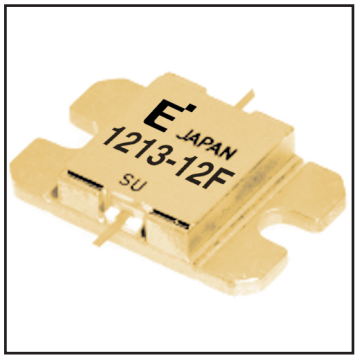
FLM1213-12F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 40.5dBm (Typ.)
- High Gain: G_{1dB} = 5.5dB (Typ.)
- High PAE: η_{add} = 24% (Typ.)
- IM_3 = -45dBc@Po = 28dBm
- Broad Band: 12.7 ~ 13.2GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed



DESCRIPTION

The FLM1213-12F 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	57.6	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 34.0 and -5.0 mA respectively with gate resistance of 50Ω.

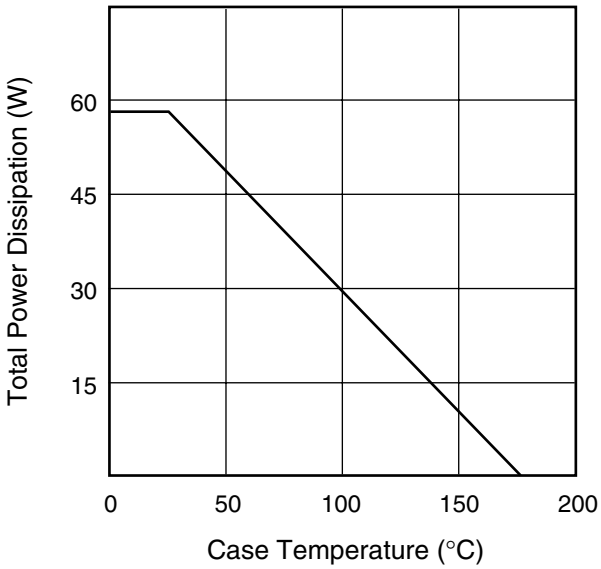
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	6000	9000	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 3600mA	-	5000	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 300mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -340μA	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} = 10V f = 12.7 ~ 13.2 GHz I_{DS} = 0.6 I_{DSS}(Typ.) Z_S = Z_L = 50Ω	39.5	40.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		4.5	5.5	-	dB
Drain Current	I_{dsr}		-	3600	4500	mA
Power-Added Efficiency	η_{add}		-	24	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 13.2GHz, Δf = 10MHz 2-Tone Test Pout = 28dBm S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	2.3	2.6	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

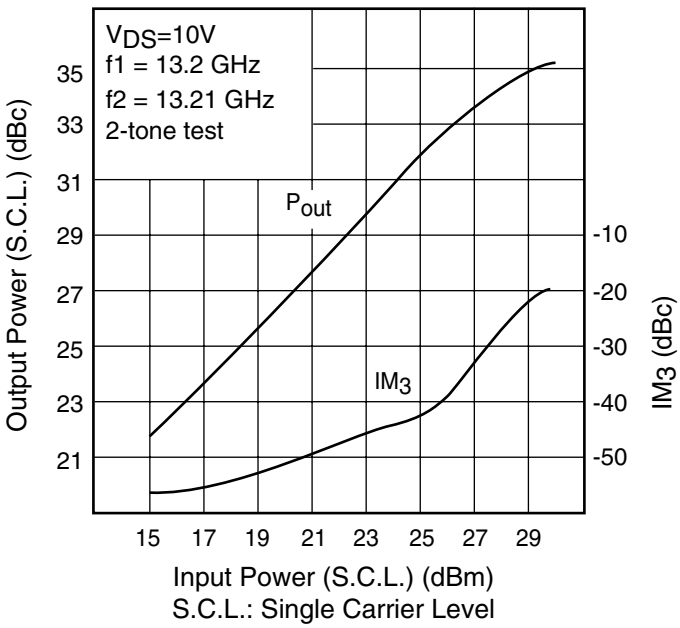
CASE STYLE: IB

G.C.P.: Gain Compression Point

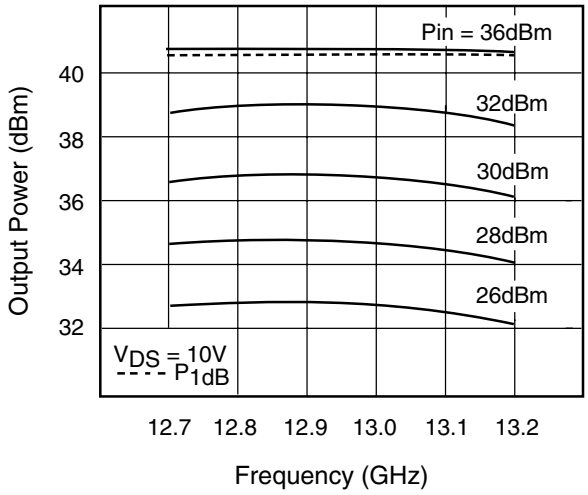
POWER DERATING CURVE



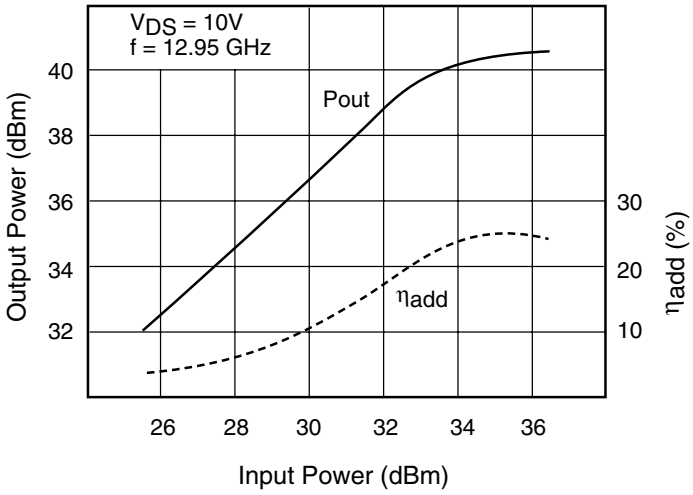
OUTPUT POWER & IM_3 vs. INPUT POWER

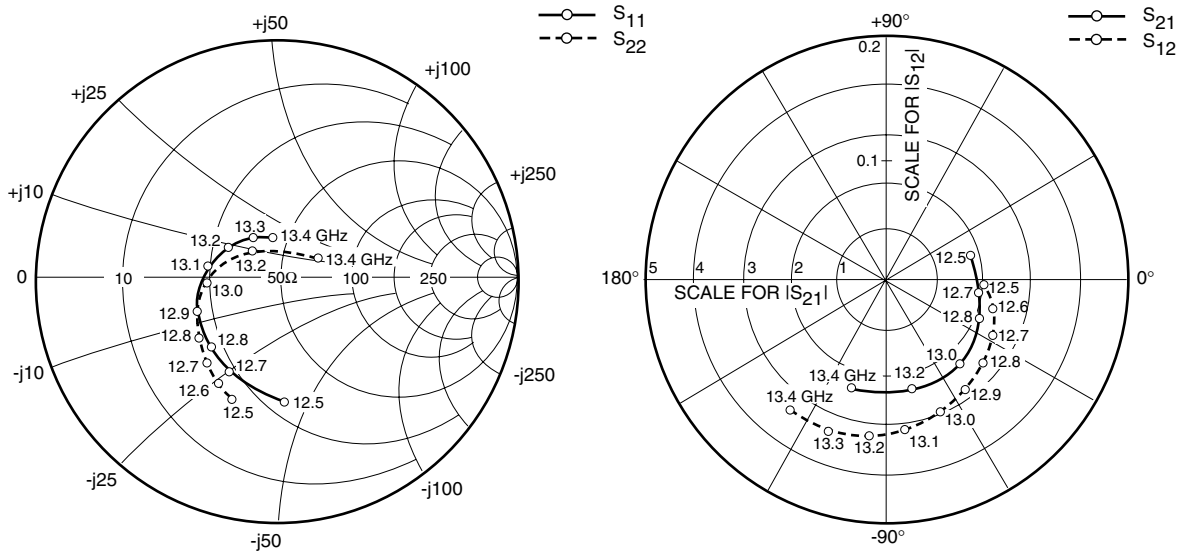


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





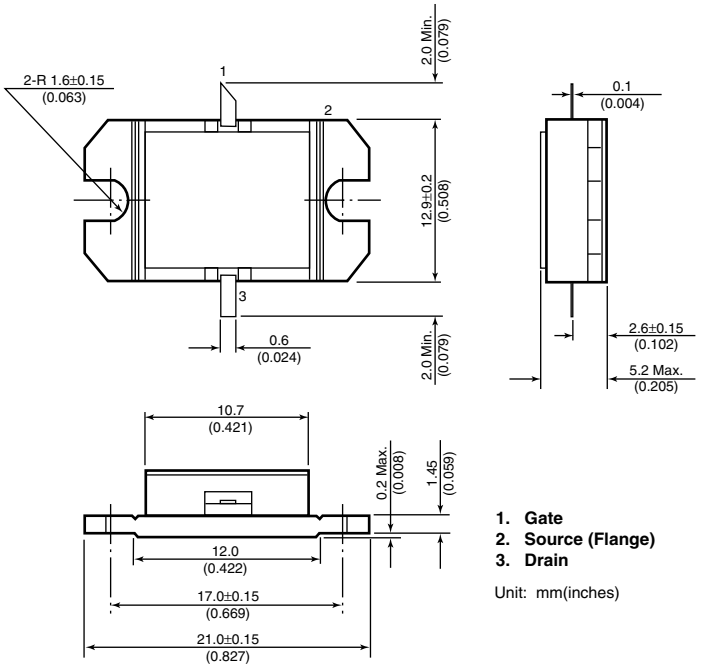
S-PARAMETERS

V_{DS} = 10V, I_{DS} = 3600mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
12500	.511	-86.9	1.787	16.5	.080	-2.7	.531	-110.8
12600	.474	-101.9	1.891	4.5	.089	-15.2	.497	-121.6
12700	.435	-118.0	1.995	-8.2	.098	-27.4	.460	-132.6
12800	.400	-134.6	2.092	-21.1	.104	-40.6	.414	-144.1
12900	.360	-152.2	2.192	-34.1	.112	-54.4	.362	-158.1
13000	.324	-171.0	2.283	-47.9	.120	-68.6	.298	-175.0
13100	.290	168.5	2.341	-62.2	.127	-82.8	.229	164.7
13200	.249	147.6	2.386	-77.2	.132	-97.1	.164	133.3
13300	.212	125.2	2.369	-91.4	.136	-111.6	.127	82.9
13400	.172	100.6	2.343	-106.4	.134	-126.6	.169	34.4

Case Style "IB"

Metal-Ceramic Hermetic Package



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

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.**