

FLM1213-6F

X,Ku-Band Internally Matched FET

FEATURES

- High Output Power: P1dB=37.5dBm(Typ.)
- High Gain: G1dB=7.0dB(Typ.)
- High PAE: η_{add} =27%(Typ.)
- Low IM3 =-46dBc(Typ.) @Po=26.5dBm
- Broad Band: 12.7~13.2GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package



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 50Ω system.

ABSOLUTE MAXIMUM RATINGS (Case Temperature Tc=25°C)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	15	V
Gate-Source Voltage	V _{GS}	-5	V
Total Power Dissipation	P _T	31.2	W
Storage Temperature	T _{stg}	-65 to +175	°C
Channel Temperature	T _{ch}	175	°C

RECOMMENDED OPERATING CONDITION (Case Temperature Tc=25°C)

Item	Symbol	Condition	Limit	Unit
DC Input Voltage	V _{DS}		≤10	V
Forward Gate Current	I _{GF}	R _G =100 ohm	≤26.0	mA
Reverse Gate Current	I _{GR}	R _G =100 ohm	≥-2.8	mA

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

Item	Symbol	Condition	Limit			Unit
			Min.	Typ.	Max.	
Drain Current	I _{DSS}	V _{DS} =5V, V _{GS} =0V	-	2800	4200	mA
Trans conductance	g _m	V _{DS} =5V, I _{DS} =1800mA	-	2350	-	mS
Pinch-off Voltage	V _p	V _{DS} =5V, I _{DS} =120mA	-0.5	-1.5	-3.0	V
Gate-Source Breakdown Voltage	V _{GSO}	I _{GS} =-120uA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P _{1dB}	V _{DS} =10V	36.5	37.5	-	dBm
Power Gain at 1dB G.C.P.	G _{1dB}	I _{DS} DC=0.60 I _{DSS} (typ.)	6.0	7.0	-	dB
Drain Current	I _{DSR}	f= 12.7 ~ 13.2 GHz	-	1650	2100	A
Power-added Efficiency	η _{add}	Z _S =Z _L =50 ohm	-	28	-	%
Gain Flatness	ΔG		-	-	1.2	dB
3rd Order Intermodulation Distortion	IM ₃	f=13.2 GHz Δf=10MHz, 2-tone Test P _{out} =25.0dBm (S.C.L.)	-42	-49	-	dBc
Thermal Resistance	R _{th}	Channel to Case	-	4.0	4.5	°C/W
Channel Temperature Rise	ΔT _{ch}	10V x I _{DSR} X R _{th}	-	-	80	°C

CASE STYLE : IA

S.C.L. : Single Carrier Level

G.C.P.: Gain Compression Point

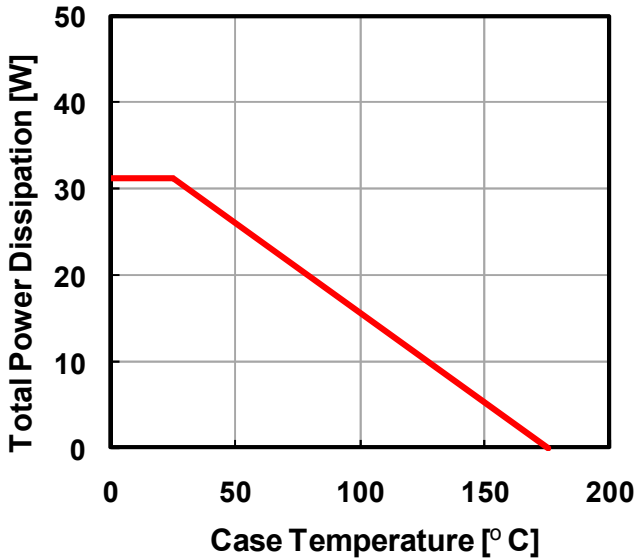
ESD	Class IIIA	4000 ~ 8000V
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Note : Based on JEDEC JESD22-A 114D (C=100pF, R=1500Ω)

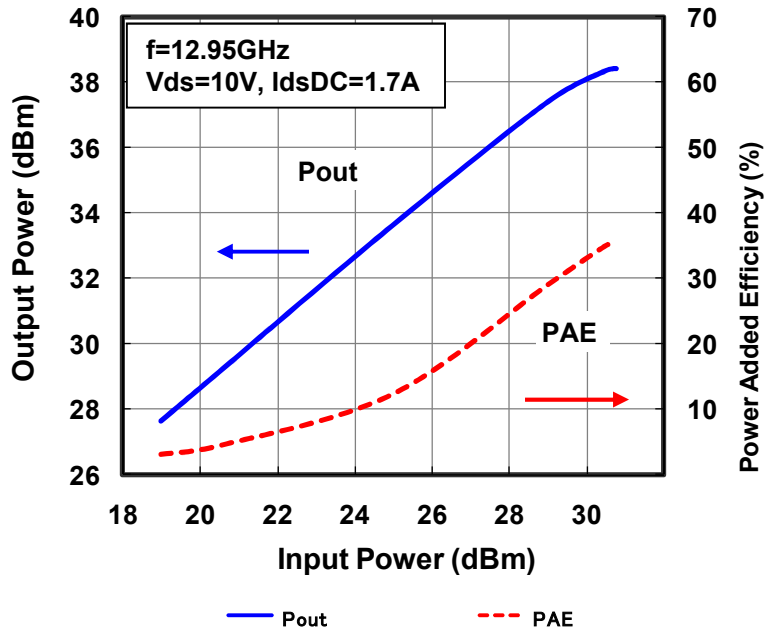
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POWER DERATING CURVE

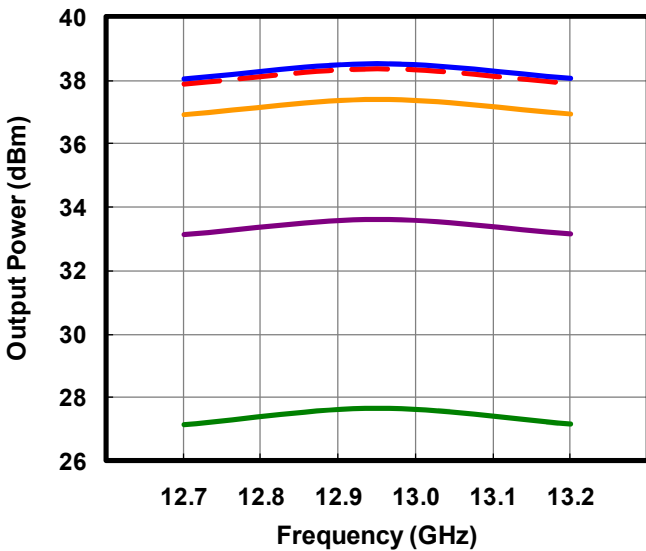


OUTPUT POWER, EFFICIENCY vs. INPUT POWER

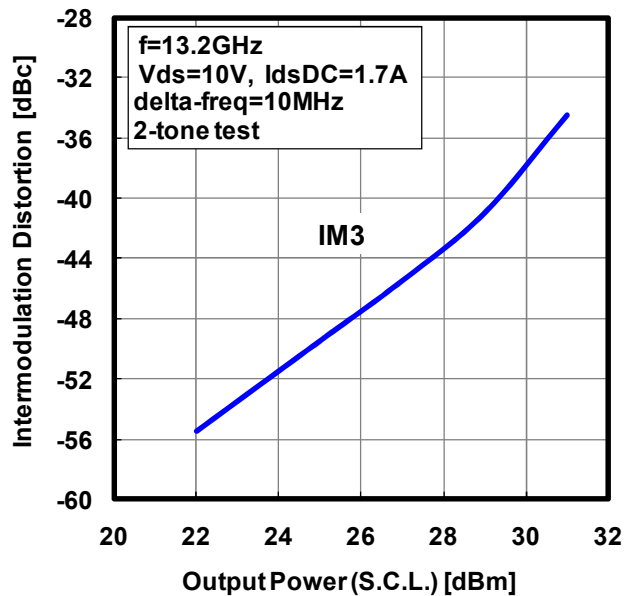


OUTPUT POWER vs. FREQUENCY

Vds=10V, Ids=1.7A



Output Power vs. IMD

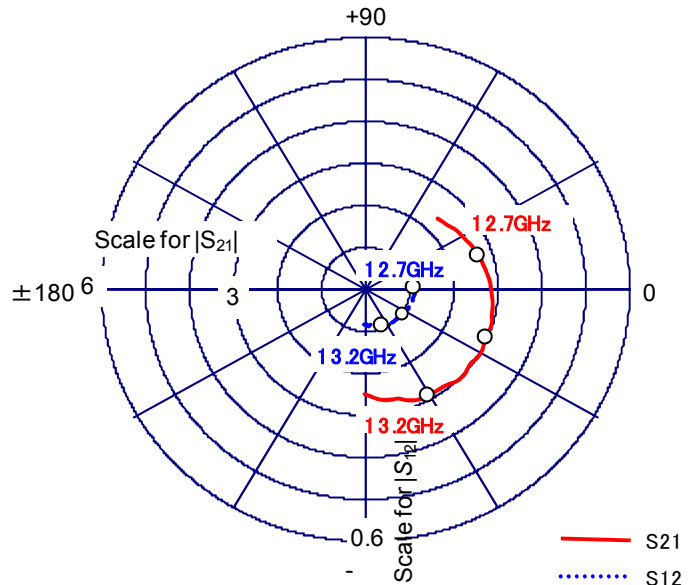
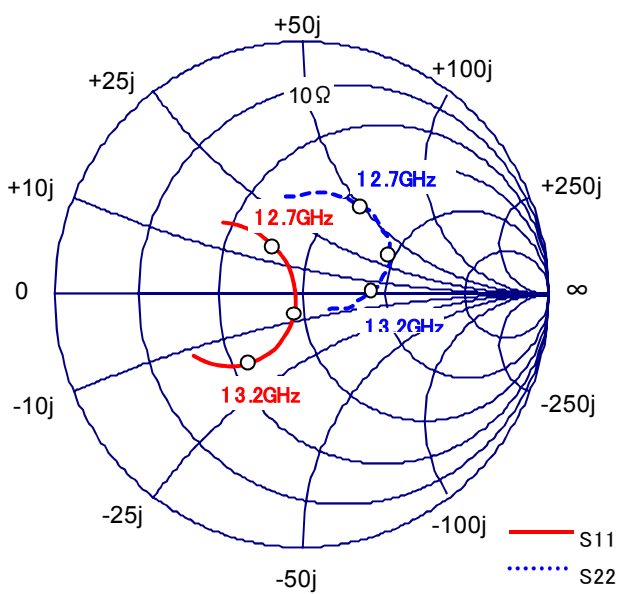


-P1dB 32dBm 29dBm 25dBm 19dBm

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S-PARAMETER



VDS=10.0V , IDS=0.60 IDSS

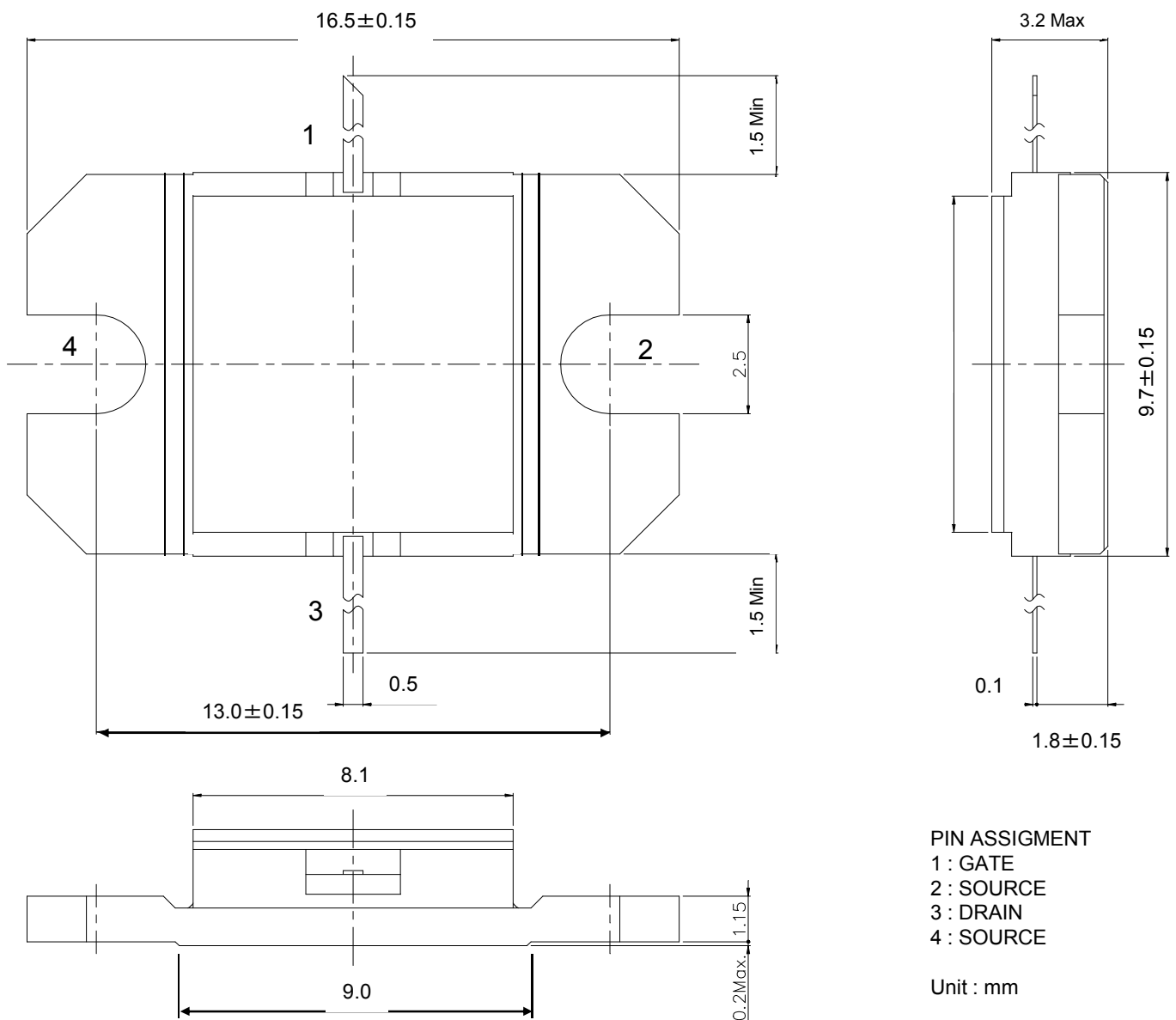
Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
12.5	0.425	138.5	2.327	45.9	0.106	33.2	0.391	99.8
12.6	0.334	130.1	2.496	32.6	0.109	18.7	0.413	75.8
12.7	0.232	122.6	2.668	18.3	0.109	3.9	0.418	56.5
12.8	0.120	117.8	2.818	3.3	0.108	-11.6	0.418	41.9
12.9	0.030	-166.3	2.922	-12.2	0.105	-25.6	0.407	30.0
13.0	0.128	-111.8	3.003	-28.8	0.101	-40.4	0.370	19.2
13.1	0.248	-118.0	2.991	-46.0	0.096	-54.7	0.324	12.0
13.2	0.350	-128.8	2.870	-61.5	0.091	-68.7	0.276	2.8
13.3	0.435	-140.0	2.661	-77.0	0.086	-83.0	0.205	-12.3
13.4	0.499	-151.1	2.472	-90.9	0.081	-98.7	0.108	-33.3

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Package Outline

CASE STYLE: IA



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CAUTION

Eudyna Devices Compound Semiconductor 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 these products 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.

