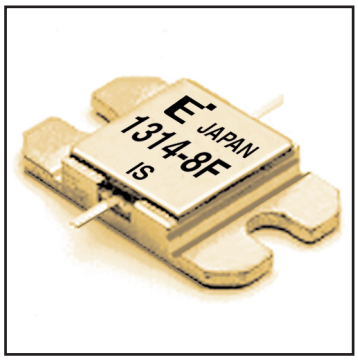
FLM1314-8F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 39.0dBm (Typ.)
- High Gain: G_{1dB} = 6.0dB (Typ.)
- High PAE: η_{add} = 28% (Typ.)
- Low IM_3 = -45dBc@Po = 28.0dBm
- Broad Band: 13.75 ~ 14.5GHz
- Impedance Matched Zin/Zout = 50Ω



DESCRIPTION

The FLM1314-8F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

ABSOLUTE MAXIMUM RATING (Ambient Temperature Ta=25°C)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		15	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_T	T_c = 25°C	45.5	W
Storage Temperature	T_{stg}		-65 to +175	°C
Channel Temperature	T_{ch}		175	°C

Fujitsu recommends the following conditions for the reliable operation of GaAs FETs:

1. The drain-source operating voltage (V_{DS}) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 32.0 and -4.4 mA respectively with gate resistance of 100Ω.

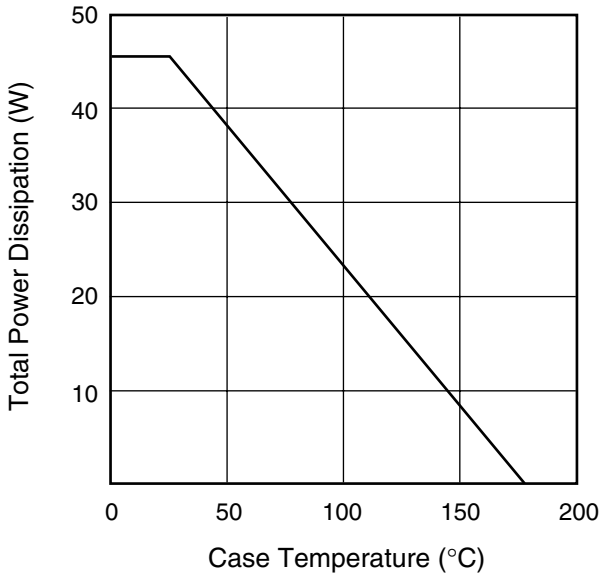
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	3900	5900	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 2400mA	-	3900	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 196mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -196μA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} =10V, I_{DS} = 0.65 I_{DSS} (Typ.), f = 13.75 ~ 14.5 GHz, Z_S=Z_L=50 ohm	38.5	39.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		5.0	6.0	-	dB
Drain Current	I_{dsr}		-	2400	3000	mA
Power-added Efficiency	ηadd		-	28	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 14.5GHz, Δf = 10 MHz 2-Tone Test P_{out} = 28.0dBm S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	2.8	3.3	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

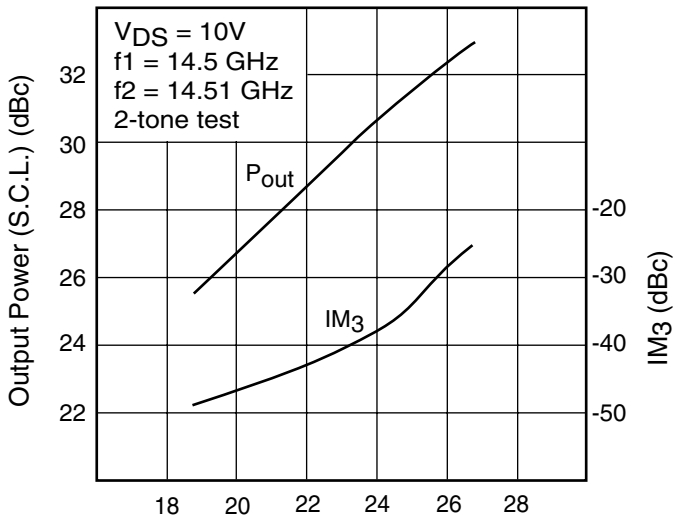
CASE STYLE: IA

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

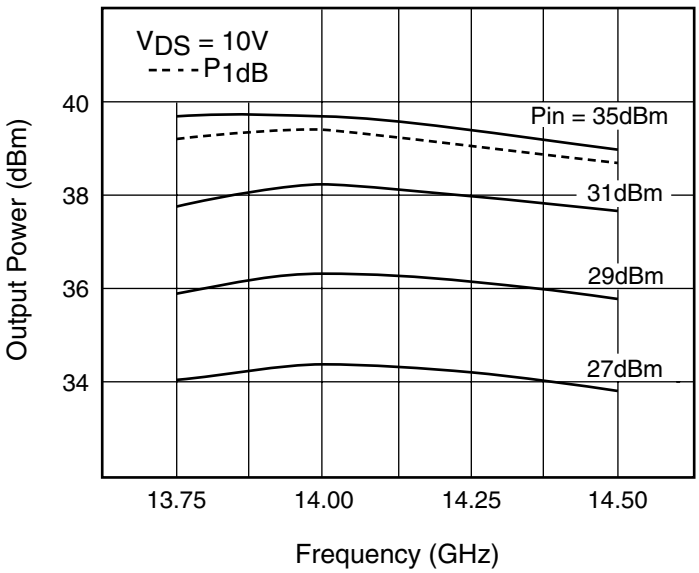
POWER DERATING CURVE



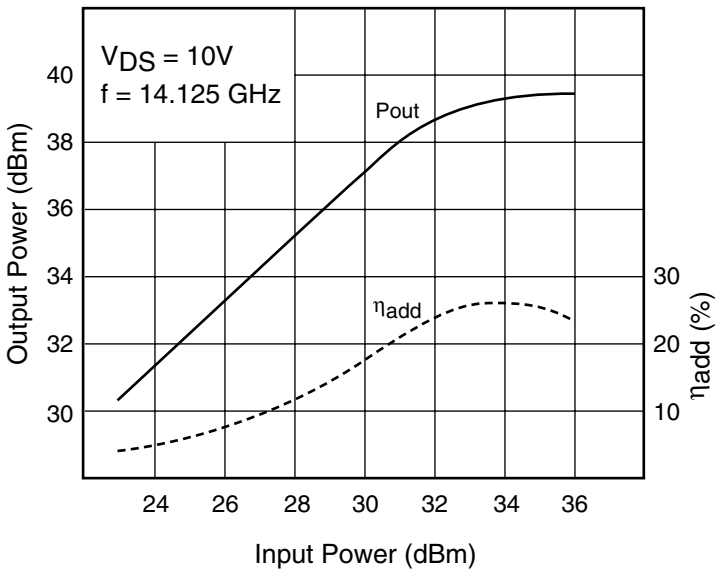
OUTPUT POWER & IM_3 vs. INPUT POWER

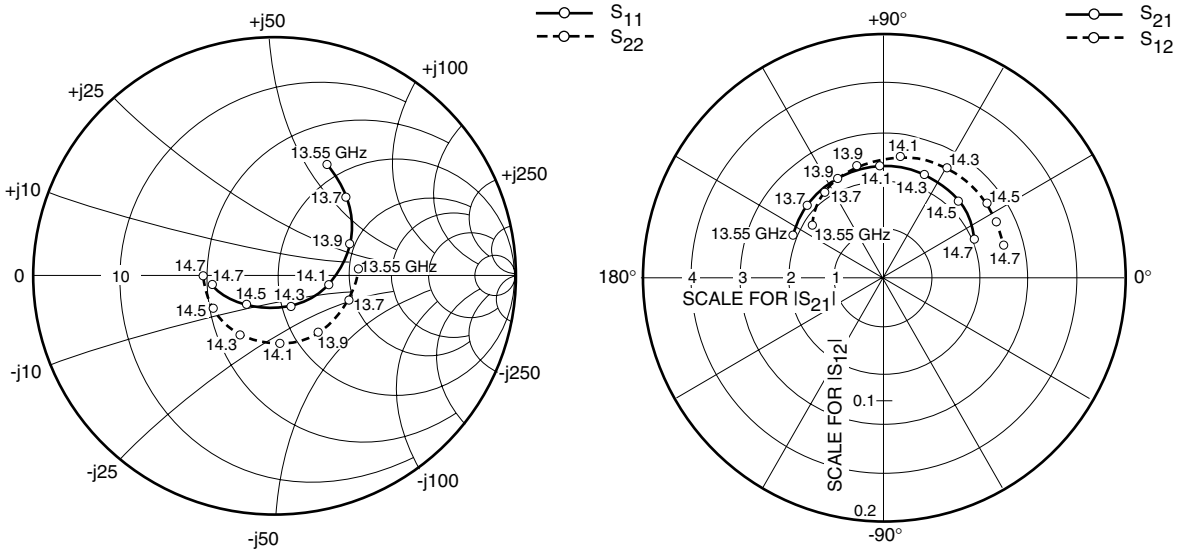


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





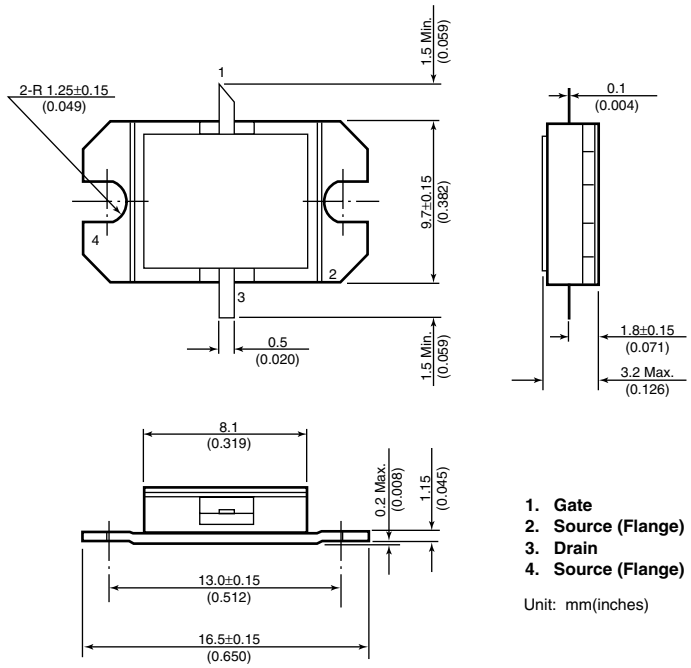
S-PARAMETERS

V_{DS} = 10V, I_{DS} = 2400mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13550	.514	64.8	2.077	154.3	.075	143.1	.350	4.6
13600	.493	59.1	2.103	148.7	.079	137.6	.337	-2.7
13650	.470	53.7	2.133	143.3	.083	131.6	.330	-11.2
13700	.443	48.0	2.171	137.5	.085	125.0	.323	-19.0
13750	.418	41.5	2.191	131.9	.088	121.5	.314	-27.5
13800	.393	35.1	2.211	126.4	.091	114.0	.306	-36.2
13850	.367	29.6	2.237	120.7	.093	110.2	.301	-44.3
13900	.339	22.7	2.261	115.1	.095	104.0	.296	-52.8
13950	.313	15.0	2.274	109.3	.093	99.3	.294	-61.3
14000	.290	7.7	2.292	103.6	.099	93.5	.292	-69.1
14050	.260	-0.2	2.302	97.9	.098	87.7	.286	-78.1
14100	.232	-9.4	2.304	92.1	.101	83.2	.284	-86.2
14150	.206	-19.3	2.308	86.2	.102	76.4	.282	-94.9
14200	.184	-31.9	2.307	80.3	.103	69.4	.281	-103.8
14250	.160	-45.5	2.301	74.6	.104	64.4	.284	-112.6
14300	.148	-62.2	2.297	68.5	.103	59.7	.285	-120.6
14350	.138	-81.2	2.281	62.8	.106	53.5	.285	-128.9
14400	.139	-98.7	2.254	57.0	.103	48.6	.285	-137.1
14450	.146	-117.3	2.225	51.4	.104	41.5	.288	-144.6
14500	.165	-133.8	2.197	45.7	.105	36.1	.289	-151.9
14550	.186	-146.0	2.163	39.9	.105	31.0	.286	-160.0
14600	.213	-156.8	2.128	34.5	.103	25.8	.287	-166.3
14650	.236	-165.0	2.083	28.9	.100	21.7	.292	-172.7
14700	.262	-172.3	2.042	23.6	.102	15.4	.293	-179.0

Case Style "IA"

Metal-Ceramic Hermetic Package



1. **Gate**
2. **Source (Flange)**
3. **Drain**
4. **Source (Flange)**

Unit: mm(inches)

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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 this product 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.**