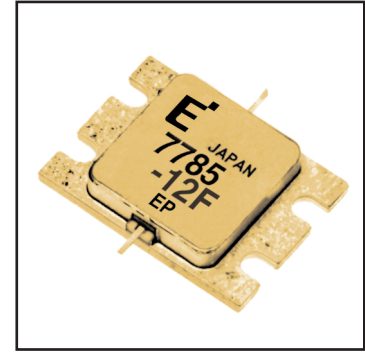


### FEATURES

- High Output Power:  $P_{1dB} = 41.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 8.5\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 34\%$  (Typ.)
- Low  $IM_3 = -46\text{dBc}$  @  $P_o = 30.5\text{dBm}$
- Broad Band: 7.7 ~ 8.5GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed



### DESCRIPTION

The FLM7785-12F 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	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	5400	8100	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 2400\text{mA}$	-	5000	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 240\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -300\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65 I_{DSS}$ (Typ.), $f = 7.7 \sim 8.5\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$	40.5	41.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		7.5	8.5	-	dB
Drain Current	$I_{dsr}$		-	3500	4500	mA
Power-added Efficiency	$\eta_{add}$		-	34	-	%
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 $P_{out} = 30.5\text{dBm S.C.L.}$	-44	-46	-	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	$^\circ\text{C}$

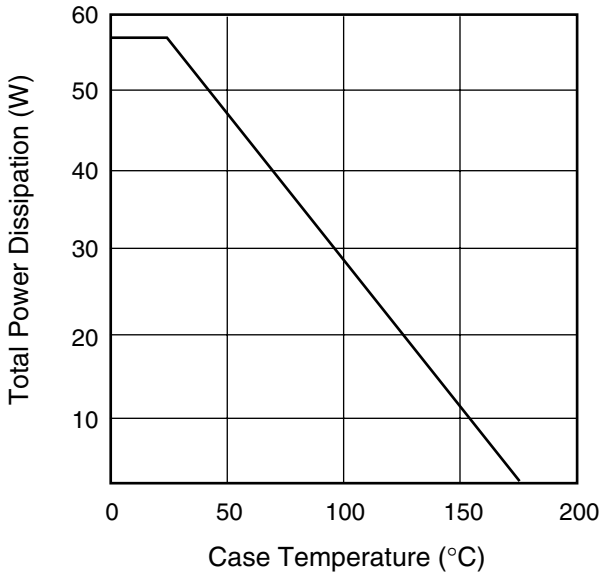
CASE STYLE: IK

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

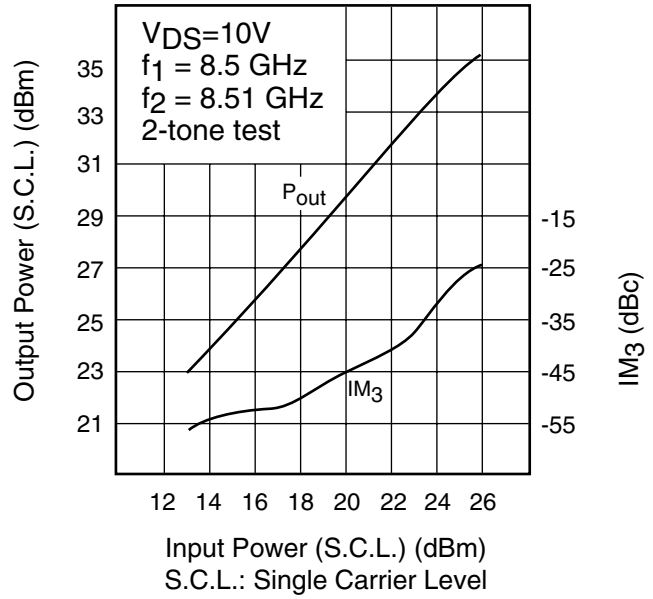
# FLM7785-12F

## C-Band Internally Matched FET

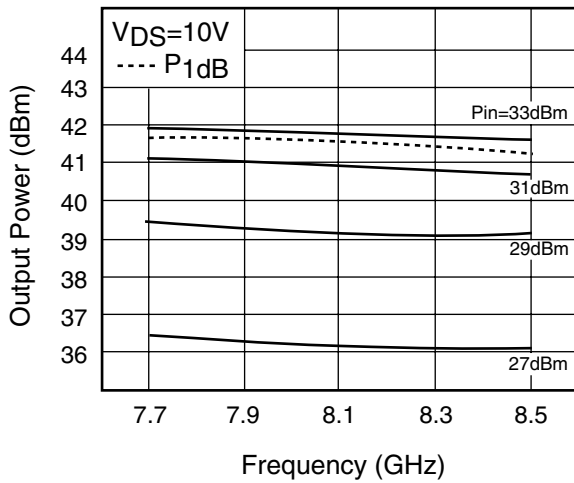
### POWER DERATING CURVE



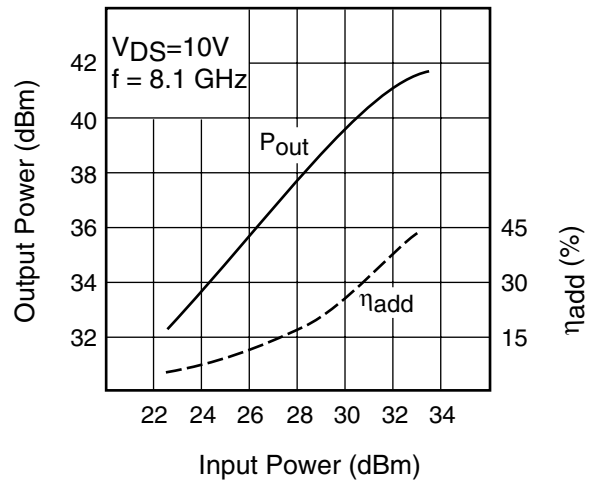
### OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER

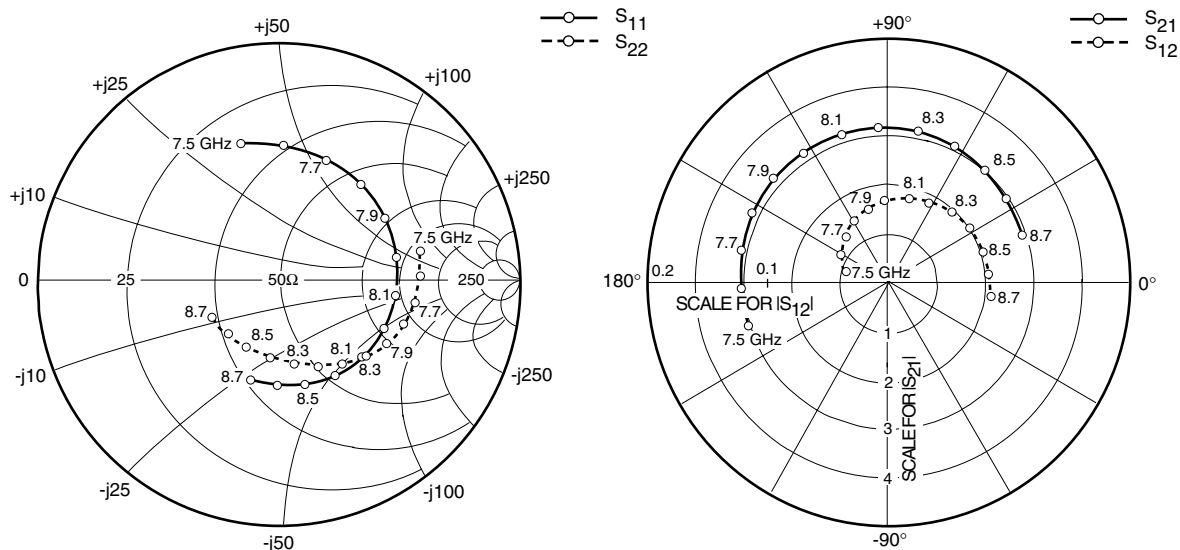


### OUTPUT POWER vs. FREQUENCY



### OUTPUT POWER vs. INPUT POWER





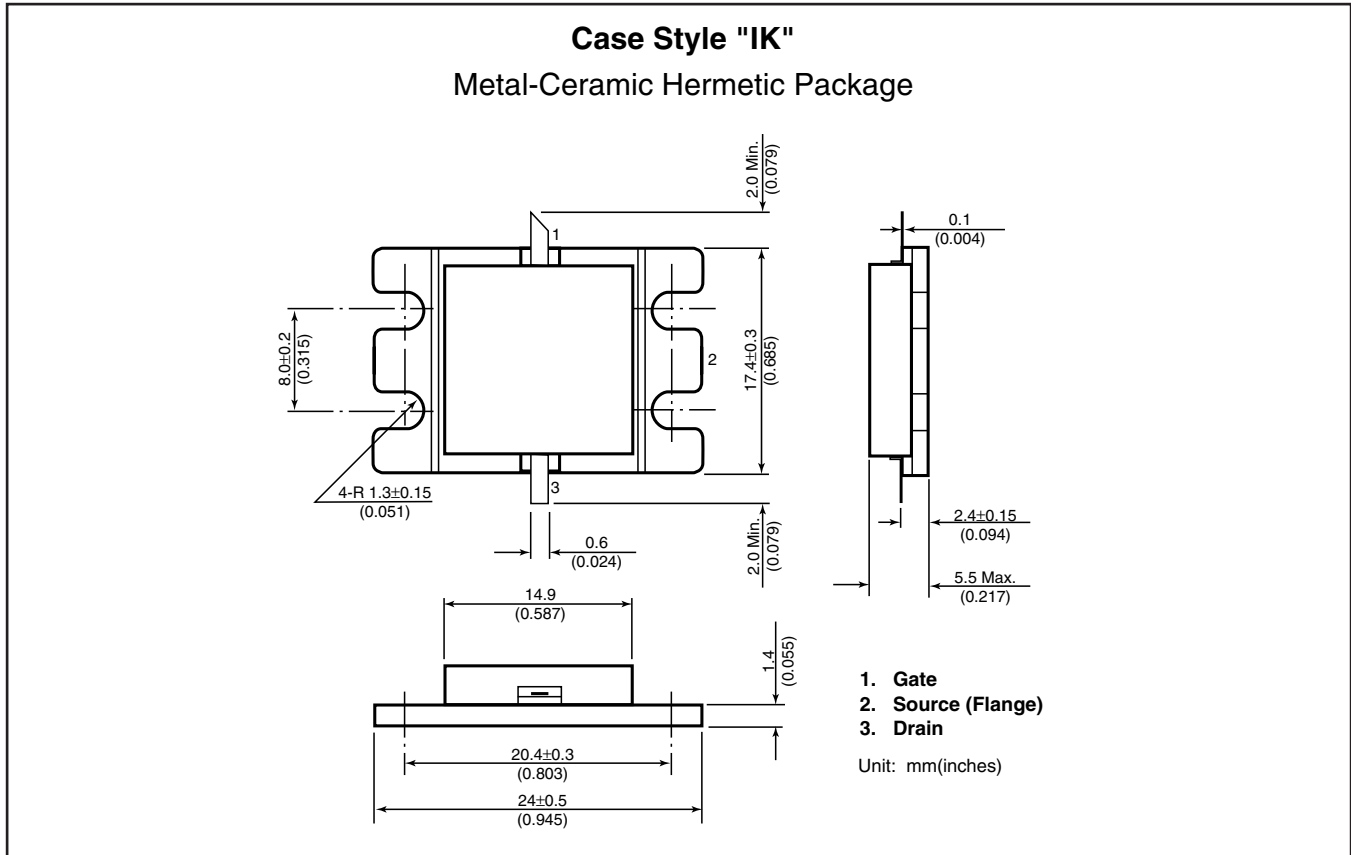
### S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 3500mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7500	.598	105.5	3.047	-162.5	0.038	166.5	.596	11.8
7600	.572	87.8	3.083	-177.2	0.046	150.7	.584	1.1
7700	.546	69.0	3.121	168.3	0.051	133.5	.568	-9.4
7800	.526	50.0	3.147	153.5	0.056	119.6	.543	-20.0
7900	.508	30.7	3.171	138.8	0.061	105.3	.511	-30.6
8000	.495	11.4	3.174	124.0	0.067	92.4	.476	-41.5
8100	.485	-8.0	3.171	108.8	0.070	76.2	.435	-53.4
8200	.475	-26.1	3.154	94.0	0.073	61.7	.394	-66.4
8300	.468	-43.6	3.130	79.1	0.078	47.8	.359	-81.0
8400	.460	-60.3	3.094	63.9	0.080	33.5	.330	-97.5
8500	.454	-76.3	3.045	48.8	0.082	18.0	.314	-115.7
8600	.446	-91.1	2.985	33.9	0.082	4.9	.311	-133.9
8700	.440	-105.6	2.913	18.9	0.085	-8.3	.322	-150.5

# FLM7785-12F

## C-Band Internally Matched FET



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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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