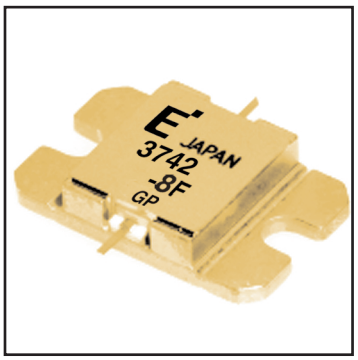
FLM3742-8F

C-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 39.5dBm (Typ.)
- High Gain: G_{1dB} = 11.0dB (Typ.)
- High PAE: η_{add} = 37% (Typ.)
- Low IM_3 = -46dBc@Po = 28.5dBm
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package



DESCRIPTION

The FLM3742-8F 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 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	42.8	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 -4.4 mA respectively with gate resistance of 100Ω.

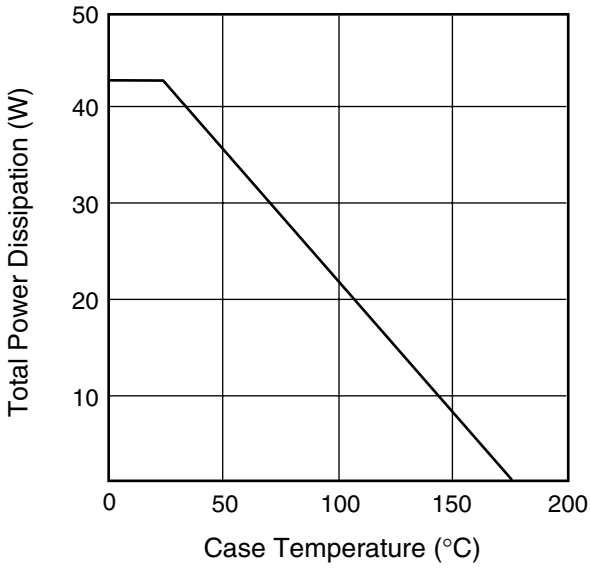
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	3900	5850	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 2200mA	-	2000	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 180mA	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -180μA	-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	38.5	39.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		10.0	11.0	-	dB
Drain Current	I_{dsr}		-	2200	2600	mA
Power-added Efficiency	η_{add}		-	37	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 4.2 GHz, Δf = 10 MHz 2-Tone Test P_{out} = 28.5dBm S.C.L.	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	3.0	3.5	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

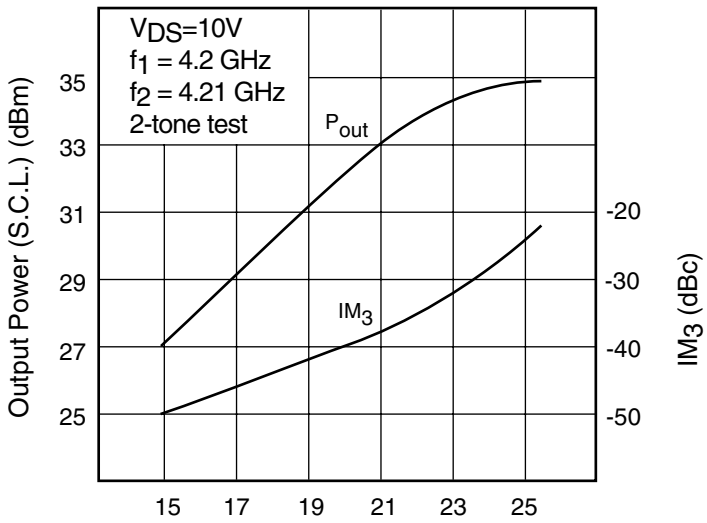
CASE STYLE: IB

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

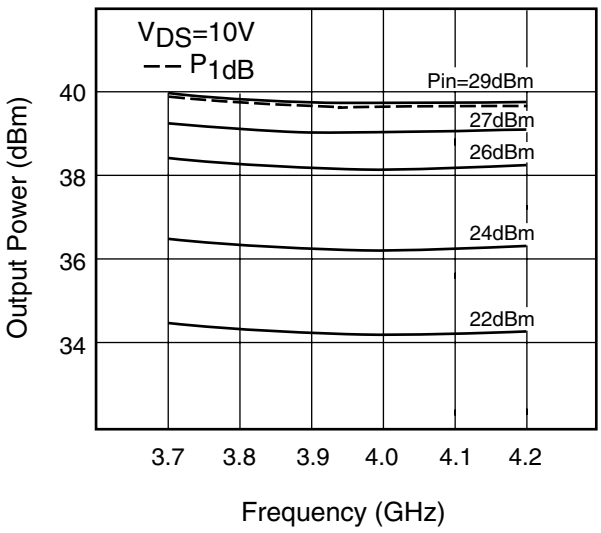
POWER DERATING CURVE



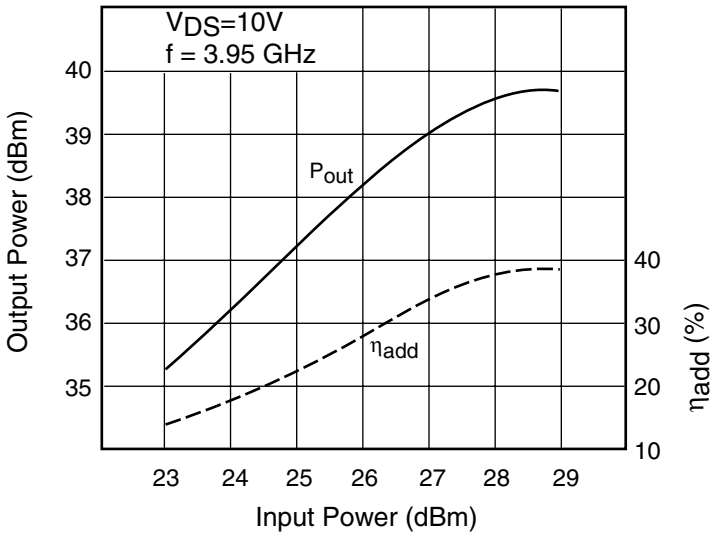
OUTPUT POWER & IM3 vs. INPUT POWER

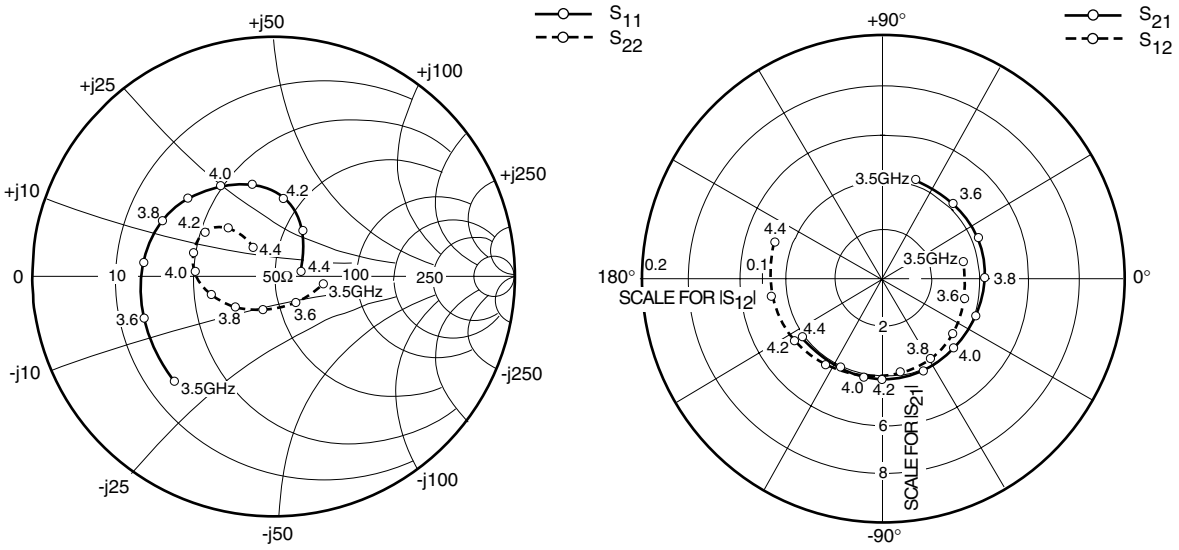


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





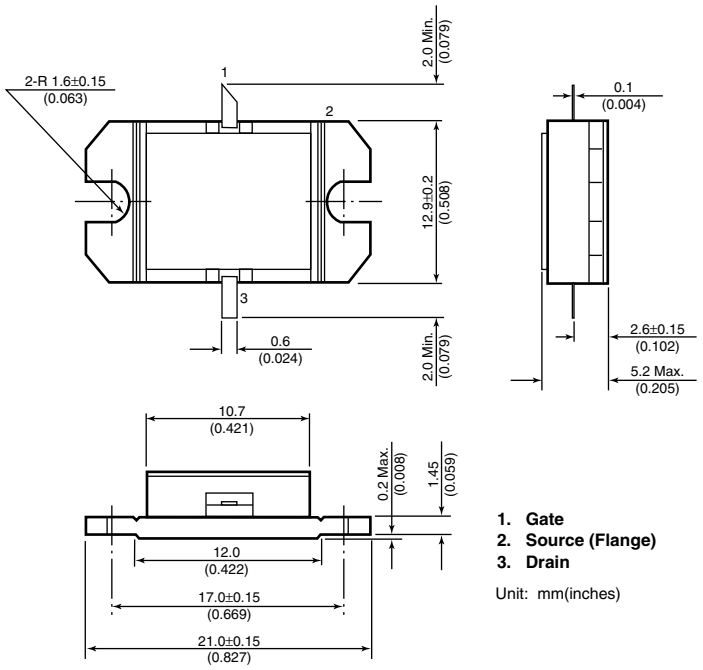
S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.603	-133.6	4.266	71.3	.068	11.2	.207	-10.9
3600	.570	-161.8	4.268	46.8	.070	-13.5	.145	-53.9
3700	.549	174.4	4.221	23.1	.073	-37.9	.149	-106.6
3800	.520	154.2	4.158	0.8	.077	-59.5	.208	-140.7
3900	.486	137.2	4.089	-21.7	.078	-80.1	.270	-162.7
4000	.444	120.1	4.074	-43.9	.082	-102.4	.321	179.2
4100	.393	103.2	4.075	-66.7	.085	-124.6	.347	163.5
4200	.326	83.3	4.108	-90.7	.089	-147.0	.334	147.6
4300	.227	56.9	4.165	-116.5	.093	-171.1	.274	133.0
4400	.112	6.8	4.141	-145.2	.095	160.9	.147	126.3

Case Style "IB"

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.**