

FLM0910-3F

X, Ku-Band Internally Matched FET

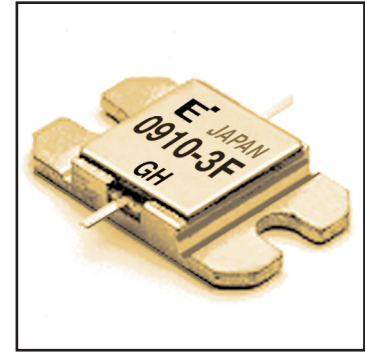
FEATURES

- High Output Power: $P_{1dB} = 35.0\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 7.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 29\%$ (Typ.)
- Low $IM_3 = -46\text{dBc}$ @ $P_o = 24.0\text{dBm}$
- Broad Band: 9.5 ~ 10.5GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$

DESCRIPTION

The FLM0910-3F 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	$T_c = 25^\circ\text{C}$	25.0	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 Ω .

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	$V_{DS} = 5\text{V}, I_{DS} = 900\text{mA}$	-	1300	-	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}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS}$ (Typ.), $f = 9.5 \sim 10.5 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	34.0	35.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		6.5	7.5	-	dB
Drain Current	I_{dsr}		-	900	1100	mA
Power-added Efficiency	η_{add}		-	29	-	%
Gain Flatness	ΔG		-	-	± 0.6	dB
3rd Order Intermodulation Distortion	IM_3	$f = 10.5 \text{GHz}, \Delta f = 10 \text{MHz}$ 2-Tone Test $P_{out} = 24.0\text{dBm}$ S.C.L.	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	5.0	6.0	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	66	$^\circ\text{C}$

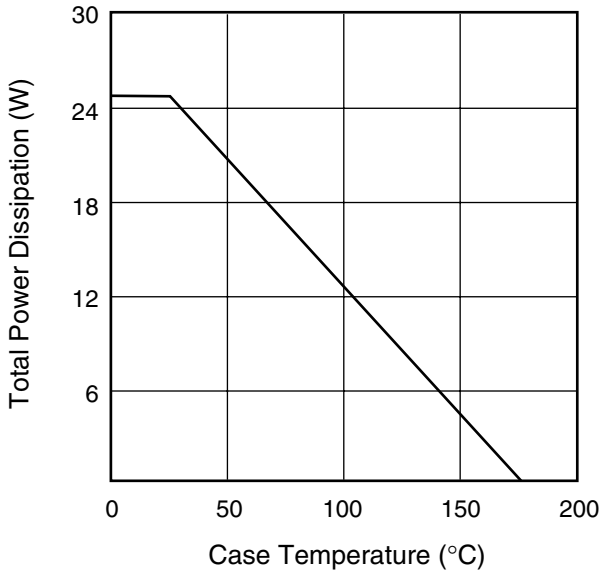
CASE STYLE: IA

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

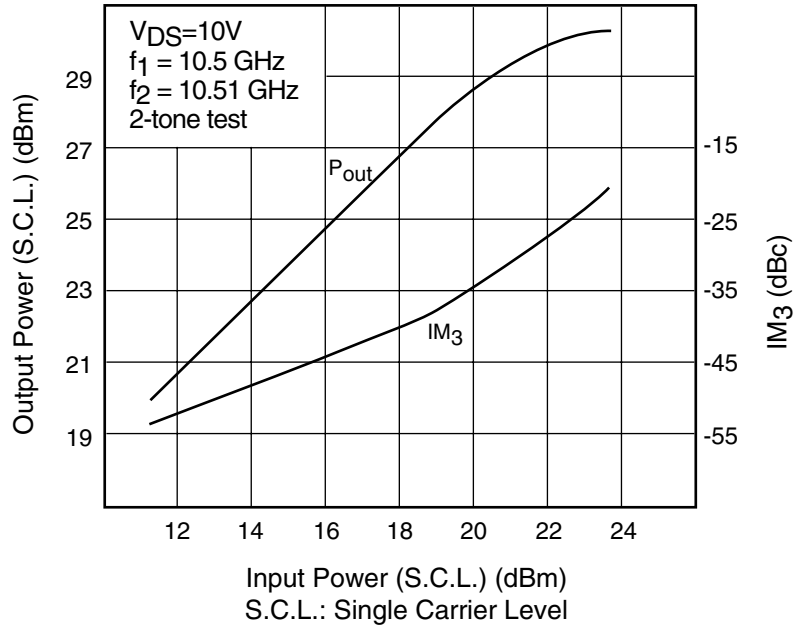
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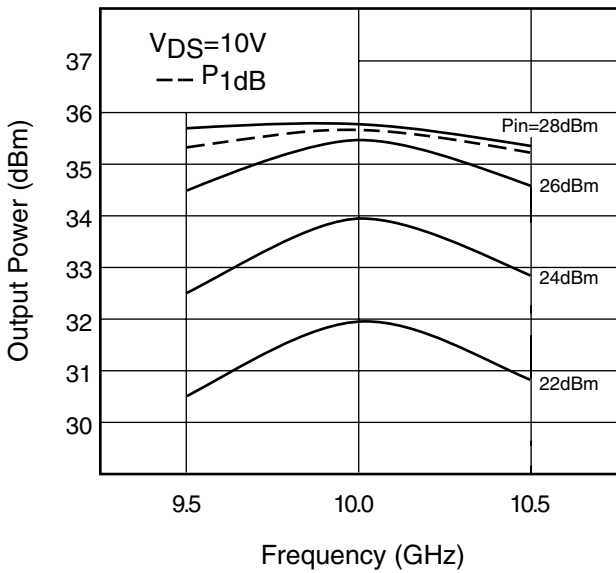
POWER DERATING CURVE



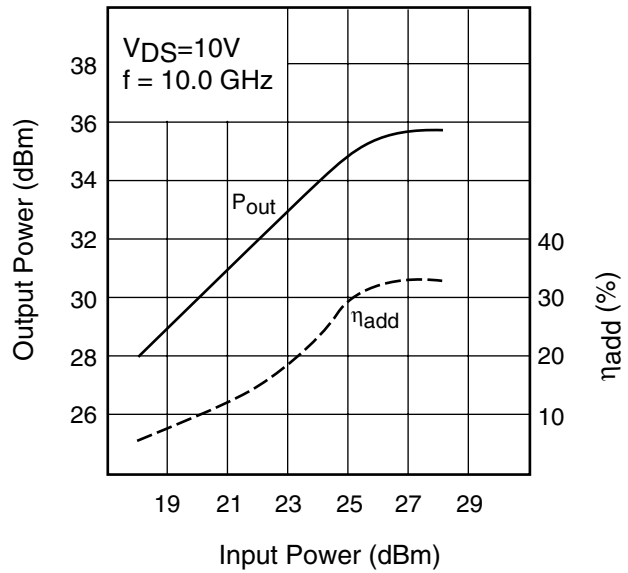
OUTPUT POWER & IM₃ vs. INPUT POWER

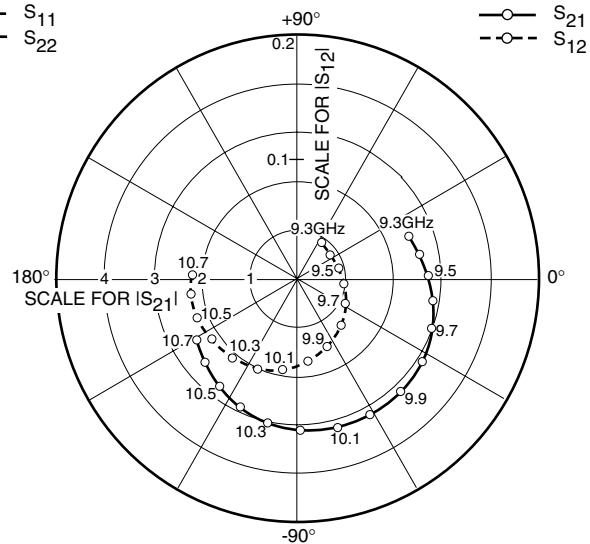
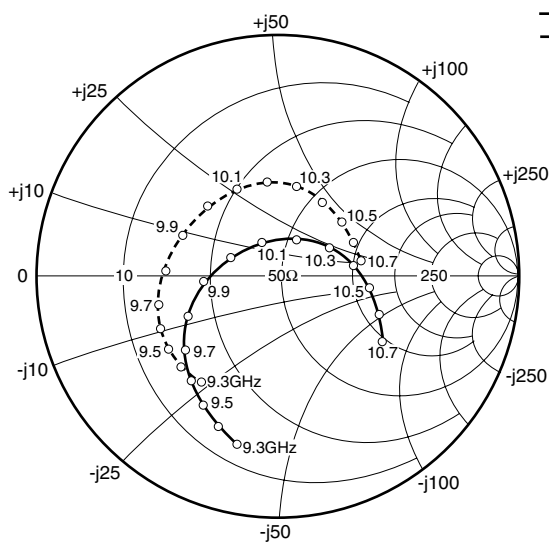


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





S-PARAMETERS

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

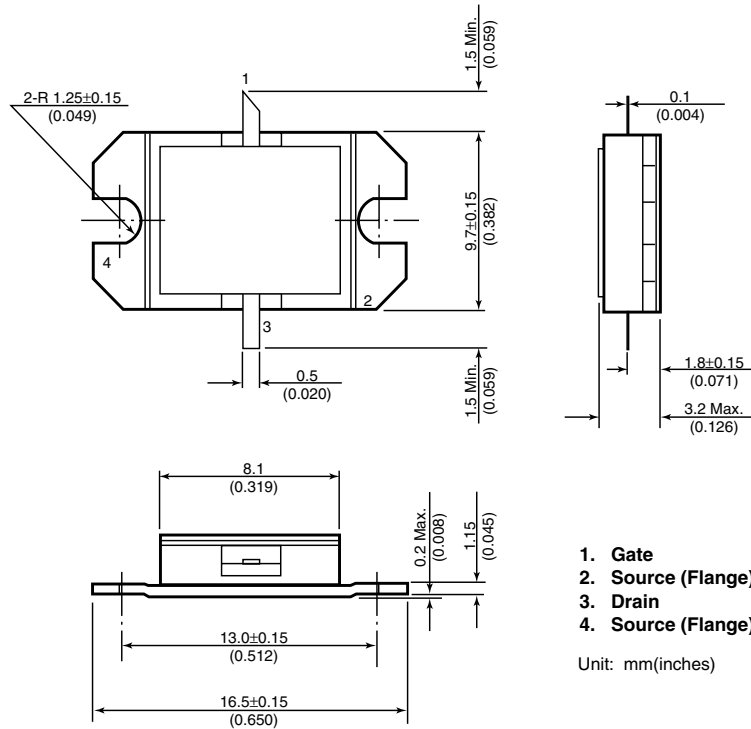
FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
9300	.713	-103.7	2.444	20.8	.035	56.6	.549	-126.1
9400	.670	-111.7	2.564	10.8	.032	35.2	.554	-136.8
9500	.621	-119.9	2.673	0.6	.036	14.6	.553	-146.1
9600	.565	-129.8	2.813	-9.7	.039	-6.9	.538	-155.5
9700	.491	-141.6	2.949	-21.1	.044	-27.7	.507	-166.9
9800	.407	-156.3	3.078	-34.0	.054	-46.8	.466	177.0
9900	.307	-175.1	3.150	-47.5	.061	-67.0	.431	156.6
10000	.213	158.1	3.145	-61.6	.069	-82.9	.413	135.7
10100	.154	114.2	3.167	-75.5	.077	-99.	.407	115.7
10200	.171	62.5	3.121	-89.1	.082	-114.4	.395	97.2
10300	.241	29.1	3.028	-102.3	.085	-129.4	.376	78.0
10400	.319	8.2	2.897	-114.8	.087	-144.9	.354	58.9
10500	.393	-6.9	2.761	-126.7	.088	-158.3	.349	40.7
10600	.456	-19.9	2.603	-138.4	.089	-171.6	.349	24.2
10700	.511	-31.7	2.437	-149.3	.087	178.5	.348	11.2

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Case Style "IA"

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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