

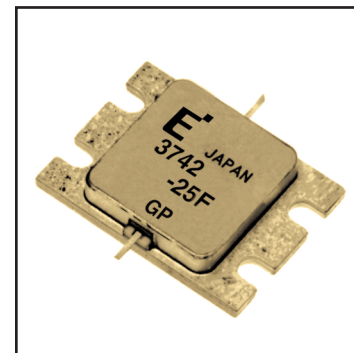
### FEATURES

- High Output Power:  $P_{1dB} = 44.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 10.5\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 41\%$  (Typ.)
- Low  $IM_3 = -46\text{dBc}$  @  $P_o = 33.5\text{dBm}$
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

### DESCRIPTION

The FLM3742-25F 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	$P_T$	$T_C = 25^\circ\text{C}$	93.7	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 64.0 and -11.2 mA respectively with gate resistance of 25 $\Omega$ .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	11.6	17.4	A
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 6800\text{mA}$	-	5800	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 600\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -600\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.55 I_{DSS}$ (Typ.), $f = 3.7 \sim 4.2 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	43.5	44.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		9.5	10.5	-	dB
Drain Current	$I_{dsr}$		-	6200	7600	mA
Power-added Efficiency	$\eta_{add}$		-	41	-	%
Gain Flatness	$\Delta G$		-	-	$\pm 0.6$	dB
3rd Order Intermodulation Distortion	$IM_3$	$f = 4.2 \text{GHz}, \Delta f = 10 \text{MHz}$ 2-Tone Test $P_{out} = 33.5\text{dBm}$ S.C.L.	-44	-46	-	dBc
Thermal Resistance	$R_{th}$	Channel to Case	-	1.4	1.6	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	100	$^\circ\text{C}$

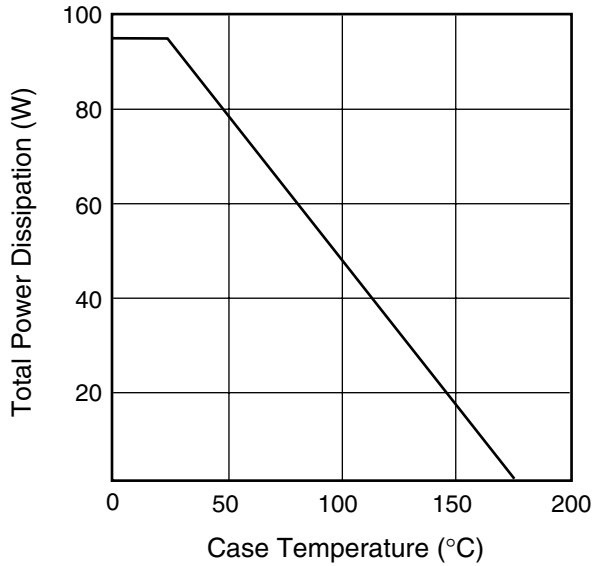
CASE STYLE: IK

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

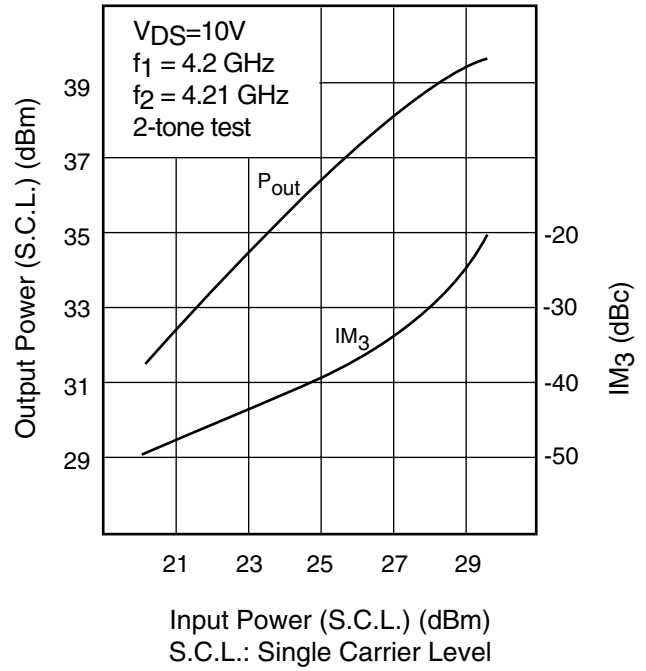
# FLM3742-25F

## C-Band Internally Matched FET

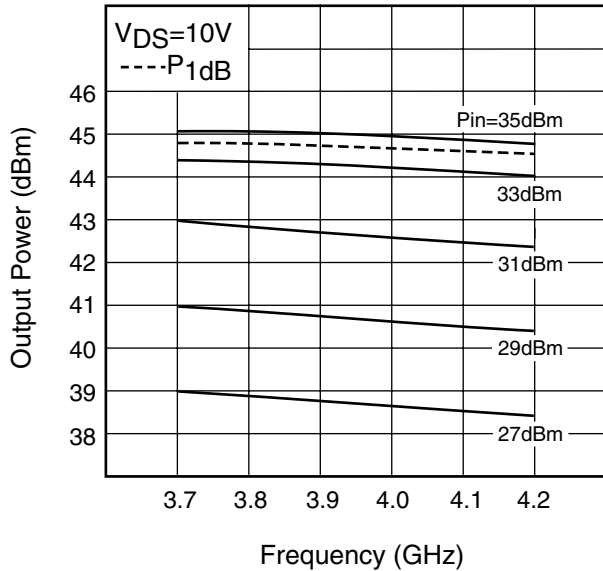
**POWER DERATING CURVE**



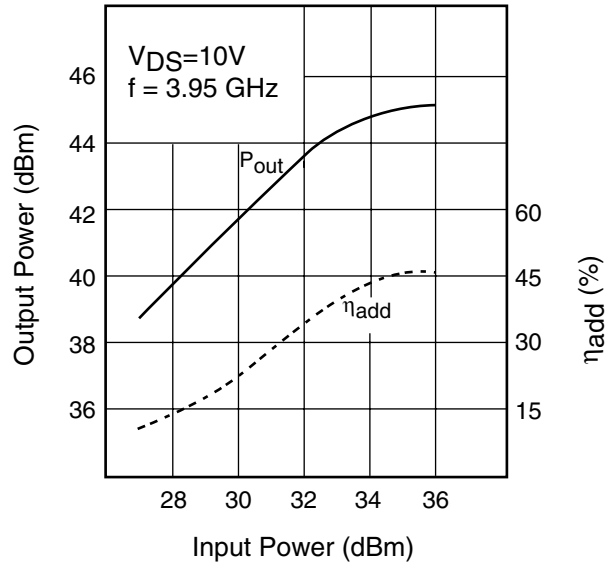
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

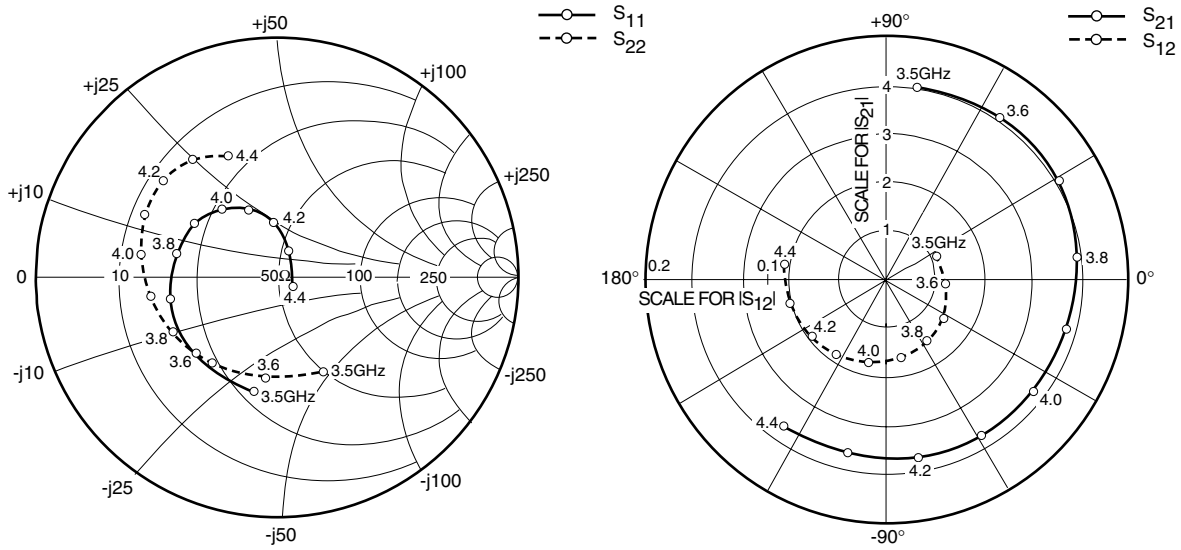


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**





### S-PARAMETERS

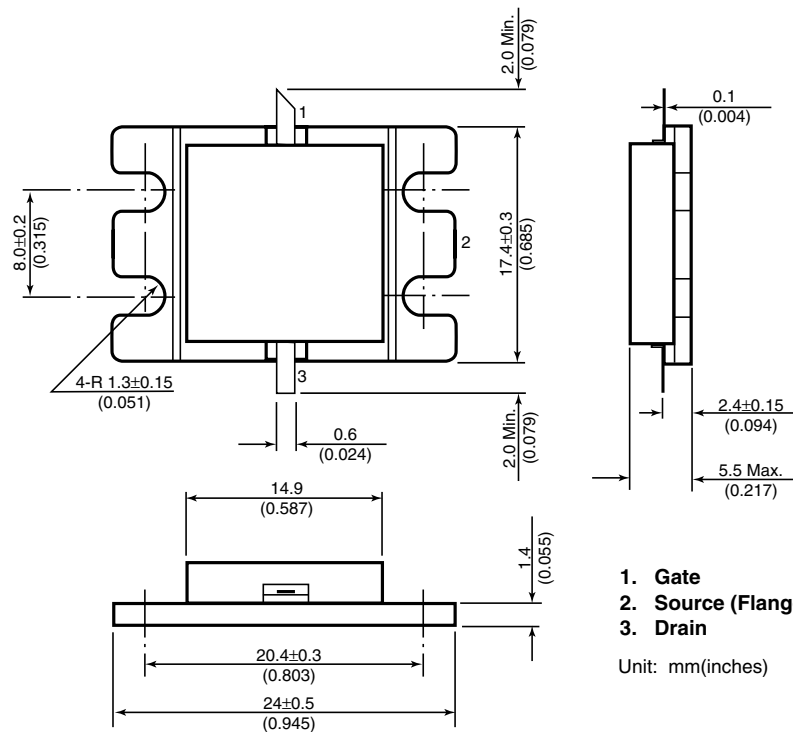
$V_{DS} = 10V, I_{DS} = 6800mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.486	-101.4	3.980	80.7	.045	25.6	.441	-64.1
3600	.455	-137.6	4.079	54.6	.050	-4.6	.428	-96.2
3700	.450	-168.5	4.043	29.5	.057	-32.7	.444	-125.9
3800	.433	166.6	3.969	6.5	.060	-57.3	.489	-150.8
3900	.413	146.8	3.862	-15.8	.065	-79.9	.532	-171.5
4000	.366	128.7	3.792	-37.3	.070	-102.7	.579	170.7
4100	.307	112.4	3.757	-58.6	.074	-123.4	.609	154.7
4200	.227	93.0	3.723	-80.1	.078	-143.5	.618	139.8
4300	.123	65.0	3.735	-102.6	.083	-165.8	.602	125.7
4400	.072	-27.3	3.709	-125.6	.087	172.0	.546	112.7

# FLM3742-25F

## C-Band Internally Matched FET

### Case Style "IK" 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.

# Eudyna