

FLM1314-18F

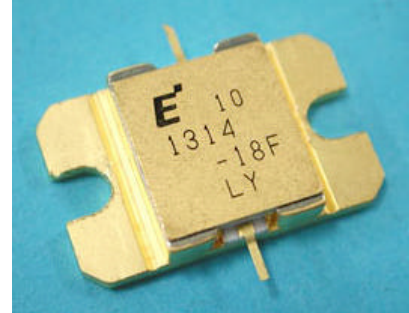
X,Ku-Band Internally Matched FET

FEATURES

- High Output Power: P1dB=42.5dBm(Typ.)
- High Gain: G1dB=6.0dB(Typ.)
- High PAE: η_{add} =27%(Typ.)
- Broad Band: 13.75~14.5GHz
- Impedance Matched Zin/Zout = 50 Ω
- 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 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 +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	42.0	42.5	-	dBm
Power Gain at 1dB G.C.P.	G _{1dB}	I _{DS} DC=4.0A	5.0	6.0	-	dB
Drain Current	I _{DSr}	f= 13.75 ~ 14.5 GHz	-	5.0	6.0	A
Power-added Efficiency	η_{add}	Z _S =Z _L =50 ohm	-	27	-	%
Gain Flatness	ΔG		-	-	1.2	dB
3rd Order Intermodulation Distortion	IM ₃	f=14.5 GHz Δf =10MHz, 2-tone Test P _{out} =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

CASE STYLE : IB

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

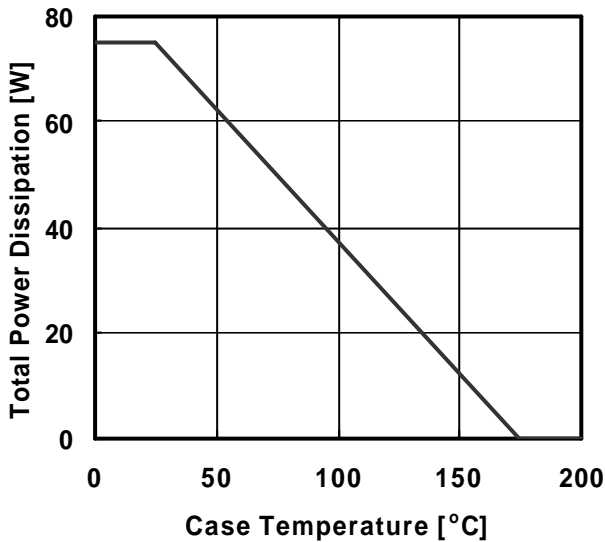
ESD	Class III	2000V ~
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Note : Based on EIAJ ED-4701 C-111A (C=100pF, R=1.5k Ω)

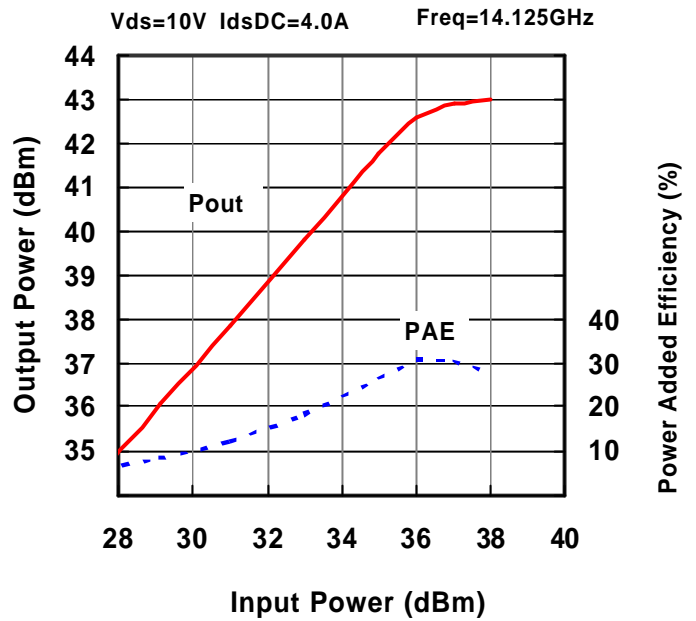
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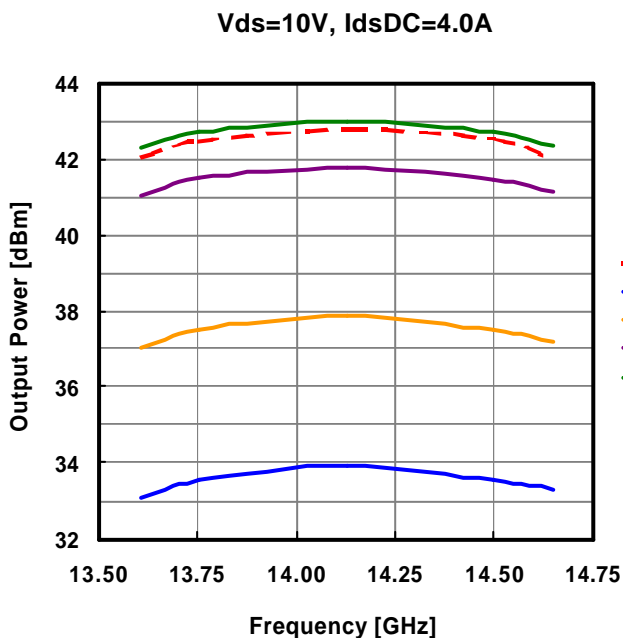
POWER DERATING CURVE



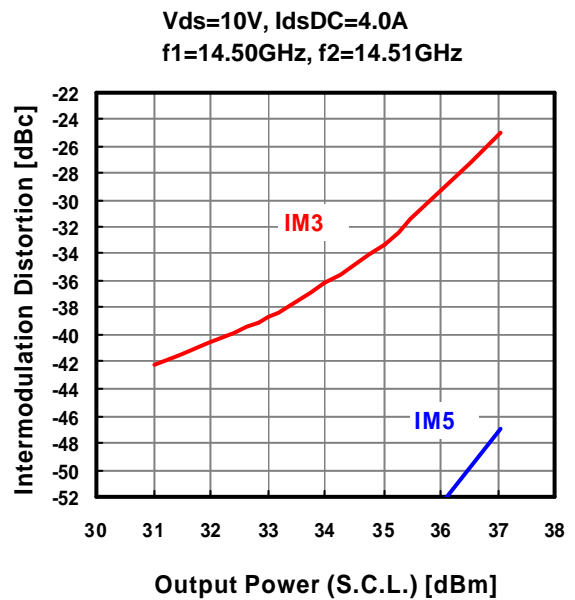
OUTPUT POWER , POWER ADDED EFFICIENCY v.s. INPUT POWER



OUTPUT POWER vs. FREQUENCY



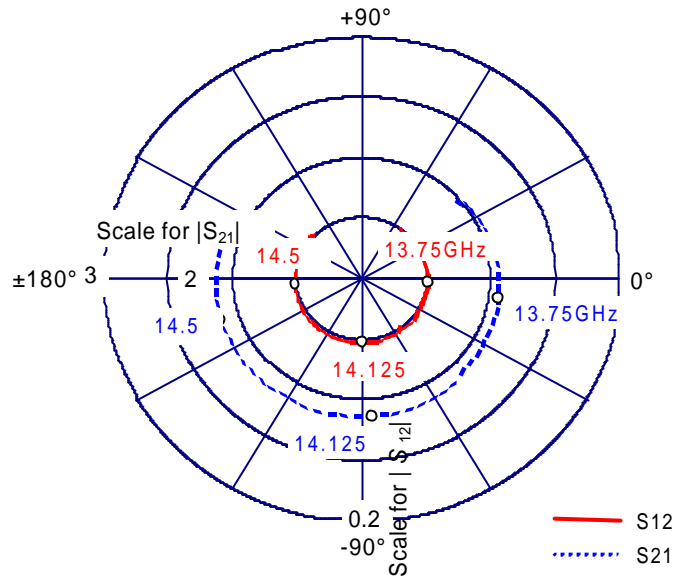
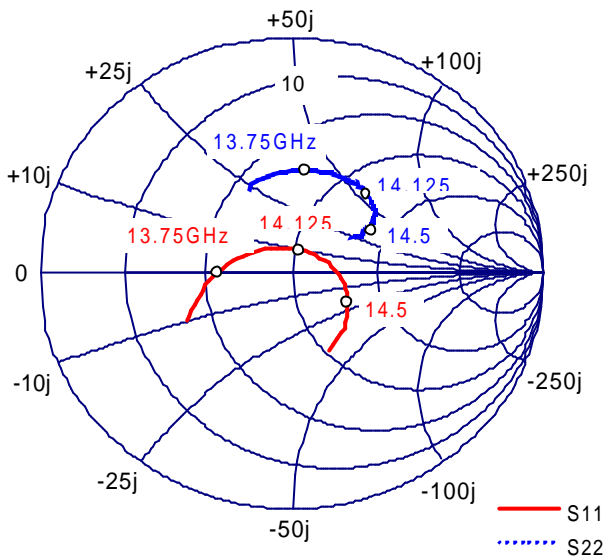
IMD vs OUTPUT POWER



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S-PARAMETERS



V_{DS}=10.0V , I_{DS}=4.0A

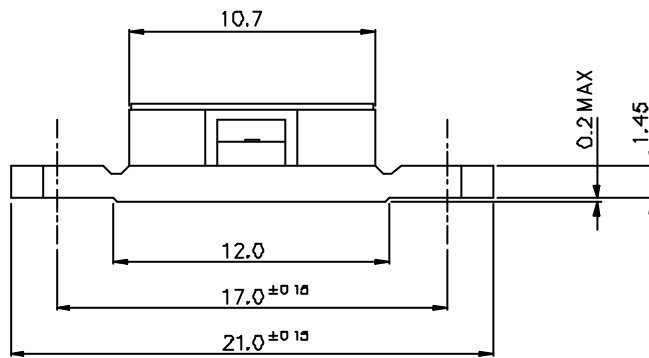
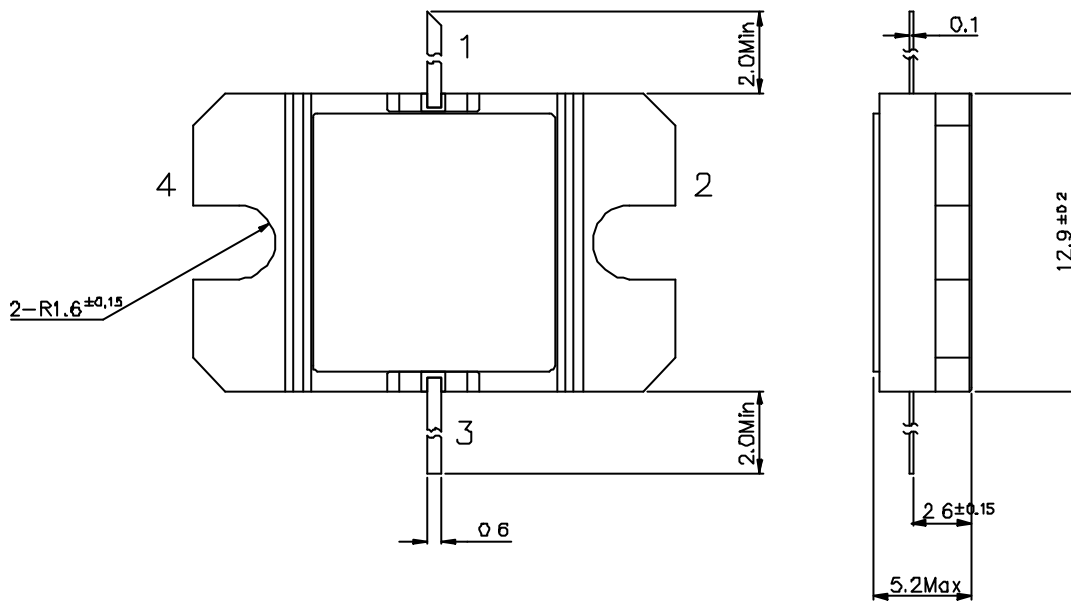
FREQ.(GHz)	S11mag	S11ang	S21mag	S21ang	S12mag	S12ang	S22mag	S22ang
13.5	0.462	-154.1	1.909	51.8	0.099	41.8	0.402	115.1
13.6	0.394	-163.2	1.976	30.0	0.103	21.9	0.420	101.9
13.7	0.328	-173.9	2.026	7.7	0.107	1.5	0.434	89.3
13.8	0.255	172.6	2.059	-14.9	0.109	-18.8	0.443	77.7
13.9	0.189	156.0	2.093	-37.5	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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