

FLM1414-15F

X,Ku-Band Internally Matched FET

FEATURES

- High Output Power: P1dB=42.0dBm(Typ.)
- High Gain: G1dB=6.0dB(Typ.)
- High PAE: $\eta_{add}=26\%$ (Typ.)
- Broad Band: 14.0~14.5GHz
- Impedance Matched Zin/Zout = 50 Ω
- Hermetically Sealed Package



DESCRIPTION

The FLM1414-15F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 Ω 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	75	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 =50 Ω	≤ 48	mA
Reverse Gate Current	I _{GR}	R _G =50 Ω	≥ -6.6	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	-	7.2	10.0	A
Transconductance	g _m	V _{DS} =5V, I _{DS} =3600mA	-	6700	-	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} =-340 μ A	-5.0	-	-	V
Output Power at 1dB G.C.P.	P _{1dB}	V _{DS} =10V f=14.0 - 14.5 GHz I _{DS} =0.6I _{DSS} (typ) Z _s =Z _L =50 Ω	41.5	42.0	-	dBm
Power Gain at 1dB G.C.P.	G _{1dB}		5.0	6.0	-	dB
Drain Current	I _{dsr}		-	4200	5000	mA
Power-added Efficiency	η_{add}		-	26	-	%
Gain Flatness	ΔG		-	-	1.2	dB
3rd Order Intermodulation Distortion	IM ₃	f=14.5 GHz Δf =10MHz, 2-Tone Test P _{out} =30.0dBm(S.C.L.)	-42.0	-45.0	-	dBc
Thermal Resistance	R _{th}	Channel to Case	-	1.8	2.0	°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, S.C.L.:Single Carrier Level

ESD	Class III	2000V~
-----	-----------	--------

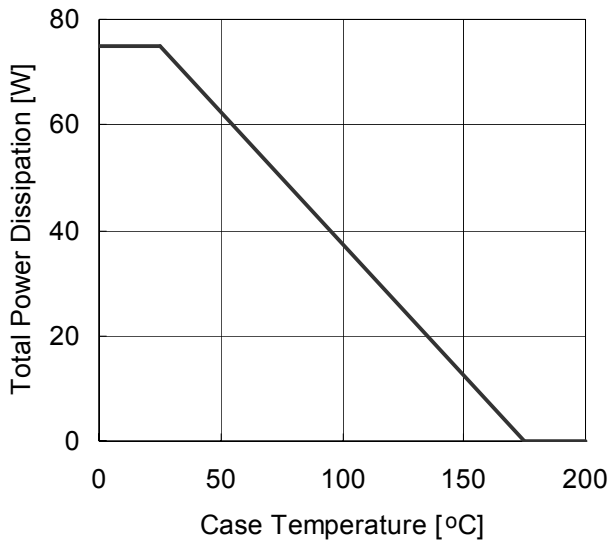
Note : Based on EIAJ ED-4701 C-111A(C=100pF, R=1.5k Ω)

Eudyna

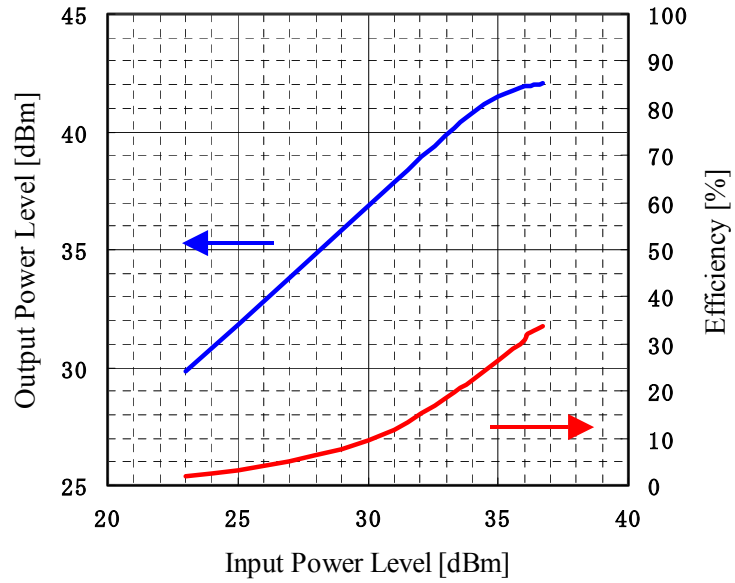
FLM1414-15F

X,Ku-Band Internally Matched FET

POWER DERATING CURVE

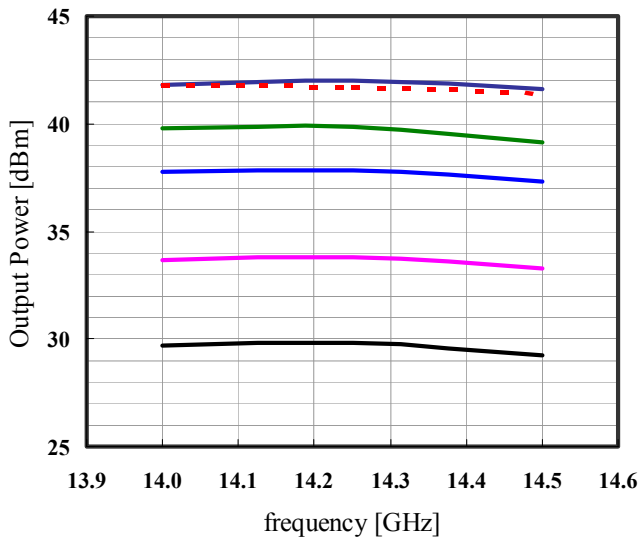


OUTPUT POWER , EFFICIENCY vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY

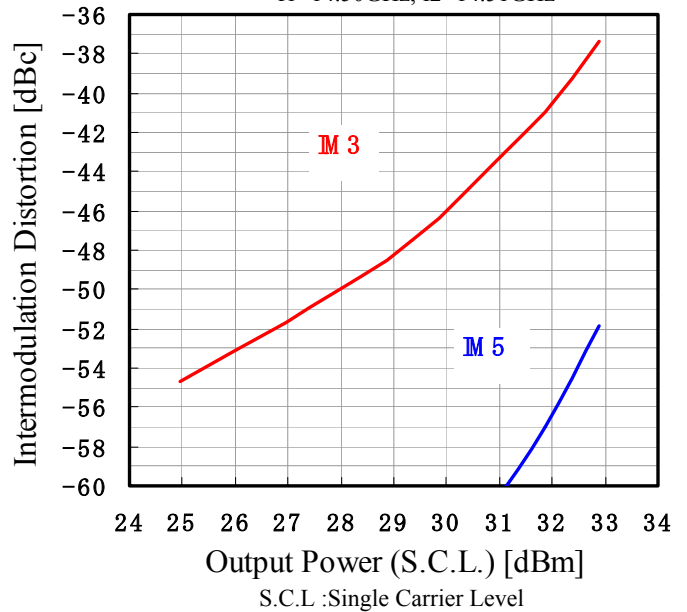
VDS=10V, IDS=0.65IDS



IMD vs OUTPUT POWER

VDS=10V, IDS=0.65IDS

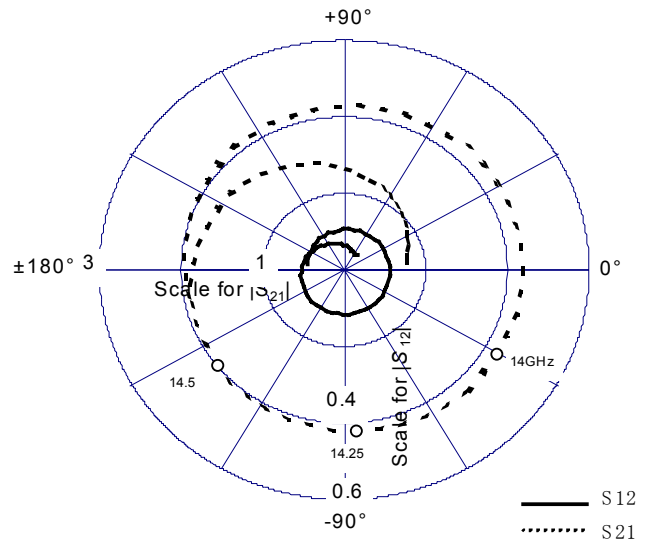
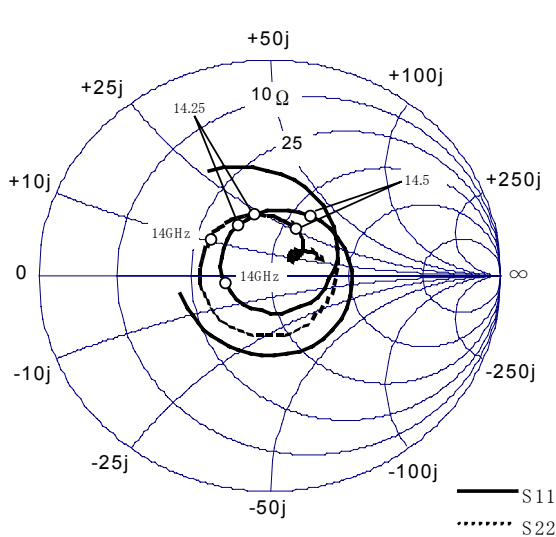
f1=14.50GHz, f2=14.51GHz



FLM1414-15F

X,Ku-Band Internally Matched FET

S-PARAMETER



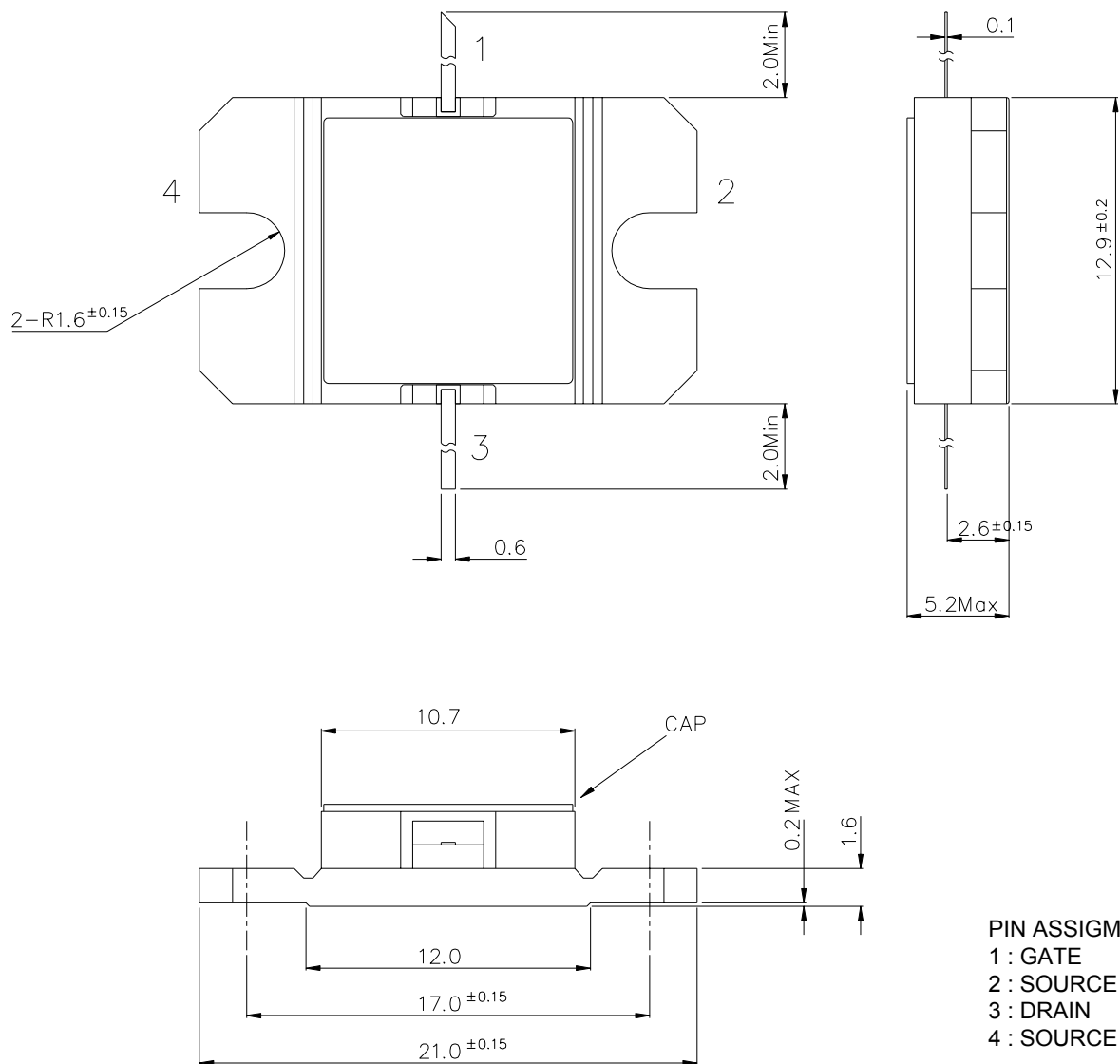
VDS=10V, IDS=4355mA

Freq [GHz]	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
11.0	0.883	78.074	0.679	-162.875	0.023	158.196	0.757	36.902
11.5	0.842	6.384	0.812	115.730	0.029	77.861	0.708	-38.816
12.0	0.805	-68.624	1.046	32.823	0.040	-0.870	0.612	-118.143
12.5	0.729	-155.313	1.503	-65.968	0.064	-91.628	0.455	143.005
13.0	0.553	118.032	1.922	-168.885	0.092	170.080	0.308	23.310
13.5	0.301	14.254	2.153	84.943	0.108	68.684	0.285	-105.214
14.0	0.193	-169.602	2.182	-30.677	0.114	-35.708	0.308	146.159
14.5	0.330	57.246	1.987	-141.198	0.113	-134.062	0.243	62.332
15.0	0.373	-69.708	1.440	104.525	0.082	126.406	0.118	45.259
15.5	0.400	-173.403	0.733	2.596	0.045	48.953	0.247	10.815
16.0	0.529	119.056	0.486	-75.751	0.034	-13.903	0.293	-37.756

FLM1414-15F

X,Ku-Band Internally Matched FET

CASE STYLE: IB



Unit : mm

FLM1414-15F

X,Ku-Band Internally Matched FET

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

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 Road
Tsim Sha Tsui, Kowloon, Hong kong
TEL: +852-2377-0227
FAX: +852-2377-3921

Eudyna Devices Inc.

1000 Kamisukiahara, showa-cho
Nakakomagun, Yamanashi
409-3883, Japan
(Kokubo Industrial Park)
TEL +81-55-275-4411
FAX +81-55-275-9461

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 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.

Eudyna Devices Inc. reserves the right to change products and specifications without notice. The information does not convey any license under rights of Eudyna Devices Inc. or others.

© 2004 Eudyna Devices USA Inc.
Printed in U.S.A.

