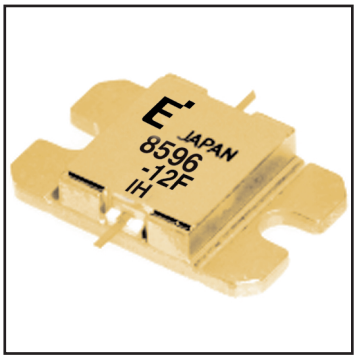
FLM8596-12F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 40.5dBm (Typ.)
- High Gain: G_{1dB} = 7.5dB (Typ.)
- High PAE: η_{add} = 25% (Typ.)
- Low IM_3 = -45dBc@Po = 29.5dBm
- Broad Band: 8.5 ~ 9.6GHz
- Impedance Matched Zin/Zout = 50Ω
- 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 Ta=25°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°C	57.6	W
Storage Temperature	T_{stg}		-65 to +175	°C
Channel Temperature	T_{ch}		175	°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 -5.6 mA respectively with gate resistance of 50Ω.

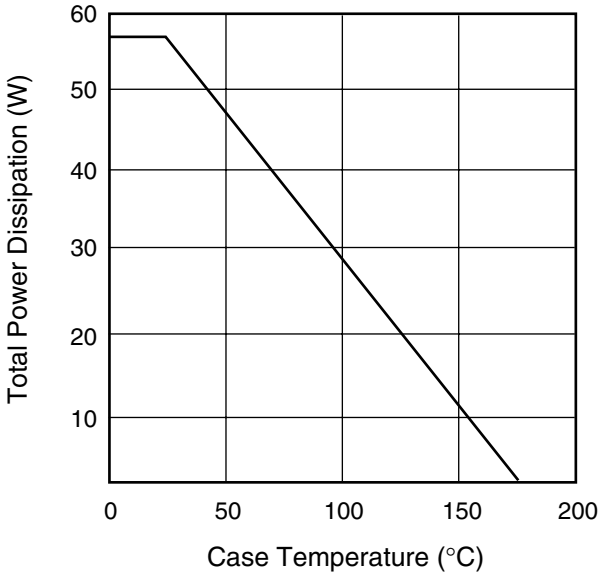
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	6000	9000	mA
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 3600mA	-	5000	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 300mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -340μA	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} =10V, I_{DS} = 0.65 I_{DSS} (Typ.), f = 8.5 ~ 9.6 GHz, Z_S=Z_L= 50 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	ηadd		-	25	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 9.6 GHz, Δf = 10 MHz 2-Tone Test P_{out} = 29.5dBm S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	2.3	2.6	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

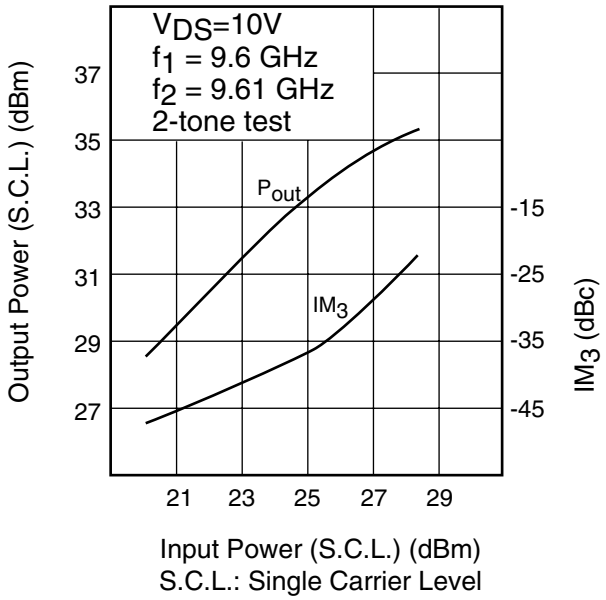
CASE STYLE: IB

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

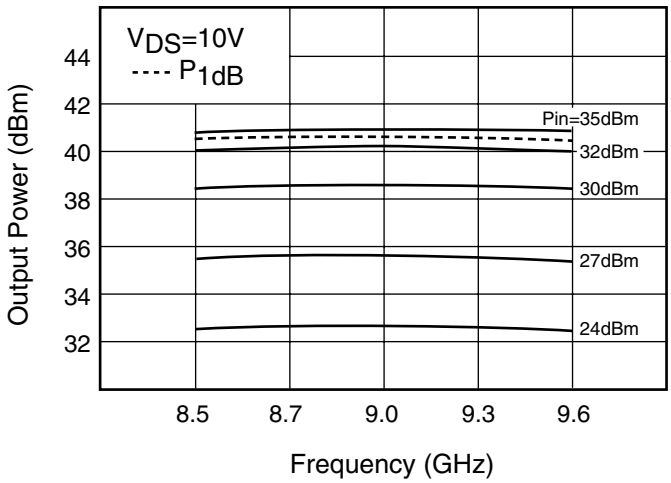
POWER DERATING CURVE



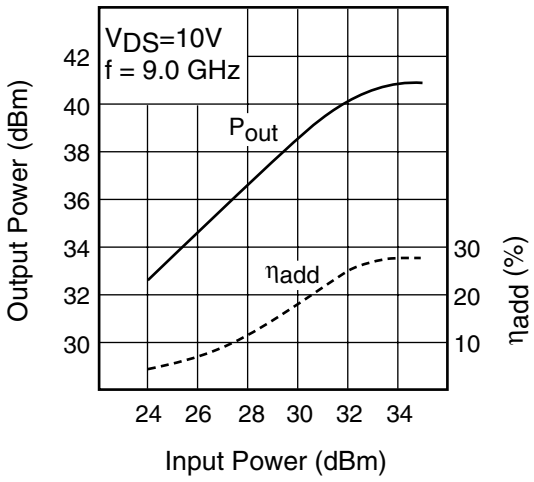
OUTPUT POWER & IM_3 vs. INPUT POWER

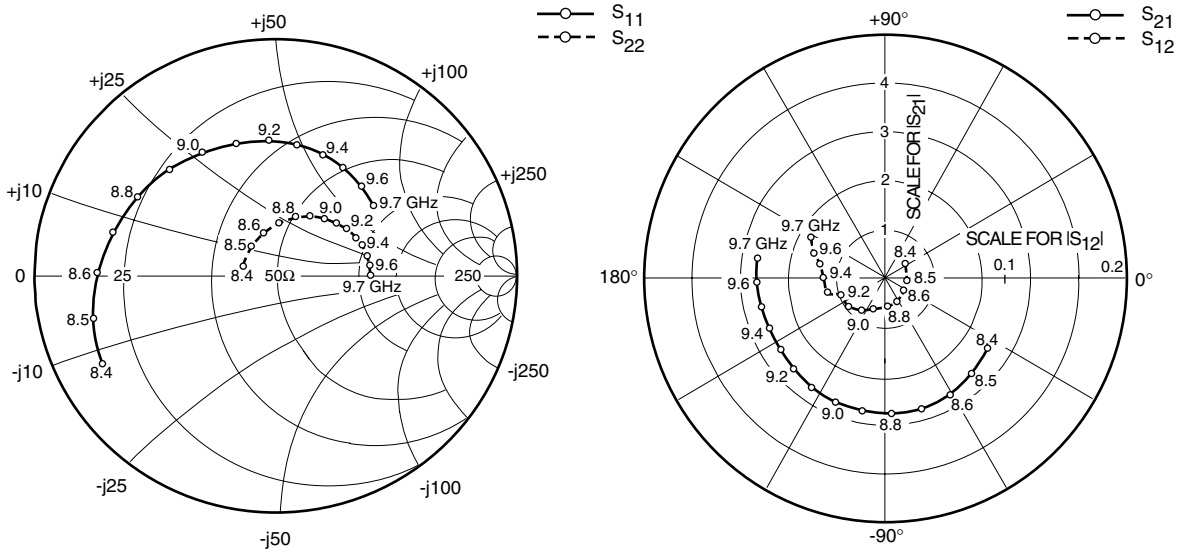


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





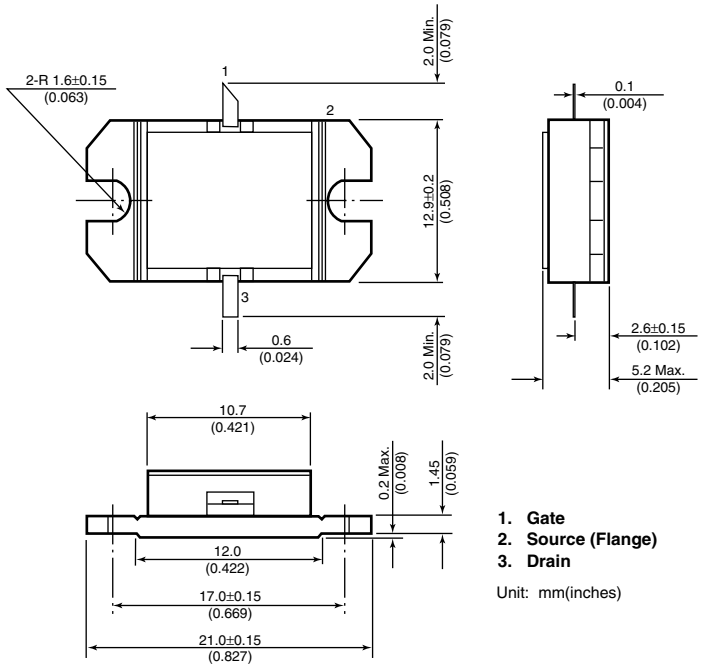
S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	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

Case Style "IB"

Metal-Ceramic Hermetic Package



1. **Gate**
2. **Source (Flange)**
3. **Drain**

Unit: mm(inches)

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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.**