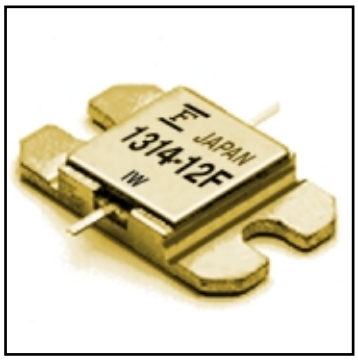
FLM1314-12F

X, Ku-Band Internally Matched FET

FEATURES

- High Output Power: P_{1dB} = 41.0dBm (Typ.)
- High Gain: G_{1dB} = 6.0dB (Typ.)
- High PAE: η_{add} = 23% (Typ.)
- Low IM_3 = -45dBc@Po = 29.0dBm
- Broad Band: 13.75 ~ 14.5GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed



DESCRIPTION

The FLM1314-12F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

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	75	W
Storage Temperature	T_{stg}		-65 to +175	°C
Channel Temperature	T_{ch}		175	°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 48.0 and -6.6 mA respectively with gate resistance of 50Ω.

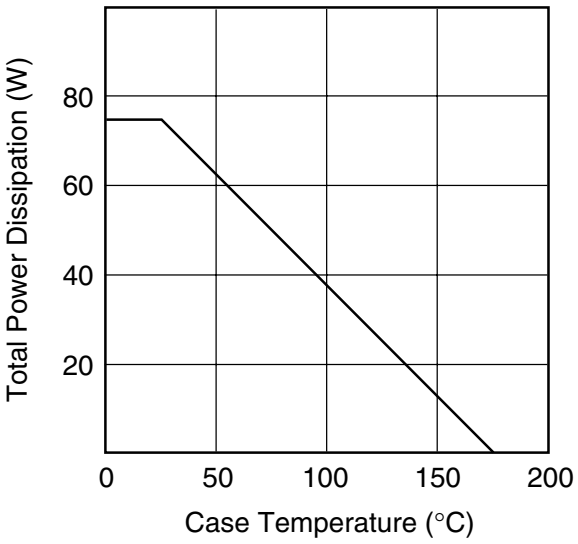
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	6.7	10	A
Transconductance	g_m	V_{DS} = 5V, I_{DS} = 4200mA	-	6700	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} = 335mA	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -335μA	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} =10V, I_{DS} = 0.65 I_{DSS} (Typ.), f = 13.75 ~ 14.5 GHz, Z_S = Z_L= 50 ohm	40.5	41.0	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		5.0	6.0	-	dB
Drain Current	I_{dsr}		-	4200	5000	mA
Power-added Efficiency	η_{add}		-	23	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 14.5GHz, Δf = 10 MHz 2-Tone Test P_{out} = 29.0dBm S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	1.8	2.0	°C/W
Channel Temperature Rise	ΔT_{ch}	10V x I_{dsr} x R_{th}	-	-	80	°C

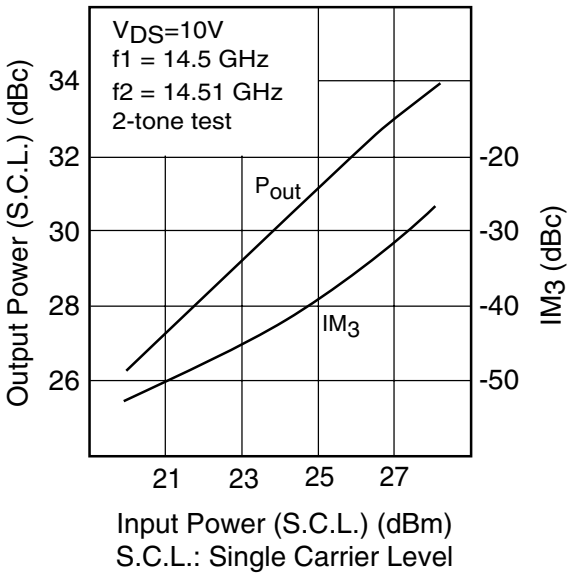
CASE STYLE: IB

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

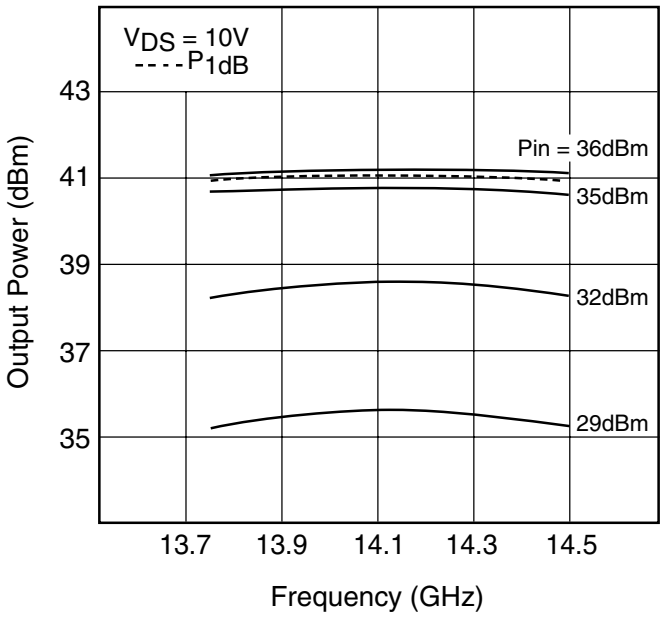
POWER DERATING CURVE



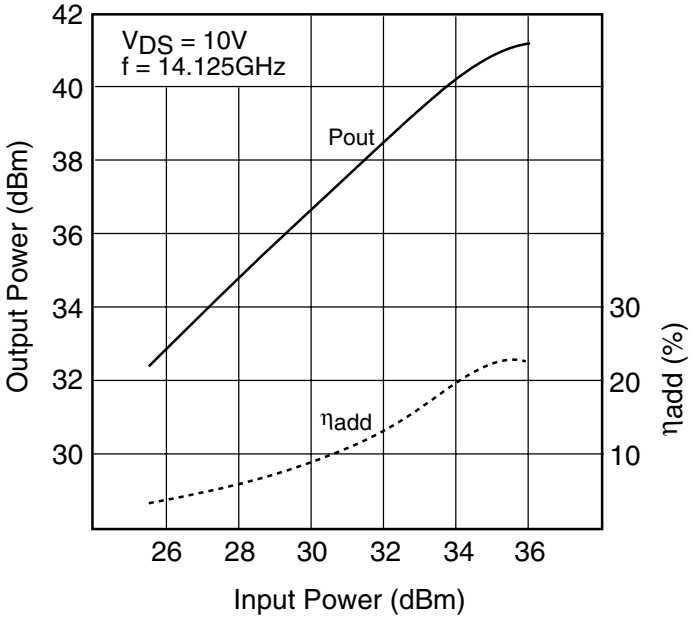
OUTPUT POWER & IM_3 vs. INPUT POWER

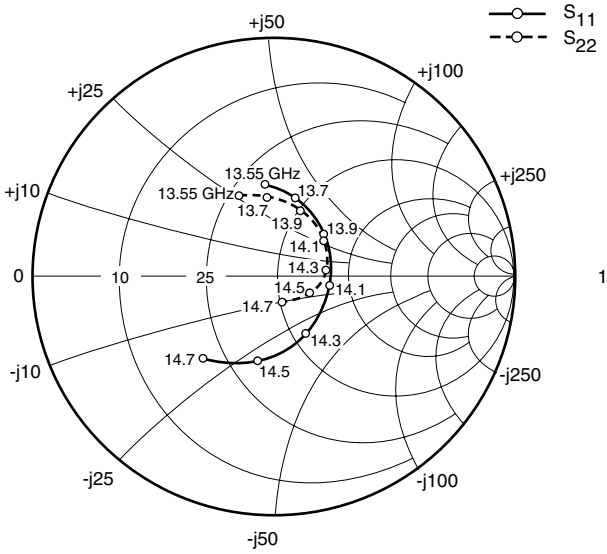


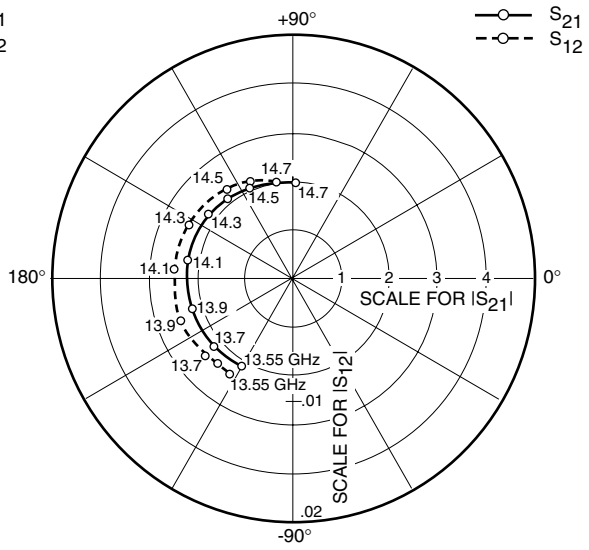
OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER







S-PARAMETERS

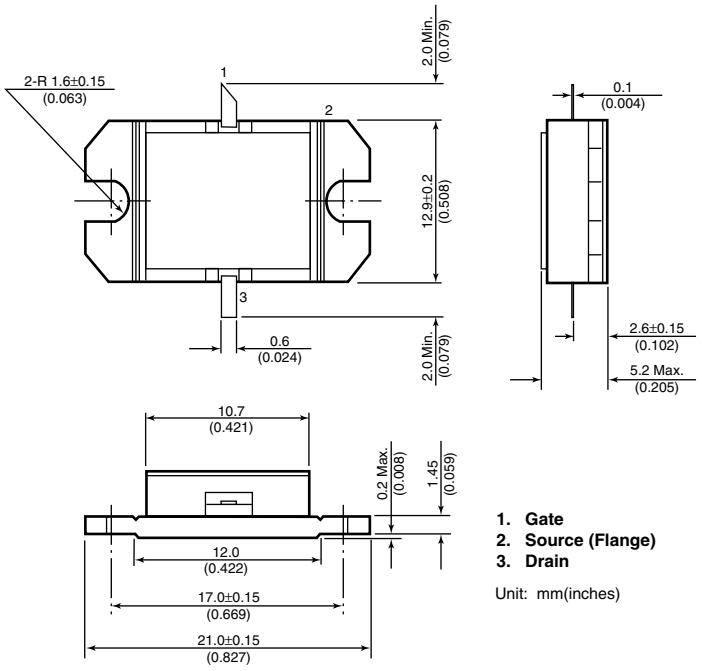
V_{DS} = 10V, I_{DS} = 4200mA

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13550	.387	96.2	2.086	-121.7	.094	-124.2	.368	112.4
13600	.367	89.7	2.102	-127.2	.092	-126.1	.356	107.2
13650	.357	82.3	2.115	-133.0	.095	-131.6	.348	102.0
13700	.341	75.0	2.140	-139.6	.097	-138.8	.331	95.0
13750	.324	67.7	2.156	-145.5	.097	-143.4	.330	89.5
13800	.303	59.2	2.166	-151.2	.098	-148.7	.322	82.9
13850	.288	48.2	2.182	-158.2	.099	-155.5	.310	75.4
13900	.272	40.2	2.196	-164.3	.099	-159.9	.301	68.6
13950	.256	28.7	2.205	-170.4	.101	-165.1	.286	60.9
14000	.246	17.3	2.223	-176.4	.098	-172.4	.273	53.6
14050	.240	4.3	2.230	176.3	.098	-177.7	.269	45.0
14100	.237	-9.2	2.231	170.0	.099	176.0	.259	38.1
14150	.235	-23.8	2.232	163.7	.101	170.9	.251	28.6
14200	.243	-36.3	2.219	157.3	.100	165.0	.243	21.7
14250	.259	-50.2	2.208	149.8	.098	157.1	.233	14.9
14300	.273	-61.8	2.202	143.2	.097	152.4	.219	5.2
14350	.292	-72.9	2.182	136.9	.095	147.0	.207	0.0
14400	.314	-81.9	2.169	130.4	.097	138.8	.196	-8.8
14450	.338	-92.0	2.142	122.6	.093	132.8	.181	-19.3
14500	.359	-100.9	2.115	116.1	.090	127.8	.164	-25.3
14550	.388	-109.3	2.084	109.7	.087	120.4	.154	-35.8
14600	.409	-115.6	2.059	103.4	.087	114.5	.140	-45.6
14650	.434	-123.5	2.016	95.8	.084	106.5	.127	-59.8
14700	.452	-130.6	1.976	89.4	.080	100.8	.116	-71.4

Download S-Parameters, click here

Case Style "IB"

Metal-Ceramic Hermetic Package



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

Unit: mm(inches)

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CAUTION

Fujitsu Compound Semiconductor 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 these products 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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