

FLM1011-8F

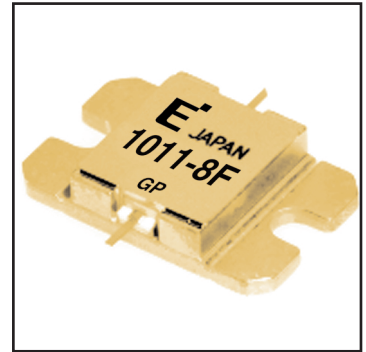
X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: $P_{1dB} = 39.0\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 7.0\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 29\%$ (Typ.)
- Low $IM_3 = -46\text{dBc}$ @ $P_o = 28.5\text{dBm}$
- Broad Band: 10.7 ~ 11.7GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed

DESCRIPTION

The FLM1011-8F 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 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}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	3400	5200	mA	
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 2200\text{mA}$	-	3400	-	mS	
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 170\text{mA}$	-0.5	-1.5	-3.0	V	
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -170\mu\text{A}$	-5.0	-	-	V	
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V}$ $f = 10.7 \sim 11.7\text{GHz}$ $I_{DS} \cong 0.65 I_{DSS}(\text{Typ.})$ $Z_S = Z_L = 50\Omega$	38.5	39.0	-	dBm	
Power Gain at 1dB G.C.P.	G_{1dB}		6.0	7.0	-	dB	
Drain Current	I_{dsr}		-	2200	2600	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 $P_{out} = 28.5\text{dBm S.C.L.}$	-44	-46	-	dBc
Thermal Resistance	R_{th}		Channel to Case	-	3.0	3.5	$^\circ\text{C/W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$	

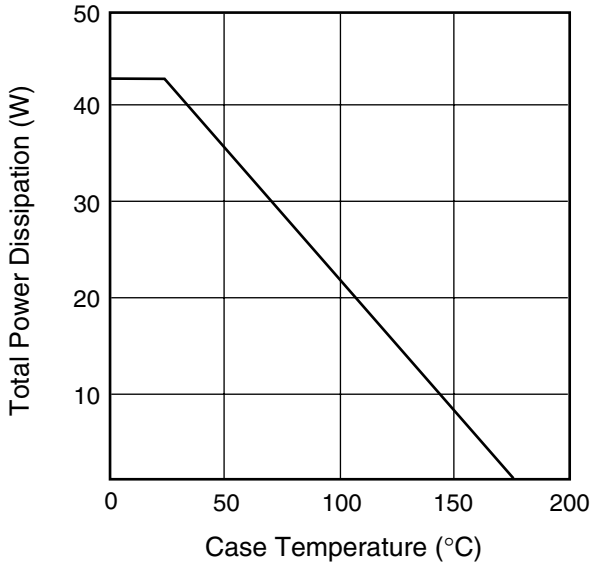
CASE STYLE: IB

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

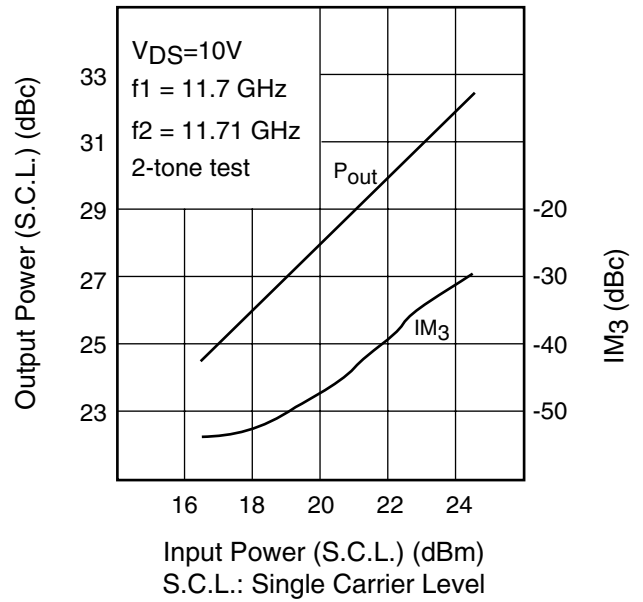
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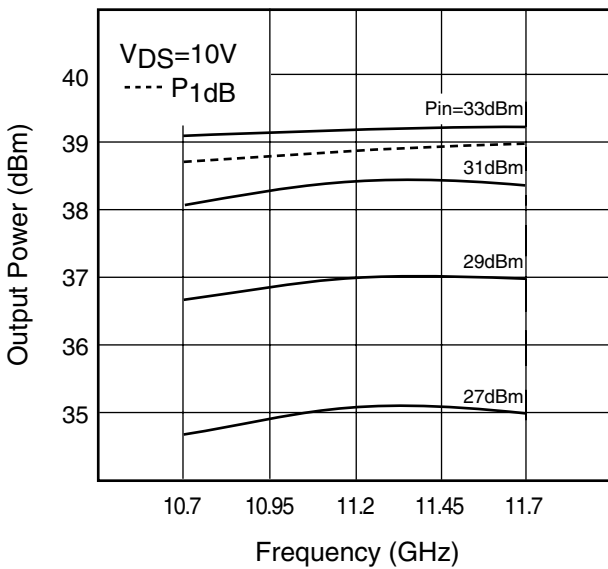
POWER DERATING CURVE



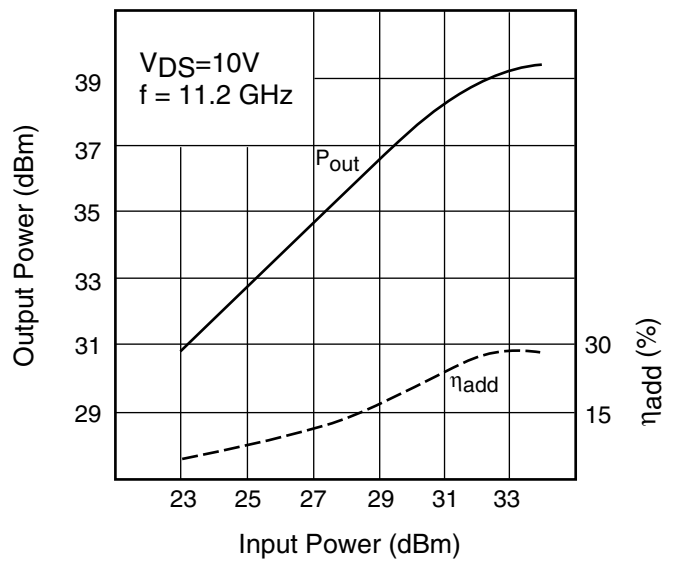
OUTPUT POWER & IM₃ vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY

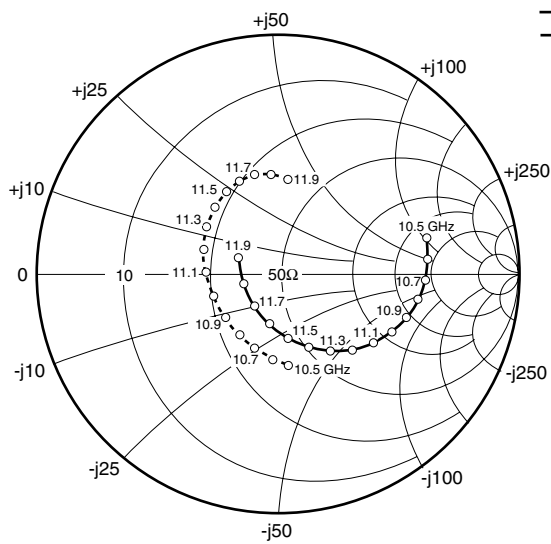


OUTPUT POWER vs. INPUT POWER

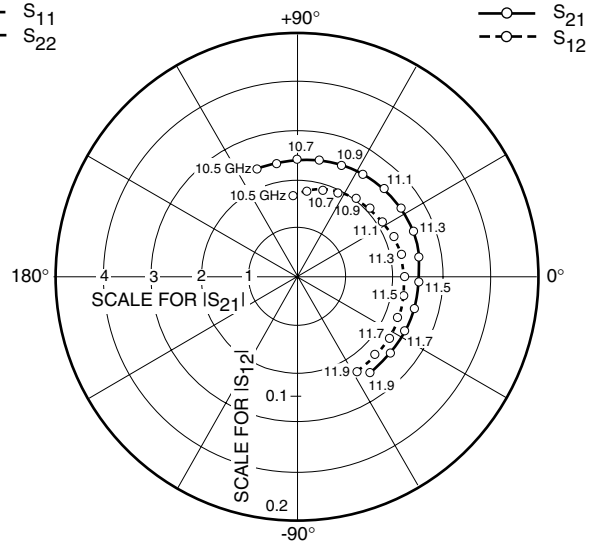


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X, Ku-Band Internally Matched FET



—○— S₁₁
- -○- - S₂₂



—○— S₂₁
- -○- - S₁₂

S-PARAMETERS

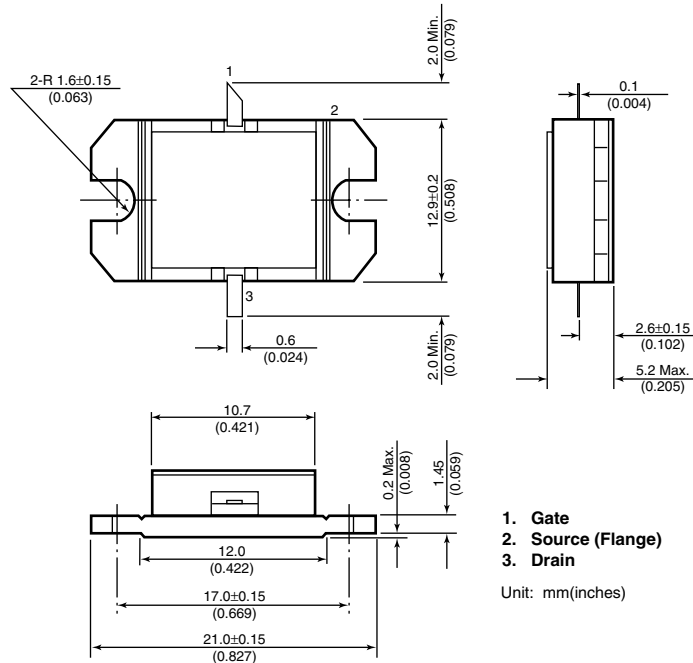
V_{DS} = 10V, I_{DS} = 2200mA

FREQUENCY (MHZ)	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10500	.638	13.3	2.349	110.3	.066	93.2	.386	-83.3
10600	.630	5.4	2.376	100.3	.071	83.2	.358	-93.7
10700	.617	-2.6	2.410	89.8	.074	73.3	.326	-106.9
10800	.597	-10.6	2.446	78.9	.076	63.9	.299	-122.1
10900	.570	-18.9	2.476	68.3	.081	53.1	.283	-140.5
11000	.539	-27.5	2.513	57.0	.082	43.1	.282	-161.2
11100	.498	-36.2	2.544	45.3	.083	32.6	.297	179.1
11200	.449	-45.8	2.563	33.5	.087	22.7	.324	161.1
11300	.397	-55.9	2.565	21.5	.088	12.3	.356	146.0
11400	.337	-67.2	2.561	9.2	.090	0.3	.386	133.2
11500	.276	-80.6	2.548	-2.8	.090	-10.3	.411	122.1
11600	.217	-97.8	2.528	-14.9	.089	-21.7	.425	112.3
11700	.167	-124.5	2.519	-27.2	.093	-32.9	.429	103.1
11800	.143	-162.8	2.509	-39.7	.090	-44.9	.419	94.1
11900	.168	157.8	2.502	-52.6	.093	-57.6	.399	84.4

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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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