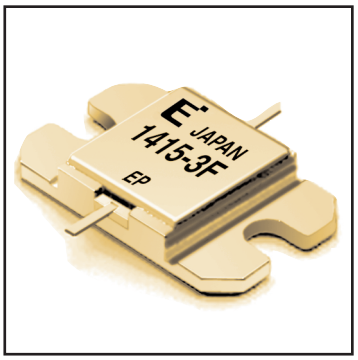
FLM1415-3F

Internally Matched Power GaAs FET

FEATURES

- High Output Power: P_{1dB} = 34.5dBm (Typ.)
- High Gain: G_{1dB} = 5.5dB (Typ.)
- High PAE: η_{add} = 23% (Typ.)
- Low IM_3 = -46dBc@Po = 23.5dBm (Typ.)
- Broad Band: 14.5 ~ 15.3GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed



DESCRIPTION

The FLM1415-3F 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	25	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 13.0 and -1.4 mA respectively with gate resistance of 100Ω.

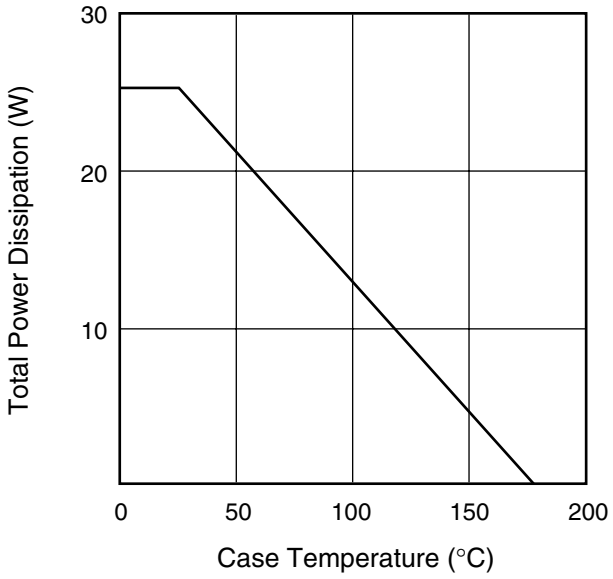
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	1400	2100	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 900mA	-	1400	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 70mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -70μA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} = 10V, I_{DS} = 0.6 I_{DSS}(Typ.), f = 14.5 ~ 15.3 GHz, Z_S = Z_L = 50Ω	33.5	34.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		5.0	5.5	-	dB
Drain Current	I_{dsr}		-	900	1100	mA
Power-Added Efficiency	η_{add}		-	23	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 15.3GHz, Δf = 10MHz 2-Tone Test Pout = 23.5dBm S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	5.0	6.0	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	66	°C

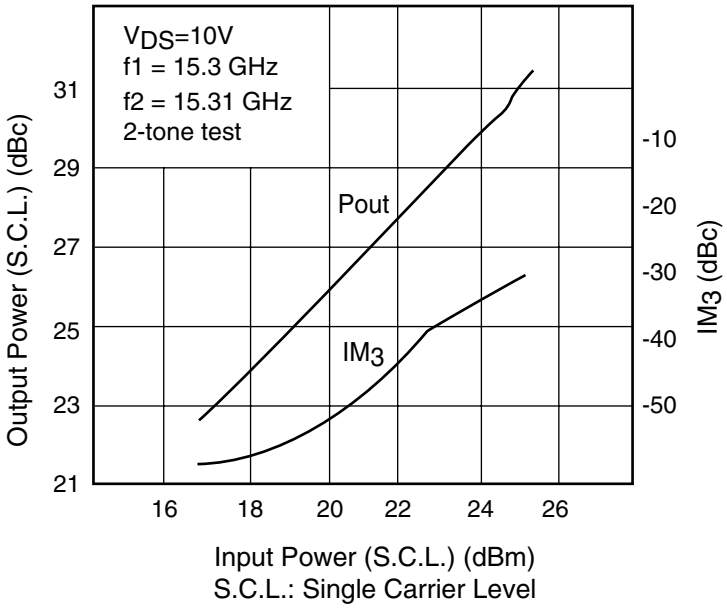
CASE STYLE: IA

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

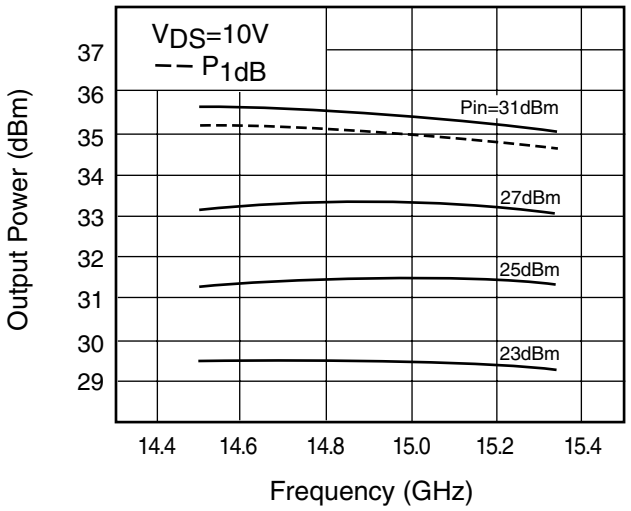
POWER DERATING CURVE



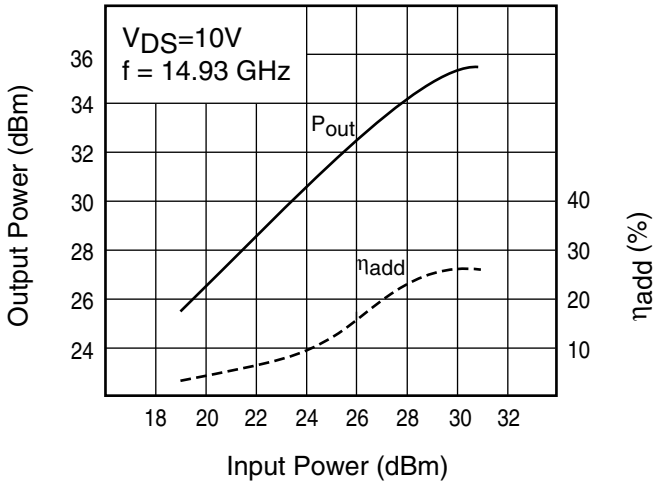
OUTPUT POWER & IM3 vs. INPUT POWER

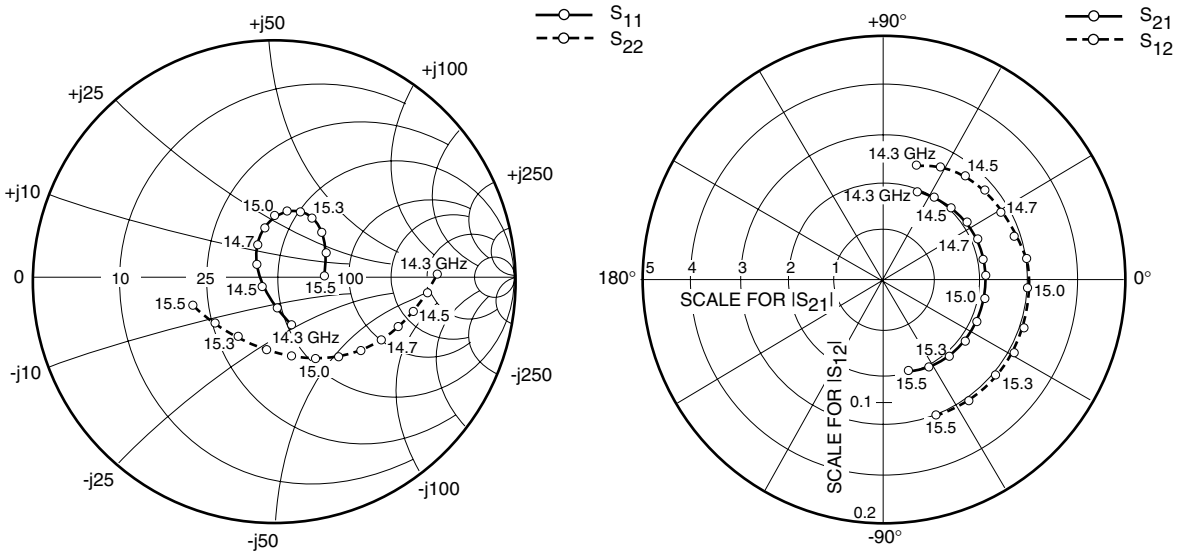


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





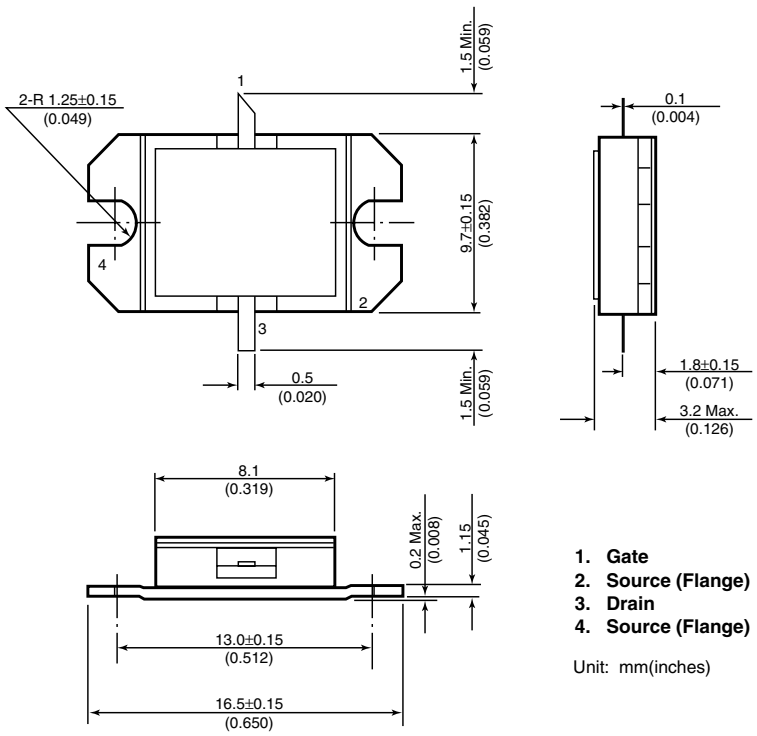
S-PARAMETERS

V_{DS} = 10V, I_{DS} = 900mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
14300	.214	-70.6	1.917	69.6	.099	75.2	.680	2.0
14400	.128	-87.9	1.987	58.3	.104	63.1	.645	-5.2
14500	.065	-142.8	2.045	47.0	.110	52.4	.603	-13.4
14600	.089	144.4	2.074	35.4	.110	41.5	.554	-21.3
14700	.151	117.3	2.095	23.2	.112	30.2	.513	-31.0
14800	.213	102.1	2.099	11.7	.114	18.1	.467	-40.2
14900	.255	91.1	2.092	0.1	.119	7.9	.421	-51.0
15000	.283	80.1	2.097	-11.6	.119	-3.6	.379	-63.2
15100	.292	69.8	2.078	-23.8	.123	-18.6	.331	-77.6
15200	.290	57.8	2.071	-36.3	.122	-28.9	.304	-97.3
15300	.263	43.8	2.039	-48.8	.124	-40.2	.291	-121.3
15400	.230	25.7	1.993	-61.7	.121	-54.5	.310	-143.1
15500	.196	0.2	1.941	-74.8	.120	-68.2	.360	-160.4

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.**