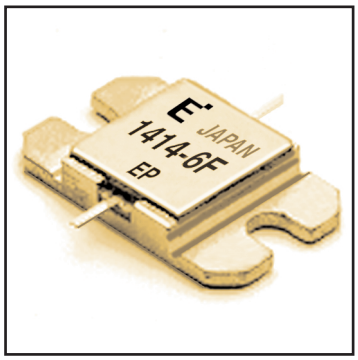
FLM1414-6F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 37.5dBm (Typ.)
- High Gain: G_{1dB} = 6.5dB (Typ.)
- High PAE: η_{add} = 26% (Typ.)
- Low IM_3 = -46dBc@Po = 26.5dBm (Typ.)
- Broad Band: 14.0 ~ 14.5GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed



DESCRIPTION

The FLM1414-6F 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 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	31.2	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 26.0 and -2.8 mA respectively with gate resistance of 100Ω.

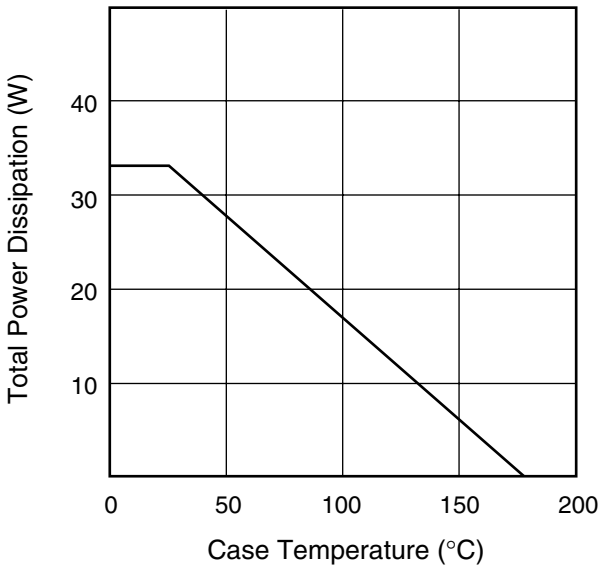
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	2800	4200	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 1800mA	-	2350	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 120mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -120μA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} = 10V, I_{DS} = 0.6 I_{DSS}(Typ.), f = 14.0 ~ 14.5 GHz, Z_S = Z_L = 50Ω	36.5	37.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		6.0	6.5	-	dB
Drain Current	I_{dsr}		-	1800	2100	mA
Power-Added Efficiency	η_{add}		-	24	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 14.5GHz, Δf = 10MHz 2-Tone Test Pout = 26.5dBm S.C.L.	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	4.0	4.5	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

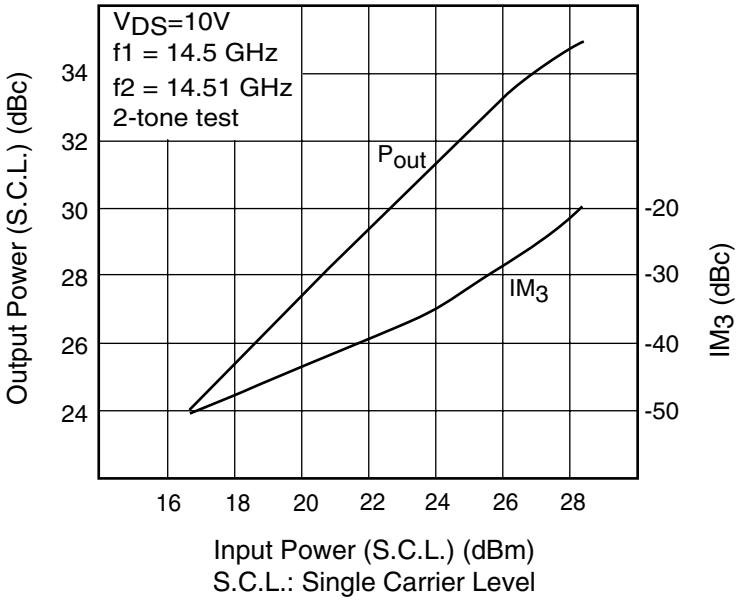
CASE STYLE: IA

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

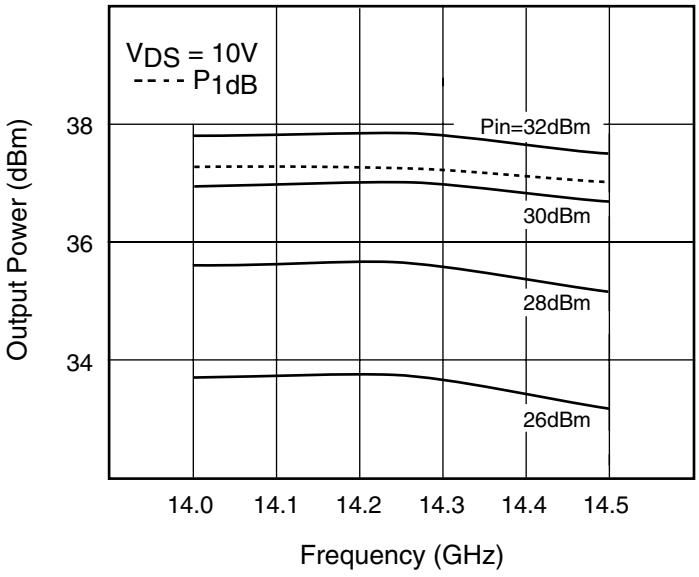
POWER DERATING CURVE



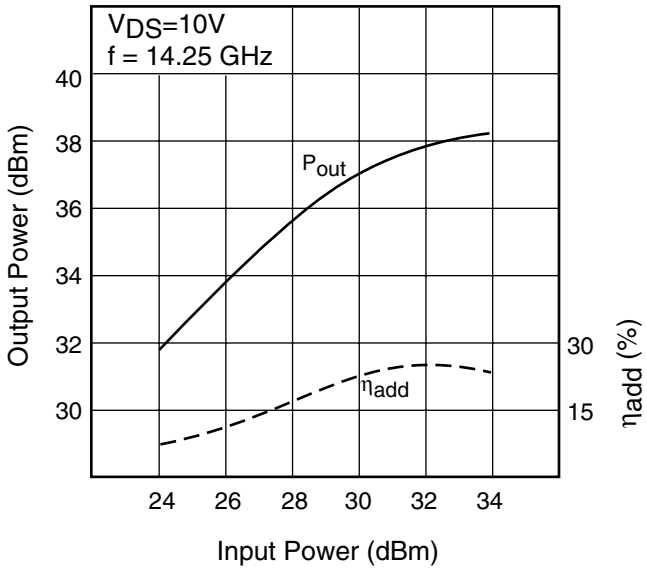
OUTPUT POWER & IM_3 vs. INPUT POWER

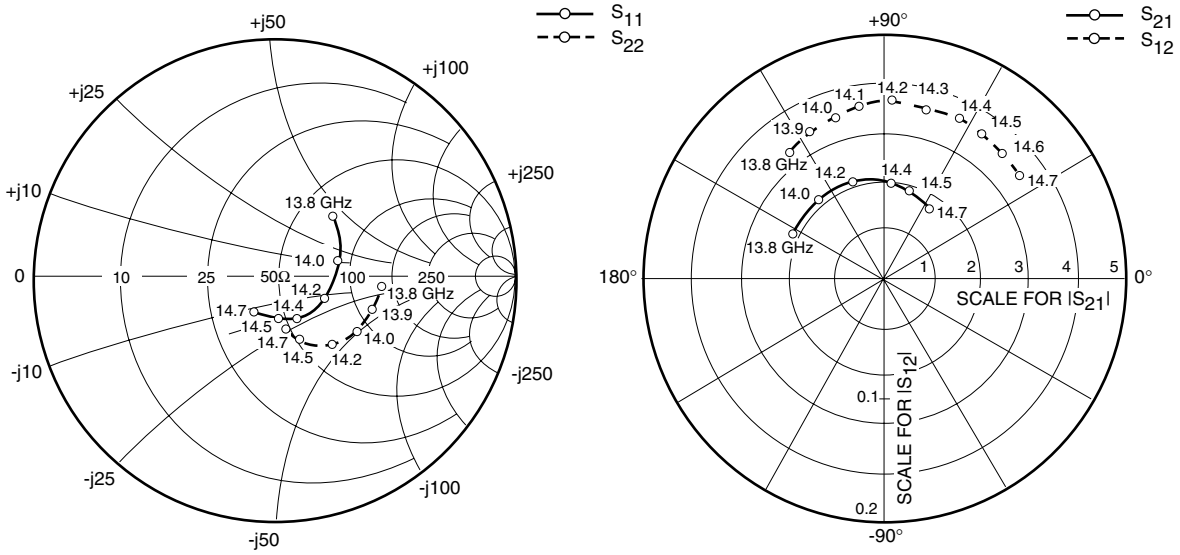


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





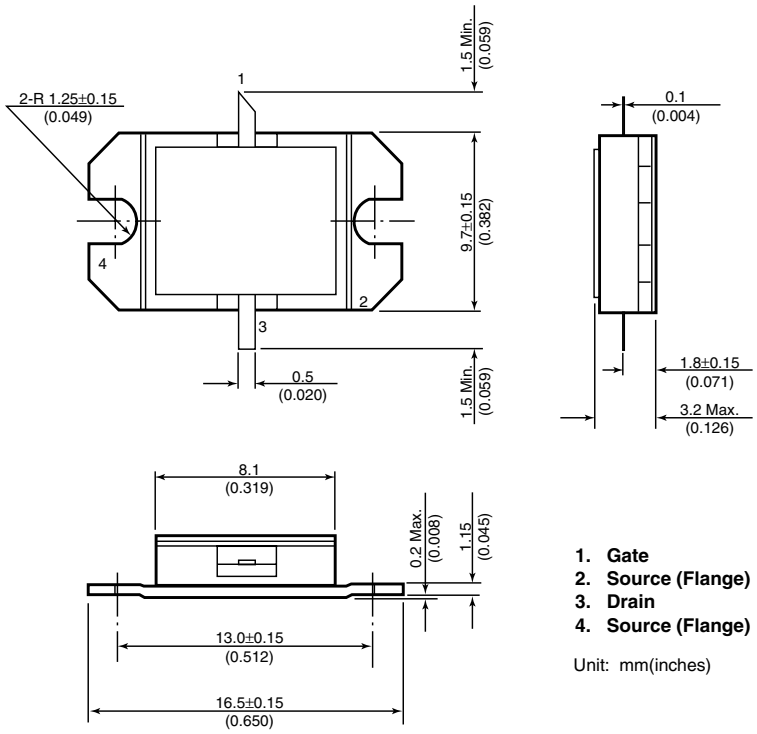
S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13800	.352	44.6	2.067	152.2	.131	126.8	.446	-5.2
13900	.311	30.4	2.131	142.1	.137	116.6	.418	-17.7
14000	.275	17.0	2.088	129.4	.139	106.4	.417	-31.6
14100	.246	-2.2	2.118	119.7	.144	97.7	.392	-39.2
14200	.219	-21.6	2.081	107.7	.148	87.0	.365	-49.0
14300	.197	-42.4	2.059	96.7	.144	75.5	.334	-55.8
14400	.185	-63.6	1.995	85.9	.148	64.6	.305	-62.5
14500	.164	-83.0	1.918	75.2	.146	56.1	.266	-67.1
14600	.158	-101.6	1.839	65.8	.145	46.2	.237	-70.2
14700	.158	-119.1	1.791	57.2	.143	36.9	.219	-74.8

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.**