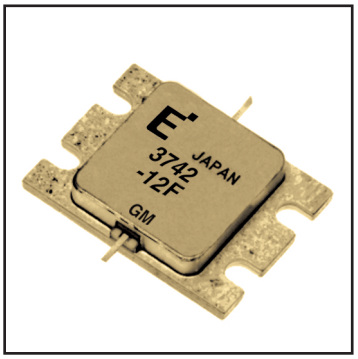
FLM3742-12F

C-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 41.5dBm (Typ.)
- High Gain: G_{1dB} = 11.5dB (Typ.)
- High PAE: η_{add} = 40% (Typ.)
- Low IM_3 = -46dBc@Po = 30.5dBm
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package



DESCRIPTION

The FLM3742-12F 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 Ta=25°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°C	57.6	W
Storage Temperature	T_{stg}		-65 to +175	°C
Channel Temperature	T_{ch}		175	°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 -5.6 mA respectively with gate resistance of 50Ω.

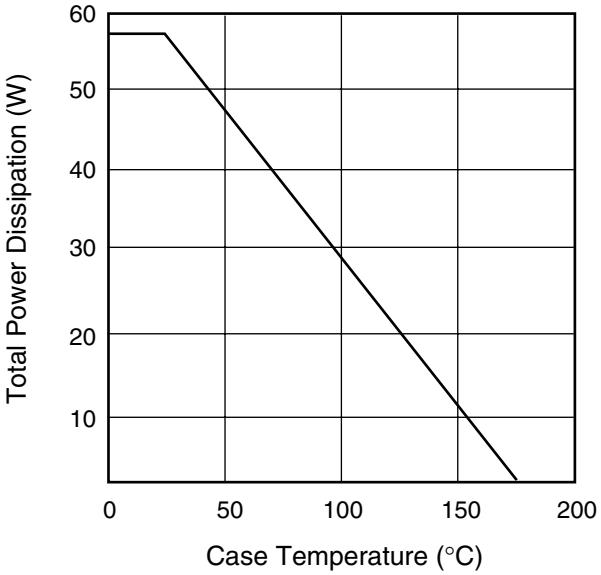
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	5800	8700	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 3400mA	-	2900	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 300mA	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -300μA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} =10V, I_{DS} = 0.55 I_{DSS} (Typ.), f = 3.7 ~ 4.2 GHz, Z_S=Z_L= 50 ohm	40.5	41.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		10.5	11.5	-	dB
Drain Current	I_{dsr}		-	3250	3800	mA
Power-added Efficiency	η_{add}		-	40	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 4.2 GHz, Δf = 10 MHz 2-Tone Test P_{out} = 30.5dBm S.C.L.	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	2.3	2.6	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

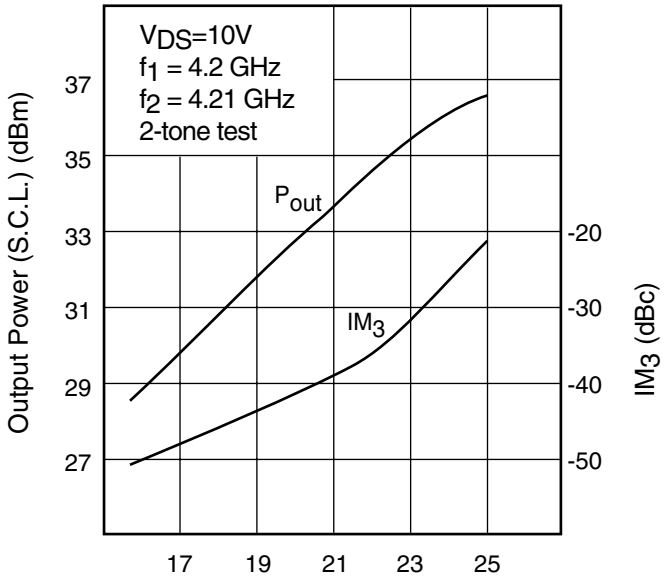
CASE STYLE: IK

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

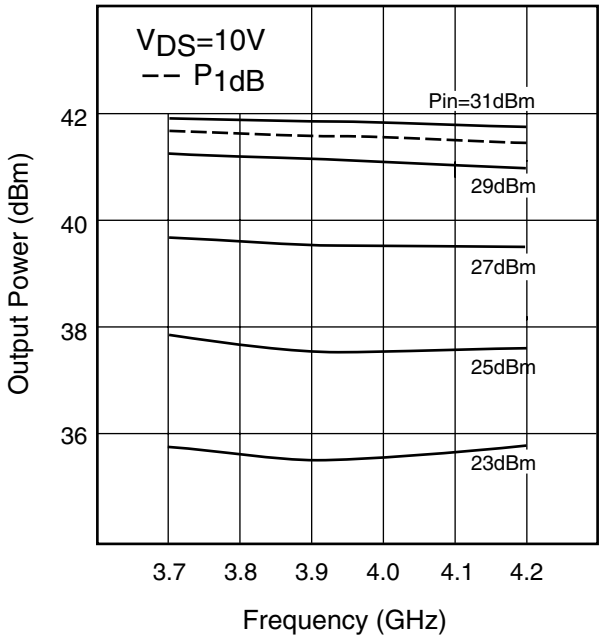
POWER DERATING CURVE



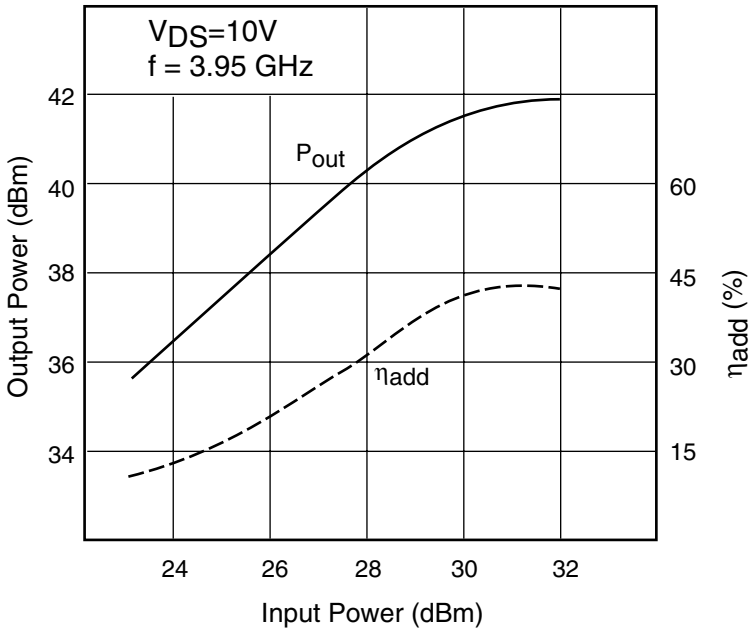
OUTPUT POWER & IM3 vs. INPUT POWER

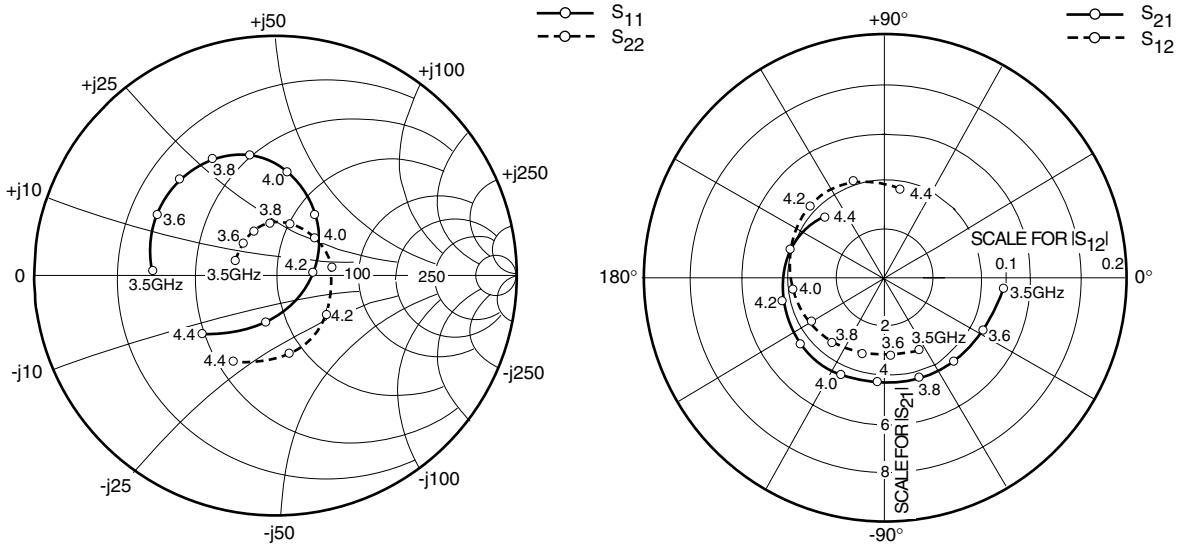


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





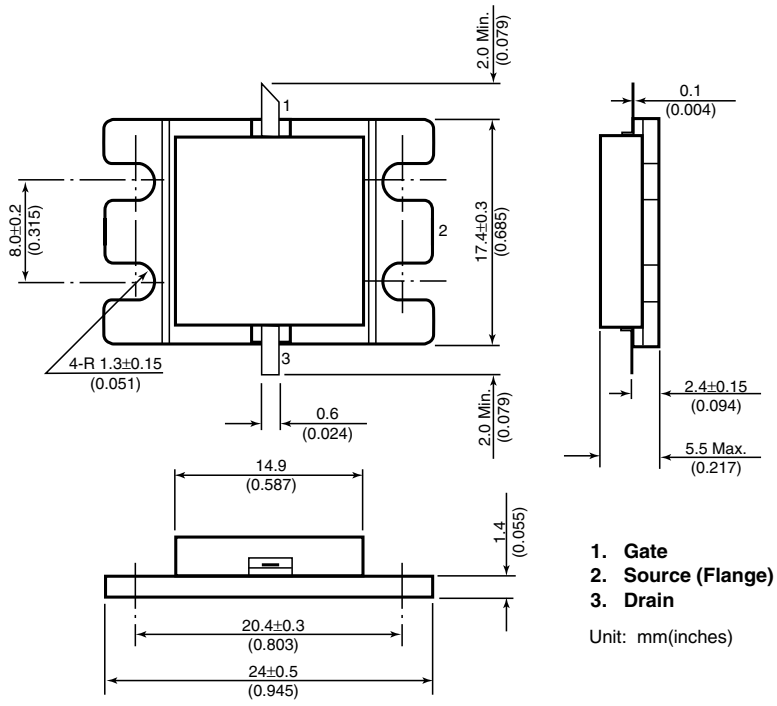
S-PARAMETERS

V_{DS} = 10V, I_{DS} = 3400mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.508	176.8	4.905	-4.5	.066	-63.8	.181	159.5
3600	.551	152.3	4.604	-27.9	.066	-86.9	.189	136.0
3700	.571	134.7	4.379	-49.9	.066	-107.5	.200	116.6
3800	.558	118.2	4.277	-70.9	.070	-129.0	.214	96.9
3900	.514	102.3	4.258	-92.5	.072	-149.8	.219	73.8
4000	.434	83.6	4.333	-115.1	.078	-172.3	.223	44.2
4100	.296	58.4	4.402	-140.2	.083	163.6	.234	7.4
4200	.151	2.9	4.390	-167.6	.084	137.7	.265	-37.5
4300	.203	-102.6	4.138	163.3	.083	109.0	.330	-80.1
4400	.402	-143.5	3.626	134.3	.074	81.6	.401	-116.0

Case Style "IK"

Metal-Ceramic Hermetic Package



1. **Gate**
2. **Source (Flange)**
3. **Drain**

Unit: mm(inches)

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.**