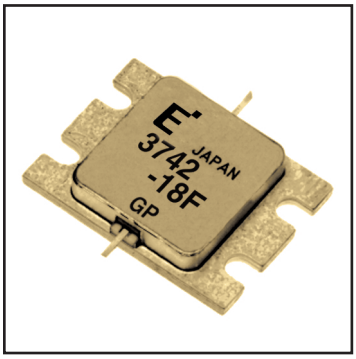
FLM3742-18F

C-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 43.0dBm (Typ.)
- High Gain: G_{1dB} = 10.5dB (Typ.)
- High PAE: η_{add} = 37% (Typ.)
- Low IM_3 = -46dBc@Po = 32.0dBm
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package



DESCRIPTION

The FLM3742-18F 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	83.3	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 26.0 and -11.6 mA respectively with gate resistance of 25Ω.

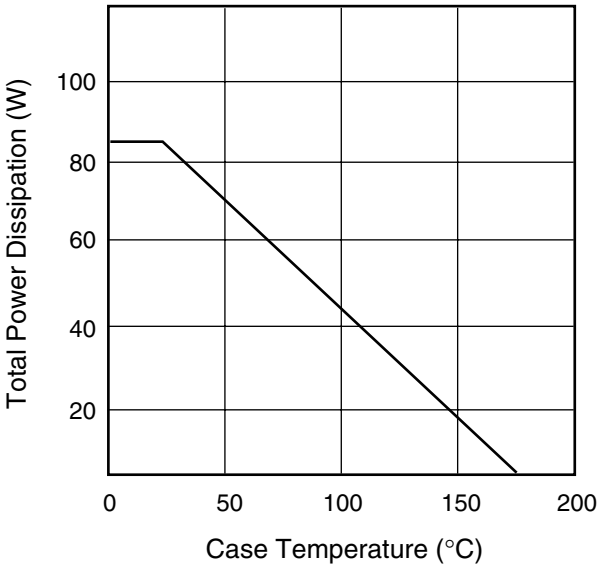
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	9.0	13.5	A
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 4800mA	-	4000	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 480mA	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -480μA	-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	42.0	43.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		9.5	10.5	-	dB
Drain Current	I_{dsr}		-	4800	6000	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} = 32.0dBm S.C.L.	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	1.6	1.8	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

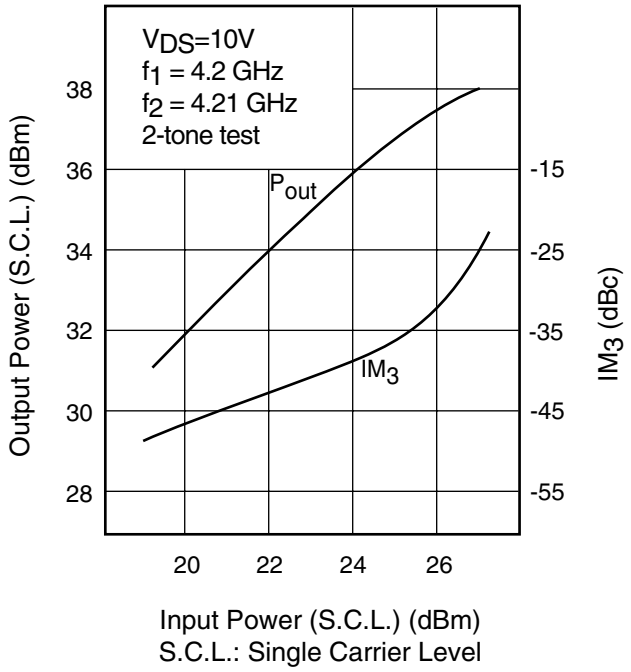
CASE STYLE: IK

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

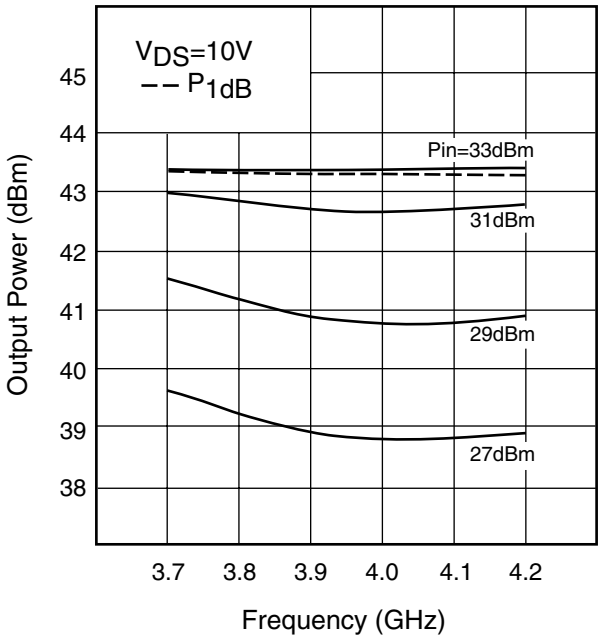
POWER DERATING CURVE



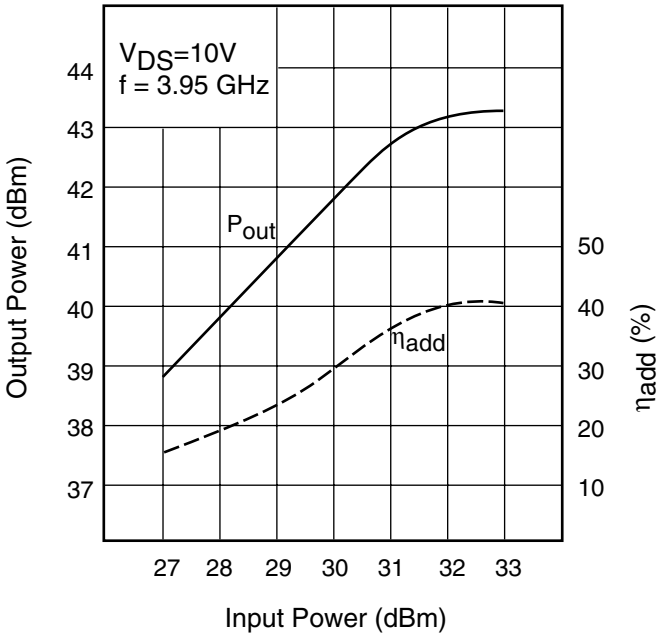
OUTPUT POWER & IM3 vs. INPUT POWER

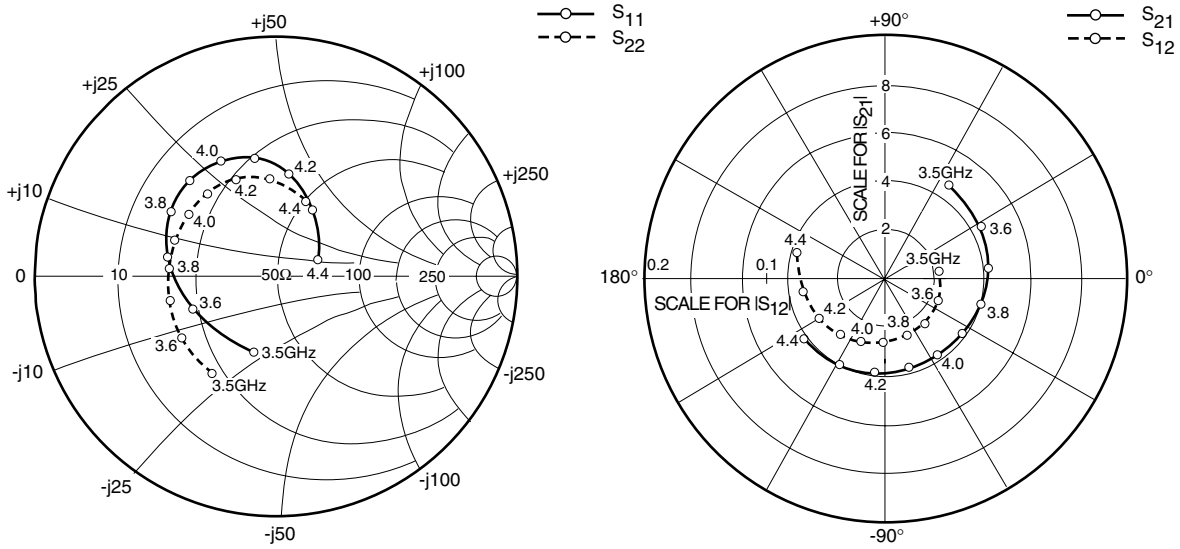


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





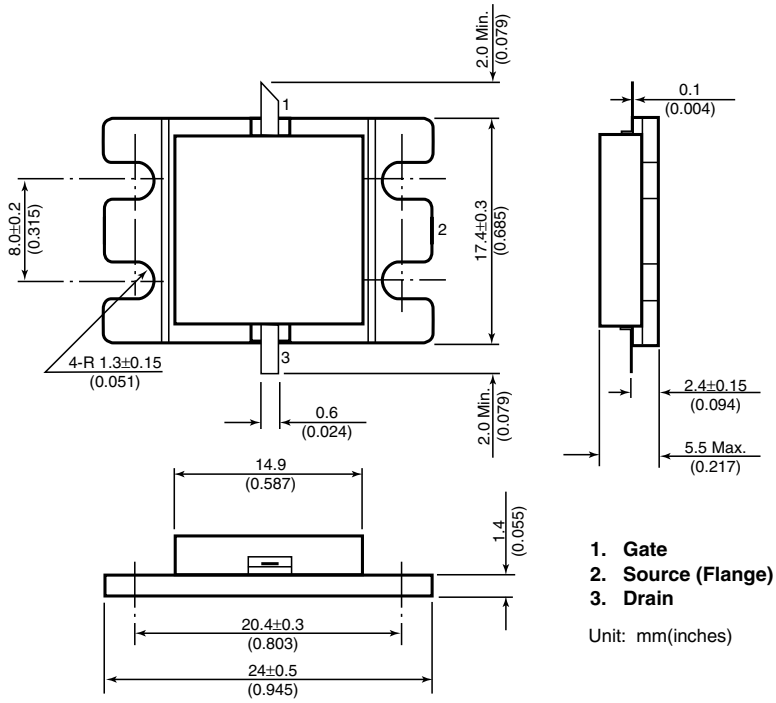
S-PARAMETERS

V_{DS} = 10V, I_{DS} = 4800mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.326	-106.3	4.659	55.5	.043	5.6	.489	-123.6
3600	.371	-157.9	4.532	29.1	.046	-24.1	.465	-146.9
3700	.455	170.2	4.275	5.2	.049	-48.6	.453	-166.9
3800	.507	147.9	4.060	-16.0	.050	-70.0	.452	176.1
3900	.537	131.1	3.891	-36.0	.053	-91.5	.452	160.6
4000	.531	115.5	3.821	-55.4	.056	-111.7	.453	145.6
4100	.498	100.4	3.838	-75.1	.060	-129.2	.450	130.5
4200	.432	82.7	3.934	-95.6	.066	-149.3	.438	113.5
4300	.318	60.9	4.062	-118.4	.071	-170.9	.405	93.9
4400	.180	19.6	4.174	-143.4	.077	164.6	.341	68.4

Case Style "IK"

Metal-Ceramic Hermetic Package



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

Unit: mm(inches)

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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.**