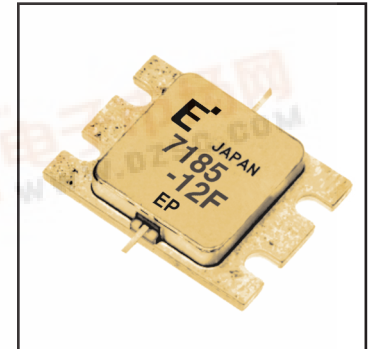


# FLM7185-12F

## C-Band Internally Matched FET

### FEATURES

- High Output Power:  $P_{1dB} = 41.0\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 8.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 30\%$  (Typ.)
- Low  $IM_3 = -45\text{dBc}$  @  $P_o = 30.0\text{dBm}$
- Broad Band: 7.1 ~ 7.9GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- 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 $T_a=25^\circ\text{C}$ )

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	$V_{DS}$		15	V
Gate-Source Voltage	$V_{GS}$		-5	V
Total Power Dissipation	$P_T$	$T_C = 25^\circ\text{C}$	57.6	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 32.0 and -5.6 mA respectively with gate resistance of 50 $\Omega$ .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	5000	7500	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 3250\text{mA}$	-	5000	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 250\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -250\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65I_{DSS}$ (Typ.), $f = 7.1 \sim 8.5\text{GHz},$ $Z_S=Z_L = 50\text{ohm}$	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	$\eta_{add}$		-	30	-	%
Gain Flatness	$\Delta G$		-	-	$\pm 0.6$	dB
3rd Order Intermodulation Distortion	$IM_3$	$f = 8.5\text{GHz}, \Delta f = 10\text{MHz}$ 2-Tone Test $P_{out} = 30.0\text{dBm S.C.L.}$	-42	-45	-	dBc
Thermal Resistance	$R_{th}$	Channel to Case	-	2.3	2.6	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

CASE STYLE: IK

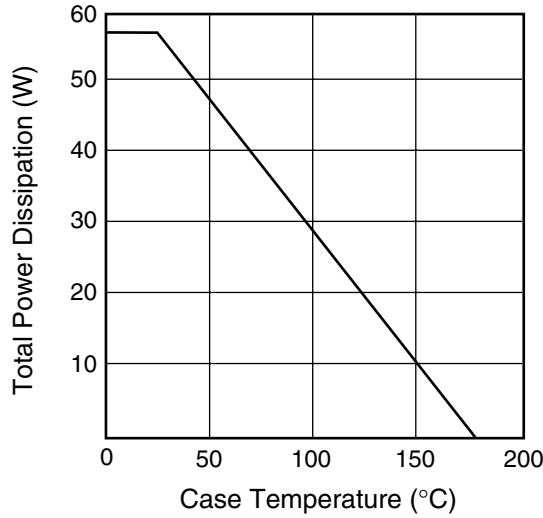
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



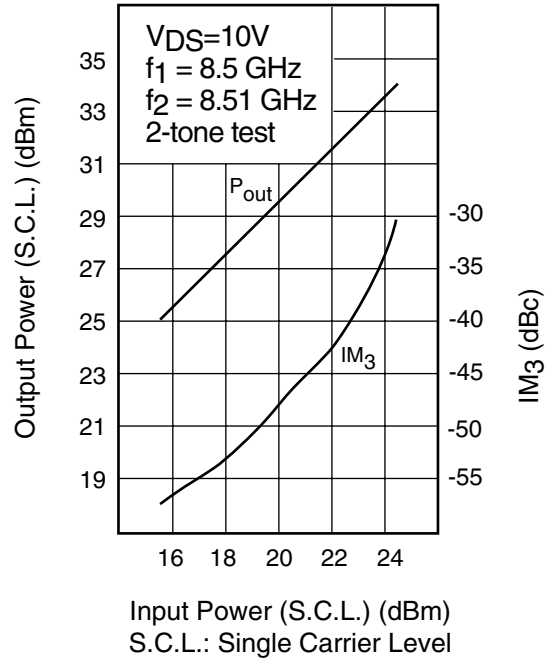
# FLM7185-12F

C-Band Internally Matched FET

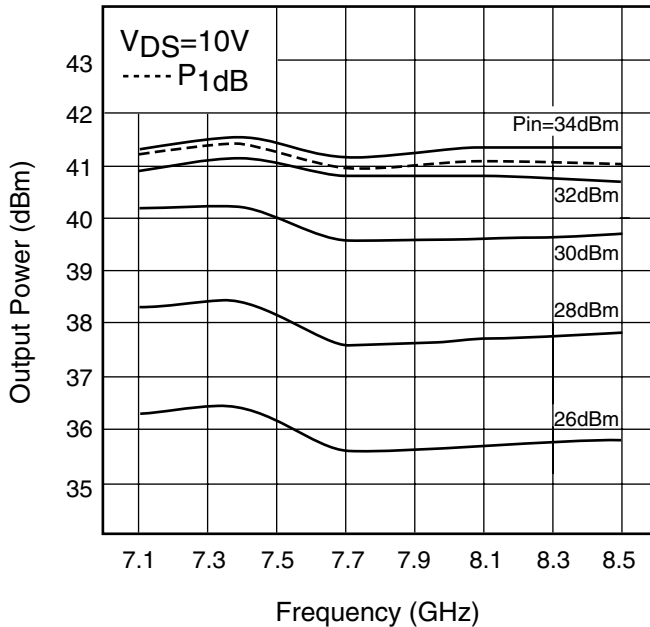
**POWER DERATING CURVE**



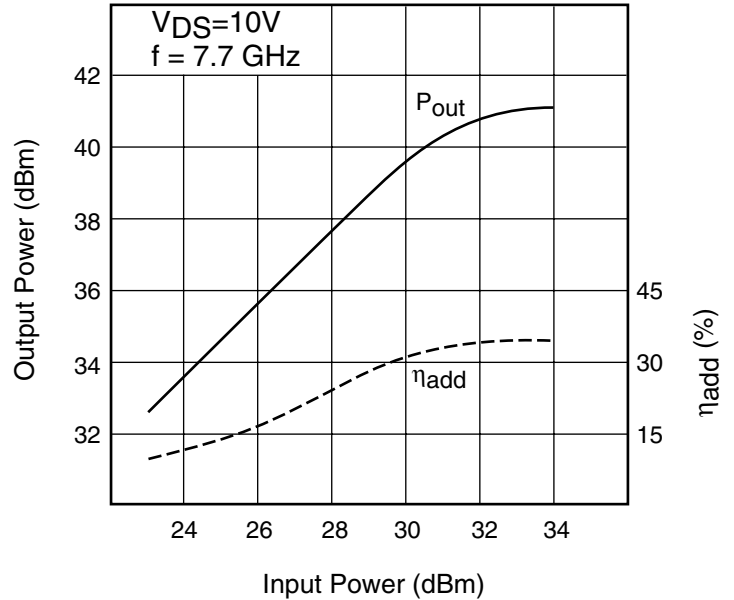
**OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER**



**OUTPUT POWER vs. FREQUENCY**

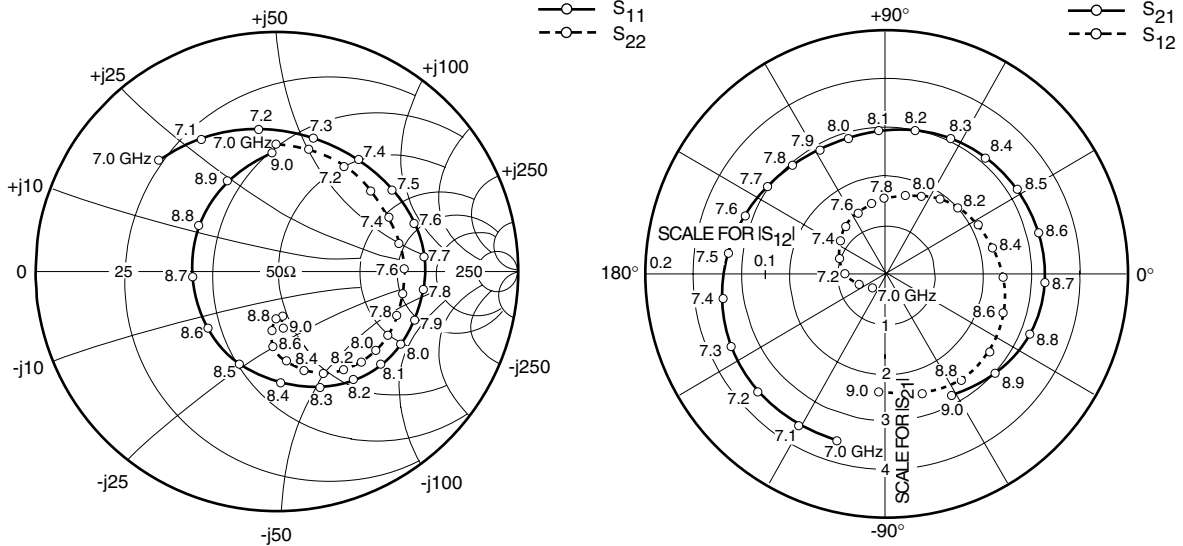


**OUTPUT POWER vs. INPUT POWER**



# FLM7185-12F

C-Band Internally Matched FET



## S-PARAMETERS

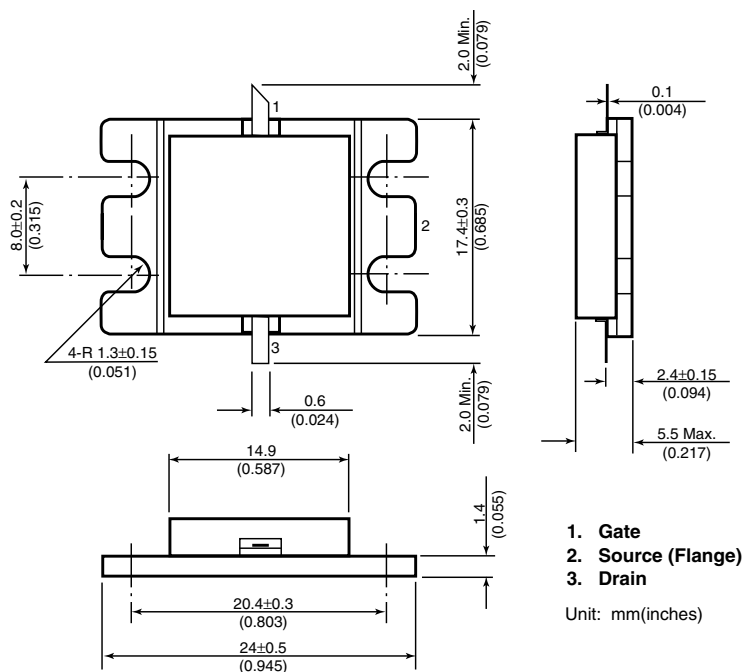
$V_{DS} = 10V, I_{DS} = 3250mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	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

# FLM7185-12F

## C-Band Internally Matched FET

### Case Style "IK" Metal-Ceramic Hermetic Package



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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.

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