

# FLM1414-12F

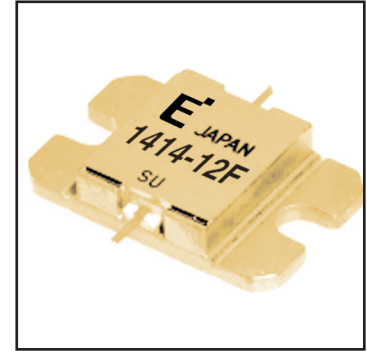
X, Ku-Band Internally Matched FET

## FEATURES

- High Output Power:  $P_{1dB} = 40.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 5.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 23\%$  (Typ.)
- Broad Band: 14.0 ~ 14.5GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed

## DESCRIPTION

The FLM1414-12F 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	$P_T$	$T_C = 25^\circ\text{C}$	57.6	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 34.0 and -5.0 mA respectively with gate resistance of 50 $\Omega$ .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	6000	9000	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 3600\text{mA}$	-	5000	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 300\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -340\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS}$ (Typ.), $f = 14.0 \sim 14.5 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	39.5	40.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		4.0	5.0	-	dB
Drain Current	$I_{dsr}$		-	3600	4500	mA
Power-added Efficiency	$\eta_{add}$		-	23	-	%
Thermal Resistance	$R_{th}$		Channel to Case	-	2.3	2.6
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

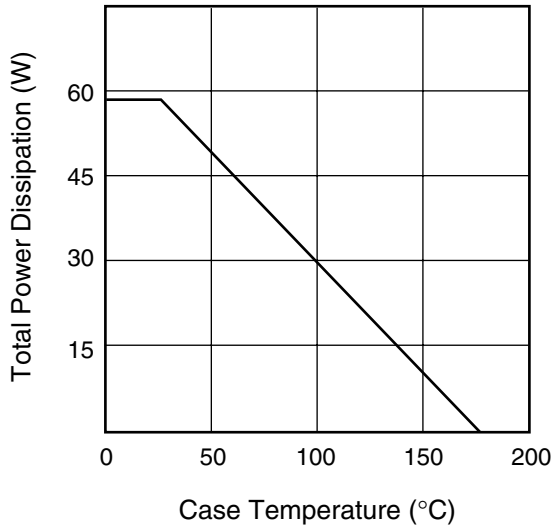
CASE STYLE: IB

G.C.P.: Gain Compression Point

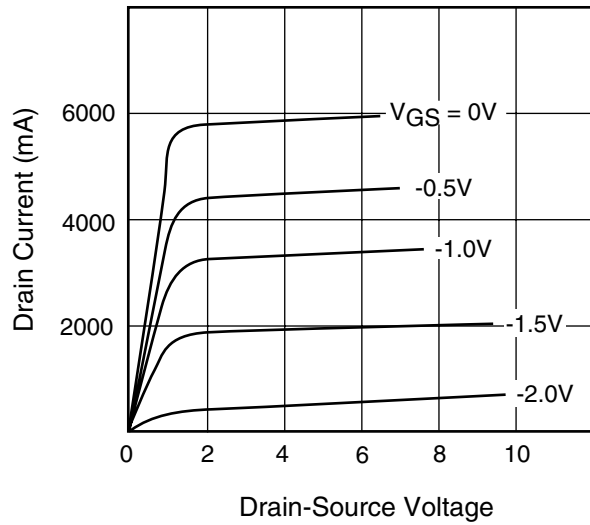
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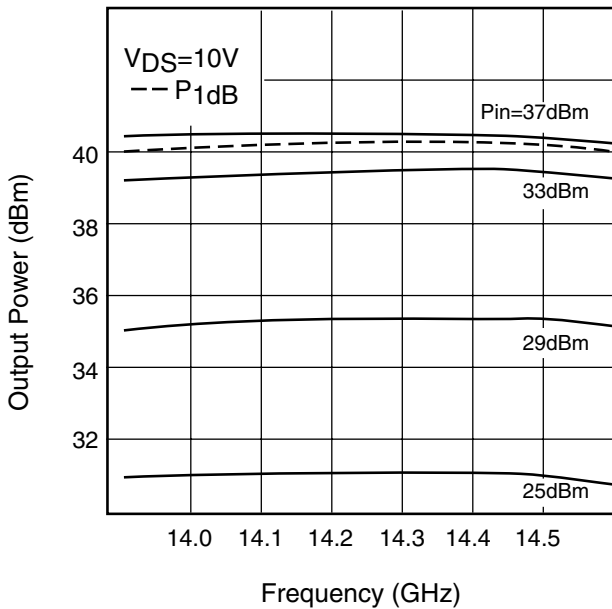
### POWER DERATING CURVE



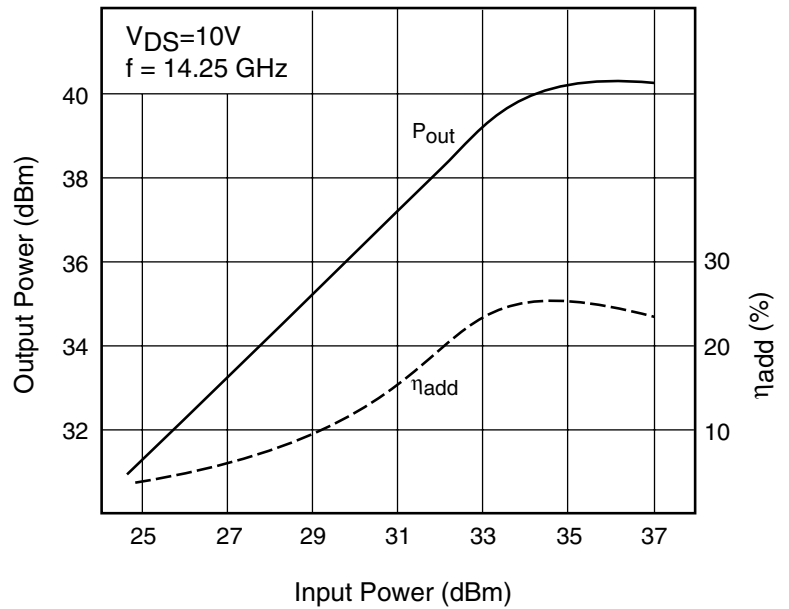
### DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



### OUTPUT POWER vs. FREQUENCY

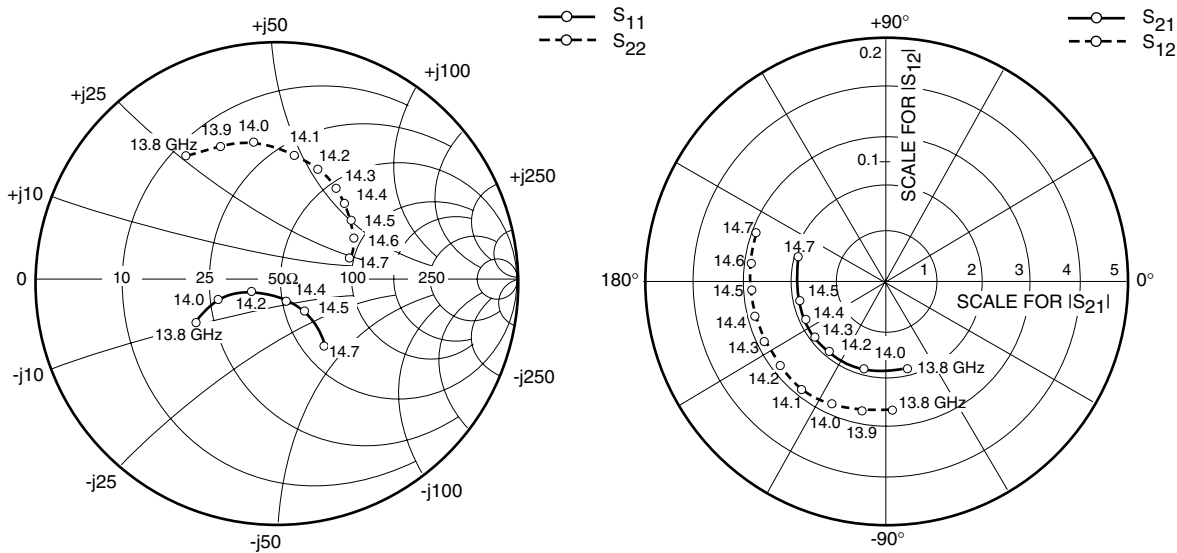


### OUTPUT POWER vs. INPUT POWER



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## S-PARAMETERS

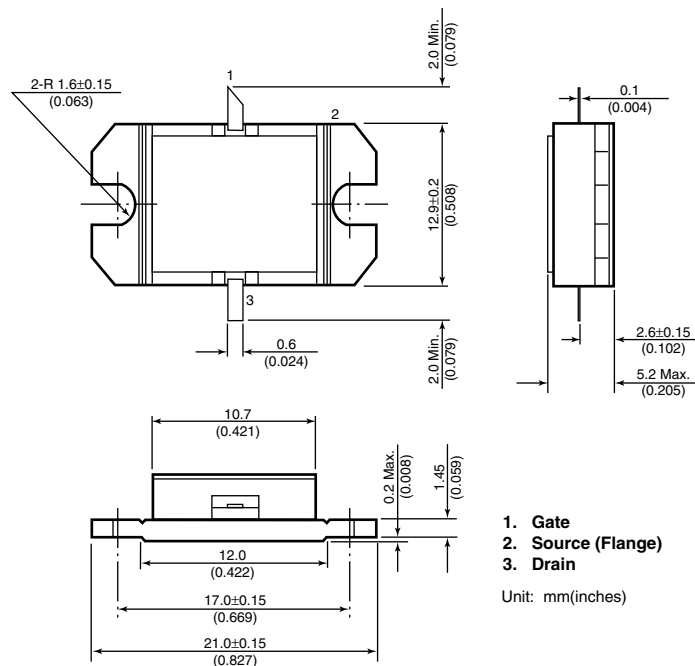
$V_{DS} = 10V, I_{DS} = 3600mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13800	.376	-154.2	1.886	-80.3	.106	-87.7	.653	124.8
13900	.315	-159.6	1.917	-93.5	.110	-101.2	.620	110.8
14000	.248	-164.1	1.944	-105.8	.113	-114.7	.585	96.6
14100	.178	-165.7	1.941	-118.3	.115	-128.1	.541	82.5
14200	.104	-158.7	1.942	-131.7	.114	-141.4	.506	68.3
14300	.051	-115.7	1.928	-143.3	.114	-153.8	.472	57.2
14400	.091	-58.4	1.896	-156.3	.113	-165.0	.437	47.1
14500	.167	-46.4	1.894	-167.5	.113	-176.2	.411	38.1
14600	.247	-48.1	1.893	179.5	.115	172.8	.381	28.6
14700	.328	-52.7	1.886	166.4	.116	160.3	.338	18.6

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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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