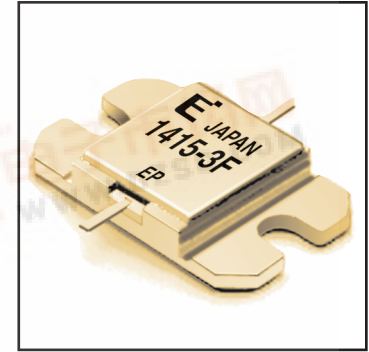


### FEATURES

- 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.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS}(\text{Typ.}),$ $f = 14.5 \sim 15.3 \text{GHz},$ $Z_S = Z_L = 50\Omega$	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	$\eta_{add}$		-	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	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	66	$^\circ\text{C}$

CASE STYLE: IA

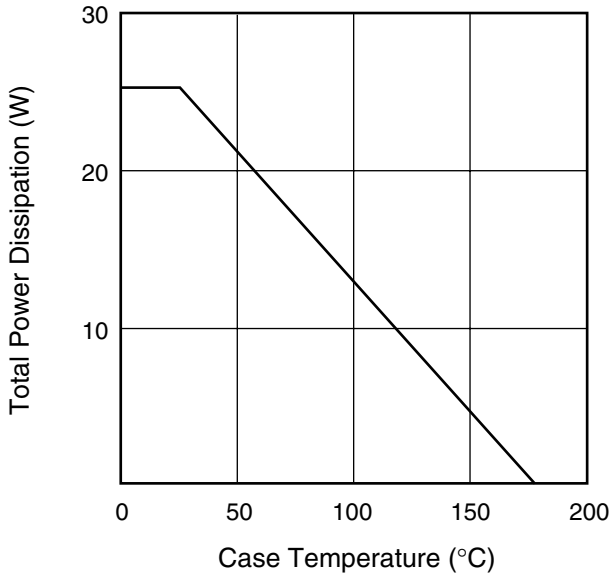
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



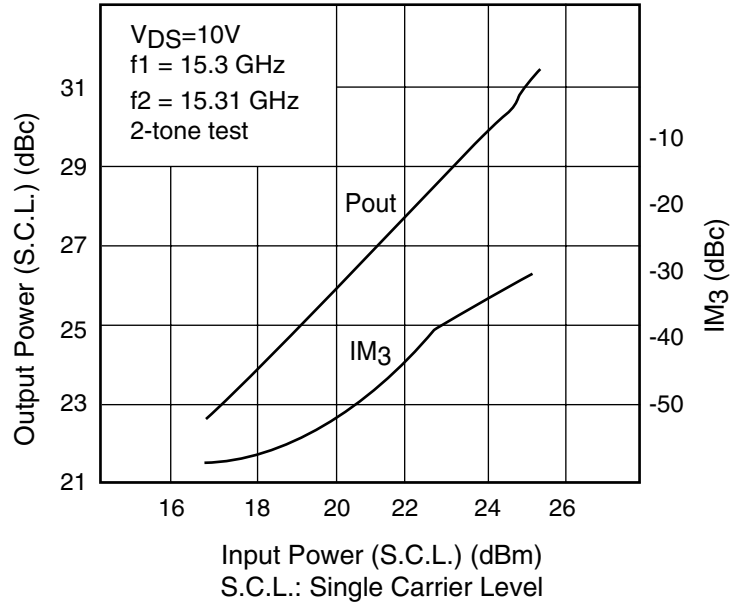
# FLM1415-3F

Internally Matched Power GaAs FET

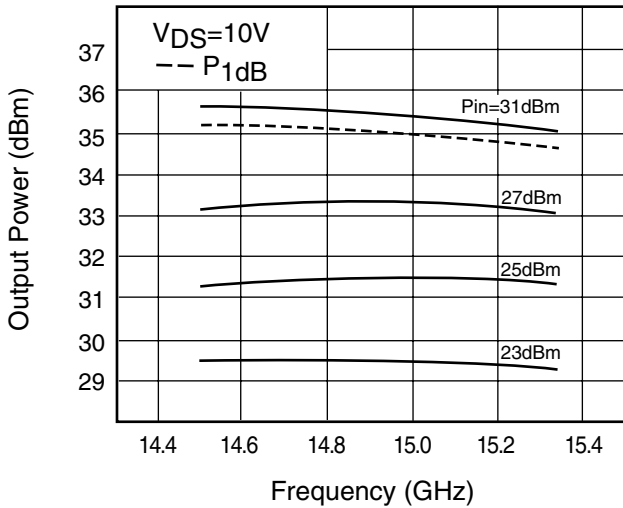
### POWER DERATING CURVE



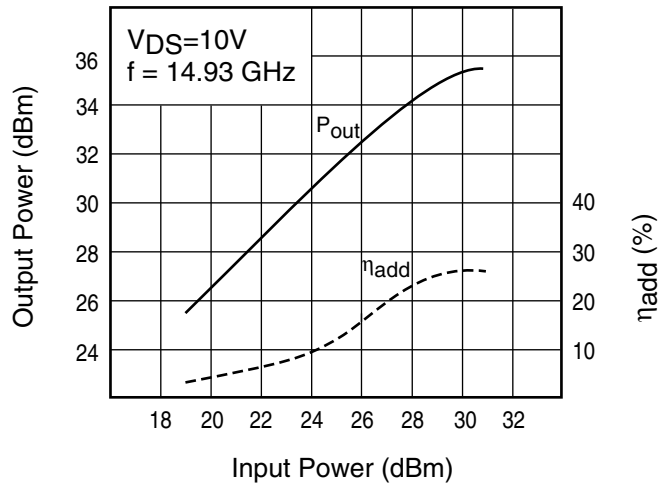
### OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER



### OUTPUT POWER vs. FREQUENCY

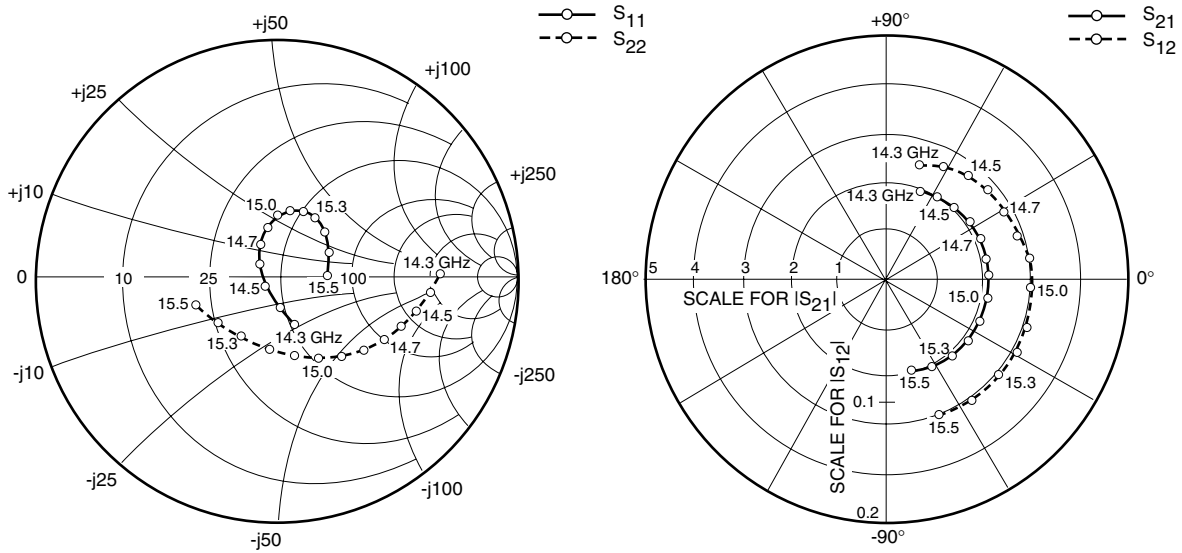


### OUTPUT POWER vs. INPUT POWER



# FLM1415-3F

Internally Matched Power GaAs FET



## S-PARAMETERS

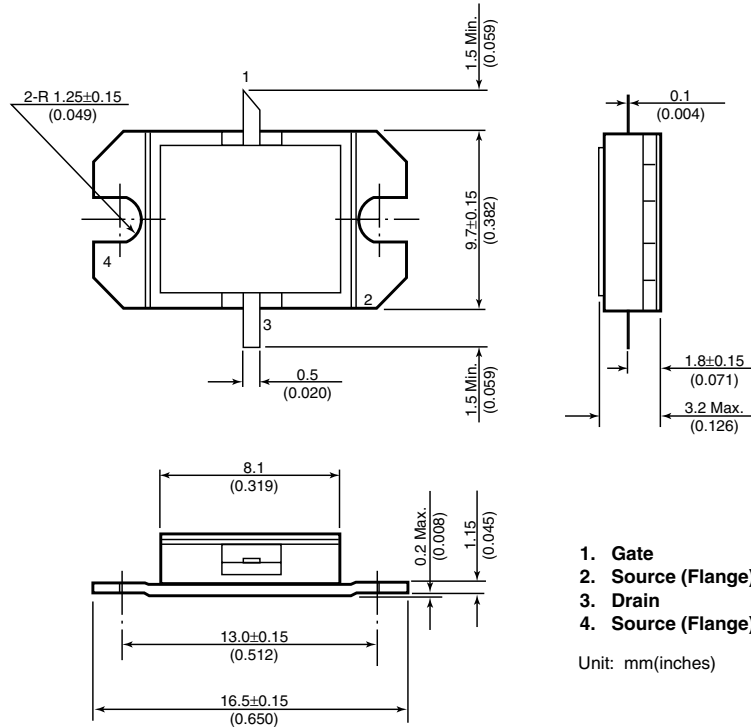
$V_{DS} = 10V, I_{DS} = 900mA$

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.

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