

FLM7785-4F

C-Band Internally Matched FET

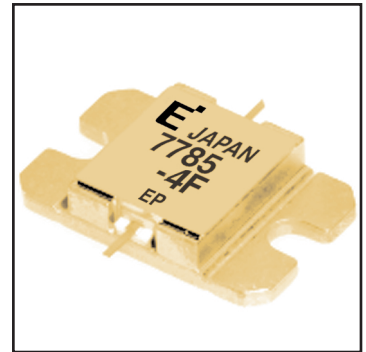
FEATURES

- High Output Power: $P_{1dB} = 36.5\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 8.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 35\%$ (Typ.)
- Low $IM_3 = -46\text{dBc}@P_o = 25.5\text{dBm}$
- Broad Band: 7.7 ~ 8.5GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed

DESCRIPTION

The FLM7785-4F 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	$T_C = 25^\circ\text{C}$	25.0	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 16.0 and -2.2 mA respectively with gate resistance of 100 Ω .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	1700	2600	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 1100\text{mA}$	-	1700	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 85\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -85\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65 I_{DSS}$ (Typ.), $f = 7.7 \sim 8.5\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$	35.5	36.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		7.5	8.5	-	dB
Drain Current	I_{dsr}		-	1100	1300	mA
Power-added Efficiency	η_{add}		-	35	-	%
Gain Flatness	ΔG		-	-	± 0.6	dB
3rd Order Intermodulation Distortion	IM_3	$f = 8.5\text{GHz}, \Delta f = 10\text{MHz}$ 2-Tone Test $P_{out} = 25.5\text{dBm S.C.L.}$	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	5.0	6.0	$^\circ\text{C/W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

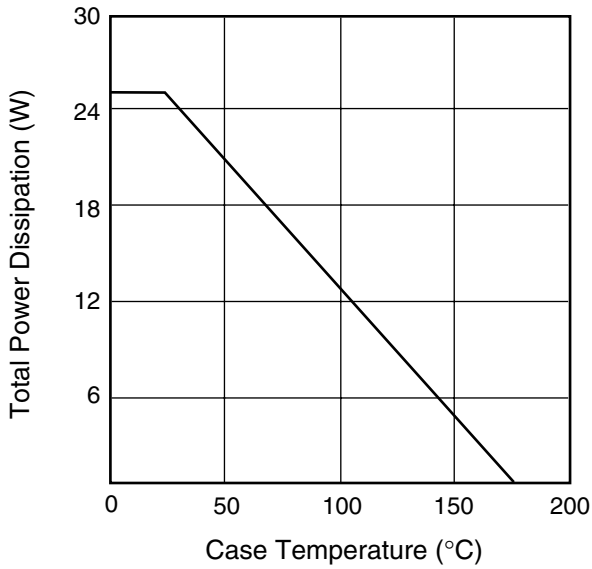
CASE STYLE: IB

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

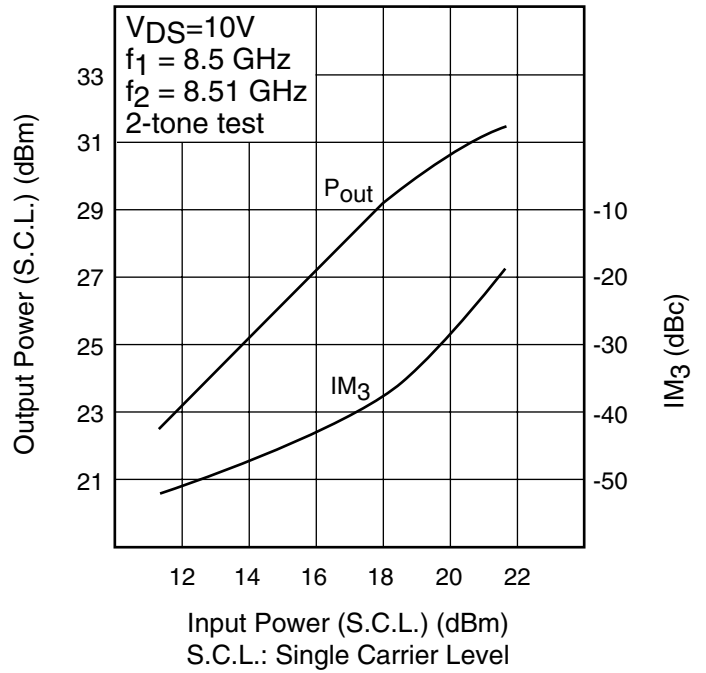
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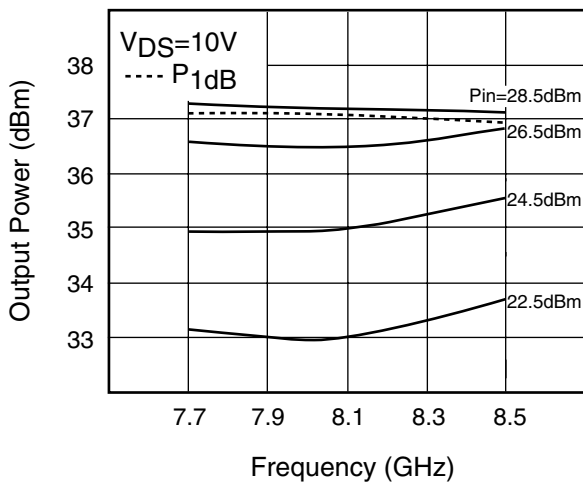
POWER DERATING CURVE



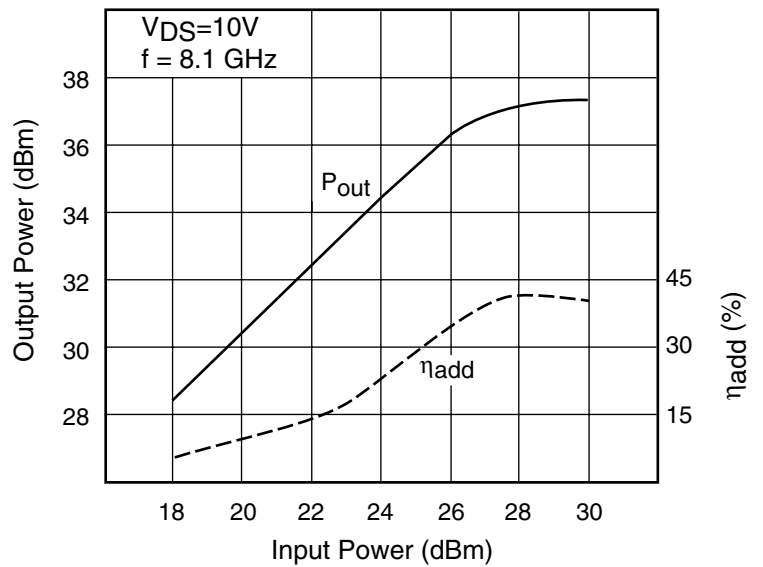
OUTPUT POWER & IM₃ vs. INPUT POWER



OUTPUT POWER vs. FREQUENCY

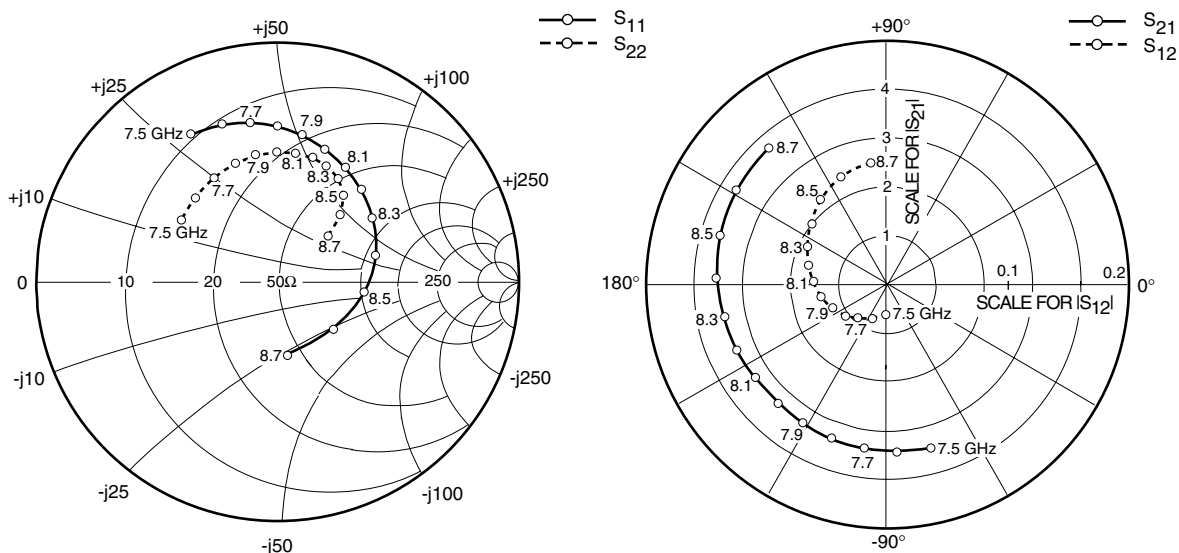


OUTPUT POWER vs. INPUT POWER



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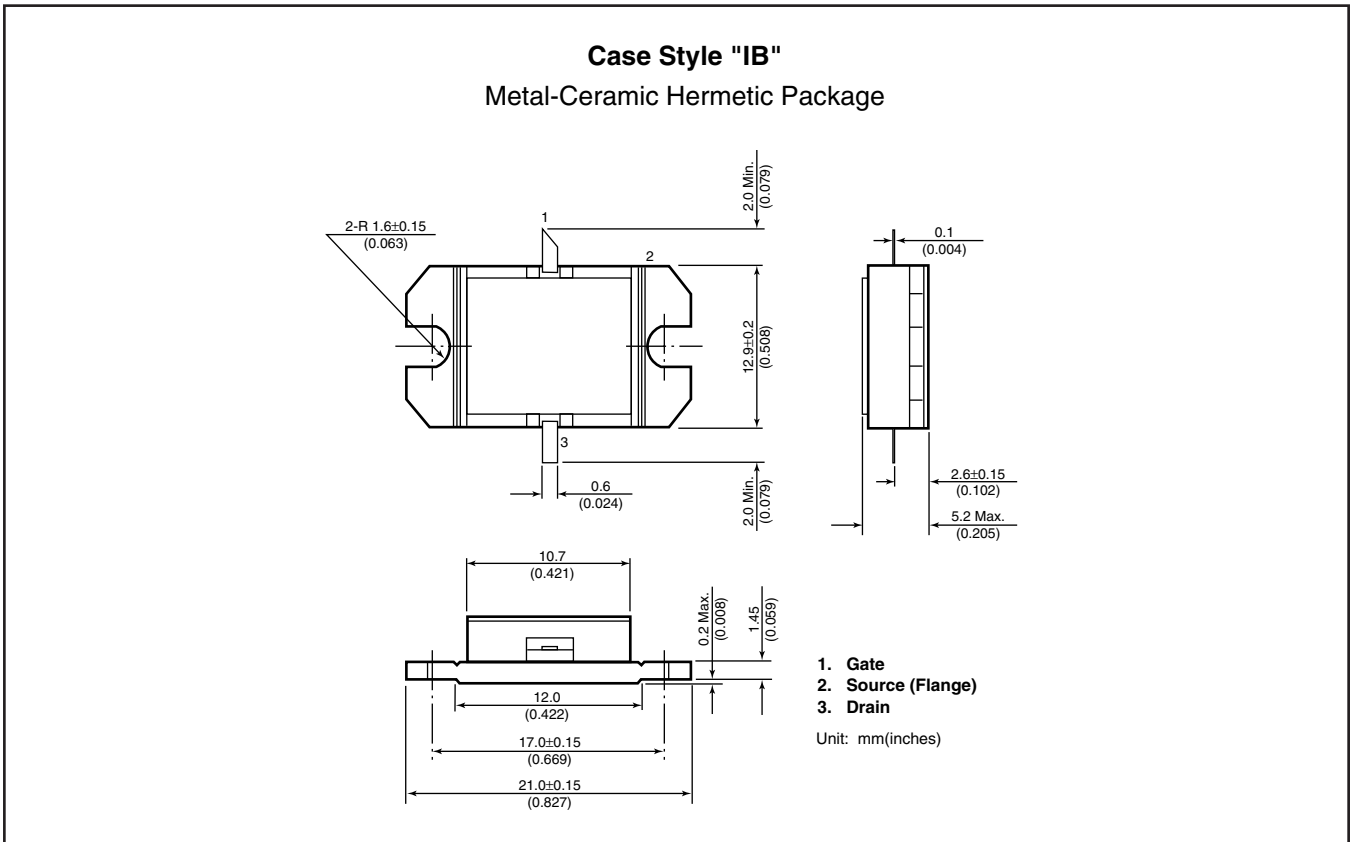
S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 1100mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7500	.711	120.0	3.482	-74.8	.025	-92.7	.478	147.9
7600	.694	109.7	3.441	-86.9	.031	-113.4	.490	133.6
7700	.672	99.8	3.396	-98.7	.037	-131.2	.507	120.7
7800	.648	90.0	3.354	-110.3	.043	-143.4	.525	109.9
7900	.621	80.2	3.331	-121.7	.049	-157.1	.535	99.8
8000	.591	70.2	3.319	-133.1	.055	-170.0	.541	90.7
8100	.557	59.3	3.344	-144.8	.061	178.8	.542	82.6
8200	.516	47.3	3.377	-156.5	.067	166.5	.539	74.9
8300	.470	33.5	3.444	-168.7	.074	154.9	.525	67.5
8400	.414	16.0	3.540	178.2	.080	141.7	.496	59.7
8500	.356	-7.7	3.625	163.9	.089	128.6	.449	52.9
8600	.308	-40.8	3.704	148.3	.097	113.5	.380	46.9
8700	.307	-83.1	3.723	131.3	.101	97.4	.282	43.1

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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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