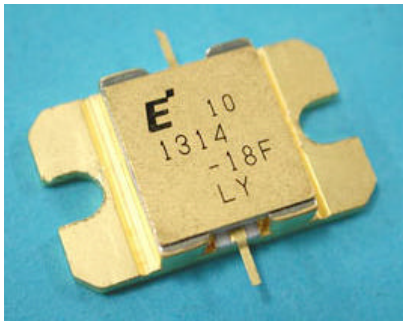
FLM1314-18F

X,Ku-Band Internally Matched FET



FEATURES

- High Output Power: P1dB=42.5dBm(Typ.)
- High Gain: G1dB=6.0dB(Typ.)
- High PAE: ηadd=27%(Typ.)
- Broad Band: 13.75~14.5GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package

DESCRIPTION

The FLM1314-18F 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	75	W
Storage Temperature	T_{stg}	-65 to +150	°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=25 ohm	≦44.6	mA
Reverse Gate Current	I_{GR}	R_G=25 ohm	≧-9.6	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	-	9.3	14	A
Trans conductance	g_m	V_{DS}=5V , I_{DS}=4.65A	-	6600	-	mS
Pinch-off Voltage	V_p	V_{DS}=5V , I_{DS}=390mA	-0.5	-1.5	-3.0	V
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS}=-390uA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS}=10V I_{DS}DC=4.0A f= 13.75 ~ 14.5 GHz Zs=Z_L=50 ohm	42.0	42.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		5.0	6.0	-	dB
Drain Current	I_{dsr}		-	5.0	6.0	A
Power-added Efficiency	η_{add}		-	27	-	%
Gain Flatness	ΔG		-	-	1.2	dB
3rd Order Intermodulation Distortion	IM_3	f=14.5 GHz Δf=10MHz, 2-tone Test Pout=36.0dBm (S.C.L.)	-25	-30	-	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}	-	-	100	°C

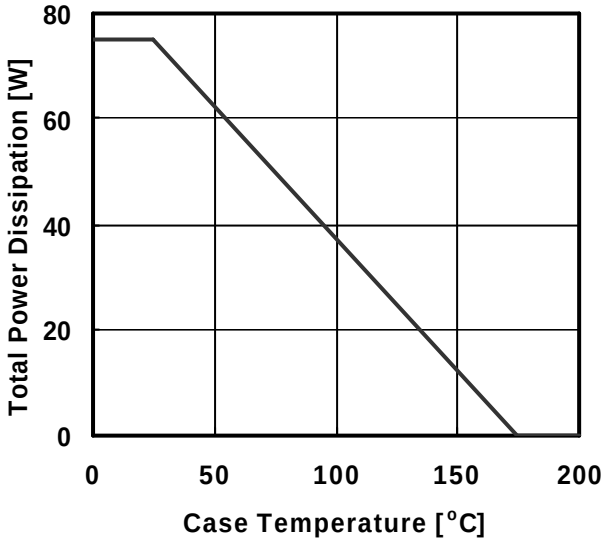
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level

CASE STYLE : IB

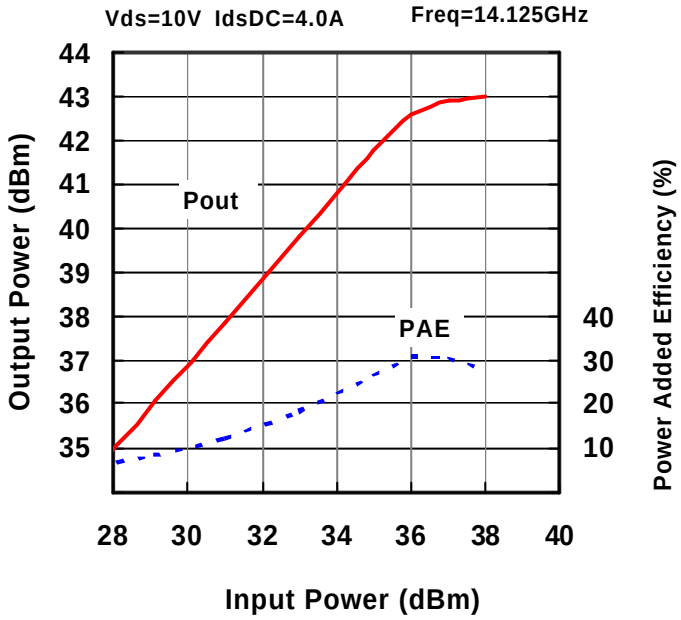
ESD	Class III	2000V ~

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

POWER DERATING CURVE

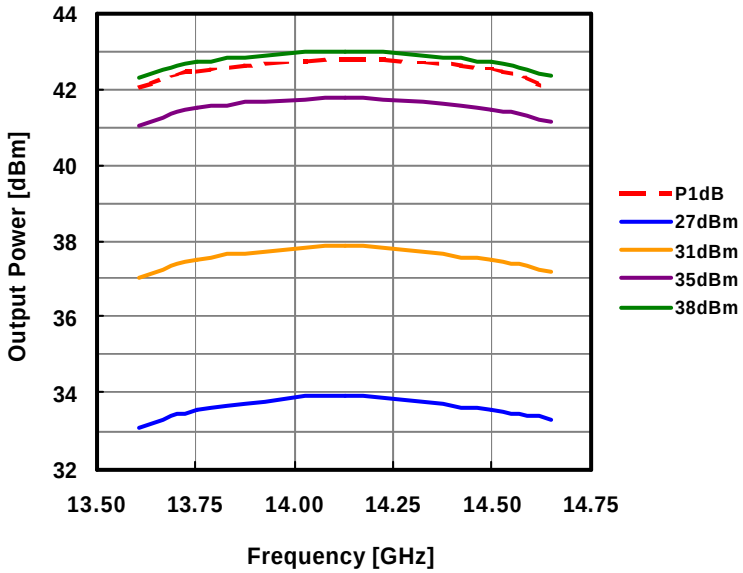


OUTPUT POWER , POWER ADDED EFFICIENCY v.s. INPUT POWER



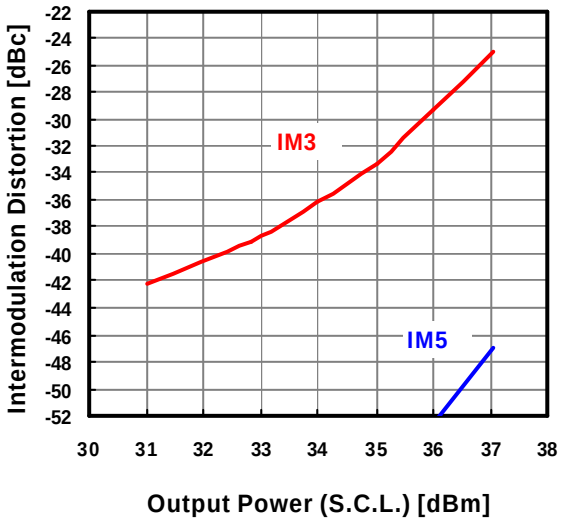
OUTPUT POWER vs. FREQUENCY

Vds=10V, IdsDC=4.0A

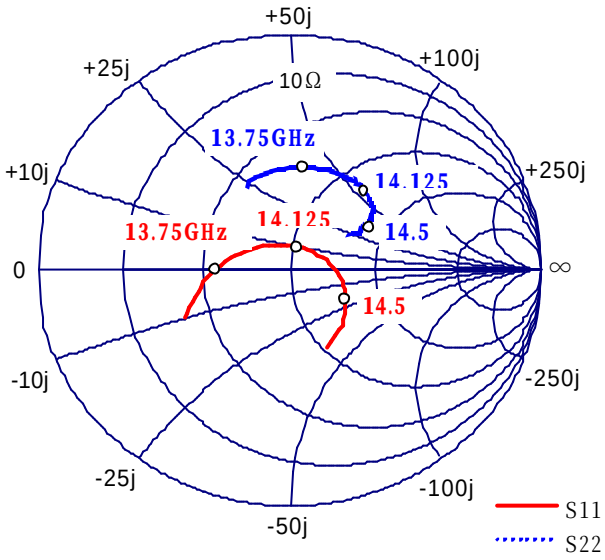


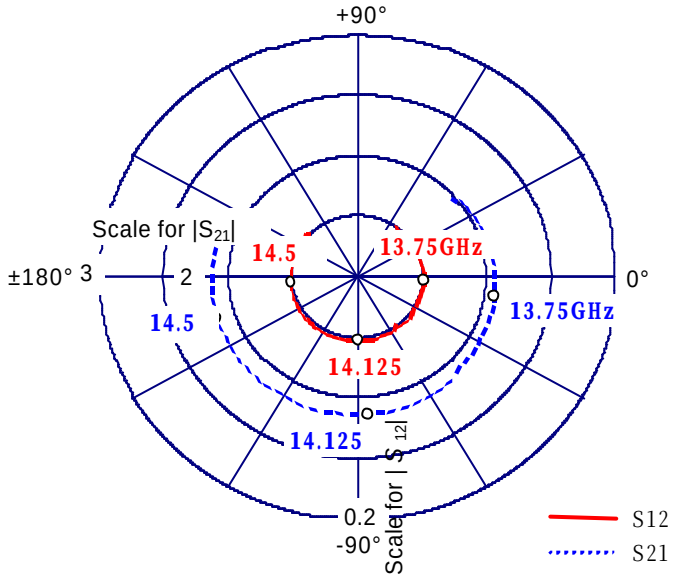
IMD vs OUTPUT POWER

Vds=10V, IdsDC=4.0A
f1=14.50GHz, f2=14.51GHz



■ S-PARAMETERS





VDS=10.0V , IDS=4.0A

FREQ.(GHz)	S11mag	S11ang	S21mag	S21ang	S12mag	S12ang	S22mag	S22ang
13.5	0.462	-154.1	1.909	51.8	0.099	41.8	0.402	115.1
13.6	0.394	-163.2	1.976	30.0	0.103	21.9	0.420	101.9
13.7	0.328	-173.9	2.026	7.7	0.107	1.5	0.434	89.3
13.8	0.255	172.6	2.059	-14.9	0.109	-18.8	0.443	77.7
13.9	0.189	156.0	2.093	-37.5	0.112	-39.3	0.452	67.7
14.0	0.130	129.2	2.105	-59.9	0.114	-59.9	0.455	58.0
14.1	0.099	85.1	2.111	-82.7	0.114	-80.4	0.449	50.5
14.2	0.115	38.8	2.105	-105.5	0.115	-100.7	0.439	44.0
14.3	0.158	8.7	2.095	-128.4	0.115	-121.2	0.418	38.0
14.4	0.209	-13.0	2.090	-151.2	0.115	-142.0	0.392	34.0
14.5	0.254	-30.8	2.089	-174.2	0.114	-162.8	0.362	29.6
14.6	0.308	-48.6	2.061	161.8	0.112	176.1	0.320	29.6
14.7	0.360	-66.5	2.028	137.5	0.110	154.2	0.274	31.7

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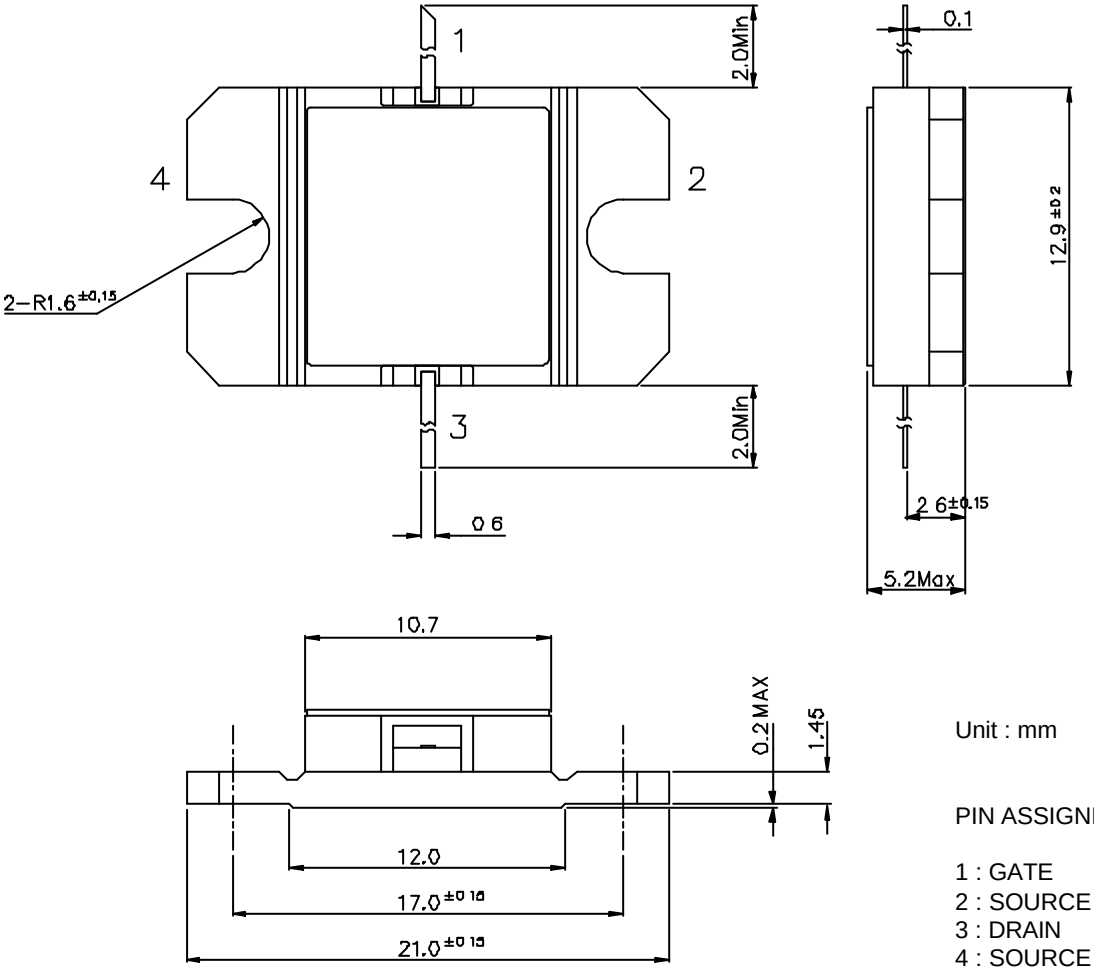
■ Package Out Line

Case Style : IB



Unit : mm

PIN ASSIGNMENT

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

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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.

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