

# FLM1011-3F

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: 10.7 ~ 11.7GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed

## DESCRIPTION

The FLM1011-3F 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:

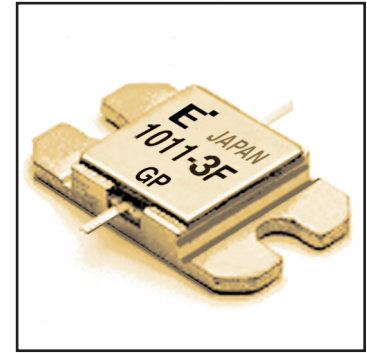
1. The drain-source operating voltage ( $V_{DS}$ ) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 13.0 and -1.4 mA respectively with gate resistance of  $100\Omega$ .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	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.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS}(\text{Typ.}),$ $f = 10.7 \sim 11.7 \text{GHz},$ $Z_S = Z_L = 50\Omega$	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	$\eta_{add}$		-	29	-	%
Gain Flatness	$\Delta G$		-	-	$\pm 0.6$	dB
3rd Order Intermodulation Distortion	$IM_3$	$f = 11.7\text{GHz}, \Delta f = 10\text{MHz}$ 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	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	66	$^\circ\text{C}$

CASE STYLE: IA

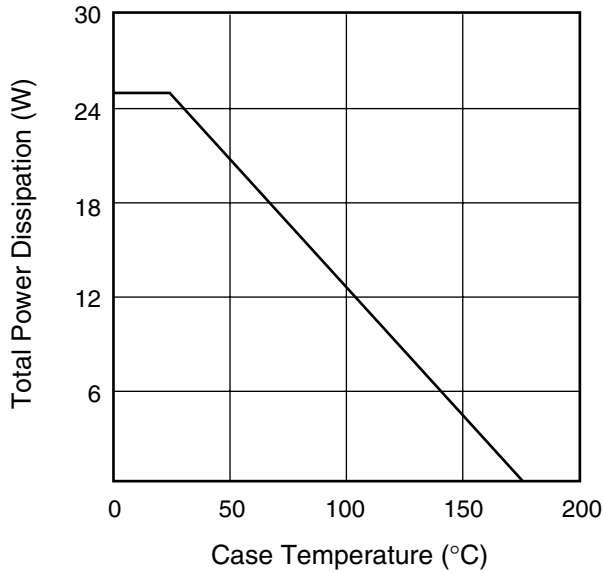
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



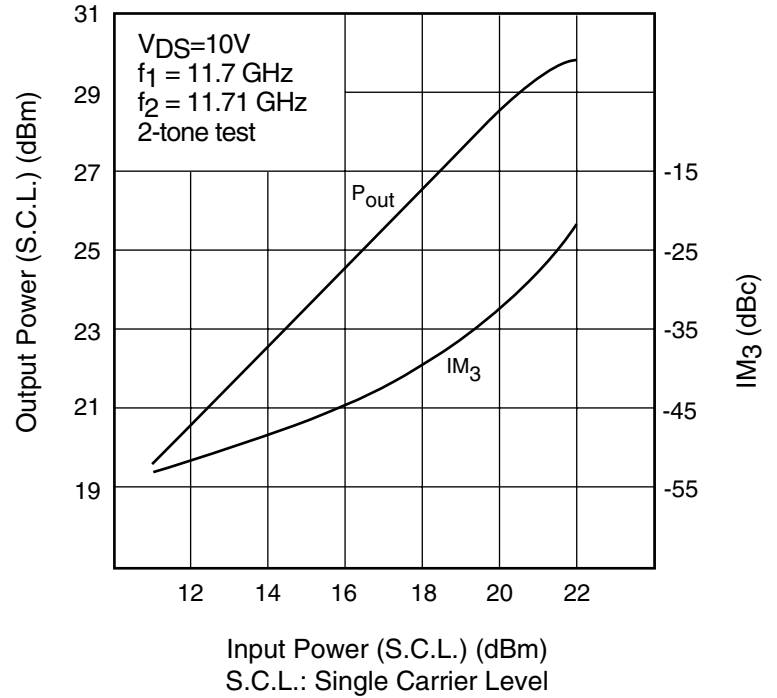
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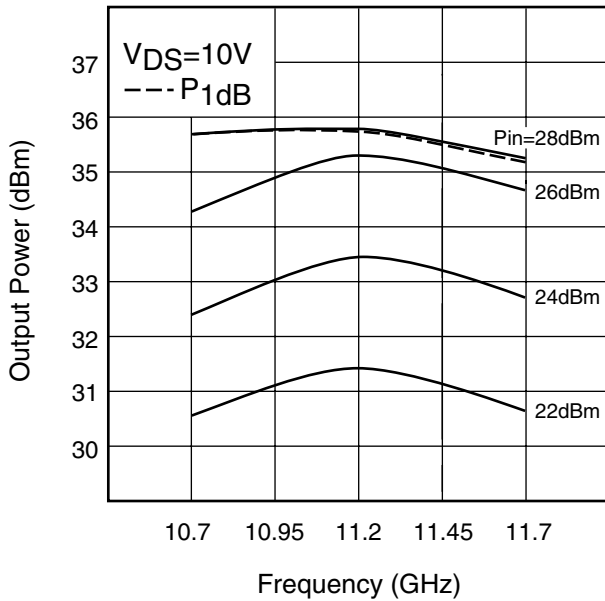
**POWER DERATING CURVE**



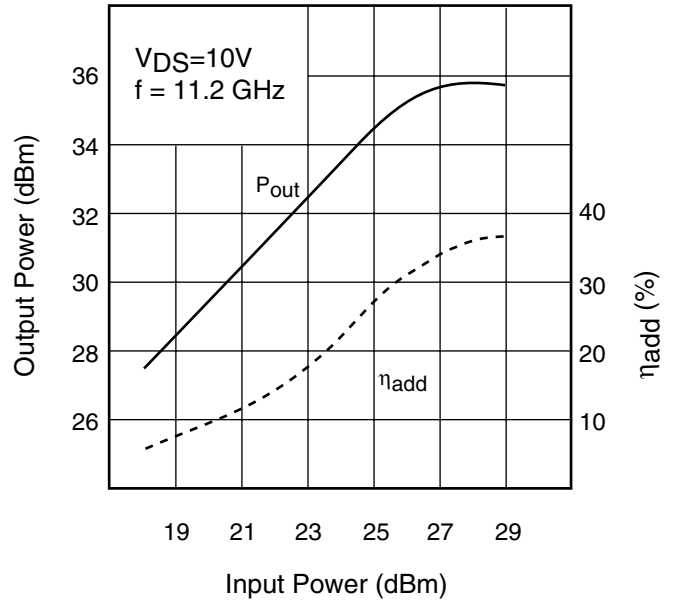
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**

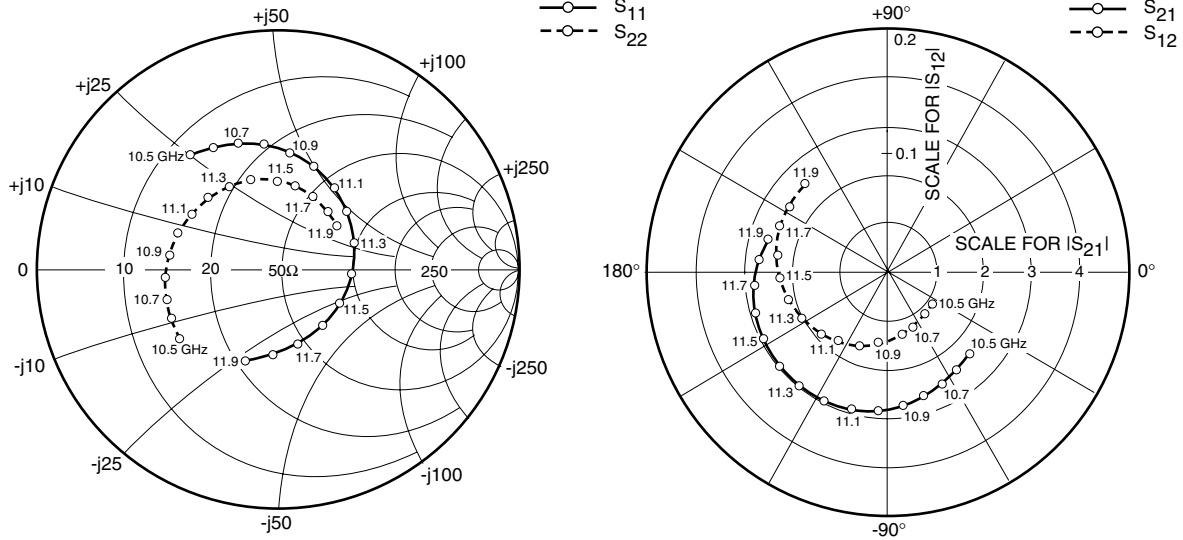


**OUTPUT POWER vs. FREQUENCY**



**OUTPUT POWER vs. INPUT POWER**





### S-PARAMETERS

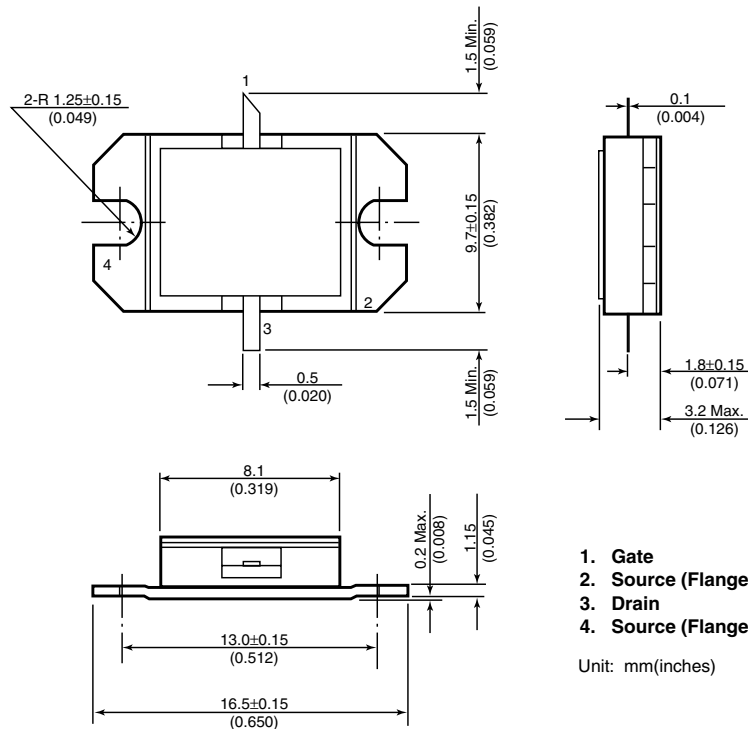
$V_{DS} = 10V, I_{DS} = 900mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10500	.606	127.5	2.381	-45.7	.045	-34.6	.500	-144.6
10600	.586	118.0	2.475	-54.3	.047	-47.4	.491	-154.2
10700	.556	107.5	2.574	-63.8	.050	-64.6	.474	-165.0
10800	.532	96.4	2.663	-73.4	.053	-76.4	.466	-175.9
10900	.493	84.3	2.767	-83.3	.058	-98.2	.452	172.4
11000	.457	71.3	2.859	-94.1	.064	-110.4	.442	159.8
11100	.413	55.9	2.929	-105.0	.070	-126.2	.430	146.9
11200	.375	38.7	2.984	-116.4	.075	-137.1	.424	133.6
11300	.333	19.7	2.995	-127.8	.081	-151.9	.411	120.4
11400	.301	-3.4	2.992	-139.6	.086	-164.5	.394	106.6
11500	.291	-28.4	2.935	-151.4	.089	-177.0	.375	92.5
11600	.297	-51.8	2.861	-162.7	.093	171.1	.361	79.1
11700	.320	-74.6	2.776	-173.8	.096	157.2	.341	65.6
11800	.354	-93.8	2.681	175.3	.097	147.3	.320	50.6
11900	.399	-109.4	2.565	164.8	.099	134.2	.305	37.7

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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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