

FLM1011-4F

X, Ku-Band Internally Matched FET

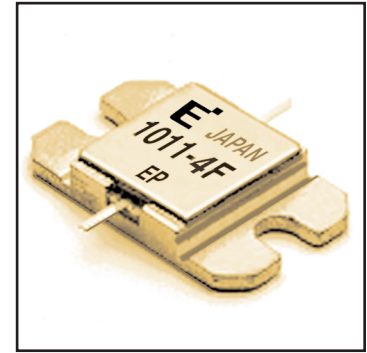
FEATURES

- High Output Power: $P_{1dB} = 36.0\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 7.0\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 29\%$ (Typ.)
- Low $IM_3 = -46\text{dBc}$ @ $P_o = 25.5\text{dBm}$
- Broad Band: 10.7 ~ 11.7GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed

DESCRIPTION

The FLM1011-4F 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	$T_C = 25^\circ\text{C}$	25.0	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 16.0 and -2.2 mA respectively with gate resistance of 100Ω .

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

Item	Symbol	Test Conditions	Limit			Unit	
			Min.	Typ.	Max.		
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	1700	2600	mA	
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 1100\text{mA}$	-	1700	-	mS	
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 85\text{mA}$	-0.5	-1.5	-3.0	V	
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -85\mu\text{A}$	-5.0	-	-	V	
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V}$ $f = 10.7 \sim 11.7 \text{GHz}$ $I_{DS} = 0.65 I_{DSS}(\text{Typ.})$ $Z_S = Z_L = 50\Omega$	35.5	36.0	-	dBm	
Power Gain at 1dB G.C.P.	G_{1dB}		6.0	7.0	-	dB	
Drain Current	I_{dsr}		-	1100	1300	mA	
Power-Added Efficiency	η_{add}		-	29	-	%	
Gain Flatness	ΔG		-	-	± 0.6	dB	
3rd Order Intermodulation Distortion	IM_3		$f = 11.7\text{GHz}, \Delta f = 10\text{MHz}$ 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	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$	

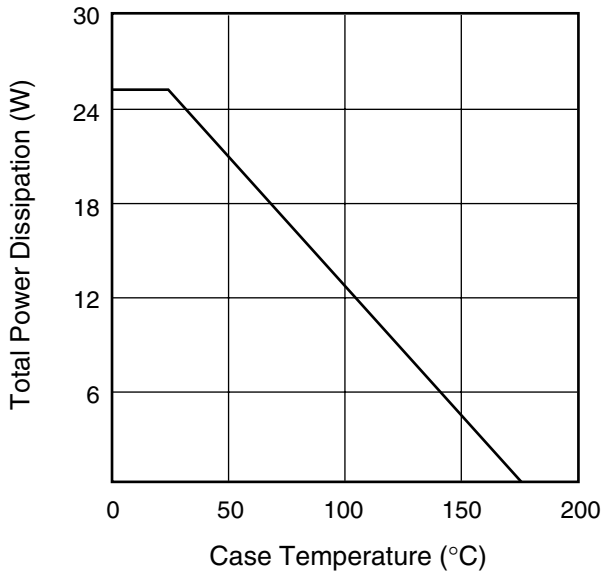
CASE STYLE: IA

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

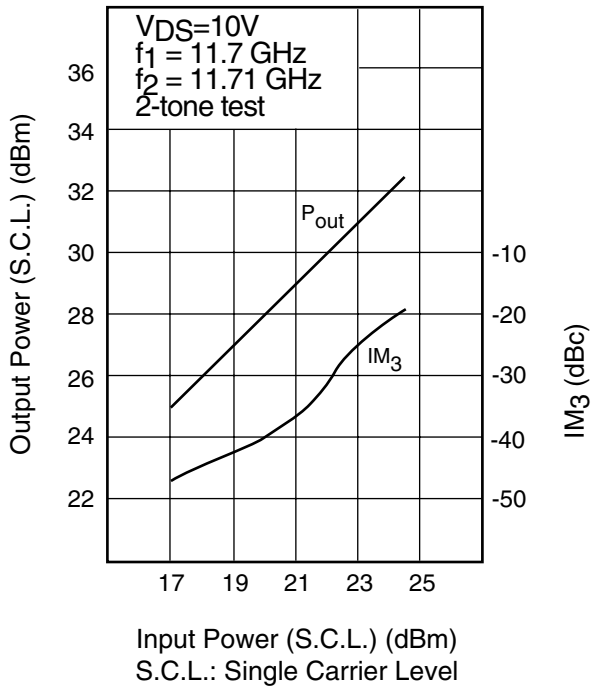
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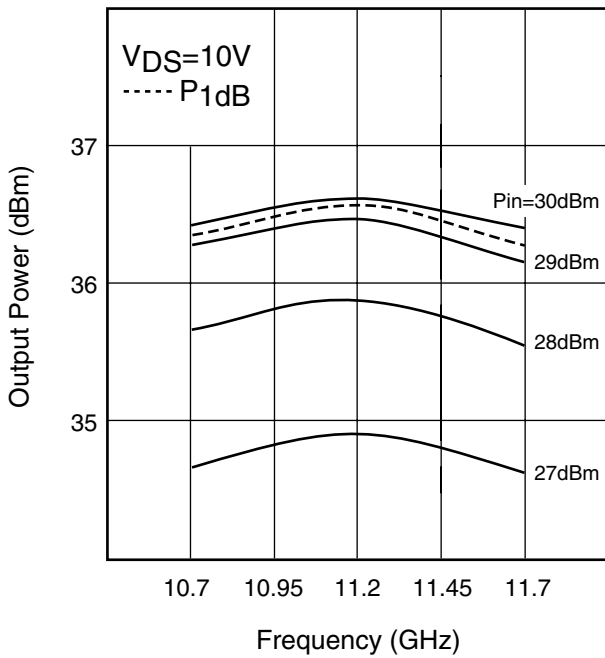
POWER DERATING CURVE



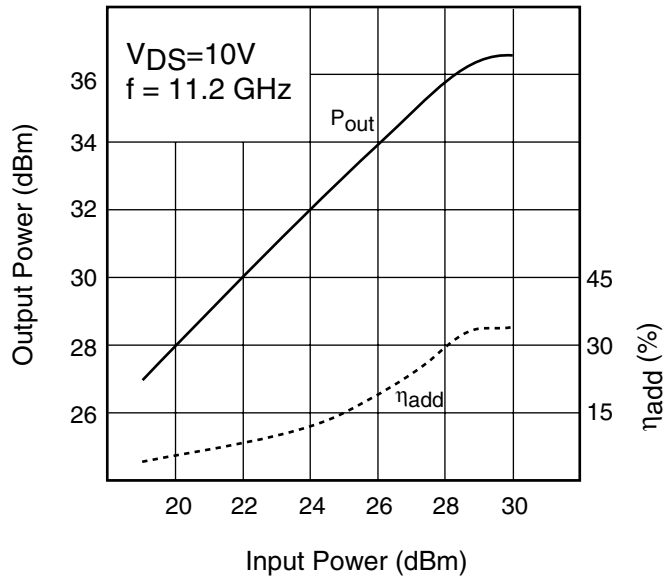
OUTPUT POWER & IM₃ vs. INPUT POWER

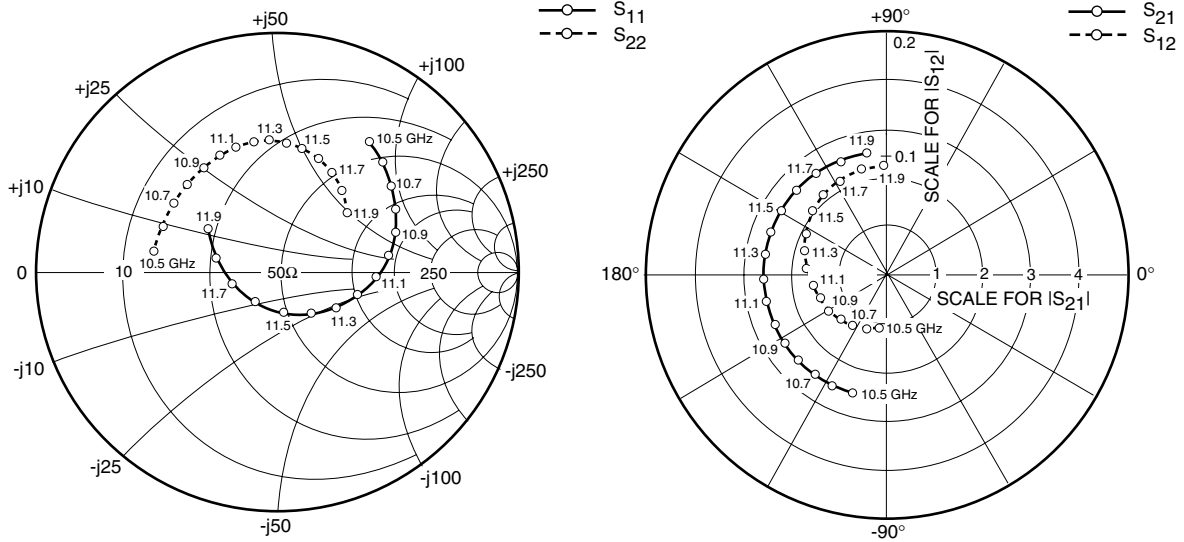


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





S-PARAMETERS

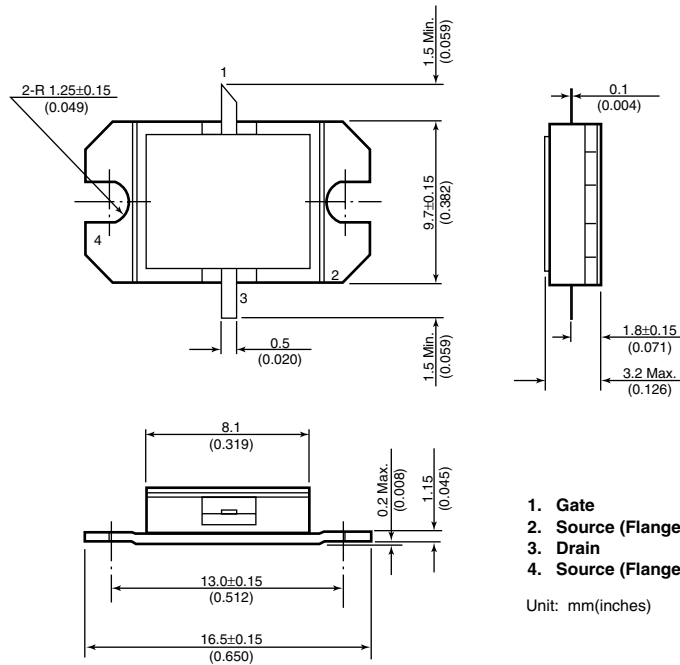
$V_{DS} = 10V, I_{DS} = 1100mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10500	.666	55.1	2.512	-107.2	.044	-99.7	.523	170.5
10600	.637	46.8	2.515	-116.8	.047	-111.7	.517	158.3
10700	.601	37.9	2.523	-126.9	.051	-123.6	.519	146.4
10800	.561	28.5	2.532	-137.1	.054	-136.9	.523	135.4
10900	.514	19.2	2.544	-147.1	.059	-149.1	.533	125.4
11000	.463	8.9	2.553	-157.3	.059	-161.3	.544	116.2
11100	.406	-2.4	2.562	-167.9	.063	-172.7	.548	108.1
11200	.345	-15.5	2.570	-178.3	.069	175.9	.553	100.4
11300	.281	-31.3	2.576	170.8	.071	164.8	.552	93.2
11400	.217	-51.9	2.576	159.8	.075	152.3	.544	85.7
11500	.167	-82.6	2.570	148.5	.082	140.7	.528	78.2
1600	.154	-126.2	2.562	137.1	.084	129.7	.506	70.2
11700	.195	-165.7	2.547	125.1	.087	117.1	.473	61.1
11800	.265	166.8	2.526	112.7	.090	104.3	.431	51.2
11900	.343	147.1	2.518	100.3	.090	91.7	.384	40.4

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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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