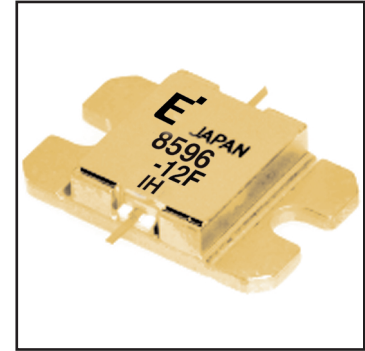


FLM8596-12F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: $P_{1dB} = 40.5\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 7.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 25\%$ (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 FLM8596-12F 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 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}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	6000	9000	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 3600\text{mA}$	-	5000	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 300\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -340\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65 I_{DSS}$ (Typ.), $f = 8.5 \sim 9.6 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	39.5	40.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		6.5	7.5	-	dB
Drain Current	I_{dsr}		-	3600	4500	mA
Power-added Efficiency	η_{add}		-	25	-	%
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 $P_{out} = 29.5\text{dBm}$ S.C.L.	-42	-45	-
Thermal Resistance	R_{th}	Channel to Case	-	2.3	2.6	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

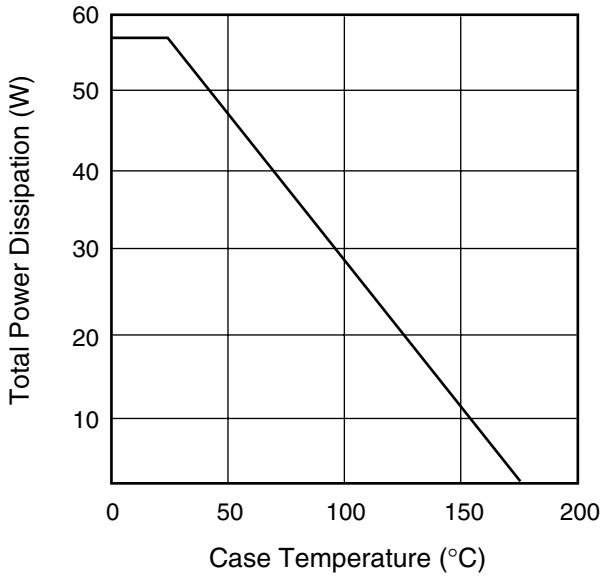
CASE STYLE: IB

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

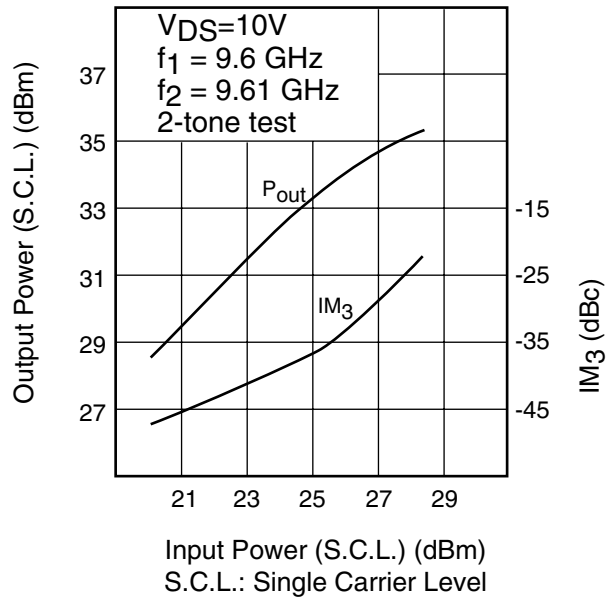
FLM8596-12F

X, Ku-Band Internally Matched FET

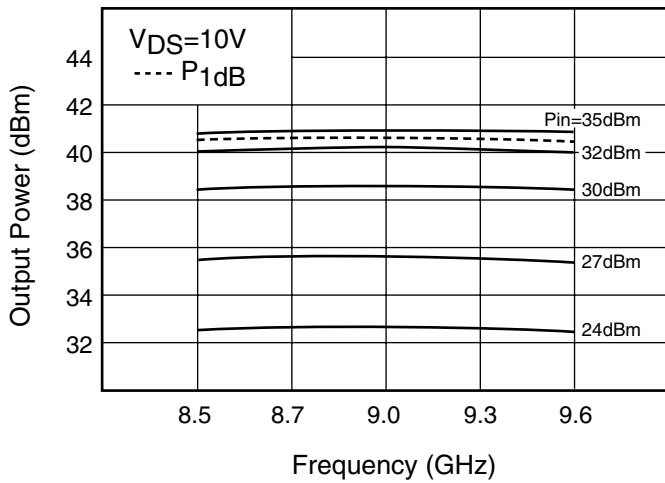
POWER DERATING CURVE



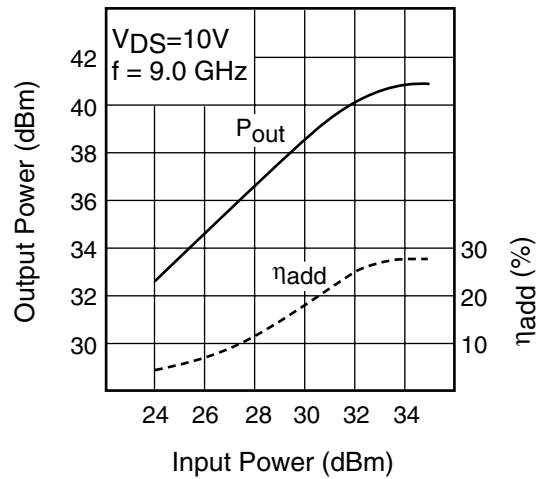
OUTPUT POWER & IM₃ vs. INPUT POWER

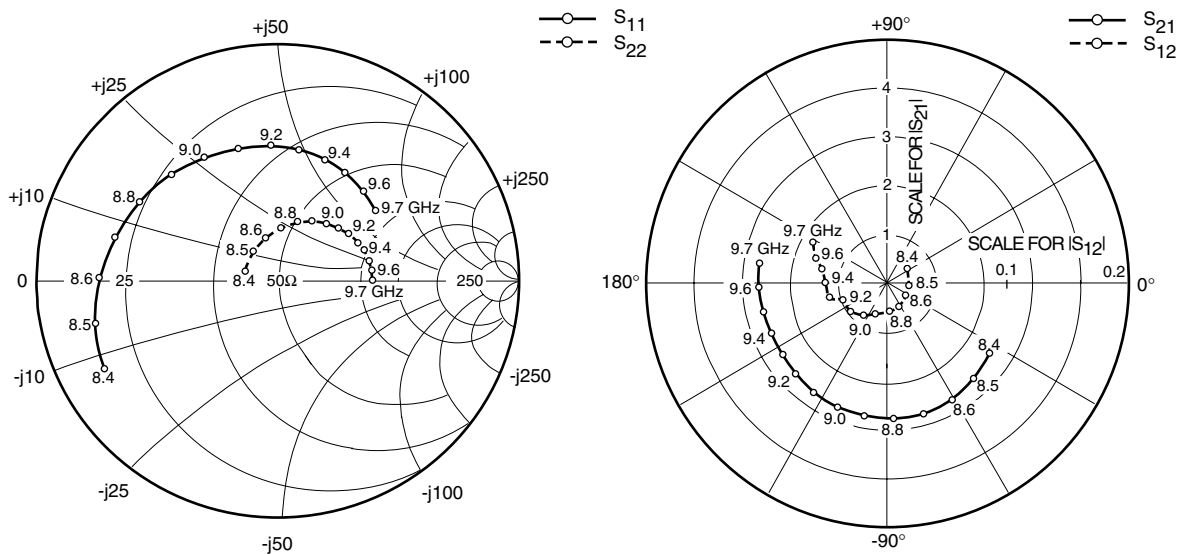


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





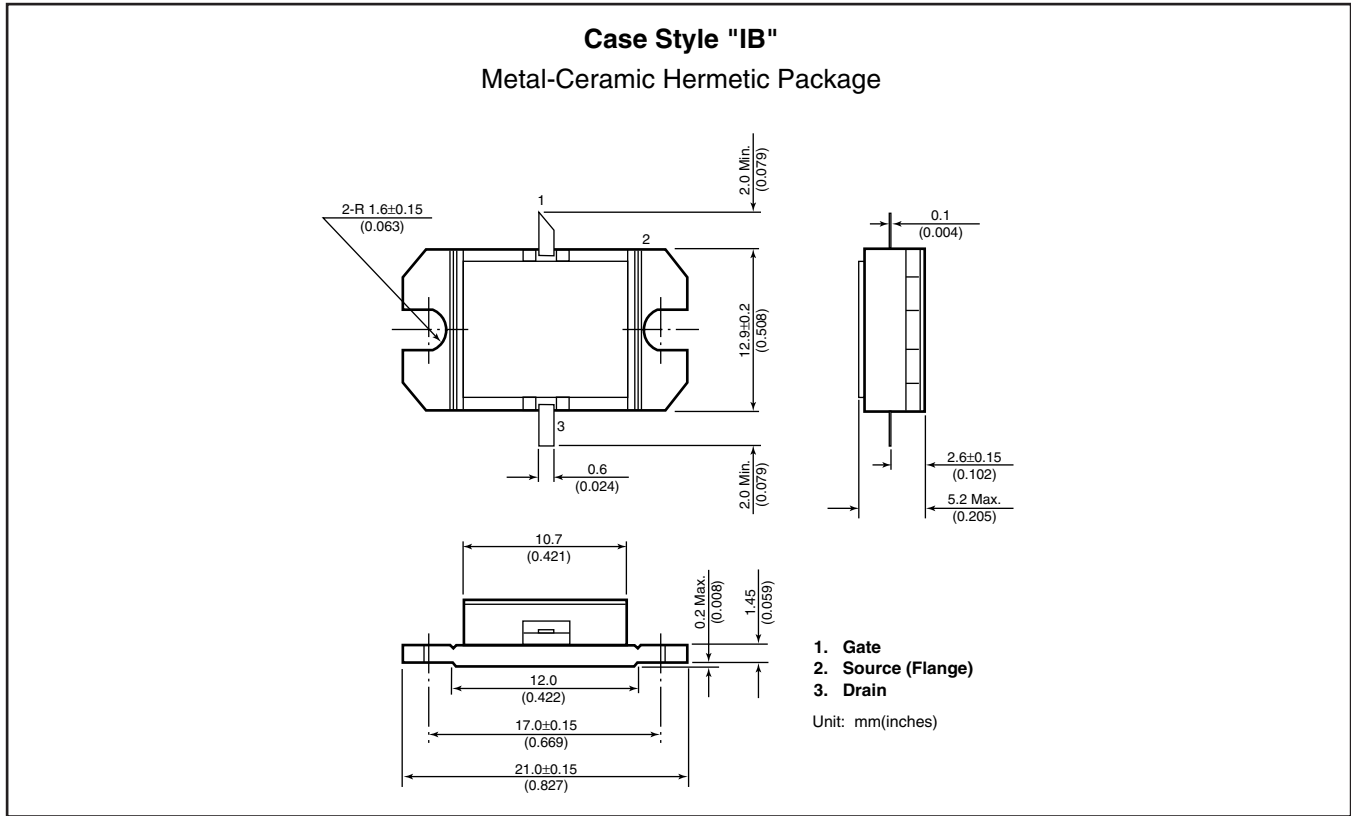
S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 3600mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
8400	.807	-153.6	2.559	-34.3	.020	36.9	.140	163.4
8500	.775	-166.9	2.660	-47.8	.018	-9.5	.159	130.9
8600	.739	179.0	2.757	-61.1	.018	-38.2	.187	106.1
8700	.703	164.6	2.789	-74.3	.022	-68.2	.220	86.6
8800	.663	149.5	2.793	-87.6	.024	-87.6	.262	72.5
8900	.634	134.3	2.789	-100.5	.028	-112.9	.287	60.8
9000	.611	120.0	2.747	-112.7	.034	-125.5	.313	50.1
9100	.587	105.9	2.707	-124.2	.039	-142.3	.335	41.1
9200	.574	93.1	2.671	-135.5	.040	-156.6	.354	34.4
9300	.561	80.8	2.640	-146.3	.051	-165.1	.369	25.7
9400	.550	68.8	2.640	-156.5	.052	180.0	.381	20.0
9500	.537	57.8	2.634	-167.3	.056	168.7	.390	11.8
9600	.520	46.9	2.643	-178.0	.063	161.6	.390	5.9
9700	.506	36.2	2.680	171.1	.070	152.0	.391	0.0

FLM8596-12F

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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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