FLM0910-12F

X-Band Internally Matched FET

FEATURES

- High Output Power: P1dB=40.5dBm(Typ.)
- High Gain: G1dB=7.0dB(Typ.)
- High PAE: ηadd=25%(Typ.)
- Broad Band: 9.5~10.5GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package

DESCRIPTION

The FLM0910-12F is a power GaAs FET that is internally matched for standard communication and radar 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	PTot	57.6	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
Gate Current	I_{GS}	R_G=50Ω	≤32.0	mA
Gate Current	I_{GR}	R_G=50Ω	≥-5.6	mA

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25˚C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Drain Current	I_{DSS}	V_{DS}=5V, V_{GS}=0V	-	6.0	9.0	A
Transconductance	g_m	V_{DS}=5V, I_{DS}=3.6A	-	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}=-340uA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS}=10V f=9.5 - 10.5 GHz I_{DS}=0.5Idss (typ.) Zs=Z_L=50Ω	39.5	40.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		6.0	7.0	-	dB
Drain Current	I_{dsr}		-	3.5	4.5	A
Power-added Efficiency	η_{add}		-	25	-	%
Gain Flatness	ΔG		-	-	1.2	dB
Thermal Resistance	R_{th}	Channel to Case	-	2.3	2.6	°C/W
Channel Temperature Rise	ΔT_{ch}	10V X Idsr X Rth	-	-	80	°C

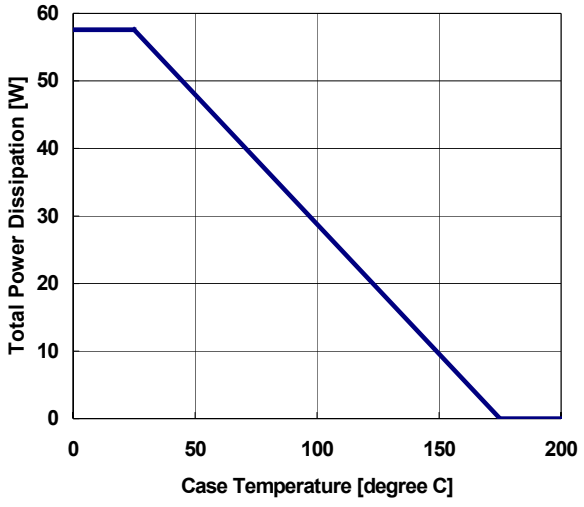
CASE STYLE: IB

G.C.P.:Gain Compression Point, S.C.L.:Single Carrier Level
Note:RF-Test is measured with Vgs-Constant Circuit.

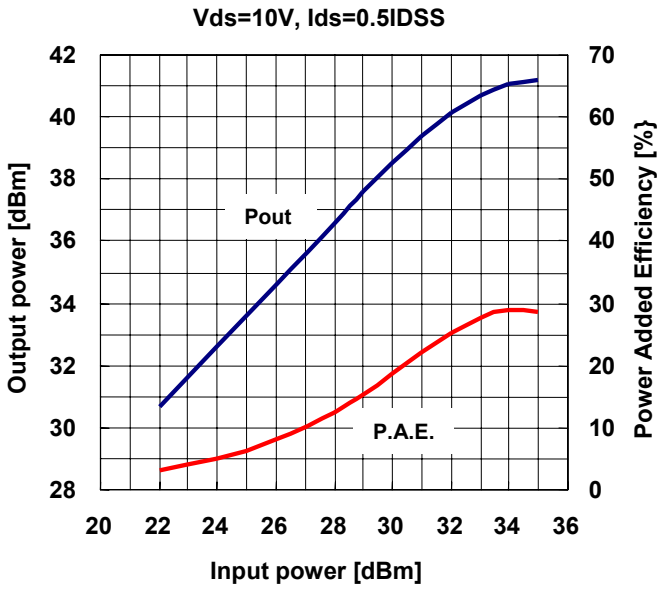
ESD	Class Ⅲ	2000V ~

Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5kΩ)

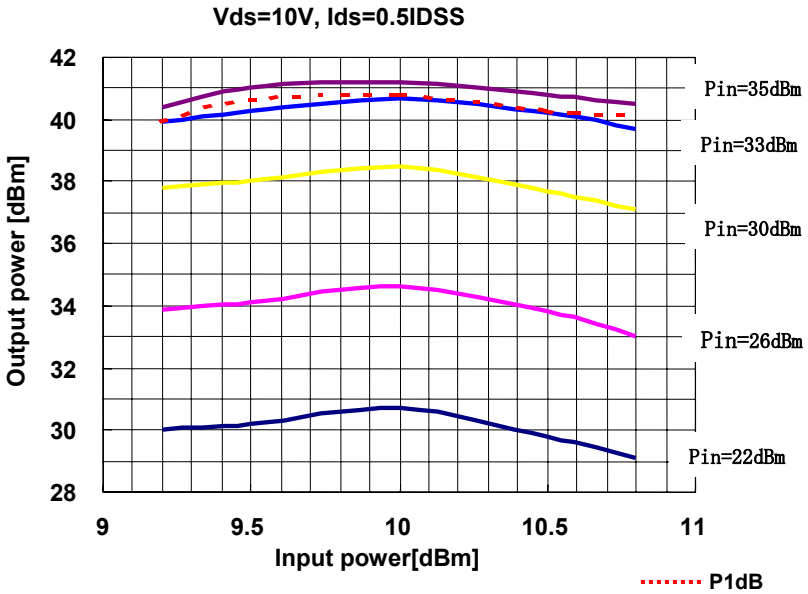
POWER DERATING CURVE



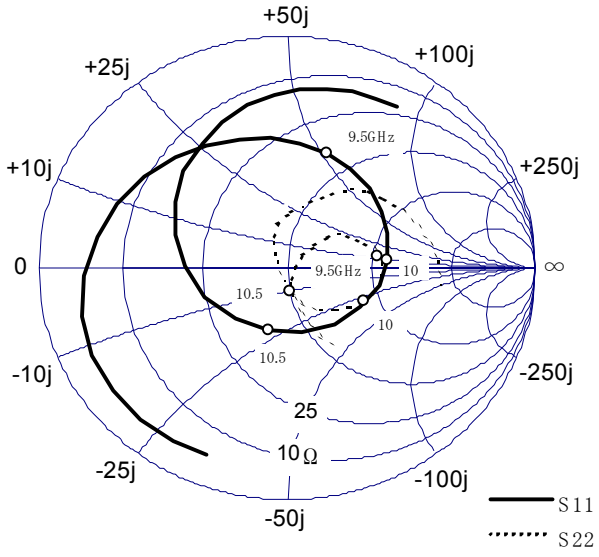
OUTPUT POWER , POWER ADDED EFFICIENCY vs. INPUT POWER

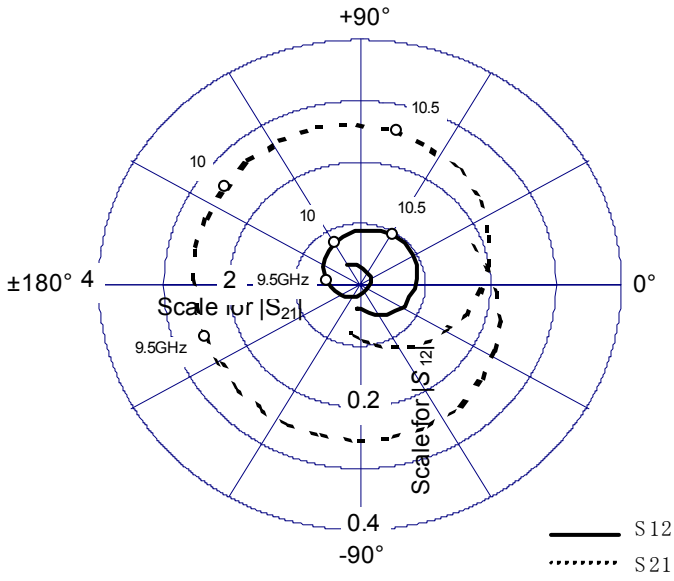


OUTPUT POWER vs. INPUT POWER



■ S-PARAMETER



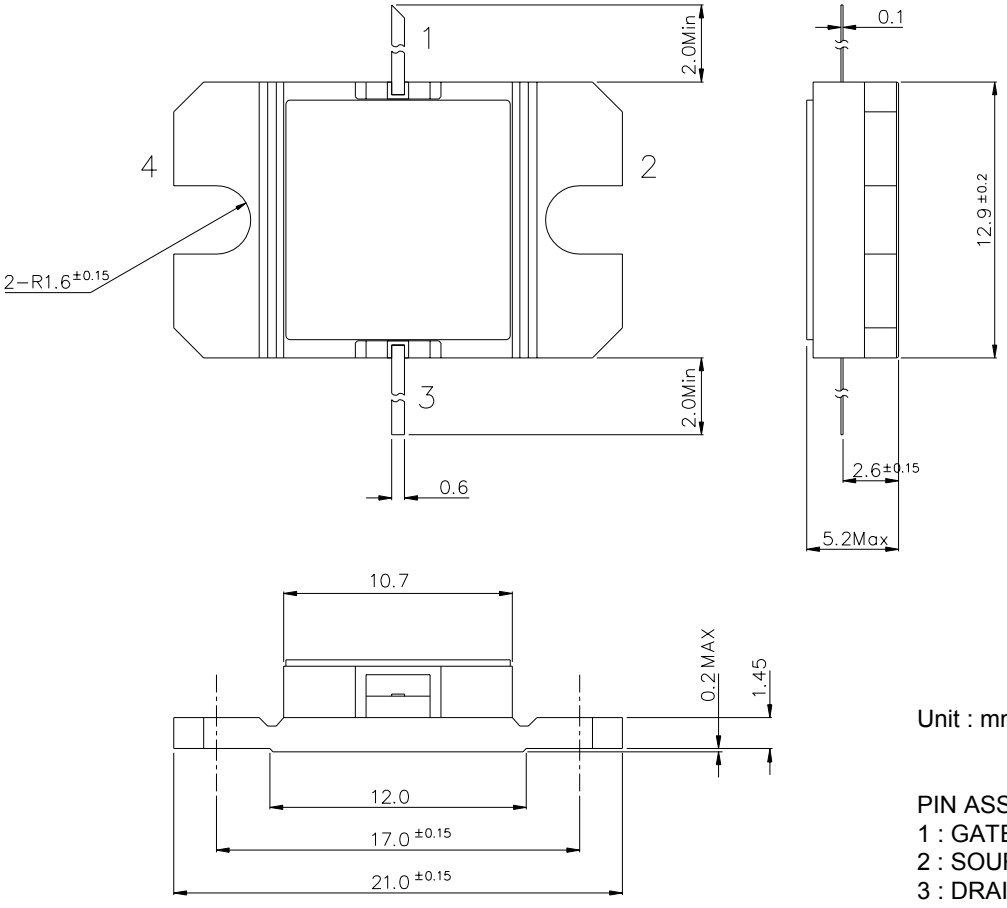


VDS=10V, IDS=0.5Idss

Freq	S11		S21		S12		S22	
[GHz]	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
9.0	0.66	133.64	2.54	-104.76	0.02	-117.97	0.25	36.41
9.1	0.62	121.51	2.53	-116.04	0.03	-137.79	0.28	30.66
9.2	0.59	109.11	2.52	-127.33	0.03	-150.61	0.30	24.58
9.3	0.56	96.79	2.51	-138.32	0.04	-165.52	0.33	18.45
9.4	0.54	84.51	2.51	-149.10	0.04	-175.45	0.36	13.07
9.5	0.52	71.65	2.52	-160.11	0.05	173.89	0.37	8.38
9.6	0.50	59.03	2.54	-171.12	0.06	162.66	0.38	2.25
9.7	0.48	46.37	2.56	177.84	0.06	153.39	0.38	-4.55
9.8	0.45	32.92	2.59	166.32	0.07	141.50	0.38	-11.38
9.9	0.43	19.89	2.61	154.59	0.07	130.54	0.37	-17.87
10	0.40	4.99	2.63	142.31	0.08	119.17	0.34	-24.57
10.1	0.38	-11.34	2.65	130.18	0.08	107.91	0.31	-32.73
10.2	0.34	-30.15	2.65	117.31	0.09	95.66	0.26	-42.86
10.3	0.30	-51.96	2.65	104.11	0.09	84.09	0.21	-55.55
10.4	0.28	-77.26	2.61	90.66	0.09	70.62	0.16	-68.18
10.5	0.28	-106.09	2.57	77.15	0.10	57.05	0.10	-84.69
10.6	0.30	-133.91	2.49	63.18	0.10	45.22	0.04	-134.34
10.7	0.35	-159.52	2.40	49.45	0.09	31.57	0.08	134.77
10.8	0.41	179.35	2.28	35.59	0.09	20.35	0.14	113.53
10.9	0.47	162.12	2.14	21.90	0.09	6.54	0.20	100.70
11	0.53	147.13	2.00	8.89	0.08	-4.01	0.25	85.90

■ Package Out Line

Case Style : IB



Unit : mm

PIN ASSIGMENT
1 : GATE
2 : SOURCE
3 : DRAIN
4 : SOURCE

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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 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.