

# FLM3742-8F

## C-Band Internally Matched FET

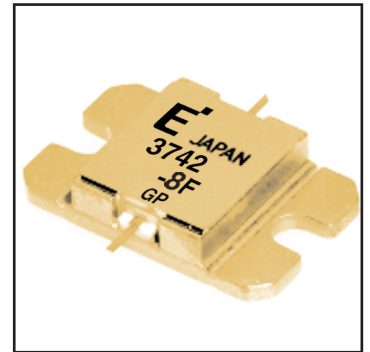
### FEATURES

- High Output Power:  $P_{1dB} = 39.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 11.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 37\%$  (Typ.)
- Low  $IM_3 = -46\text{dBc}$  @  $P_o = 28.5\text{dBm}$
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

### DESCRIPTION

The FLM3742-8F 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	$P_T$	$T_C = 25^\circ\text{C}$	42.8	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 -4.4 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	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	3900	5850	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 2200\text{mA}$	-	2000	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 180\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -180\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.55 I_{DSS}$ (Typ.), $f = 3.7 \sim 4.2 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	38.5	39.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		10.0	11.0	-	dB
Drain Current	$I_{dsr}$		-	2200	2600	mA
Power-added Efficiency	$\eta_{add}$		-	37	-	%
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 $P_{out} = 28.5\text{dBm S.C.L.}$	-44	-46	-
Thermal Resistance	$R_{th}$	Channel to Case	-	3.0	3.5	$^\circ\text{C/W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

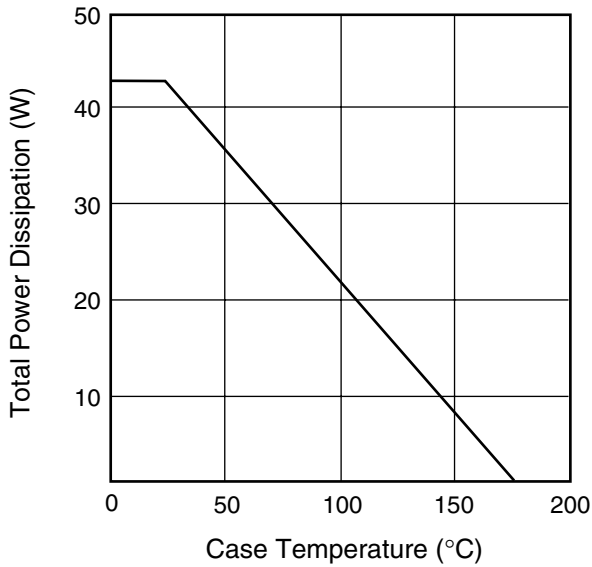
CASE STYLE: IB

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

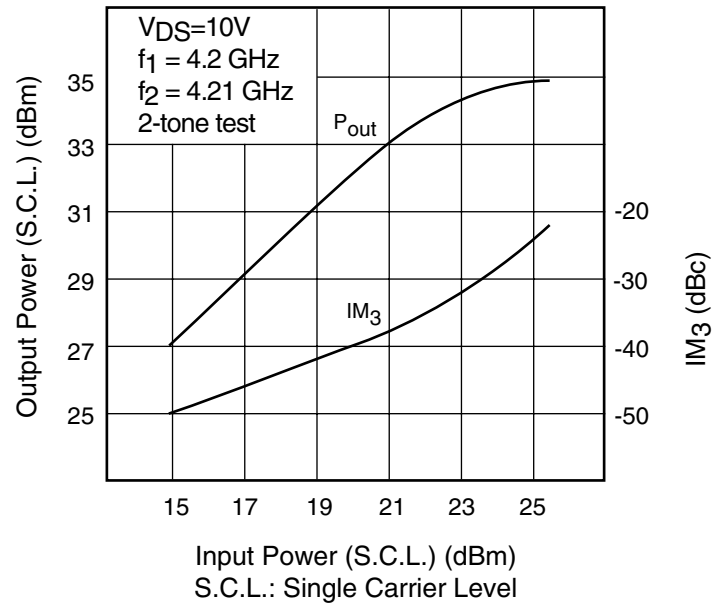
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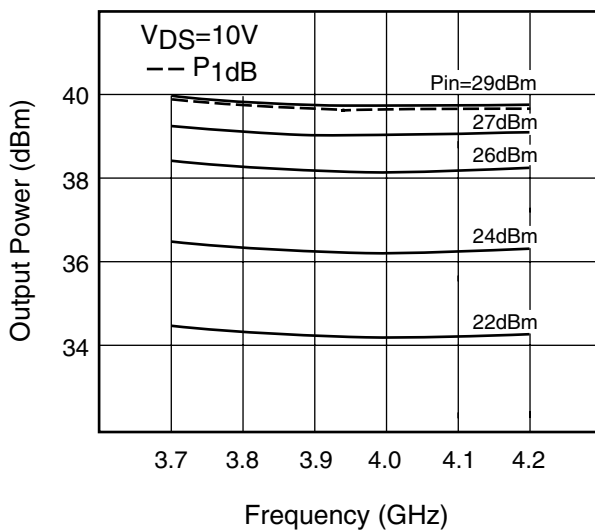
**POWER DERATING CURVE**



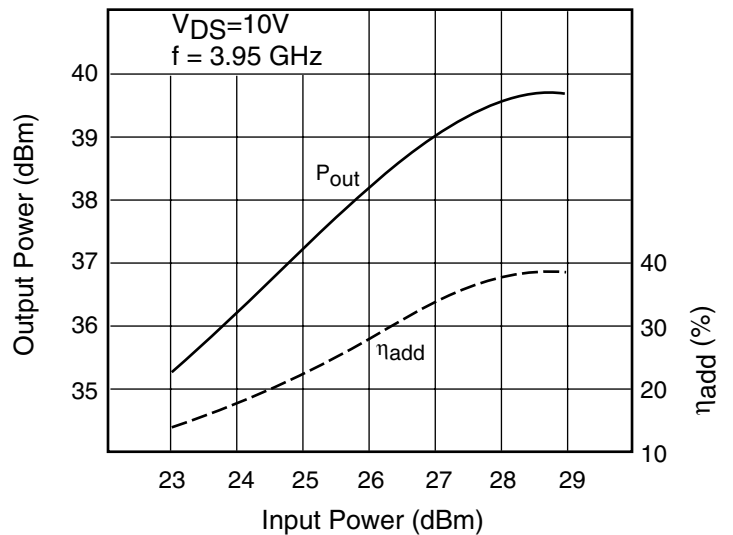
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**



**OUTPUT POWER vs. FREQUENCY**

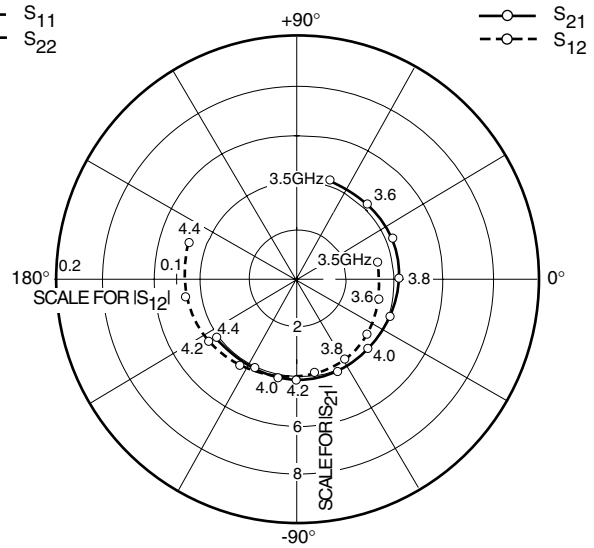
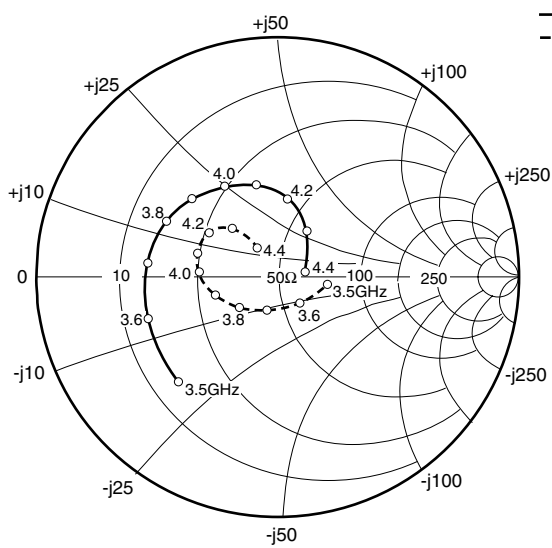


**OUTPUT POWER vs. INPUT POWER**



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### S-PARAMETERS

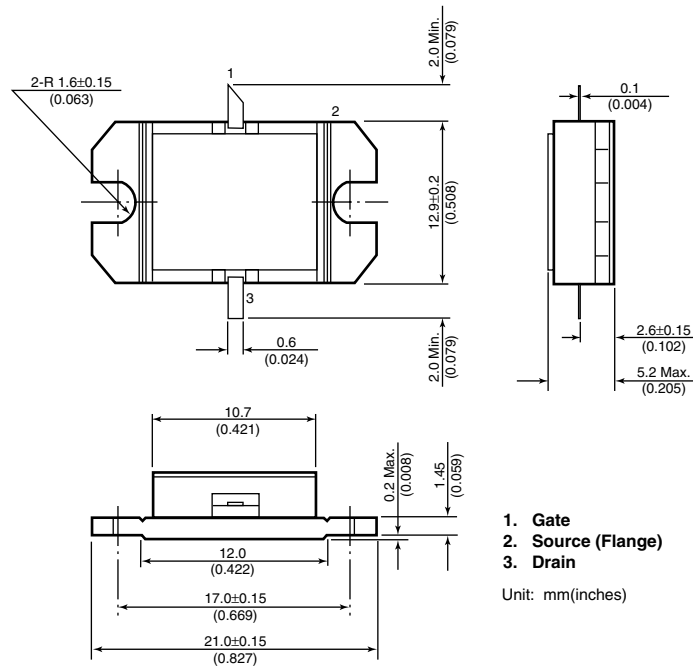
$V_{DS} = 10V, I_{DS} = 2200mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.603	-133.6	4.266	71.3	.068	11.2	.207	-10.9
3600	.570	-161.8	4.268	46.8	.070	-13.5	.145	-53.9
3700	.549	174.4	4.221	23.1	.073	-37.9	.149	-106.6
3800	.520	154.2	4.158	0.8	.077	-59.5	.208	-140.7
3900	.486	137.2	4.089	-21.7	.078	-80.1	.270	-162.7
4000	.444	120.1	4.074	-43.9	.082	-102.4	.321	179.2
4100	.393	103.2	4.075	-66.7	.085	-124.6	.347	163.5
4200	.326	83.3	4.108	-90.7	.089	-147.0	.334	147.6
4300	.227	56.9	4.165	-116.5	.093	-171.1	.274	133.0
4400	.112	6.8	4.141	-145.2	.095	160.9	.147	126.3

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### 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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