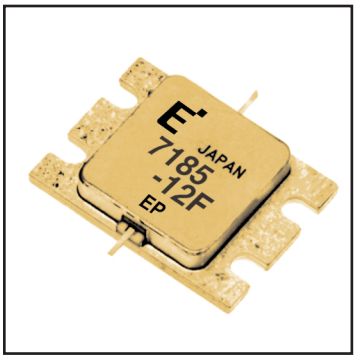
FLM7185-12F

C-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 41.0dBm (Typ.)
- High Gain: G_{1dB} = 8.0dB (Typ.)
- High PAE: η_{add} = 30% (Typ.)
- Low IM_3 = -45dBc@Po = 30.0dBm
- Broad Band: 7.1 ~ 7.9GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package



DESCRIPTION

The FLM7185-12F 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.

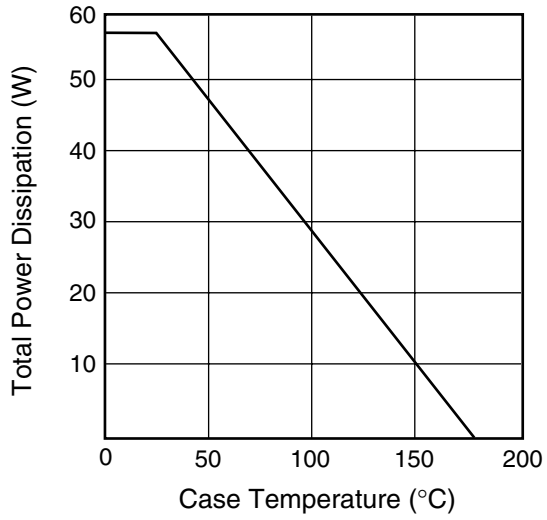
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	5000	7500	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 3250mA	-	5000	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 250mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -250μA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} = 10V, I_{DS} = 0.65I_{DSS} (Typ.), f = 7.1 ~ 8.5 GHz, Z_S=Z_L= 50 ohm	40.0	41.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		7.0	8.0	-	dB
Drain Current	I_{dsr}		-	3500	4500	mA
Power-added Efficiency	ηadd		-	30	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 8.5 GHz, Δf = 10 MHz 2-Tone Test P_{out} = 30.0dBm S.C.L.	-42	-45	-	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

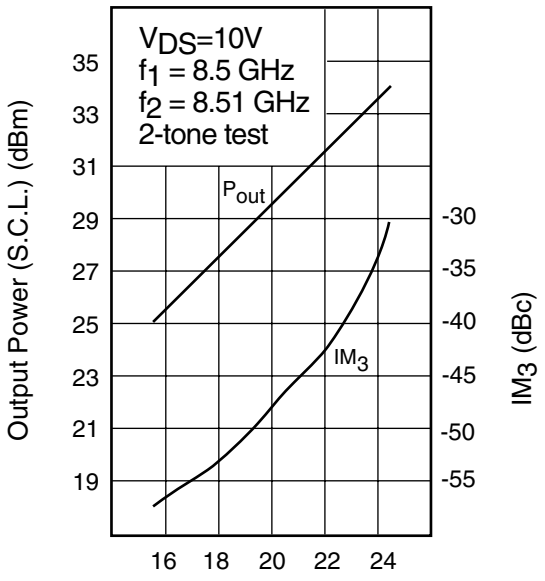
CASE STYLE: IK

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

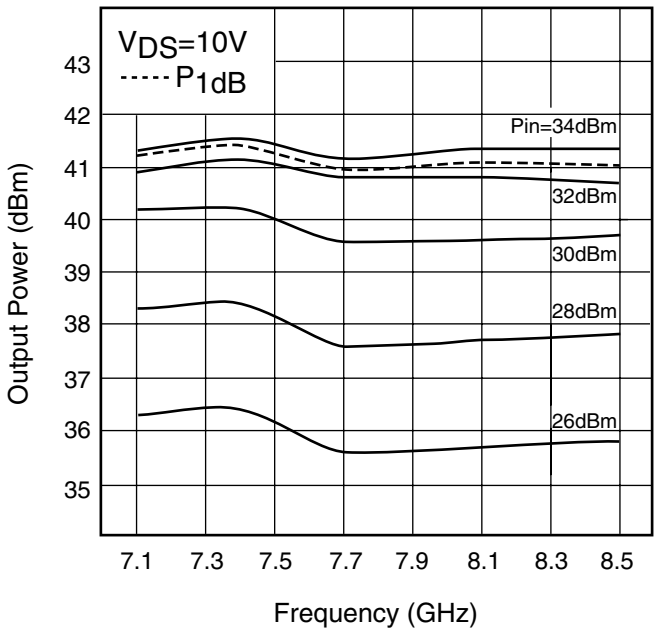
POWER DERATING CURVE



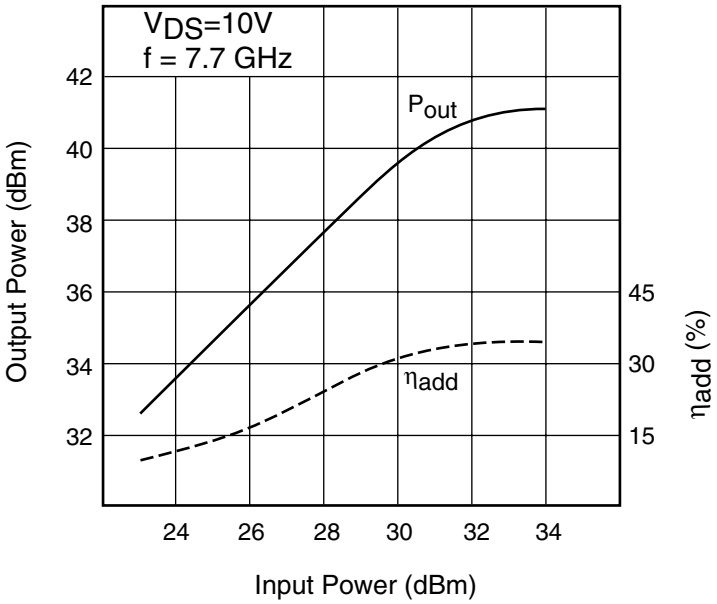
OUTPUT POWER & IM_3 vs. INPUT POWER

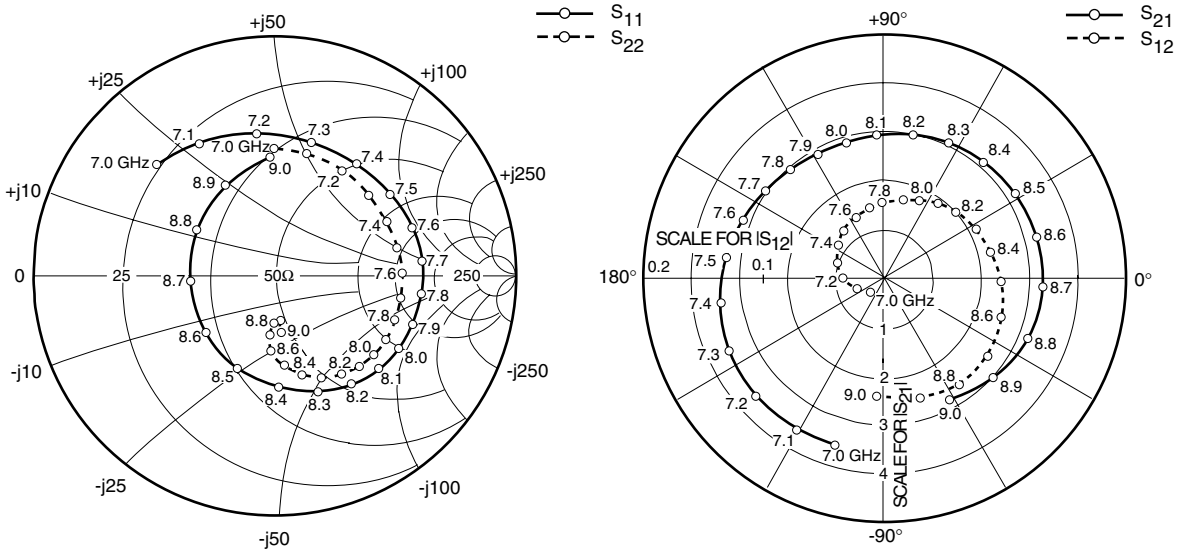


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





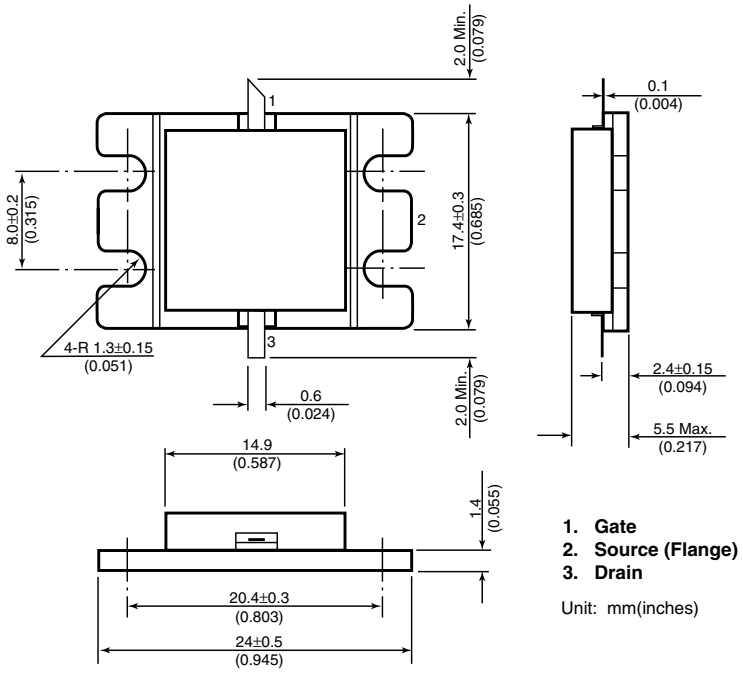
S-PARAMETERS

V_{DS} = 10V, I_{DS} = 3250mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7000	.665	137.1	3.537	-107.2	.017	-134.4	.532	89.7
7100	.626	119.6	3.608	-120.7	.025	-157.6	.525	75.0
7200	.592	97.1	3.612	-138.2	.033	-178.1	.518	57.8
7300	.577	74.7	3.558	-155.3	.039	162.3	.514	41.1
7400	.575	53.6	3.435	-171.8	.046	145.3	.516	26.3
7500	.583	35.2	3.312	172.6	.051	131.0	.519	12.8
7600	.597	19.3	3.169	158.0	.054	115.4	.526	0.7
7700	.610	5.1	3.045	144.1	.059	102.4	.531	-10.2
7800	.616	-7.8	2.945	131.1	.062	90.8	.534	-20.5
7900	.613	-19.8	2.889	118.6	.065	77.0	.533	-30.2
8000	.599	-31.2	2.897	106.2	.069	66.0	.528	-39.1
8100	.581	-42.5	2.938	92.8	.075	54.3	.516	-47.8
8200	.556	-54.9	2.987	78.9	.080	41.0	.498	-56.6
8300	.524	-69.4	3.055	64.6	.087	27.8	.473	-65.7
8400	.476	-87.6	3.144	49.3	.091	13.4	.435	-74.8
8500	.424	-110.2	3.220	32.6	.097	-1.4	.380	-84.1
8600	.375	-139.2	3.264	15.1	.103	-19.0	.315	-91.5
8700	.351	-173.9	3.250	-3.3	.107	-36.8	.251	-94.1
8800	.370	150.2	3.168	-22.6	.107	-55.2	.204	-90.2
8900	.423	118.4	3.016	-41.9	.104	-74.0	.200	-83.9
9000	.491	92.3	2.818	-61.1	.098	-93.2	.236	-84.9

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.**