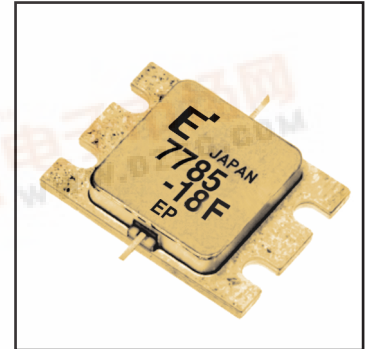


# FLM7785-18F

## C-Band Internally Matched FET

### FEATURES

- High Output Power:  $P_{1dB} = 42.5\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 7.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 29\%$  (Typ.)
- Low  $IM_3 = -45\text{dBc}$  @  $P_o = 31.5\text{dBm}$
- Broad Band: 7.7 ~ 8.5GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed



### DESCRIPTION

The FLM7785-18F 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	$P_T$	$T_C = 25^\circ\text{C}$	83.3	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 18.0 and -8.4 mA respectively with gate resistance of 25 $\Omega$ .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5V, V_{GS} = 0V$	-	8.1	12.75	A
Transconductance	$g_m$	$V_{DS} = 5V, I_{DS} = 5100\text{mA}$	-	4350	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5V, I_{DS} = 450\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -450\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10V,$ $I_{DS} = 0.55 I_{DSS}$ (Typ.), $f = 7.7 \sim 8.5\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$	41.5	42.5	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		6.0	7.0	-	dB
Drain Current	$I_{dsr}$		-	4700	5800	mA
Power-added Efficiency	$\eta_{add}$		-	29	-	%
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 $P_{out} = 31.5\text{dBm S.C.L.}$	-42	-45	-	dBc
Thermal Resistance	$R_{th}$	Channel to Case	-	1.6	1.8	$^\circ\text{C/W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10V \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

CASE STYLE: IK

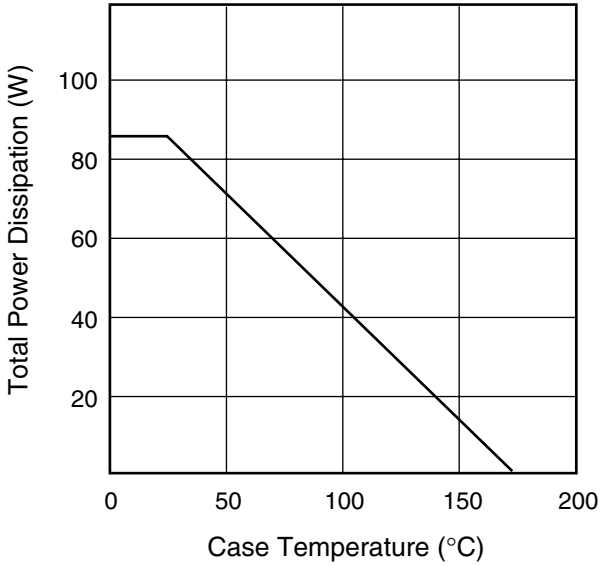
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



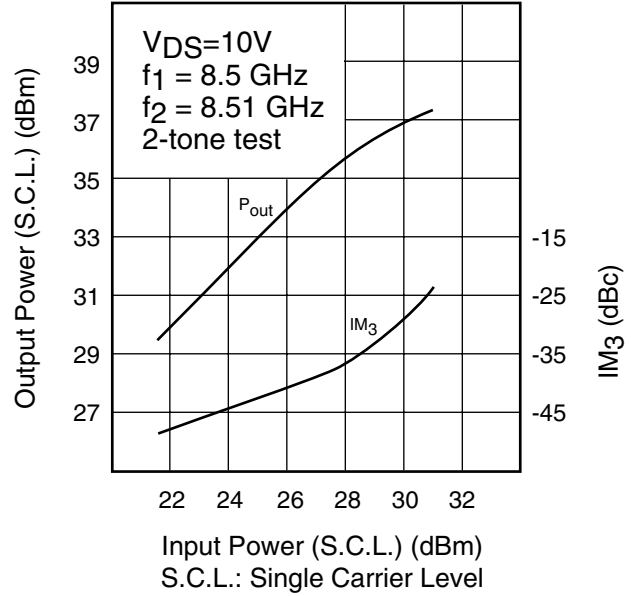
# FLM7785-18F

C-Band Internally Matched FET

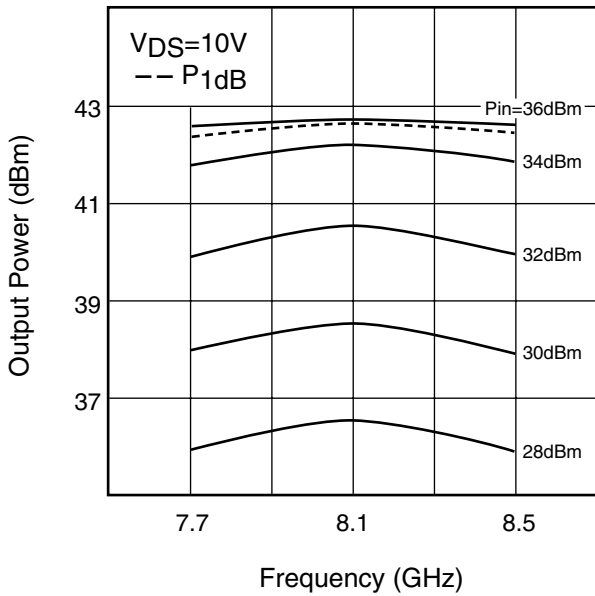
### POWER DERATING CURVE



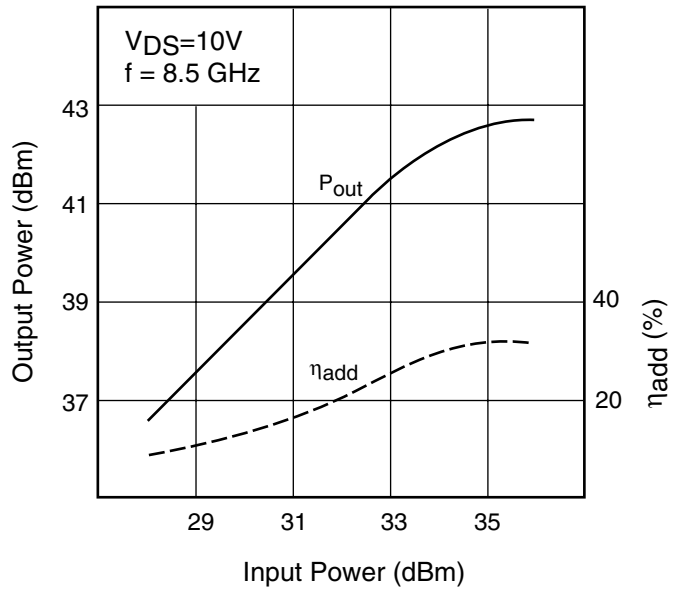
### OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER



### OUTPUT POWER vs. FREQUENCY

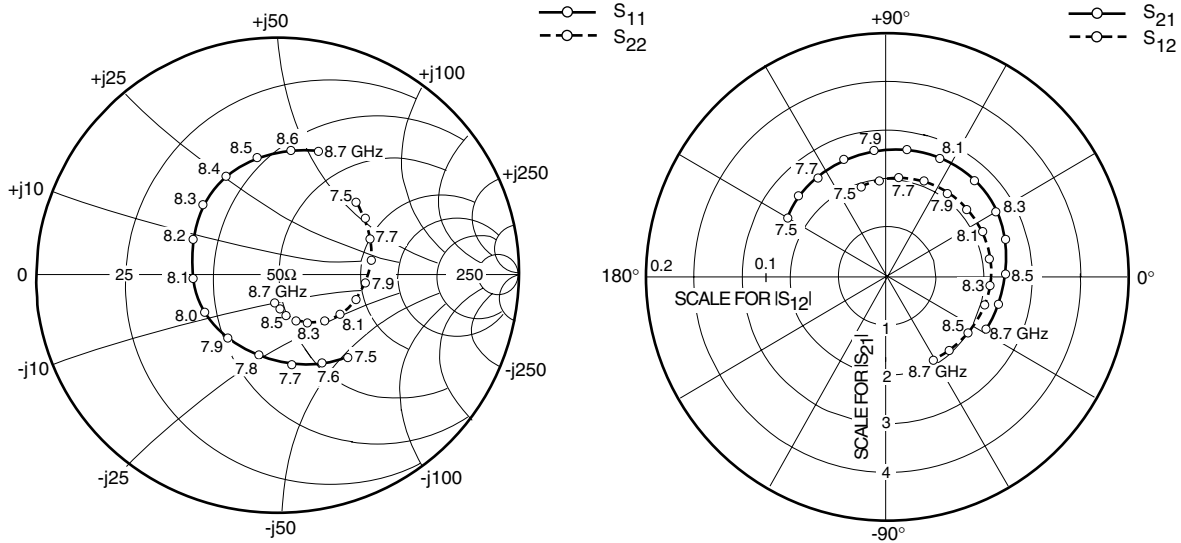


### OUTPUT POWER vs. INPUT POWER



# FLM7785-18F

## C-Band Internally Matched FET



### S-PARAMETERS

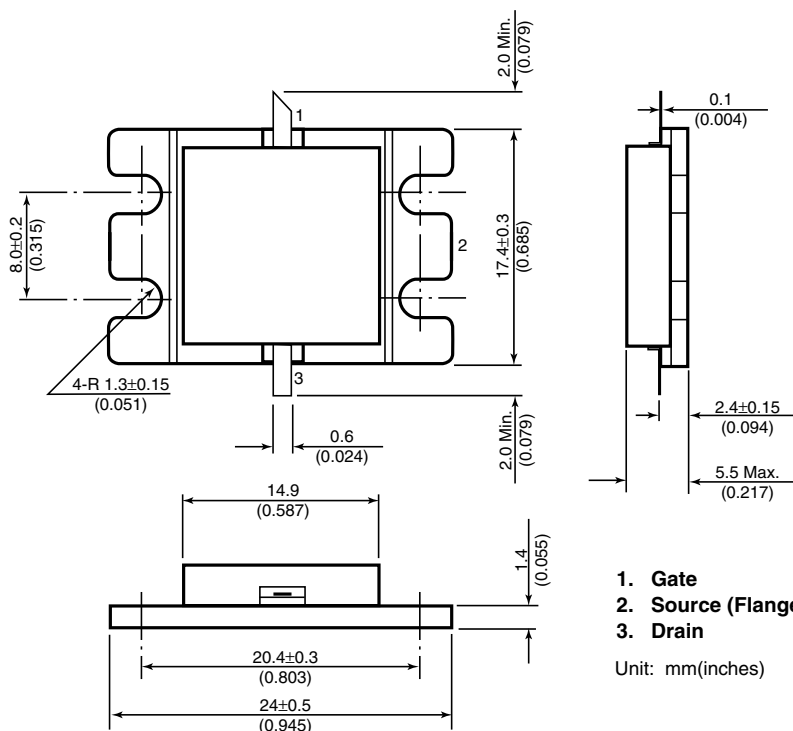
$V_{DS} = 10V, I_{DS} = 4800mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7500	.449	-50.2	2.408	150.2	.077	106.1	.445	44.2
7600	.416	-63.9	2.448	138.5	.079	95.1	.430	33.6
7700	.382	-81.0	2.503	125.5	.082	82.3	.411	21.5
7800	.353	-102.3	2.565	111.1	.084	68.2	.387	8.0
7900	.337	-126.5	2.629	96.2	.085	53.7	.359	-5.7
8000	.337	-151.2	2.669	81.6	.086	39.7	.334	-18.8
8100	.356	-177.4	2.694	65.5	.087	24.5	.302	-32.6
8200	.389	157.9	2.689	49.2	.087	9.0	.268	-46.0
8300	.426	137.0	2.654	33.5	.086	-5.4	.236	-58.2
8400	.466	117.2	2.580	17.1	.084	-20.6	.203	-70.4
8500	.501	99.4	2.488	0.9	.083	-35.6	.171	-81.2
8600	.526	84.1	2.386	-13.7	.081	-49.4	.143	-89.7
8700	.546	71.6	2.302	-26.7	.079	-61.3	.118	-95.7

# FLM7785-18F

## 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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