

# 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:  $\eta_{add} = 28%$  (Typ.)
- Low  $IM_3 = -46dBc @ P_o = 28.5dBm$
- Broad Band: 12.7 ~ 13.2GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- 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 $T_a=25^\circ C$ )

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	$V_{DS}$		15	V
Gate-Source Voltage	$V_{GS}$		-5	V
Total Power Dissipation	$P_T$	$T_C = 25^\circ C$	42.8	W
Storage Temperature	$T_{stg}$		-65 to +175	$^\circ C$
Channel Temperature	$T_{ch}$		175	$^\circ C$

Fujitsu recommends the following conditions for the reliable operation of GaAs FETs:

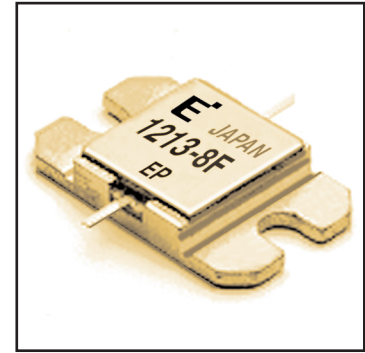
1. The drain-source operating voltage ( $V_{DS}$ ) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 32.0 and -4.4 mA respectively with gate resistance of  $100\Omega$ .

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

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	$V_{GSO}$	$I_{GS} = -170\mu A$	-5.0	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$		38.5	39.0	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$	$V_{DS} = 10V$	5.5	6.5	-	dB
Drain Current	$I_{dsr}$	$f = 12.7 \sim 13.2 GHz$ $I_{DS} = 0.65 I_{DSS}(Typ.)$	-	2200	2600	mA
Power-Added Efficiency	$\eta_{add}$	$Z_S = Z_L = 50\Omega$	-	28	-	%
Gain Flatness	$\Delta G$		-	-	$\pm 0.6$	dB
3rd Order Intermodulation Distortion	$IM_3$	$f = 13.2GHz, \Delta f = 10MHz$ 2-Tone Test $P_{out} = 28.5dBm S.C.L.$	-44	-46	-	dBc
Thermal Resistance	$R_{th}$	Channel to Case	-	3.0	3.5	$^\circ C/W$
Channel Temperature Rise	$\Delta T_{ch}$	$10V \times I_{dsr} \times R_{th}$	-	-	80	$^\circ C$

CASE STYLE: IA

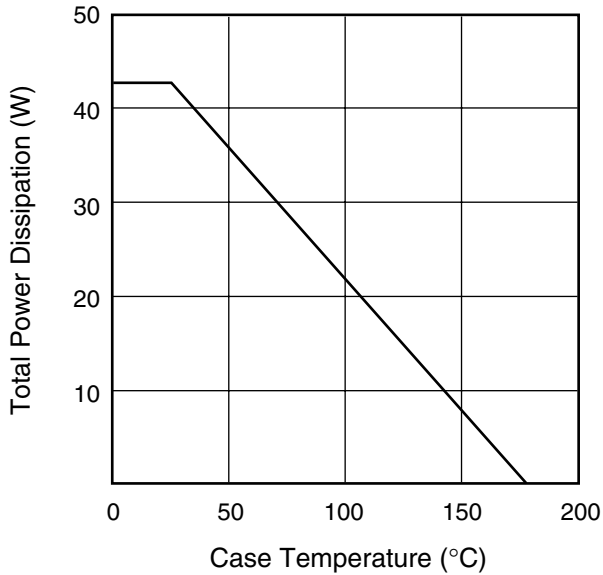
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



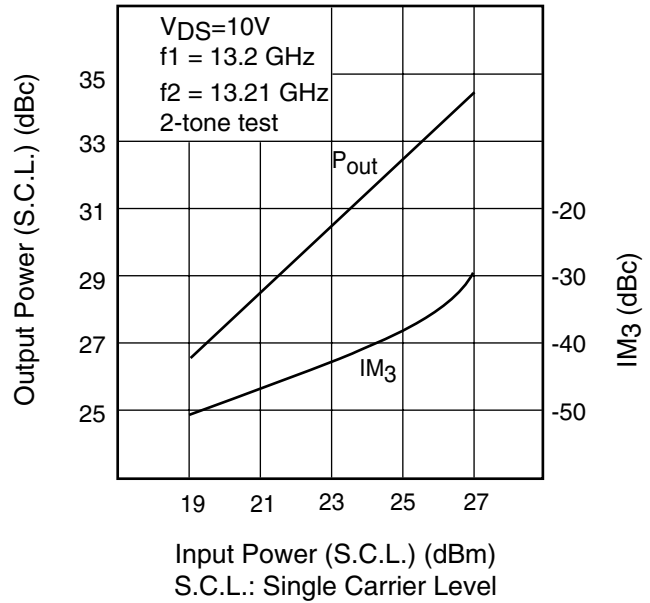
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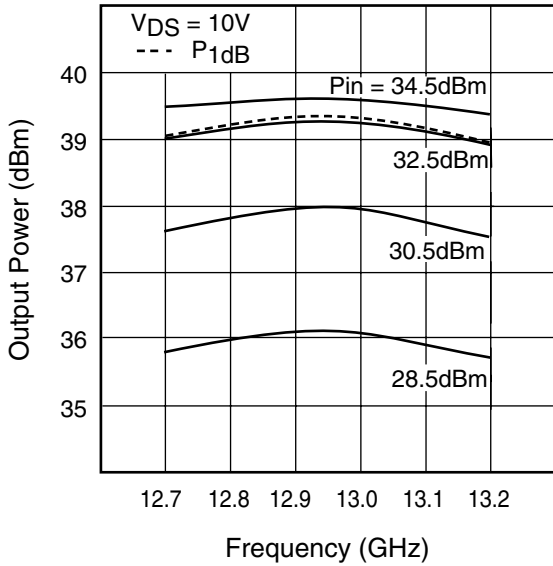
**POWER DERATING CURVE**



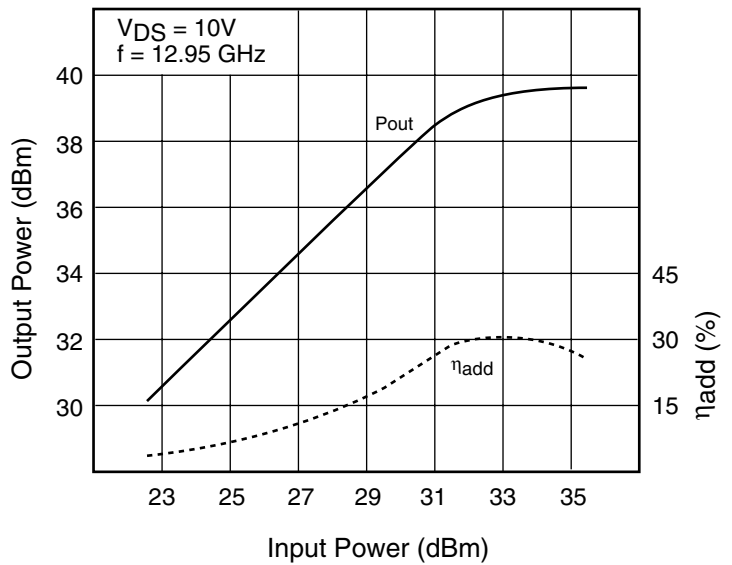
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**



**OUTPUT POWER vs. FREQUENCY**

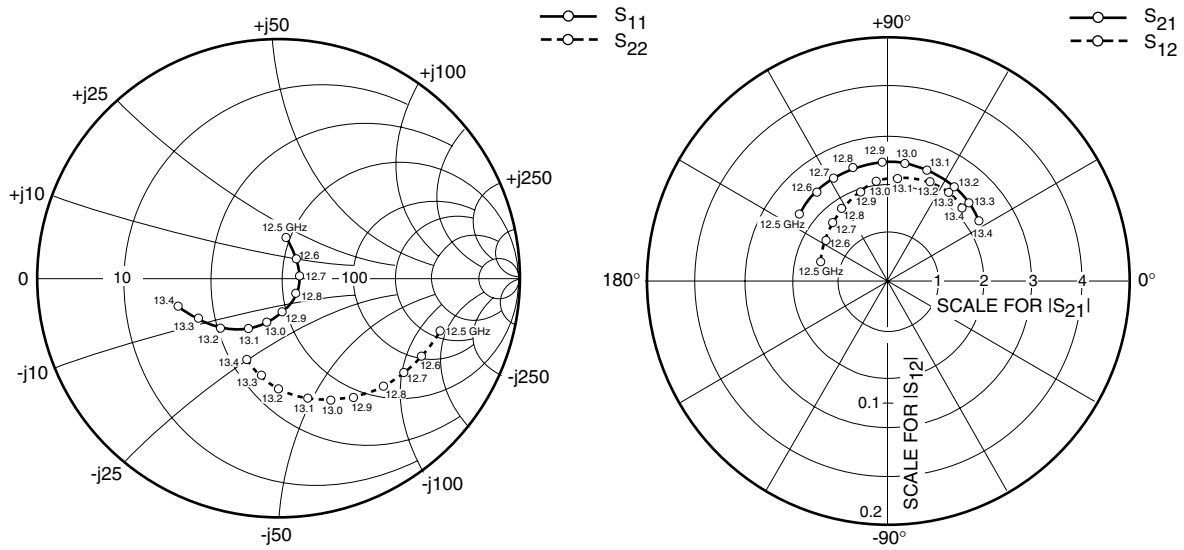


**OUTPUT POWER vs. INPUT POWER**



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## S-PARAMETERS

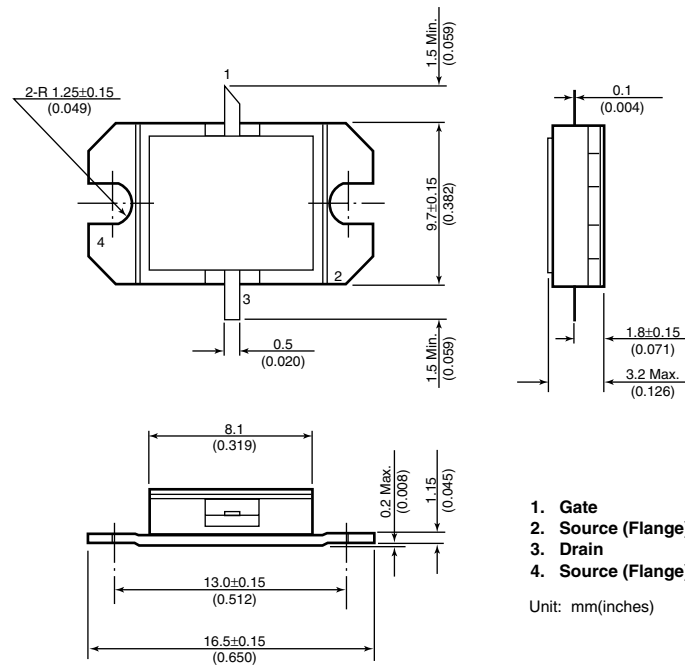
$V_{DS} = 10V, I_{DS} = 2200mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	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

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### Case Style "IA" Metal-Ceramic Hermetic Package



For further information please contact:

#### Eudyna Devices USA Inc.

2355 Zanker Rd.  
San Jose, CA 95131-1138, U.S.A.  
TEL: (408) 232-9500  
FAX: (408) 428-9111  
[www.us.eudyna.com](http://www.us.eudyna.com)

#### Eudyna Devices Europe Ltd.

Network House  
Norreys Drive  
Maidenhead, Berkshire SL6 4FJ  
United Kingdom  
TEL: +44 (0) 1628 504800  
FAX: +44 (0) 1628 504888

#### Eudyna Devices Asia Pte Ltd.

Hong Kong Branch  
Rm. 1101, Ocean Centre, 5 Canton Rd.  
Tsim Sha Tsui, Kowloon, Hong Kong  
TEL: +852-2377-0227  
FAX: +852-2377-3921

#### Eudyna Devices Inc.

Sales Division  
1, Kanai-cho, Sakae-ku  
Yokohama, 244-0845, Japan  
TEL: +81-45-853-8156  
FAX: +81-45-853-8170

### 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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