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.**