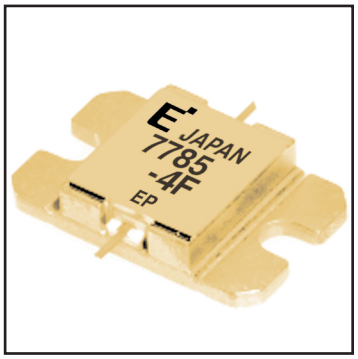
FLM7785-4F

C-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 36.5dBm (Typ.)
- High Gain: G_{1dB} = 8.5dB (Typ.)
- High PAE: η_{add} = 35% (Typ.)
- Low IM_3 = -46dBc@Po = 25.5dBm
- Broad Band: 7.7 ~ 8.5GHz
- Impedance Matched Zin/Zout = 50Ω
- 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 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	25.0	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 16.0 and -2.2 mA respectively with gate resistance of 100Ω.

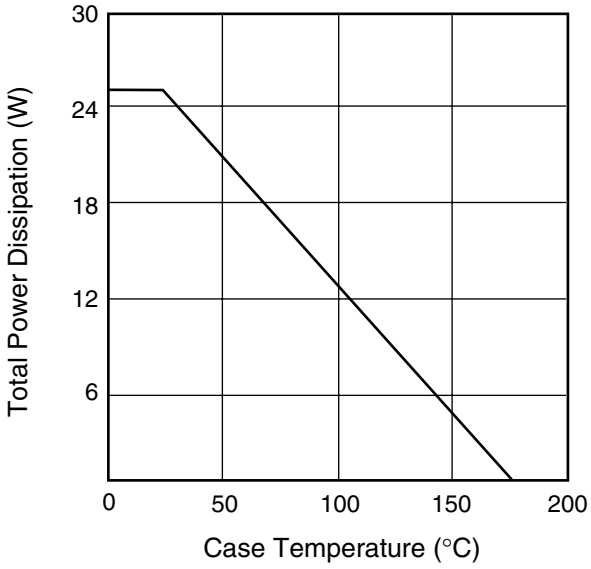
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

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

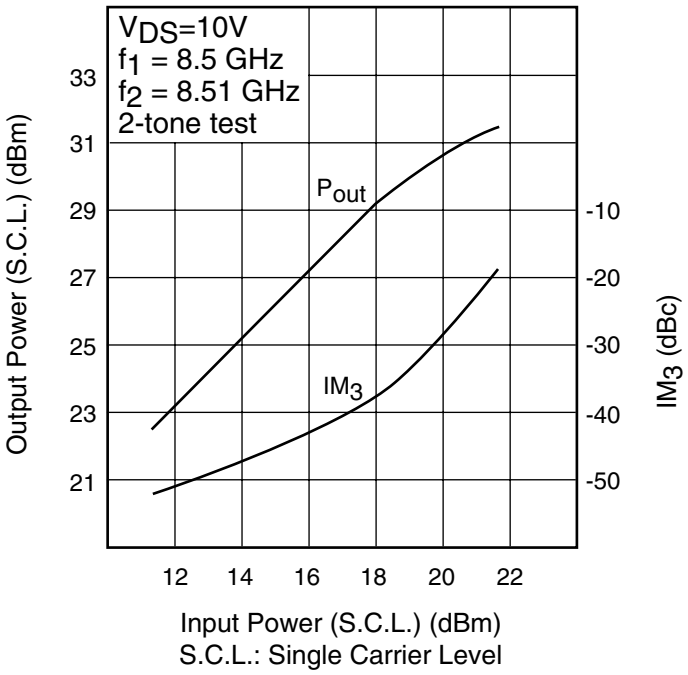
CASE STYLE: IB

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

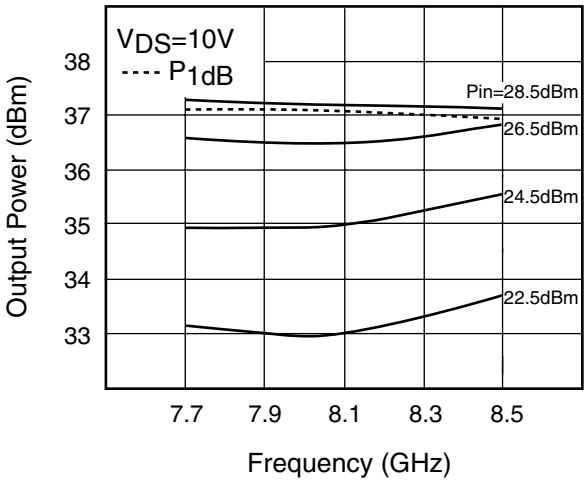
POWER DERATING CURVE



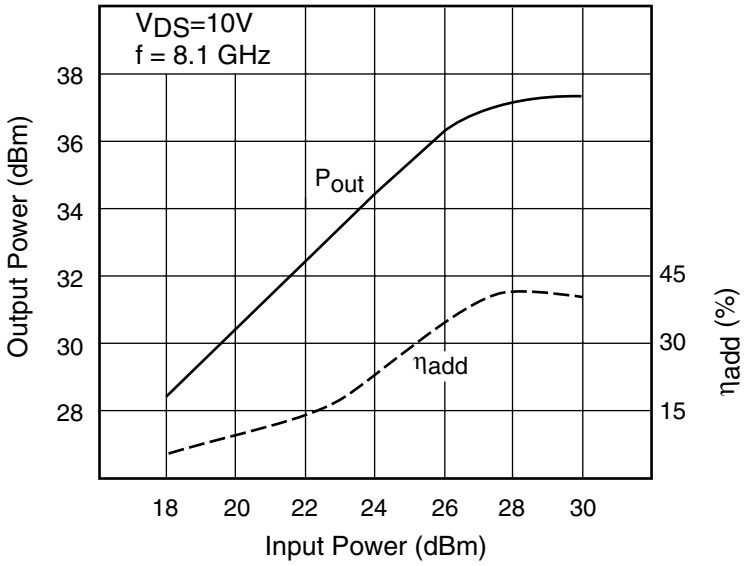
OUTPUT POWER & IM_3 vs. INPUT POWER

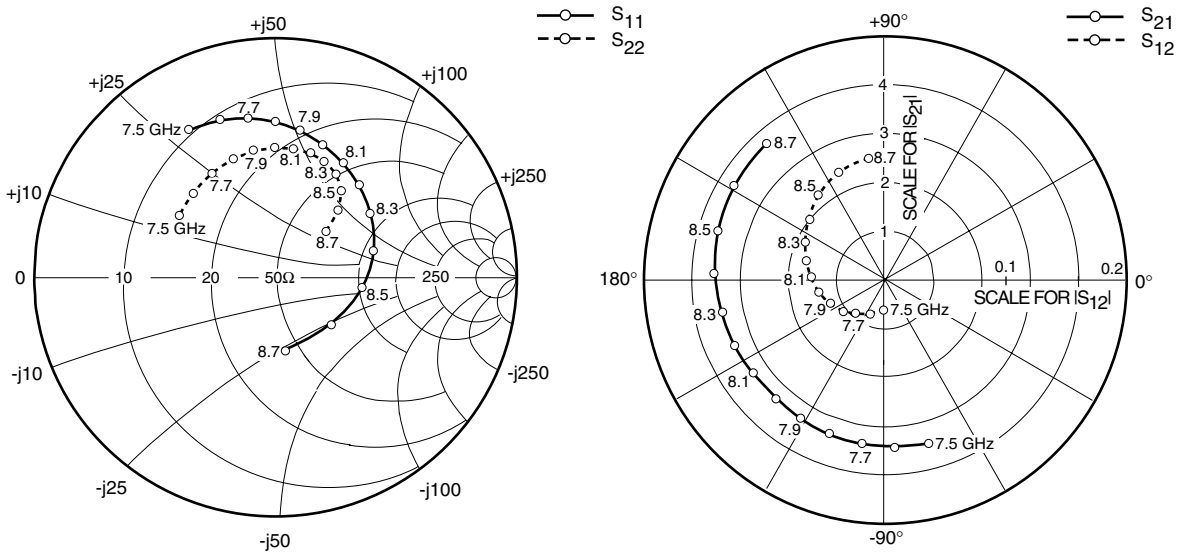


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





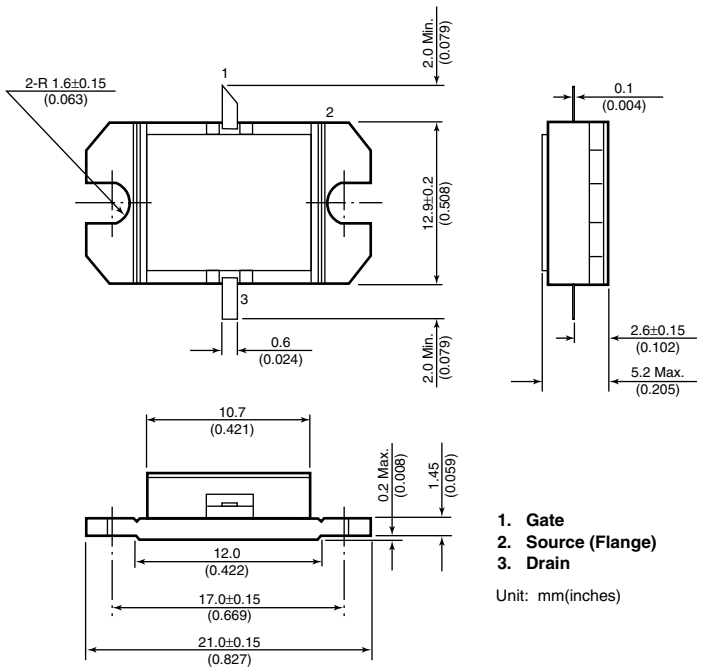
S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	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

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.**