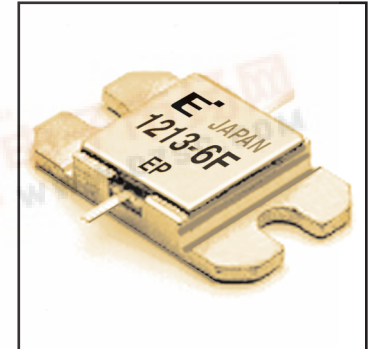


# FLM1213-6F

## X, Ku-Band Internally Matched FET

### FEATURES

- High Output Power:  $P_{1dB} = 37.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 7.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 27\%$  (Typ.)
- Low  $IM_3 = -45\text{dBc}@P_o = 25\text{dBm}$
- Broad Band: 12.7 ~ 13.2GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed



### DESCRIPTION

The FLM1213-6F 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 $T_a=25^\circ\text{C}$ )

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	$V_{DS}$		15	V
Gate-Source Voltage	$V_{GS}$		-5	V
Total Power Dissipation	$P_T$	$T_c = 25^\circ\text{C}$	31.2	W
Storage Temperature	$T_{stg}$		-65 to +175	$^\circ\text{C}$
Channel Temperature	$T_{ch}$		175	$^\circ\text{C}$

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 26.0 and -2.8 mA respectively with gate resistance of 100 $\Omega$ .

### ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$ )

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	2800	4200	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 1800\text{mA}$	-	2350	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 120\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -120\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS}(\text{Typ.}),$ $f = 12.7 \sim 13.2\text{GHz},$ $Z_S = Z_L = 50\Omega$	36.5	37.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		6.0	7.0	-	dB
Drain Current	$I_{dsr}$		-	1800	2100	mA
Power-Added Efficiency	$\eta_{add}$		-	27	-	%
Gain Flatness	$\Delta G$		-	-	$\pm 0.6$	dB
3rd Order Intermodulation Distortion	$IM_3$	$f = 13.2\text{GHz}, \Delta f = 10\text{MHz}$ 2-Tone Test $P_{out} = 25\text{dBm S.C.L.}$	-42	-45	-	dBc
Thermal Resistance	$R_{th}$	Channel to Case	-	4.0	4.5	$^\circ\text{C/W}$

CASE STYLE: IA

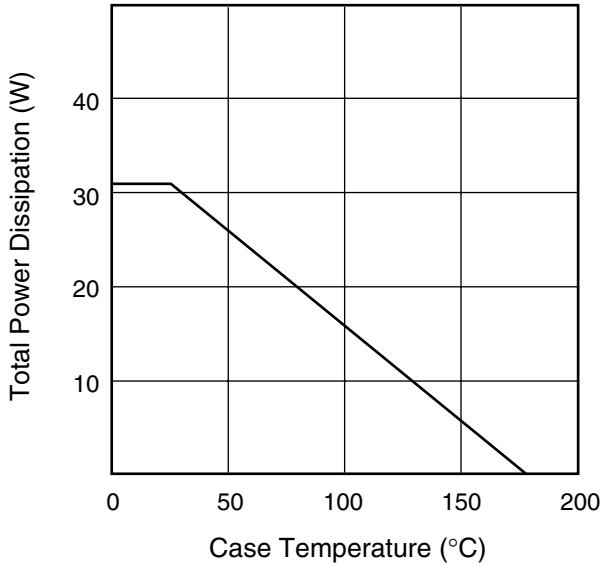
G.C.P.: Gain Compression Point



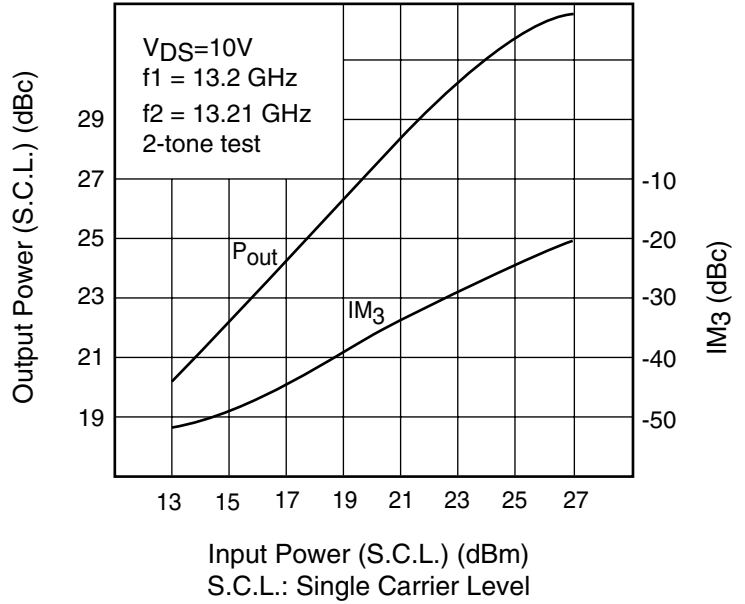
# FLM1213-6F

X, Ku-Band Internally Matched FET

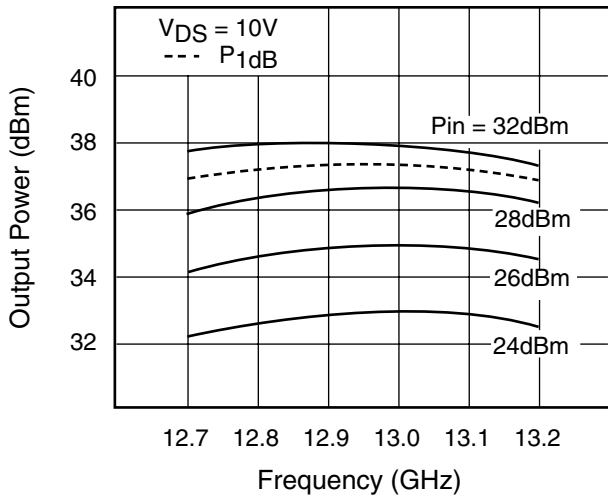
**POWER DERATING CURVE**



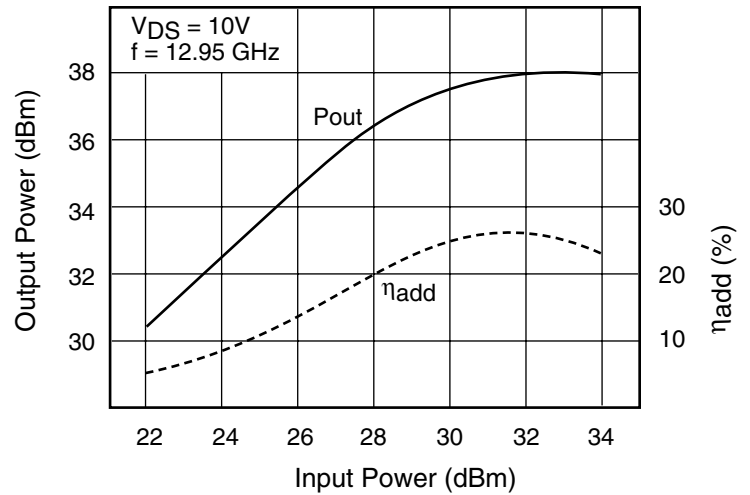
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**



**OUTPUT POWER vs. FREQUENCY**

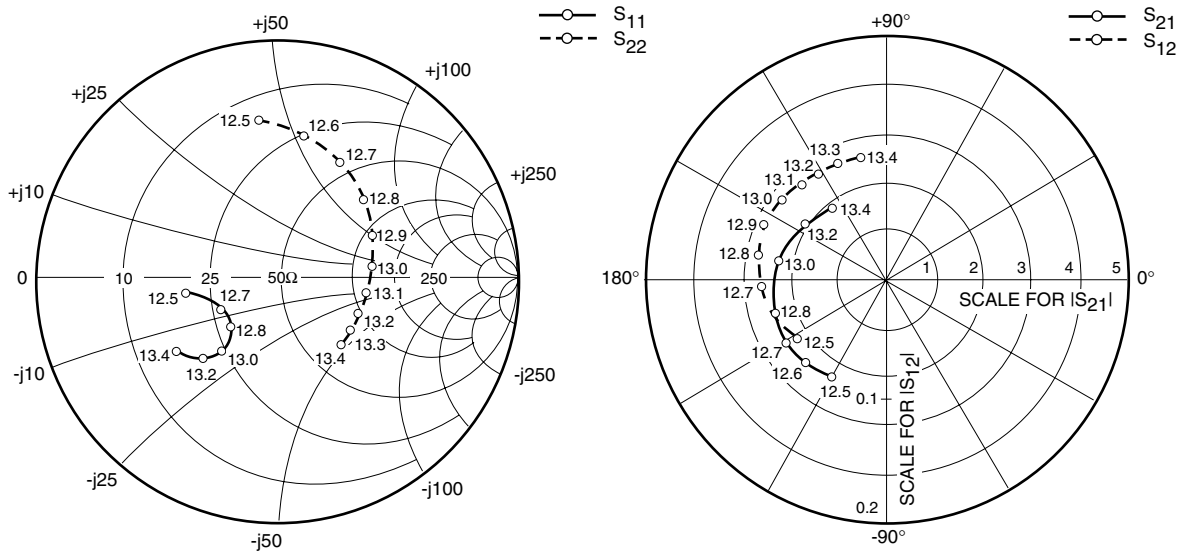


**OUTPUT POWER vs. INPUT POWER**



# FLM1213-6F

X, Ku-Band Internally Matched FET



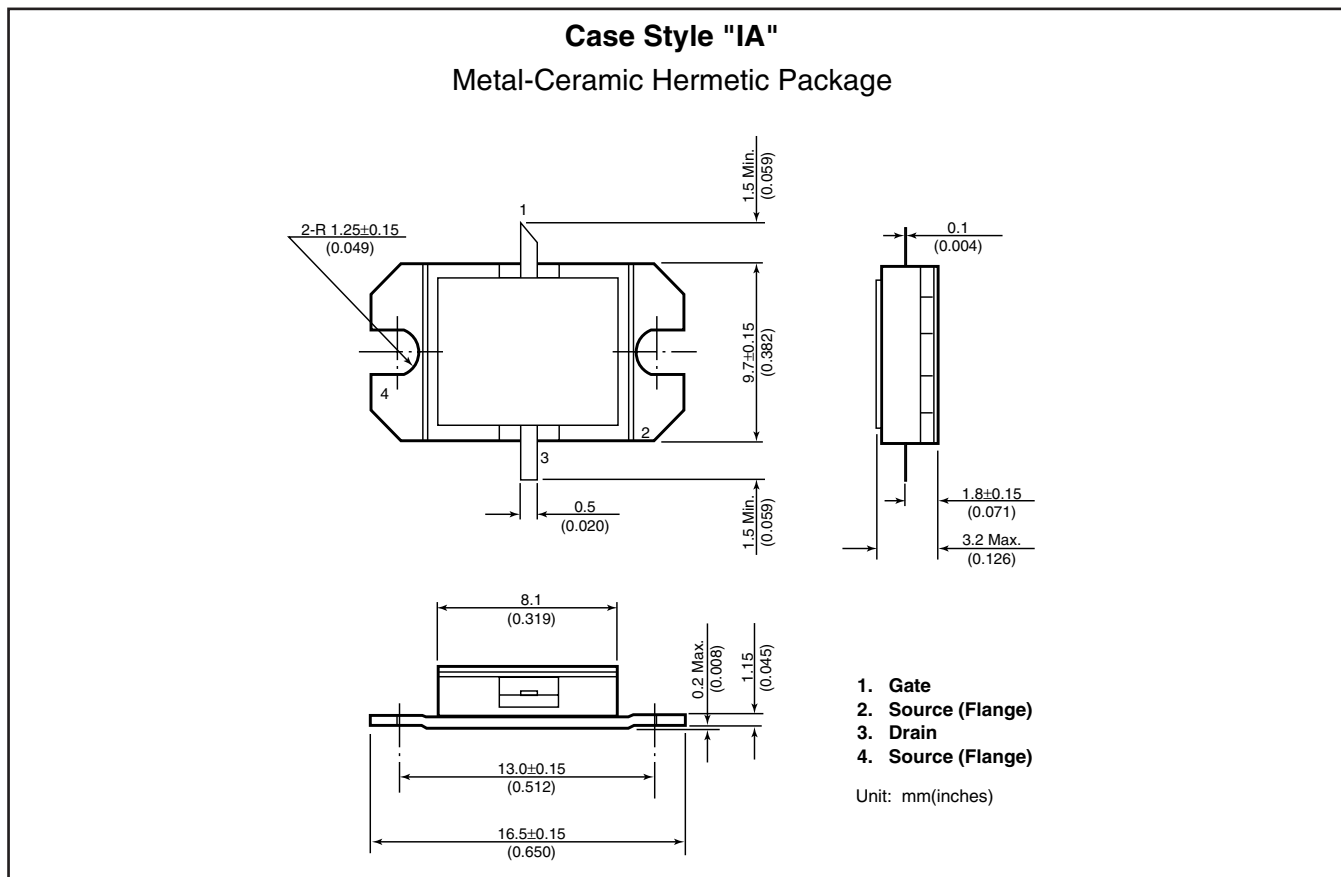
## S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 1800mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
12500	.363	-170.0	2.314	-120.0	.089	-147.7	.666	96.7
12600	.292	-162.8	2.423	-134.4	.098	-162.0	.605	79.7
12700	.259	-147.8	2.485	-149.4	.106	-177.7	.549	61.7
12800	.283	-134.2	2.462	-163.9	.109	167.6	.483	42.8
12900	.331	-127.7	2.388	-177.9	.111	154.2	.430	23.9
13000	.381	-127.4	2.291	169.6	.111	142.7	.398	6.7
13100	.426	-130.4	2.171	157.7	.108	131.1	.374	-10.3
13200	.467	-133.5	2.065	146.3	.107	121.0	.365	-24.0
13300	.493	-138.1	1.948	136.7	.106	112.3	.373	-37.4
13400	.509	-143.1	1.858	126.8	.105	102.8	.386	-47.0

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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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