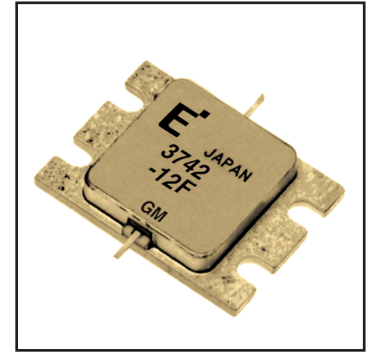


### FEATURES

- High Output Power:  $P_{1dB} = 41.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 11.5\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 40\%$  (Typ.)
- Low  $IM_3 = -46\text{dBc}$  @  $P_o = 30.5\text{dBm}$
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package



### DESCRIPTION

The FLM3742-12F 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	$P_T$	$T_C = 25^\circ\text{C}$	57.6	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 32.0 and -5.6 mA respectively with gate resistance of 50 $\Omega$ .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	5800	8700	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 3400\text{mA}$	-	2900	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 300\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -300\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.55 I_{DSS}$ (Typ.), $f = 3.7 \sim 4.2 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	40.5	41.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		10.5	11.5	-	dB
Drain Current	$I_{dsr}$		-	3250	3800	mA
Power-added Efficiency	$\eta_{add}$		-	40	-	%
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 $P_{out} = 30.5\text{dBm S.C.L.}$	-44	-46	-
Thermal Resistance	$R_{th}$	Channel to Case	-	2.3	2.6	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

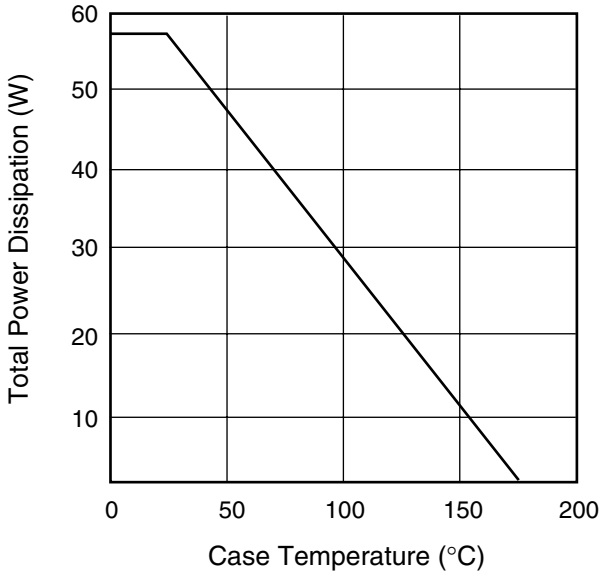
CASE STYLE: IK

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

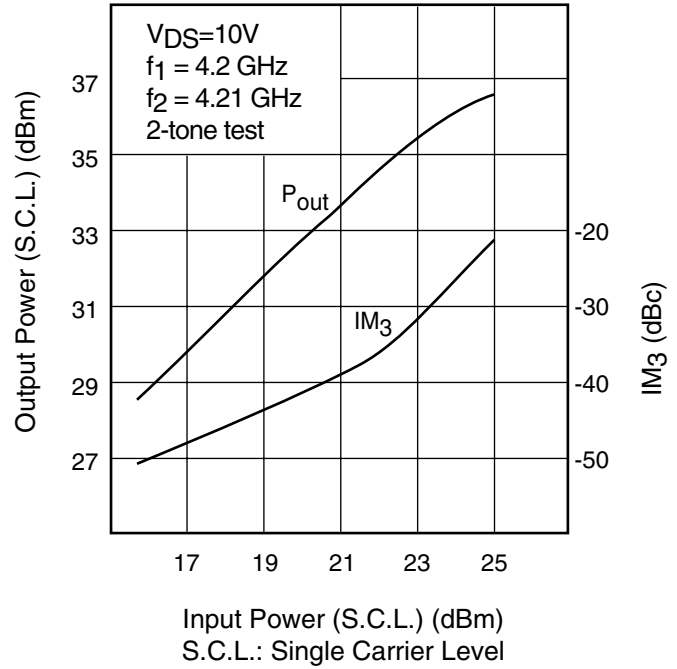
# FLM3742-12F

## C-Band Internally Matched FET

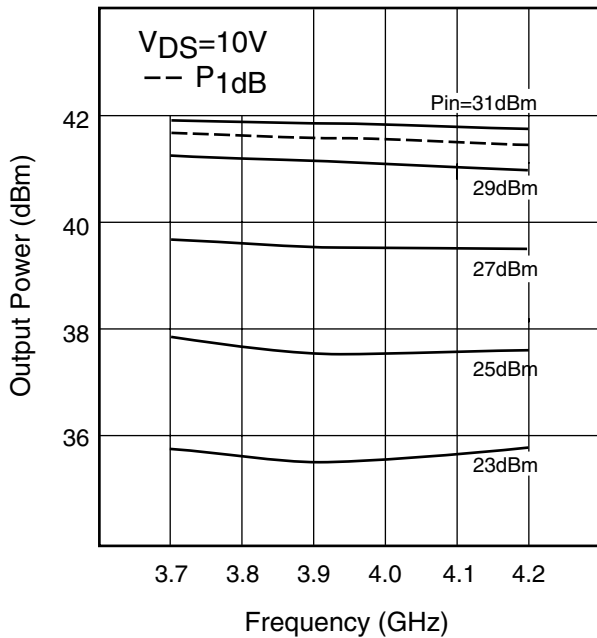
**POWER DERATING CURVE**



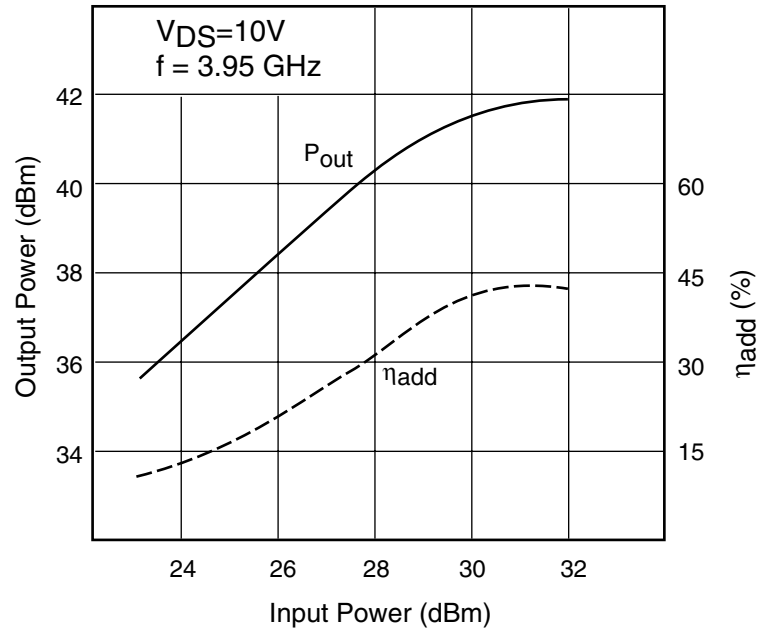
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

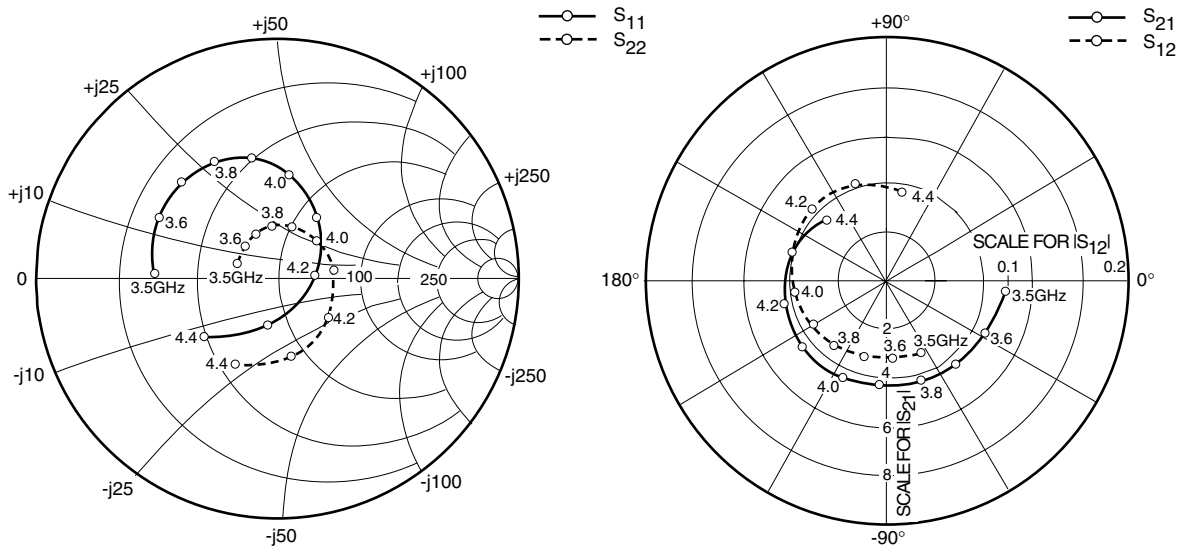


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**





### S-PARAMETERS

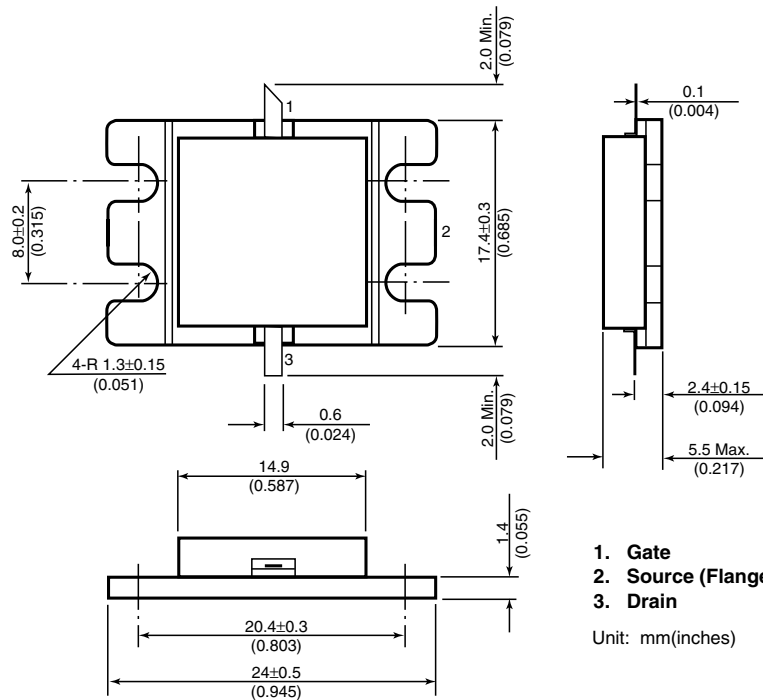
$V_{DS} = 10V, I_{DS} = 3400mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.508	176.8	4.905	-4.5	.066	-63.8	.181	159.5
3600	.551	152.3	4.604	-27.9	.066	-86.9	.189	136.0
3700	.571	134.7	4.379	-49.9	.066	-107.5	.200	116.6
3800	.558	118.2	4.277	-70.9	.070	-129.0	.214	96.9
3900	.514	102.3	4.258	-92.5	.072	-149.8	.219	73.8
4000	.434	83.6	4.333	-115.1	.078	-172.3	.223	44.2
4100	.296	58.4	4.402	-140.2	.083	163.6	.234	7.4
4200	.151	2.9	4.390	-167.6	.084	137.7	.265	-37.5
4300	.203	-102.6	4.138	163.3	.083	109.0	.330	-80.1
4400	.402	-143.5	3.626	134.3	.074	81.6	.401	-116.0

# FLM3742-12F

## C-Band Internally Matched FET

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



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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.

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