

C-Band Internally Matched FET

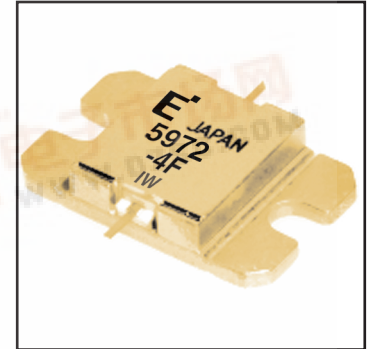
FEATURES

- High Output Power: $P_{1dB} = 36.5\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 9.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 36\%$ (Typ.)
- Low $IM_3 = -45\text{dBc}$ @ $P_o = 25.5\text{dBm}$
- Broad Band: 5.9 ~ 7.2GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

DESCRIPTION

The FLM5972-4F 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	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:

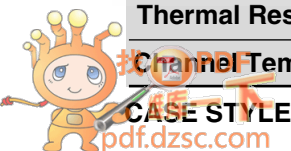
1. The drain-source operating voltage (V_{DS}) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 16.0 and -2.2 mA respectively with gate resistance of 100 Ω .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	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}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65I_{DSS}$ (Typ.), $f = 5.9 \sim 7.2\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$	35.5	36.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		8.5	9.5	-	dB
Drain Current	I_{dsr}		-	1100	1300	mA
Power-added Efficiency	η_{add}		-	36	-	%
Gain Flatness	ΔG	$f = 7.2\text{GHz}, \Delta f = 10\text{MHz}$ 2-Tone Test $P_{out} = 25.5\text{dBm S.C.L.}$	-	-	± 0.8	dB
3rd Order Intermodulation Distortion	IM_3		-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	5.0	6.0	$^\circ\text{C/W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

CASE STYLE: IB

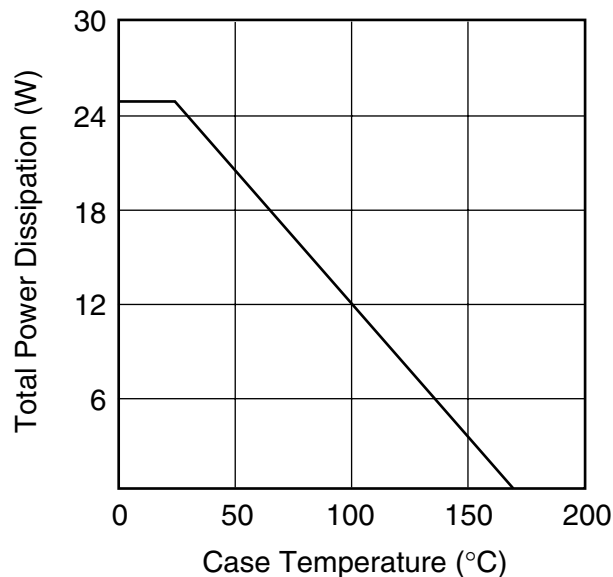
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



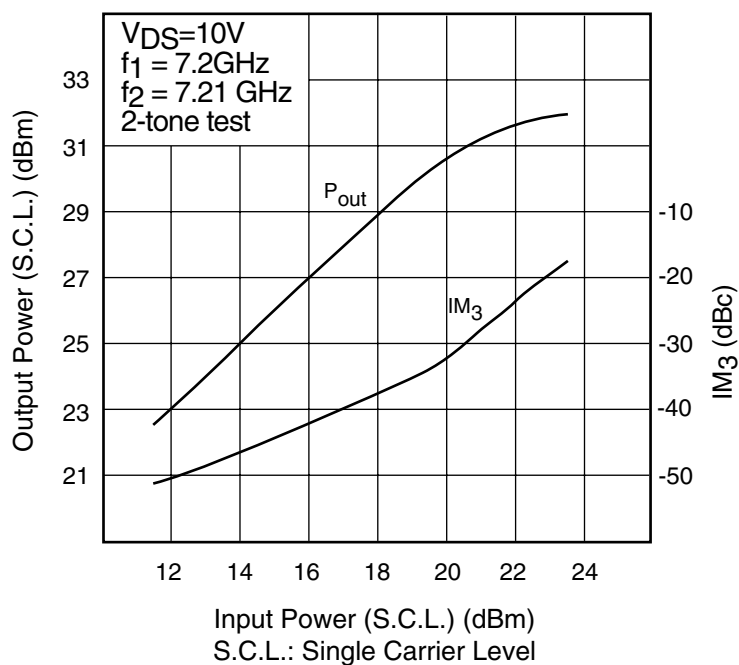
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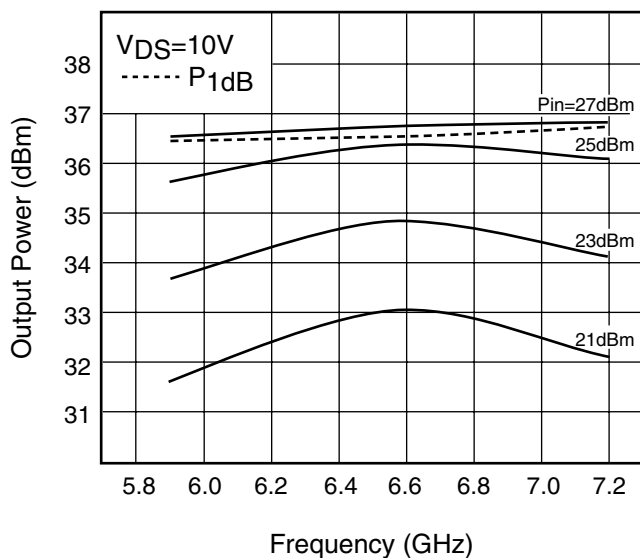
POWER DERATING CURVE



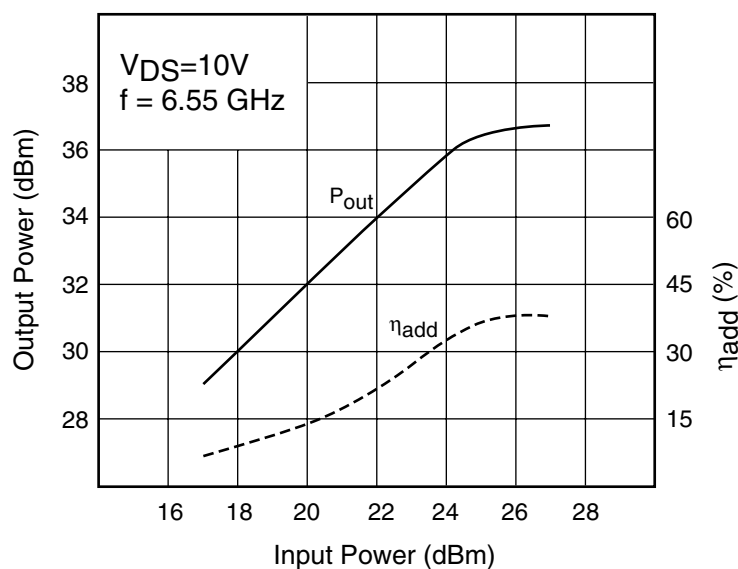
OUTPUT POWER & IM₃ vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY

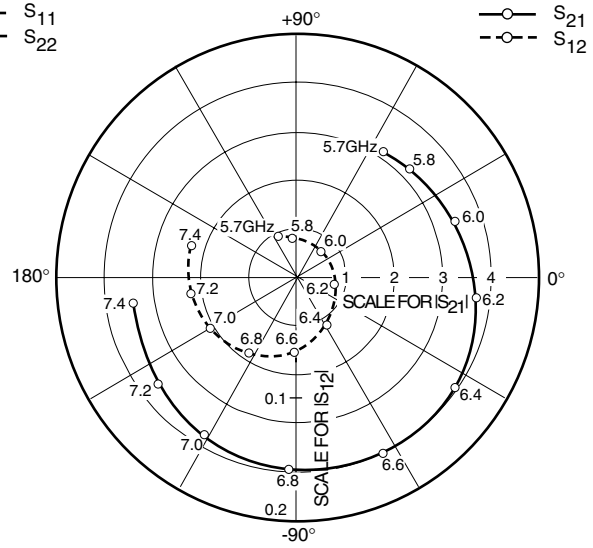
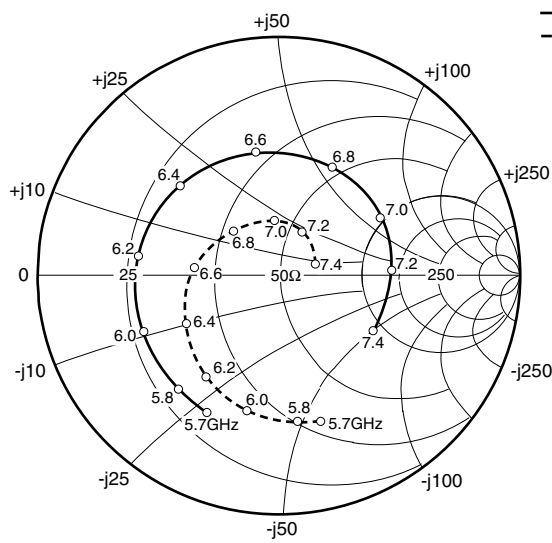


OUTPUT POWER vs. INPUT POWER



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S-PARAMETERS

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

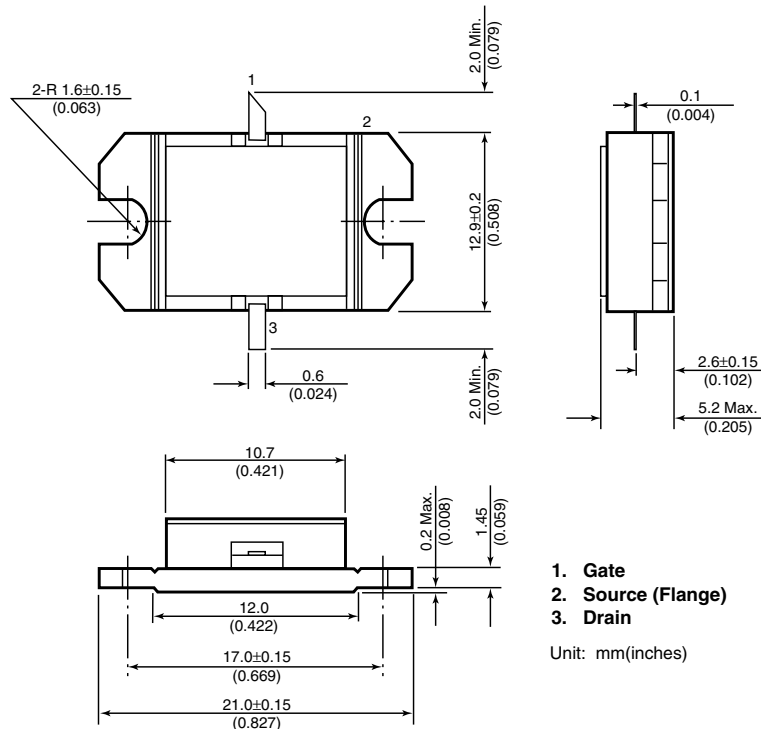
FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5700	.648	-118.1	3.136	55.3	.038	117.9	.634	-74.1
5800	.637	-130.5	3.237	43.8	.032	98.9	.614	-83.1
5900	.625	-143.4	3.362	32.1	.029	76.0	.601	-93.0
6000	.614	-157.3	3.490	19.7	.028	46.5	.585	-103.1
6100	.600	-172.2	3.617	6.8	.027	15.1	.557	-113.7
6200	.587	172.1	3.746	-6.1	.031	-11.3	.526	-125.2
6300	.572	155.4	3.847	-20.0	.037	-36.3	.482	-138.4
6400	.558	137.6	3.939	-34.3	.046	-58.4	.438	-152.9
6500	.543	119.4	3.992	-48.8	.052	-76.8	.396	-168.3
6600	.530	100.7	4.011	-63.6	.062	-92.8	.350	175.1
6700	.518	82.1	3.980	-78.4	.069	-108.7	.306	156.9
6800	.506	64.2	3.914	-92.9	.074	-123.5	.274	136.2
6900	.495	46.6	3.828	-107.2	.080	-137.5	.253	114.7
7000	.485	30.1	3.735	-121.3	.084	-150.1	.231	95.0
7100	.478	19.6	3.672	-129.7	.087	-157.0	.223	81.0
7200	.467	3.2	3.586	-143.5	.090	-171.1	.204	61.9
7300	.458	-13.4	3.507	-157.4	.091	175.6	.181	41.4
7400	.453	-30.9	3.436	-171.7	.092	163.5	.156	18.7

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Case Style "IB"

Metal-Ceramic Hermetic Package



For further information please contact:

Eudyna Devices USA Inc.

2355 Zanker Rd.
San Jose, CA 95131-1138, U.S.A.
TEL: (408) 232-9500
FAX: (408) 428-9111
www.us.eudyna.com

Eudyna Devices Europe Ltd.

Network House
Norreys Drive
Maidenhead, Berkshire SL6 4FJ
United Kingdom
TEL: +44 (0) 1628 504800
FAX: +44 (0) 1628 504888

Eudyna Devices Asia Pte Ltd.

Hong Kong Branch
Rm. 1101, Ocean Centre, 5 Canton Rd.
Tsim Sha Tsui, Kowloon, Hong Kong
TEL: +852-2377-0227
FAX: +852-2377-3921

Eudyna Devices Inc.

Sales Division
1, Kanai-cho, Sakae-ku
Yokohama, 244-0845, Japan
TEL: +81-45-853-8156
FAX: +81-45-853-8170

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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