

FLM1314-6F

X, Ku-Band Internally Matched FET

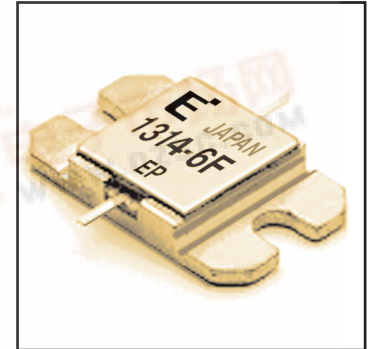
FEATURES

- High Output Power: $P_{1dB} = 37.5\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 5.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 22\%$ (Typ.)
- Broad Band: 13.75 ~ 14.5GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed

DESCRIPTION

The FLM1314-6F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

Eudyna's stringent Quality Assurance Program assures the highest reliability and consistent performance.



ABSOLUTE MAXIMUM RATING (Ambient Temperature $T_a=25^\circ\text{C}$)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DS}		15	V
Gate-Source Voltage	V_{GS}		-5	V
Total Power Dissipation	P_T	$T_C = 25^\circ\text{C}$	31.2	W
Storage Temperature	T_{stg}		-65 to +175	$^\circ\text{C}$
Channel Temperature	T_{ch}		175	$^\circ\text{C}$

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 26.0 and -2.8 mA respectively with gate resistance of 100 Ω .

ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	2800	4200	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 1800\text{mA}$	-	2350	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 120\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -120\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS}$ (Typ.), $f = 13.75 \sim 14.5\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$	36.5	37.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		5.0	5.5	-	dB
Drain Current	I_{dsr}		-	1800	2100	mA
Power-added Efficiency	η_{add}		-	22	-	%
Gain Flatness	ΔG		-	-	± 0.6	dB
3rd Order Intermodulation Distortion	IM_3	$f = 14.5\text{GHz}, \Delta f = 10\text{MHz}$ 2-Tone Test $P_{out} = 26.5\text{dBm S.C.L.}$	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	4.0	4.5	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

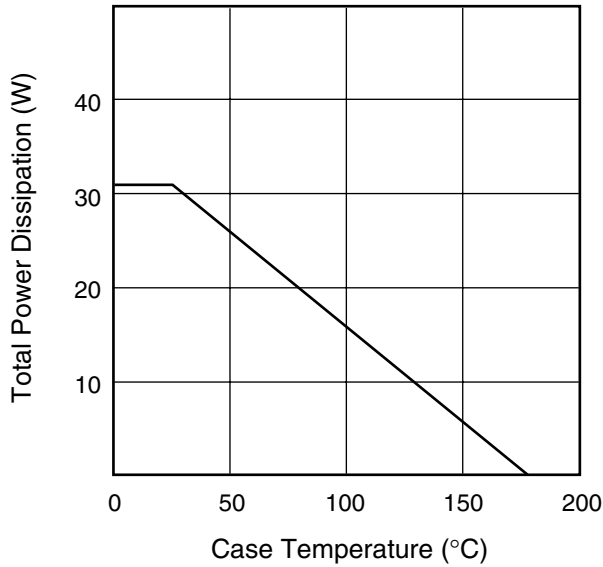
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



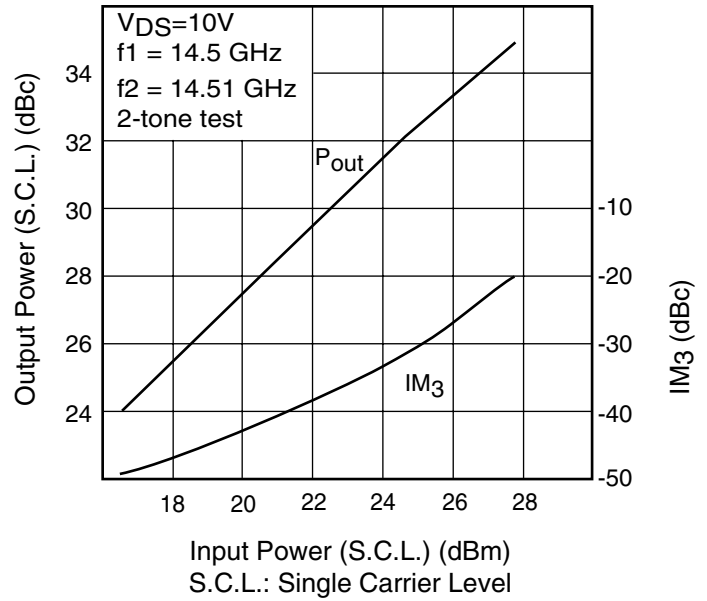
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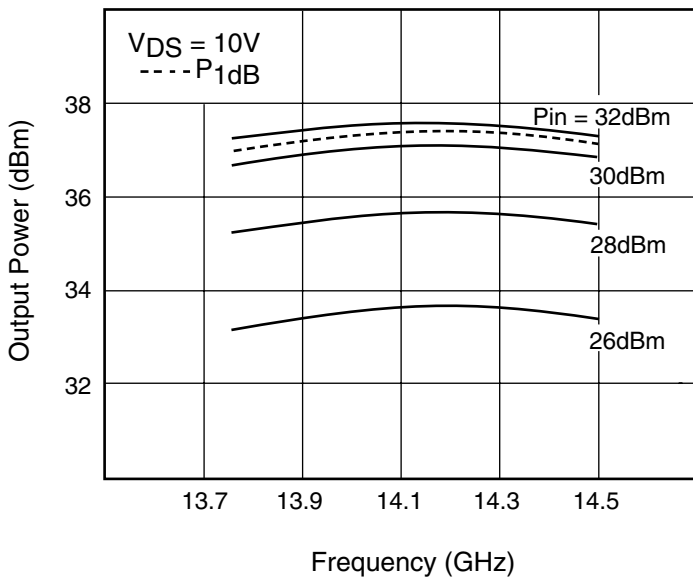
POWER DERATING CURVE



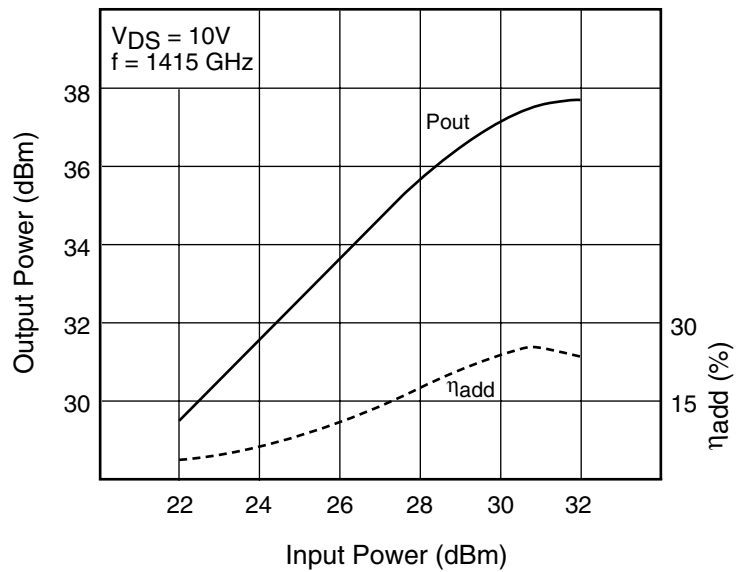
OUTPUT POWER & IM₃ vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY

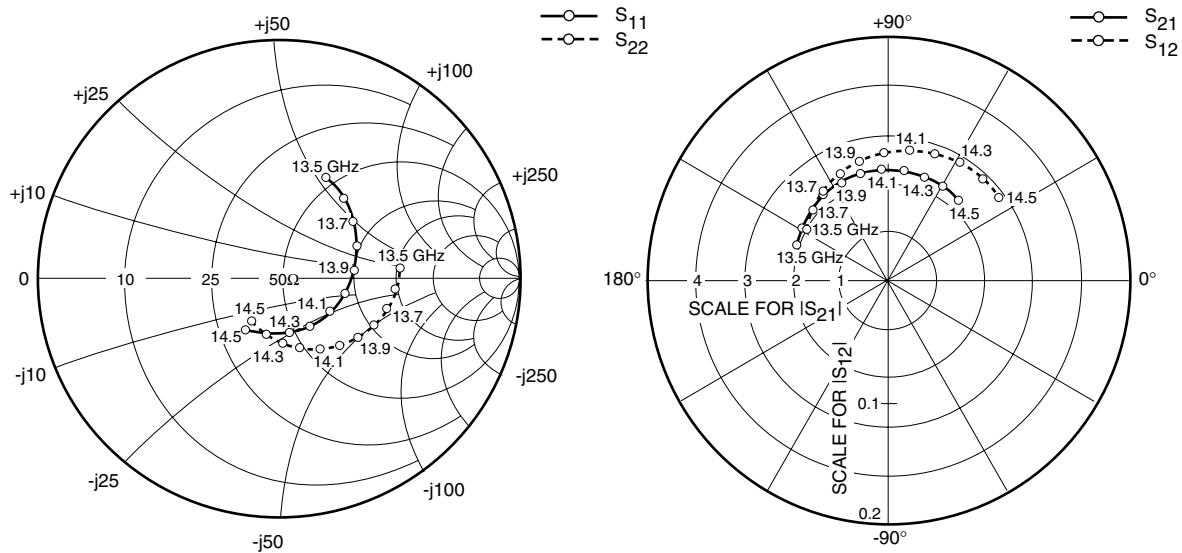


OUTPUT POWER vs. INPUT POWER



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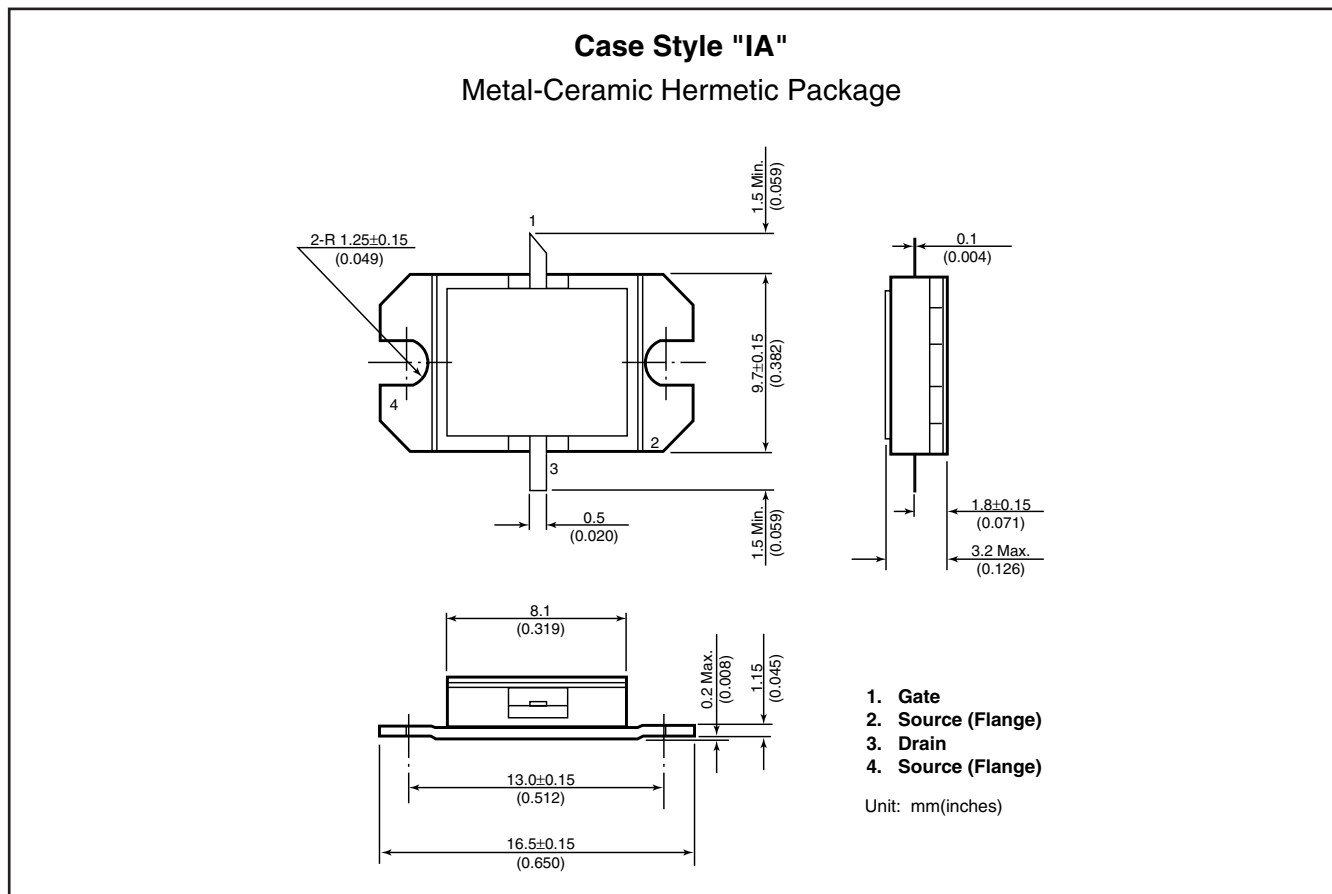
S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 1800mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13500	.467	64.7	2.029	159.9	.080	148.2	.500	5.2
13600	.432	51.8	2.085	149.3	.085	137.4	.482	-5.2
13700	.393	37.8	2.143	138.5	.091	126.7	.465	-15.9
13800	.356	22.9	2.191	127.5	.096	114.5	.440	-26.8
13900	.319	6.2	2.226	116.3	.101	103.8	.413	-37.2
14000	.283	-12.0	2.255	105.2	.106	92.5	.379	-48.3
14100	.256	-32.6	2.266	93.9	.109	81.3	.344	-59.7
14200	.234	-55.5	2.267	82.4	.111	70.2	.307	-72.7
14300	.232	-78.9	2.251	71.1	.114	59.1	.271	-86.9
14400	.237	-101.4	2.219	59.9	.114	47.2	.240	-102.9
14500	.252	-122.2	2.176	48.8	.114	37.2	.214	-121.4

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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.

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