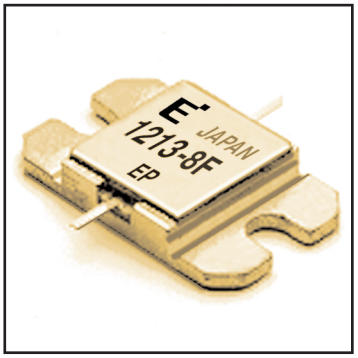
FLM1213-8F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 39.0dBm (Typ.)
- High Gain: G_{1dB} = 6.5dB (Typ.)
- High PAE: η_{add} = 28% (Typ.)
- Low IM_3 = -46dBc@Po = 28.5dBm
- Broad Band: 12.7 ~ 13.2GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed



DESCRIPTION

The FLM1213-8F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

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	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 100Ω.

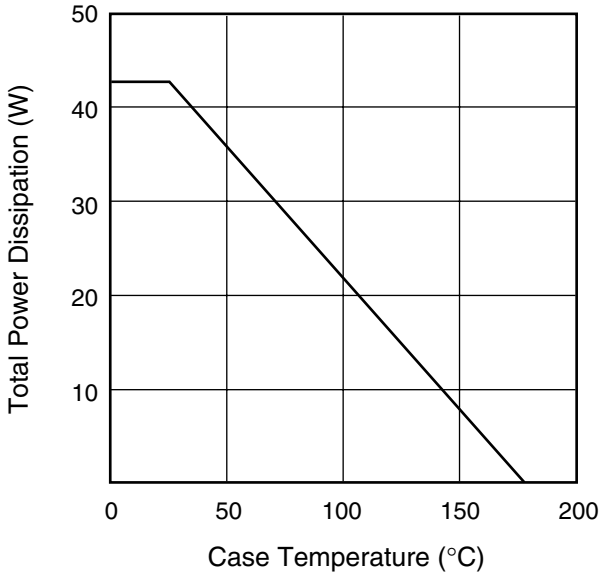
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	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 f = 12.7 ~ 13.2 GHz I_{DS} = 0.65 I_{DSS}(Typ.) Z_S = Z_L = 50Ω	38.5	39.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		5.5	6.5	-	dB
Drain Current	I_{dsr}		-	2200	2600	mA
Power-Added Efficiency	η_{add}		-	28	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 13.2GHz, Δf = 10MHz 2-Tone Test Pout = 28.5dBm S.C.L.	-44	-46	-	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

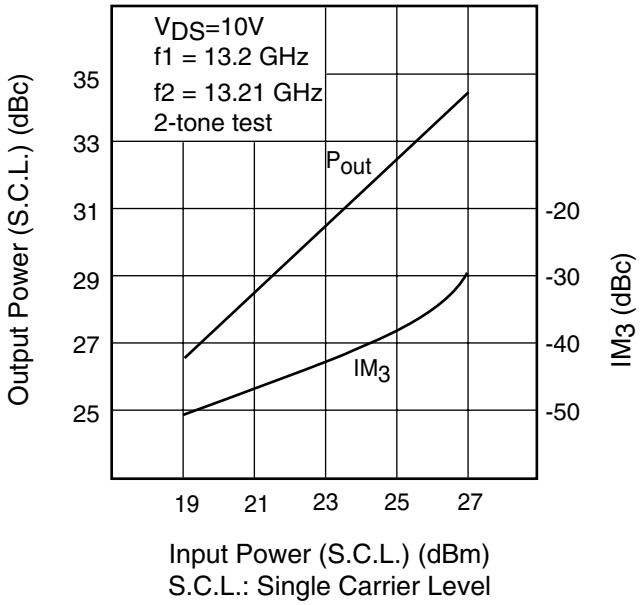
CASE STYLE: IA

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

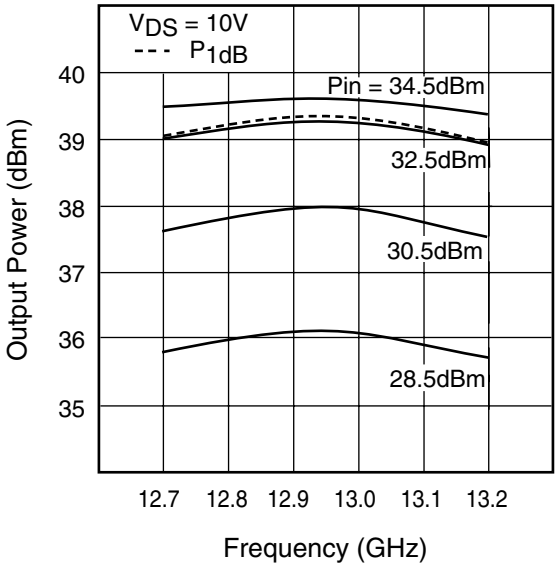
POWER DERATING CURVE



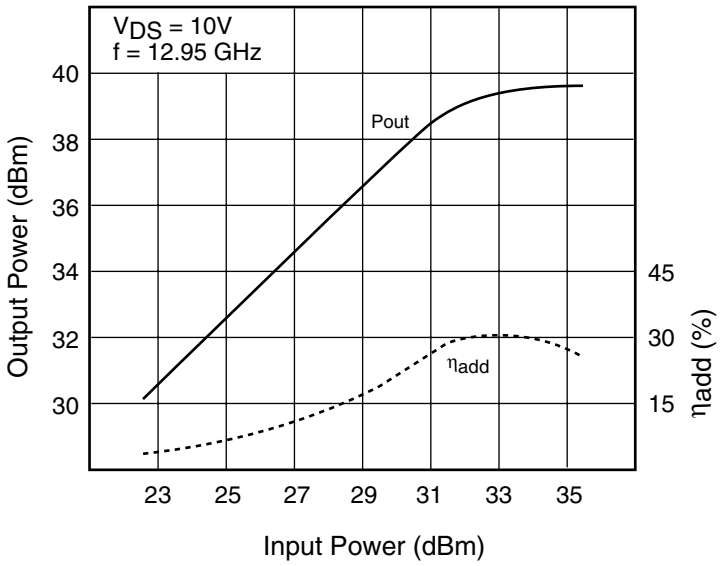
OUTPUT POWER & IM_3 vs. INPUT POWER

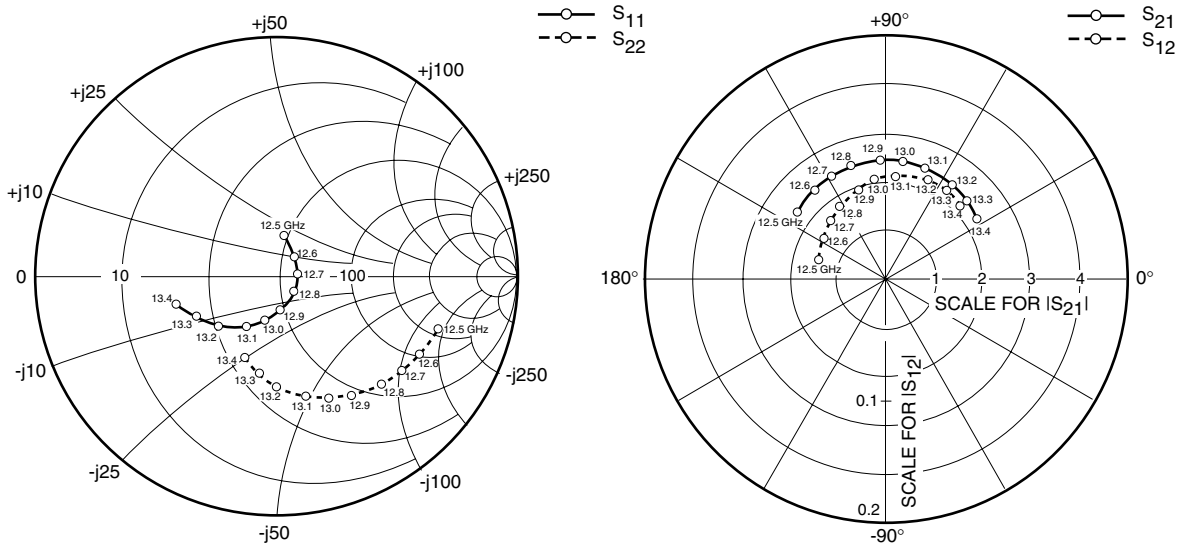


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





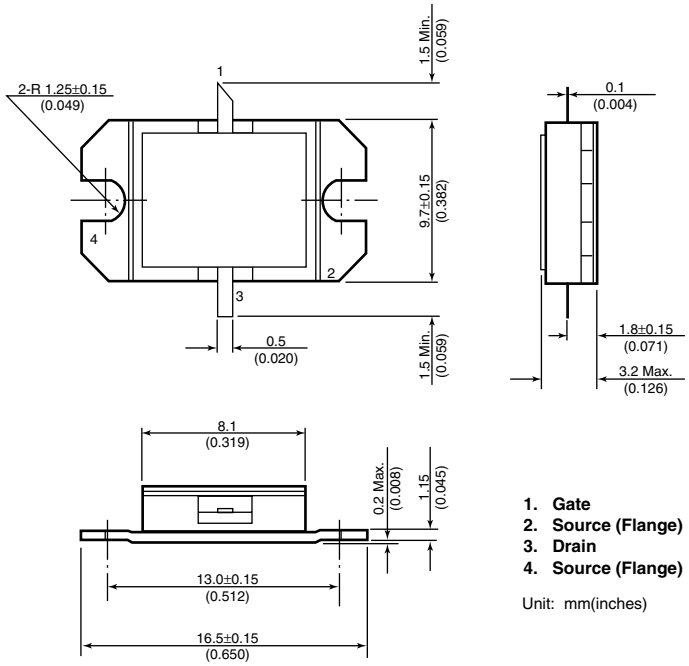
S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
12500	.171	81.0	2.291	143.6	.059	163.7	.710	-18.0
12600	.109	47.9	2.344	129.3	.061	148.1	.681	-28.4
12700	.084	6.1	2.399	118.7	.068	134.6	.658	-36.7
12800	.094	-44.1	2.443	107.7	.071	122.9	.633	-45.3
12900	.143	-85.2	2.455	93.1	.076	107.5	.592	-57.1
13000	.194	-105.7	2.443	82.2	.082	97.0	.556	-66.3
13100	.248	-121.5	2.410	70.8	.084	85.3	.516	-75.7
13200	.322	-140.0	2.371	55.3	.089	67.2	.458	-89.4
13300	.373	-153.0	2.317	44.1	.088	55.7	.411	-99.3
13400	.432	-164.4	2.239	32.6	.086	44.5	.362	-110.1

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.**

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