

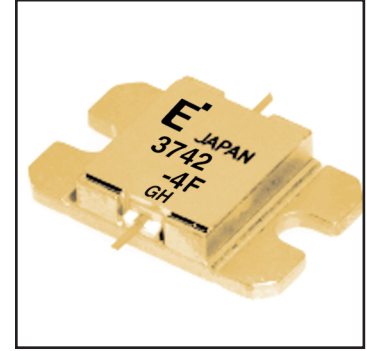
### FEATURES

- High Output Power:  $P_{1dB} = 36.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 12.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 38\%$  (Typ.)
- Low  $IM_3 = -46\text{dBc}$  @  $P_o = 25.5\text{dBm}$
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

### DESCRIPTION

The FLM3742-4F 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 16.0 and -2.2 mA respectively with gate resistance of  $100\Omega$ .

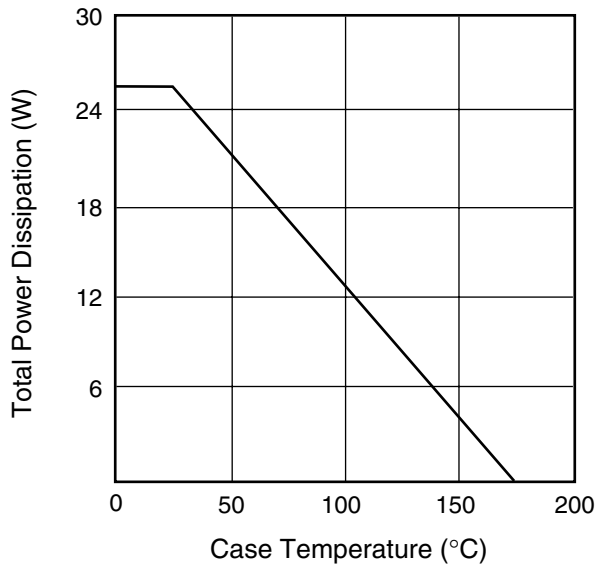
### ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$ )

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	1950	2900	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 1100\text{mA}$	-	1000	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 90\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -90\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.55 I_{DSS} \text{ (Typ.)},$ $f = 3.7 \sim 4.2 \text{ GHz},$ $Z_S = Z_L = 50 \text{ ohm}$	35.5	36.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		11.0	12.0	-	dB
Drain Current	$I_{dsr}$		-	1100	1300	mA
Power-added Efficiency	$\eta_{add}$		-	38	-	%
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 $P_{out} = 25.5\text{dBm S.C.L.}$	-44	-46	-	dBc
Thermal Resistance	$R_{th}$	Channel to Case	-	5.0	6.0	$^\circ\text{C/W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

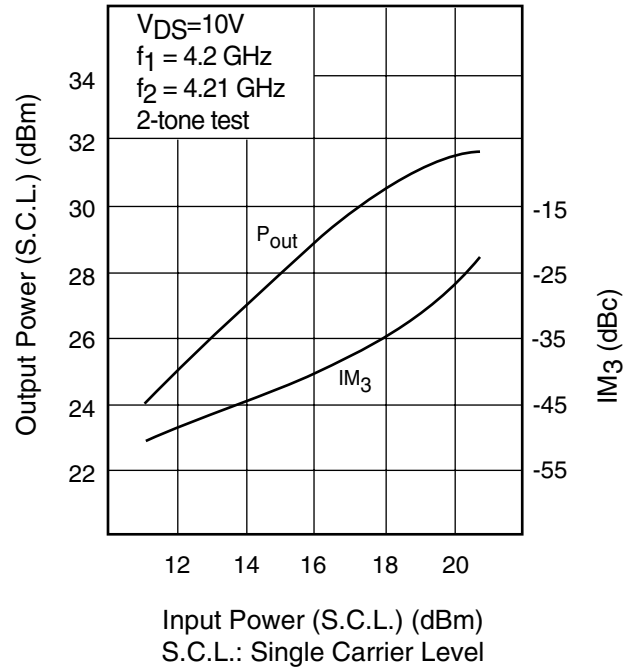
CASE STYLE: IB

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

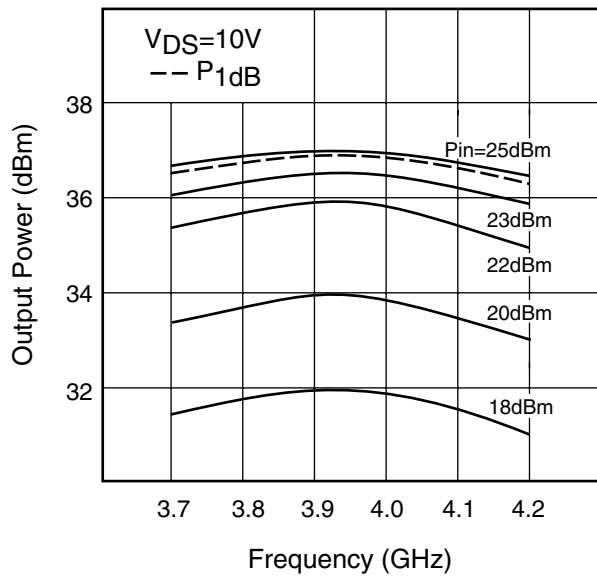
**POWER DERATING CURVE**



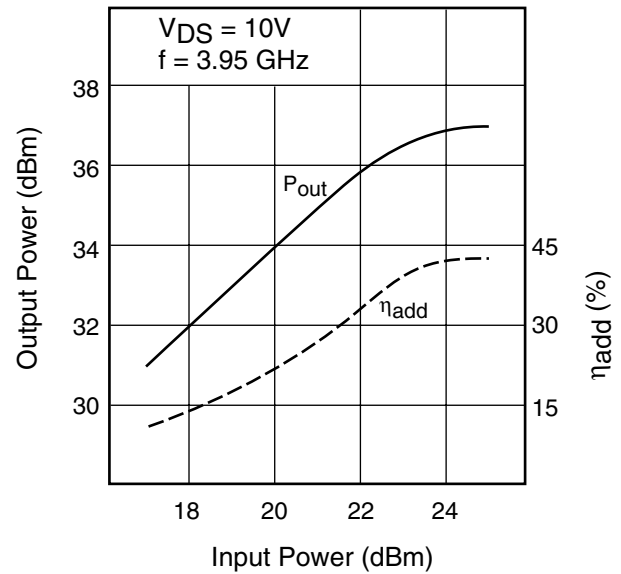
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

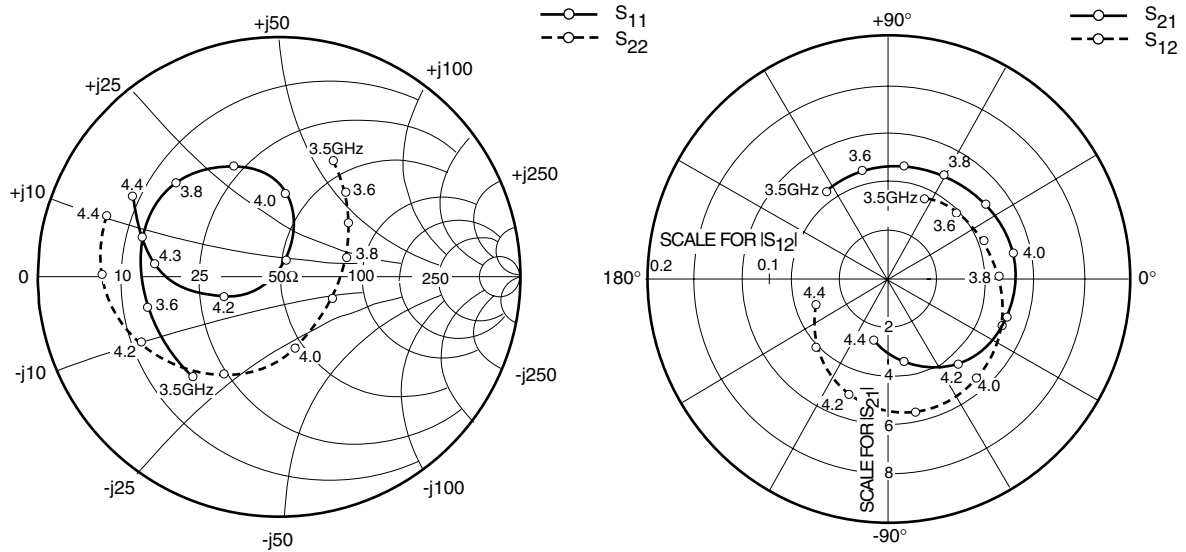


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**



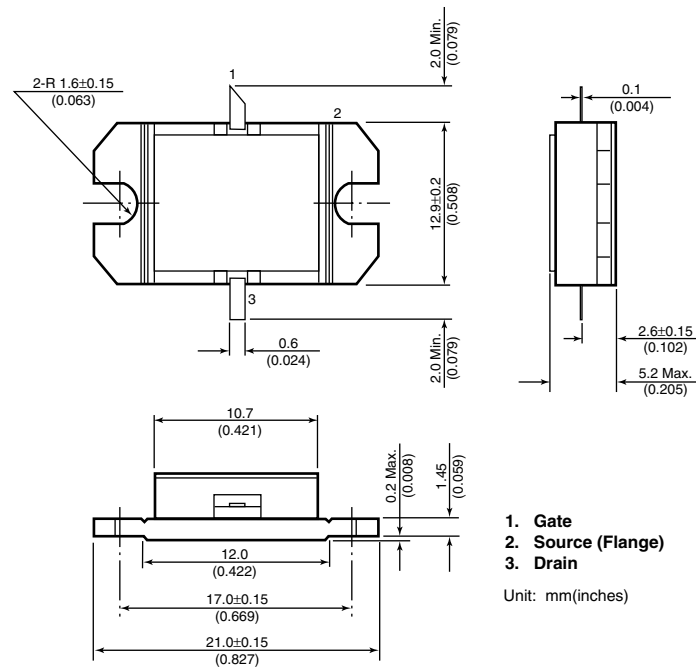


### S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 1100mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.544	-131.8	4.422	126.1	.072	66.8	.525	65.0
3600	.565	-167.2	4.582	104.0	.079	44.5	.445	53.3
3700	.592	163.0	4.706	82.3	.084	21.8	.359	38.8
3800	.578	137.2	4.824	60.9	.092	0.5	.287	15.8
3900	.503	112.5	4.999	37.4	.101	-22.7	.245	-23.6
4000	.354	86.5	5.190	11.5	.109	-48.7	.306	-76.9
4100	.079	69.5	5.088	-18.7	.111	-78.8	.468	-119.9
4200	.248	-160.8	4.476	-51.1	.102	-109.3	.634	-154.3
4300	.526	173.3	3.516	-80.5	.082	-137.0	.730	179.6
4400	.698	151.1	2.594	-104.6	.064	-160.3	.757	160.6

### Case Style "IB" 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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