

FEATURES

- High Output Power: $P_{1dB} = 38.5\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 8.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 31\%$ (Typ.)
- Low $IM_3 = -46\text{dBc}$ @ $P_o = 27.5\text{dBm}$
- Broad Band: 7.7 ~ 8.5GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed

DESCRIPTION

The FLM7785-6F 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	$T_c = 25^\circ\text{C}$	31.2	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:

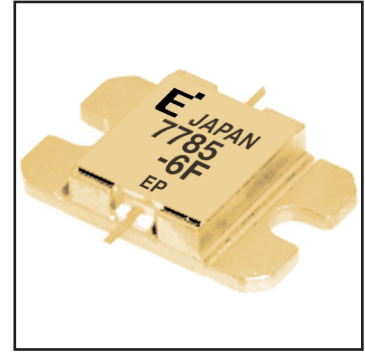
1. The drain-source operating voltage (V_{DS}) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 16.0 and -2.8 mA respectively with gate resistance of 100 Ω .

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

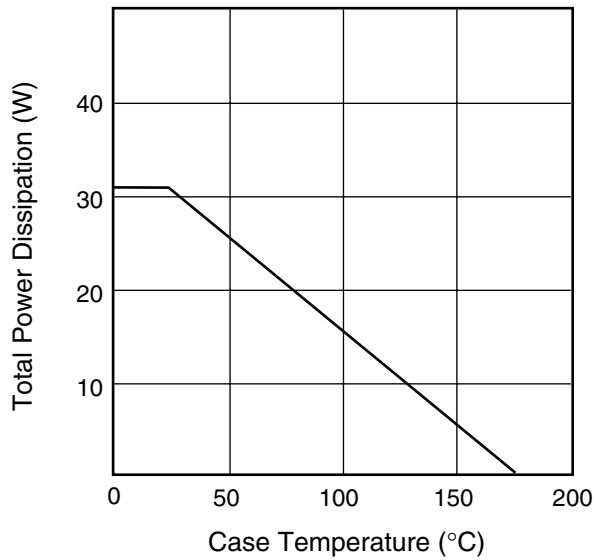
Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	2700	4050	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 1200\text{mA}$	-	2500	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 120\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -150\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65 I_{DSS}$ (Typ.), $f = 7.7 \sim 8.5\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$	37.5	38.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		7.5	8.5	-	dB
Drain Current	I_{dsr}		-	1750	2250	mA
Power-added Efficiency	η_{add}		-	31	-	%
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 $P_{out} = 27.5\text{dBm}$ S.C.L.	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	4.0	4.8	$^\circ\text{C/W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

CASE STYLE: IB

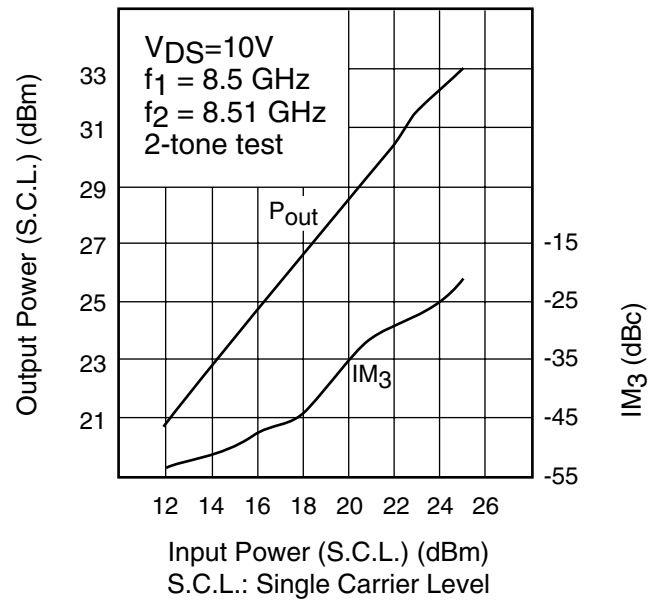
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



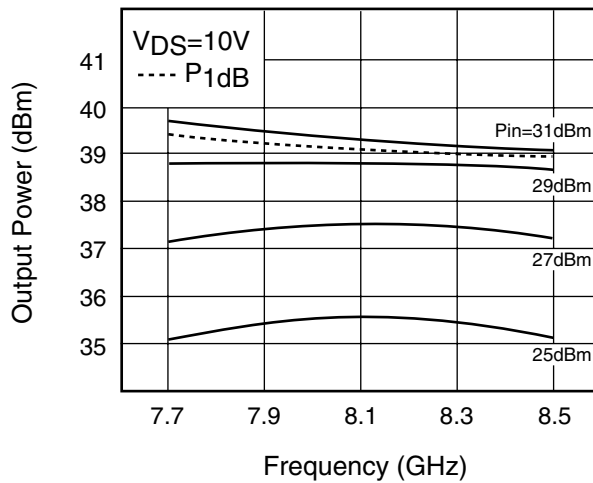
POWER DERATING CURVE



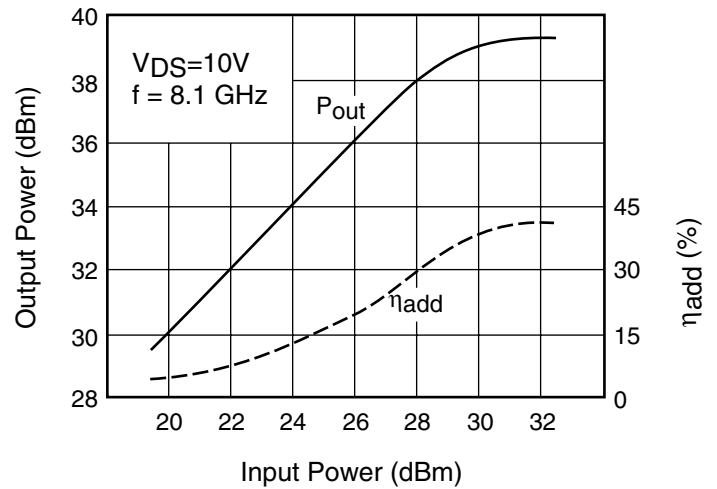
OUTPUT POWER & IM₃ vs. INPUT POWER

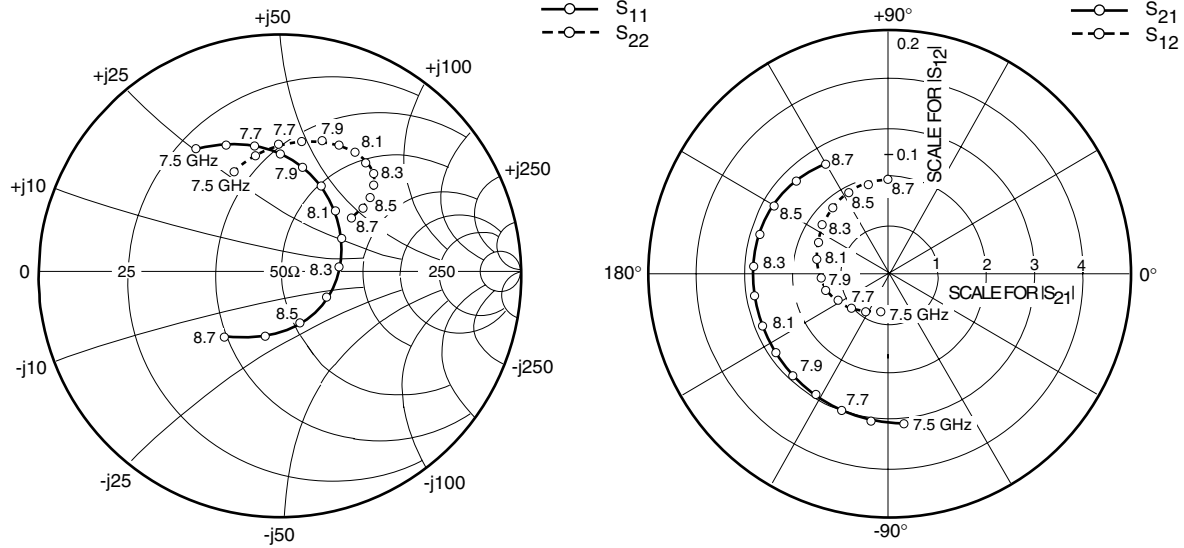


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





S-PARAMETERS

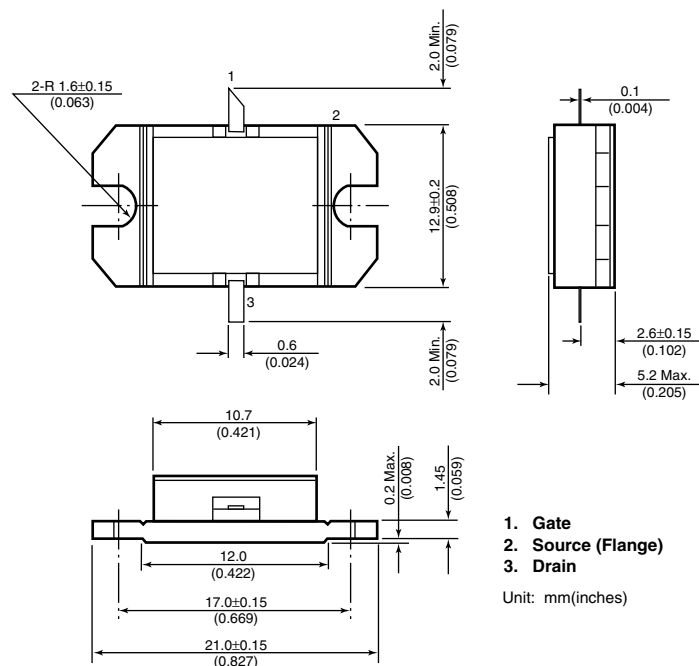
V_{DS} = 10V, I_{DS} = 1200mA

FREQUENCY (MHZ)	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7500	.612	124.2	3.104	-84.5	0.032	-104.5	.452	115.9
7600	.574	112.9	3.046	-96.9	0.038	-121.7	.489	102.2
7700	.537	101.5	2.997	-109.3	0.042	-138.3	.520	90.7
7800	.494	89.7	2.943	-121.5	0.047	-151.5	.546	80.7
7900	.448	77.2	2.905	-133.3	0.053	-164.9	.568	71.9
8000	.399	63.2	2.873	-145.3	0.056	-177.4	.579	64.3
8100	.346	47.3	2.849	-157.6	0.062	169.5	.580	57.5
8200	.294	27.5	2.828	-169.9	0.065	156.8	.571	51.8
8300	.249	1.9	2.813	177.2	0.070	145.4	.554	46.5
8400	.222	-31.1	2.798	163.8	0.072	131.9	.525	42.0
8500	.236	-69.1	2.767	149.8	0.076	118.1	.481	38.4
8600	.287	-102.3	2.708	135.3	0.077	105.0	.427	36.4
8700	.364	-128.8	2.620	120.3	0.078	89.9	.369	36.7

FLM7785-6F

C-Band Internally Matched FET

Case Style "IB" 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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