

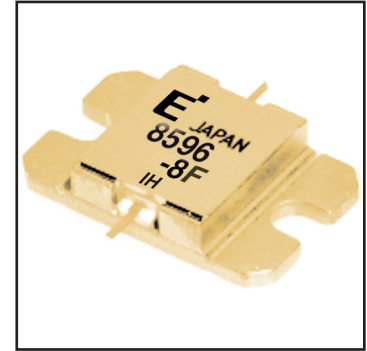
FEATURES

- High Output Power: $P_{1dB} = 39.0\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 7.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 29\%$ (Typ.)
- Low $IM_3 = -45\text{dBc}$ @ $P_o = 29.5\text{dBm}$
- Broad Band: 8.5 ~ 9.6GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed

DESCRIPTION

The FLM8596-8F 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	$T_C = 25^\circ\text{C}$	42.8	W
Storage Temperature	T_{stg}		-65 to +175	$^\circ\text{C}$
Channel Temperature	T_{ch}		175	$^\circ\text{C}$

Eudyna 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 -4.4 mA respectively with gate resistance of 100Ω .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	3400	5200	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 2200\text{mA}$	-	3400	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 170\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -170\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65 I_{DSS}$ (Typ.), $f = 8.5 \sim 9.6 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	38.5	39.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		6.5	7.5	-	dB
Drain Current	I_{dsr}		-	2200	2600	mA
Power-added Efficiency	η_{add}		-	29	-	%
Gain Flatness	ΔG		-	-	± 0.6	dB
3rd Order Intermodulation Distortion	IM_3	$f = 9.6 \text{GHz}, \Delta f = 10 \text{MHz}$ 2-Tone Test $P_{out} = 28.5\text{dBm S.C.L.}$	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	3.0	3.5	$^\circ\text{C/W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

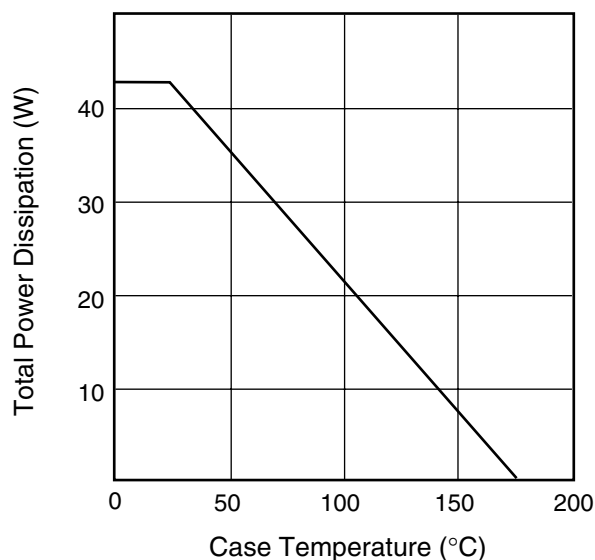
CASE STYLE: IB

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

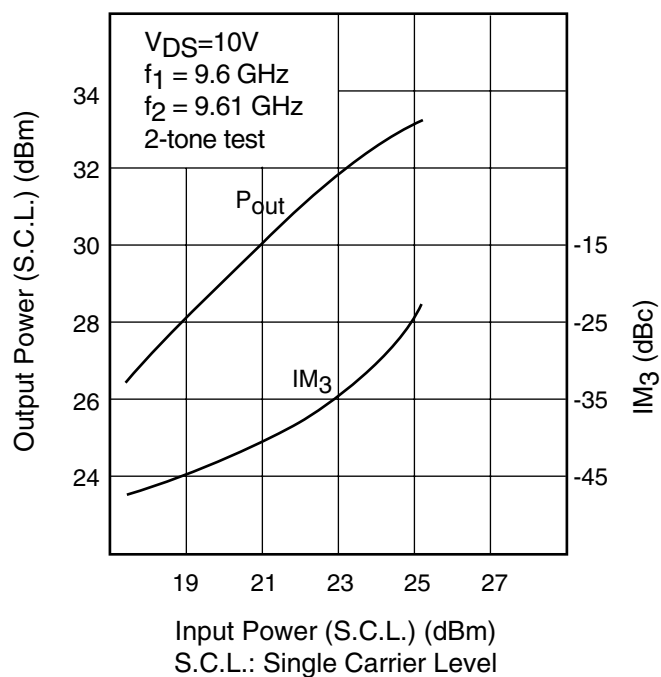
FLM8596-8F

X, Ku-Band Internally Matched FET

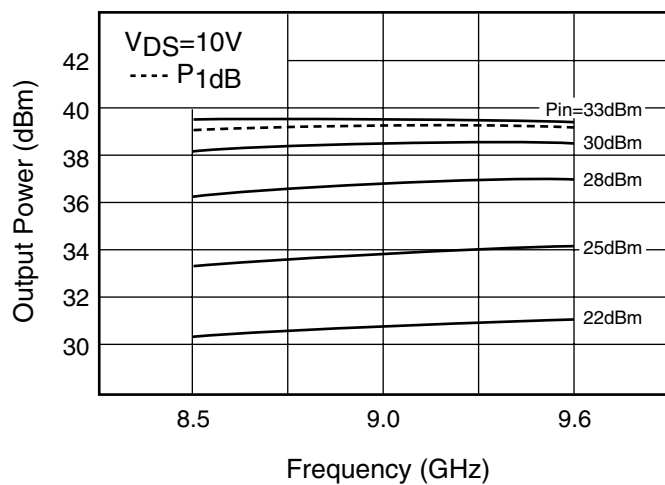
POWER DERATING CURVE



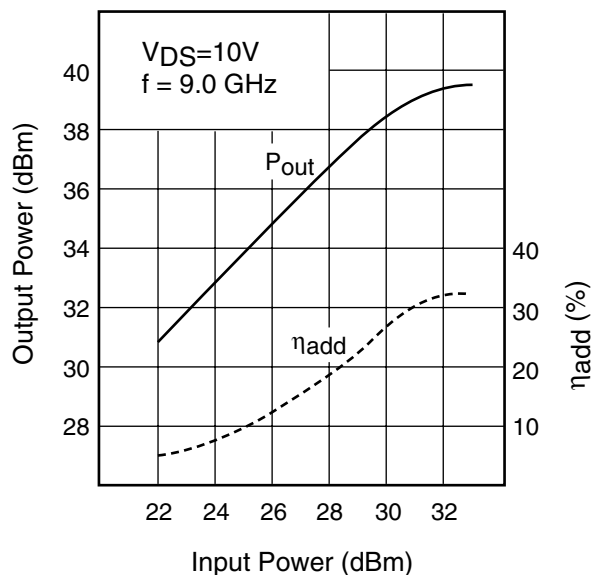
OUTPUT POWER & IM₃ vs. INPUT POWER

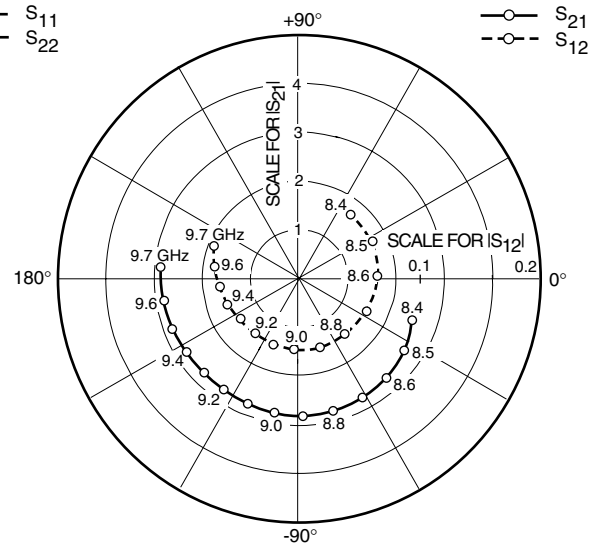
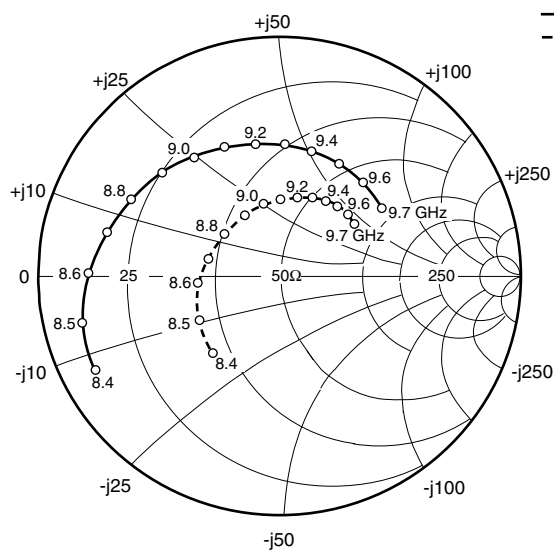


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





S-PARAMETERS

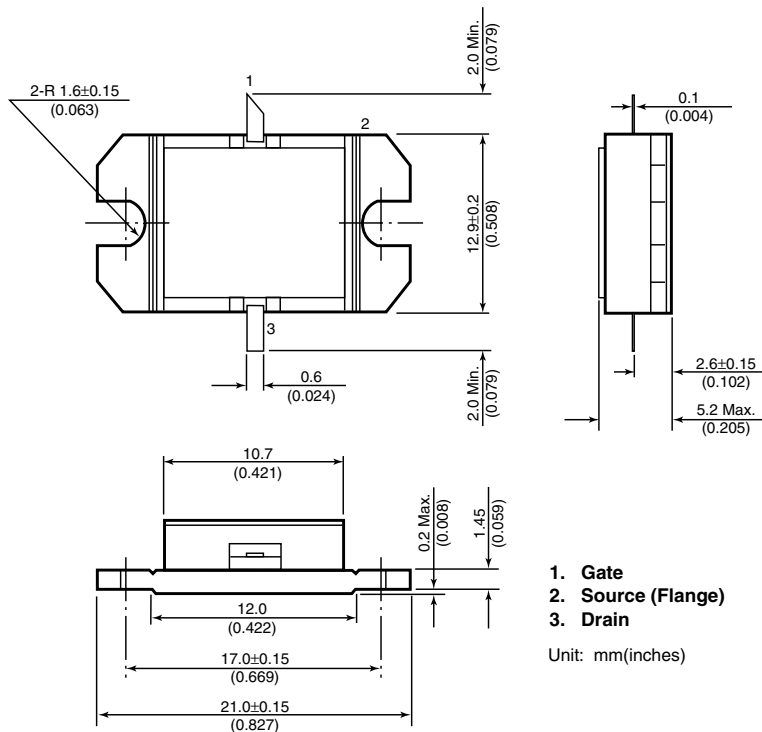
$V_{DS} = 10V, I_{DS} = 2200mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
8400	.868	-152.7	2.480	-19.5	.068	50.9	.426	-131.3
8500	.843	-166.6	2.616	-33.7	.068	25.4	.381	-151.8
8600	.800	179.4	2.717	-47.9	.065	0.9	.340	-174.9
8700	.751	165.6	2.761	-61.7	.062	-25.7	.307	164.9
8800	.701	152.1	2.781	-75.3	.059	-49.8	.289	141.5
8900	.653	138.8	2.784	-88.2	.059	-72.2	.290	120.3
9000	.615	126.1	2.781	-100.6	.057	-93.0	.308	103.1
9100	.586	113.4	2.772	-112.8	.058	-112.2	.320	89.5
9200	.561	101.0	2.775	-124.5	.058	-129.4	.338	77.9
9300	.547	88.4	2.777	-136.0	.059	-146.0	.356	68.0
9400	.532	75.9	2.792	-147.5	.064	-160.7	.364	58.4
9500	.525	62.6	2.819	-159.2	.066	-173.1	.376	50.4
9600	.513	49.0	2.846	-170.9	.071	171.9	.383	42.8
9700	.503	34.5	2.890	177.1	.075	158.9	.375	35.9

FLM8596-8F

X, Ku-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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