

# FLM1415-3F

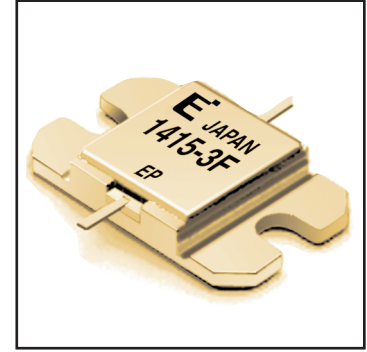
## Internally Matched Power GaAs FET

### FEATURES

- High Output Power:  $P_{1dB} = 34.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 5.5\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 23\%$  (Typ.)
- Low  $IM_3 = -46\text{dBc}@P_o = 23.5\text{dBm}$  (Typ.)
- Broad Band: 14.5 ~ 15.3GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- 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 $T_a=25^\circ\text{C}$ )

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	$V_{DS}$		15	V
Gate-Source Voltage	$V_{GS}$		-5	V
Total Power Dissipation	$P_T$	$T_C = 25^\circ\text{C}$	25	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 13.0 and -1.4 mA respectively with gate resistance of 100 $\Omega$ .

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

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

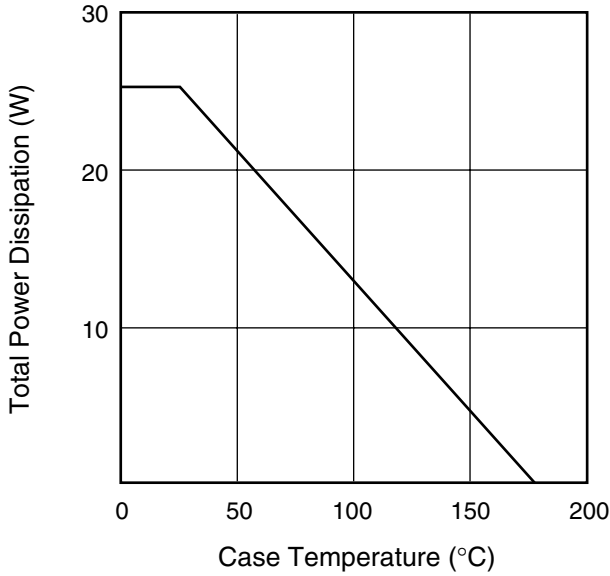
CASE STYLE: IA

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

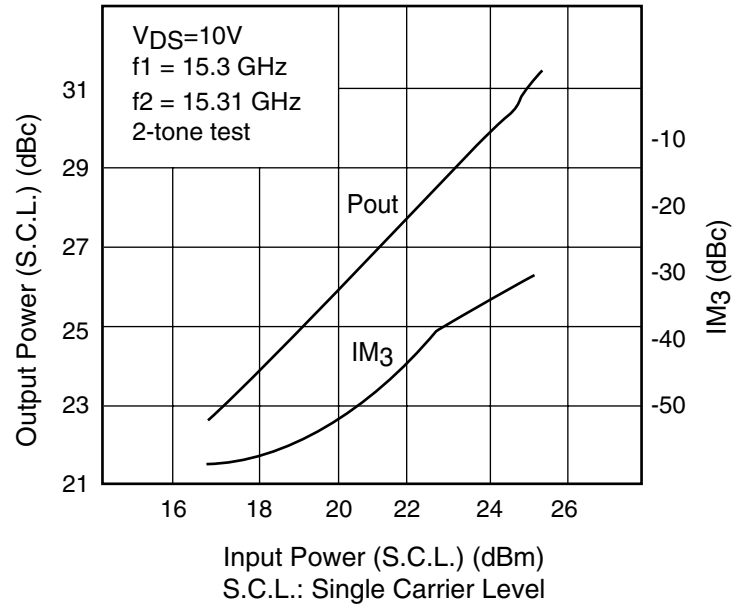
# FLM1415-3F

Internally Matched Power GaAs FET

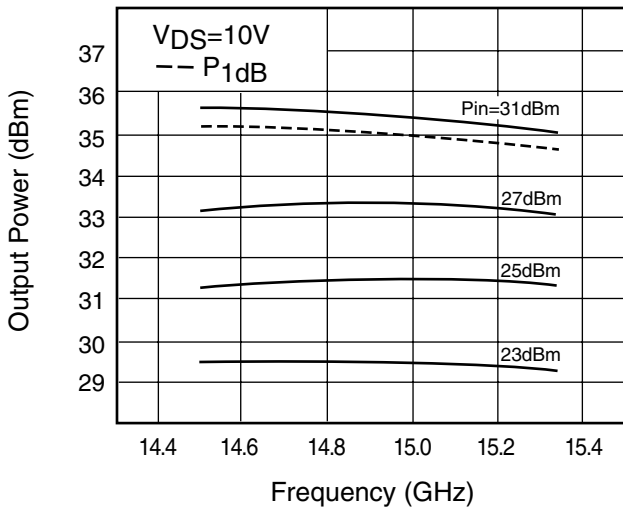
**POWER DERATING CURVE**



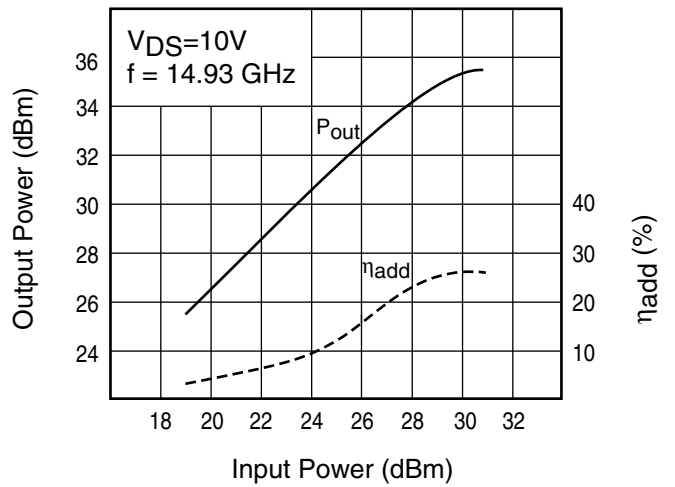
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**



**OUTPUT POWER vs. FREQUENCY**

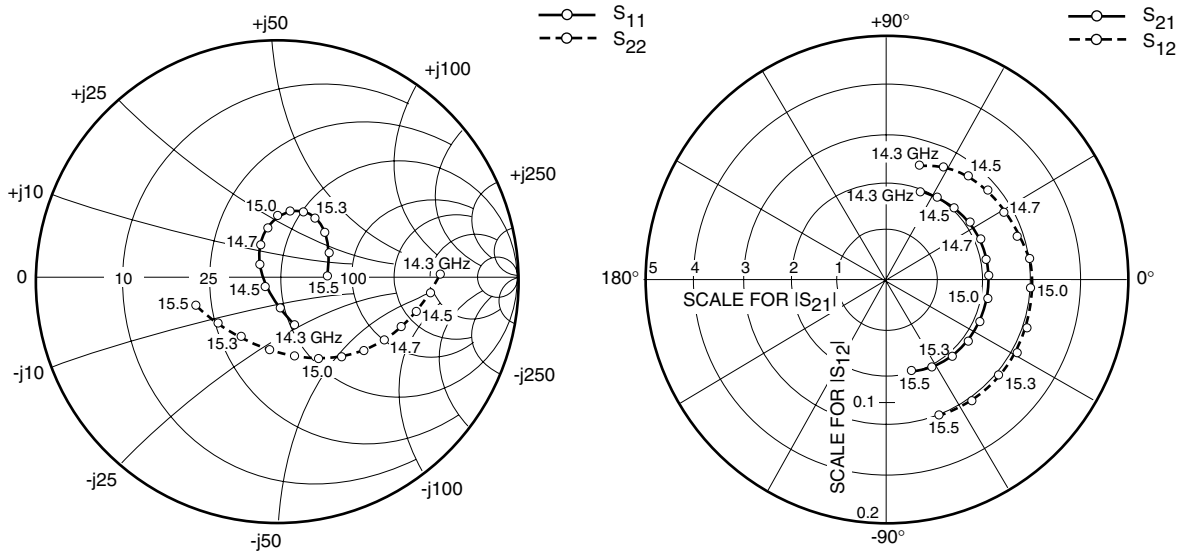


**OUTPUT POWER vs. INPUT POWER**



# FLM1415-3F

## Internally Matched Power GaAs FET



### S-PARAMETERS

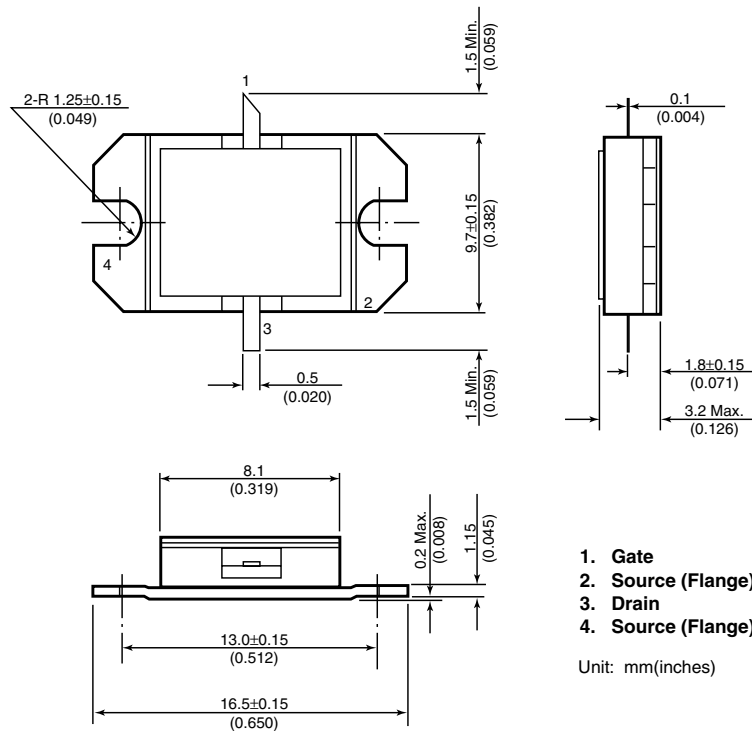
$V_{DS} = 10V, I_{DS} = 900mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	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

# FLM1415-3F

## Internally Matched Power GaAs FET

### Case Style "IA" Metal-Ceramic Hermetic Package



For further information please contact:

#### Eudyna Devices USA Inc.

2355 Zanker Rd.  
San Jose, CA 95131-1138, U.S.A.  
TEL: (408) 232-9500  
FAX: (408) 428-9111  
[www.us.eudyna.com](http://www.us.eudyna.com)

#### Eudyna Devices Europe Ltd.

Network House  
Norreys Drive  
Maidenhead, Berkshire SL6 4FJ  
United Kingdom  
TEL: +44 (0) 1628 504800  
FAX: +44 (0) 1628 504888

#### Eudyna Devices Asia Pte Ltd.

Hong Kong Branch  
Rm. 1101, Ocean Centre, 5 Canton Rd.  
Tsim Sha Tsui, Kowloon, Hong Kong  
TEL: +852-2377-0227  
FAX: +852-2377-3921

#### Eudyna Devices Inc.

Sales Division  
1, Kanai-cho, Sakae-ku  
Yokohama, 244-0845, Japan  
TEL: +81-45-853-8156  
FAX: +81-45-853-8170

#### 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.

Eudyna Devices Inc. reserves the right to change products and specifications without notice. The information does not convey any license under rights of Eudyna Devices Inc. or others.

© 2004 Eudyna Devices USA Inc.  
Printed in U.S.A.