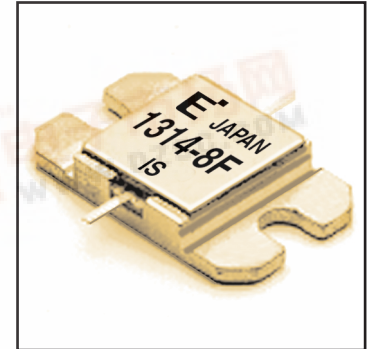


# FLM1314-8F

## X, Ku-Band Internally Matched FET

### FEATURES

- High Output Power:  $P_{1dB} = 39.0\text{dBm}$  (Typ.)
- High Gain:  $G_{1dB} = 6.0\text{dB}$  (Typ.)
- High PAE:  $\eta_{add} = 28\%$  (Typ.)
- Low  $IM_3 = -45\text{dBc}$  @  $P_o = 28.0\text{dBm}$
- Broad Band: 13.75 ~ 14.5GHz
- Impedance Matched  $Z_{in}/Z_{out} = 50\Omega$



### DESCRIPTION

The FLM1314-8F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

### 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	$P_T$	$T_C = 25^\circ\text{C}$	45.5	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 -4.4 mA respectively with gate resistance of 100 $\Omega$ .

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

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	3900	5900	mA
Transconductance	$g_m$	$V_{DS} = 5\text{V}, I_{DS} = 2400\text{mA}$	-	3900	-	mS
Pinch-off Voltage	$V_p$	$V_{DS} = 5\text{V}, I_{DS} = 196\text{mA}$	-0.5	-1.5	-3.0	V
Gate Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -196\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	$P_{1dB}$	$V_{DS} = 10\text{V},$ $I_{DS} = 0.65 I_{DSS}$ (Typ.), $f = 13.75 \sim 14.5\text{GHz},$ $Z_S = Z_L = 50\text{ohm}$	38.5	39.0	-	dBm
Power Gain at 1dB G.C.P.	$G_{1dB}$		5.0	6.0	-	dB
Drain Current	$I_{dsr}$		-	2400	3000	mA
Power-added Efficiency	$\eta_{add}$		-	28	-	%
Gain Flatness	$\Delta G$		-	-	$\pm 0.6$	dB
3rd Order Intermodulation Distortion	$IM_3$	$f = 14.5\text{GHz}, \Delta f = 10\text{MHz}$ 2-Tone Test $P_{out} = 28.0\text{dBm S.C.L.}$	-42	-45	-	dBc
Thermal Resistance	$R_{th}$	Channel to Case	-	2.8	3.3	$^\circ\text{C}/\text{W}$
Channel Temperature Rise	$\Delta T_{ch}$	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

CASE STYLE: IA

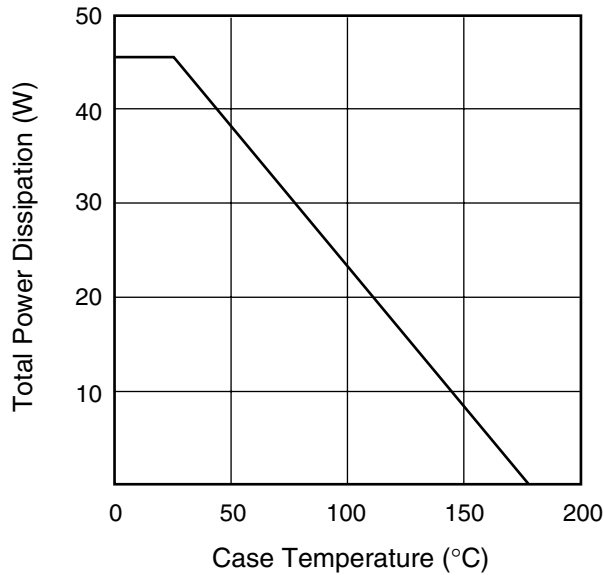
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



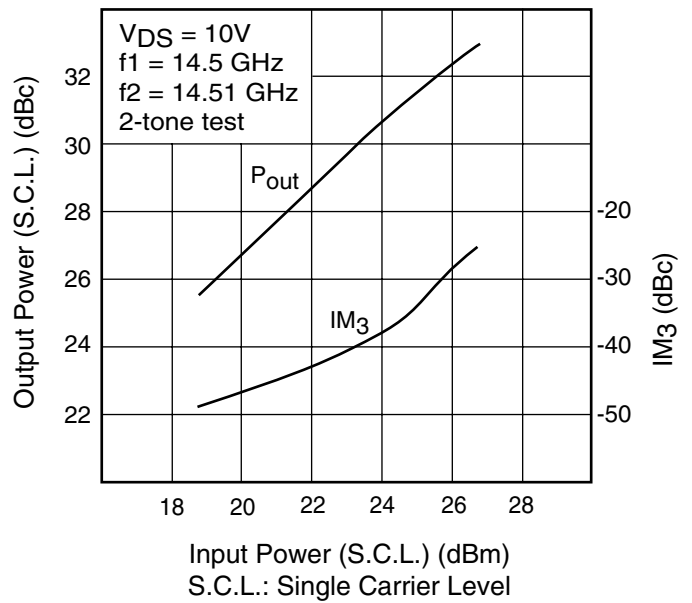
# FLM1314-8F

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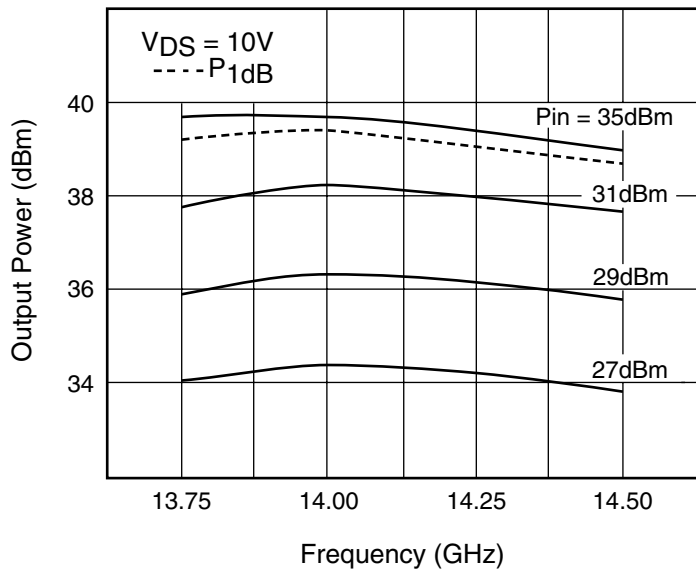
### POWER DERATING CURVE



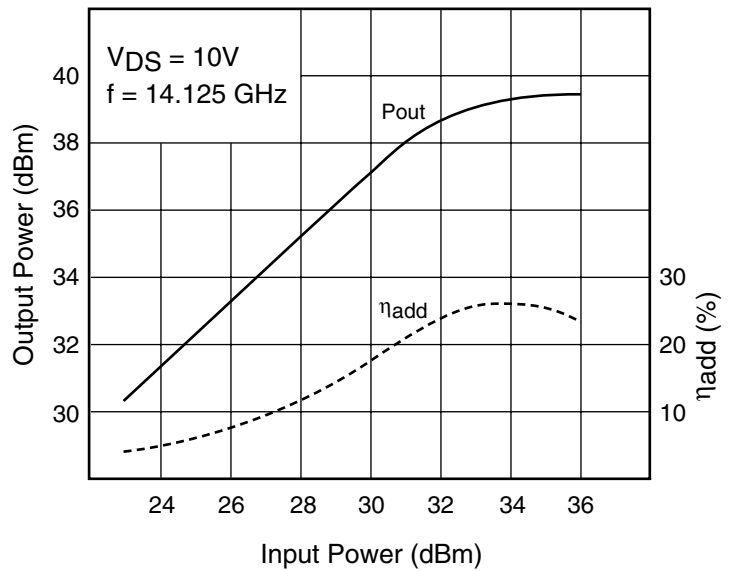
### OUTPUT POWER & IM<sub>3</sub> vs. INPUT POWER



### OUTPUT POWER vs. FREQUENCY

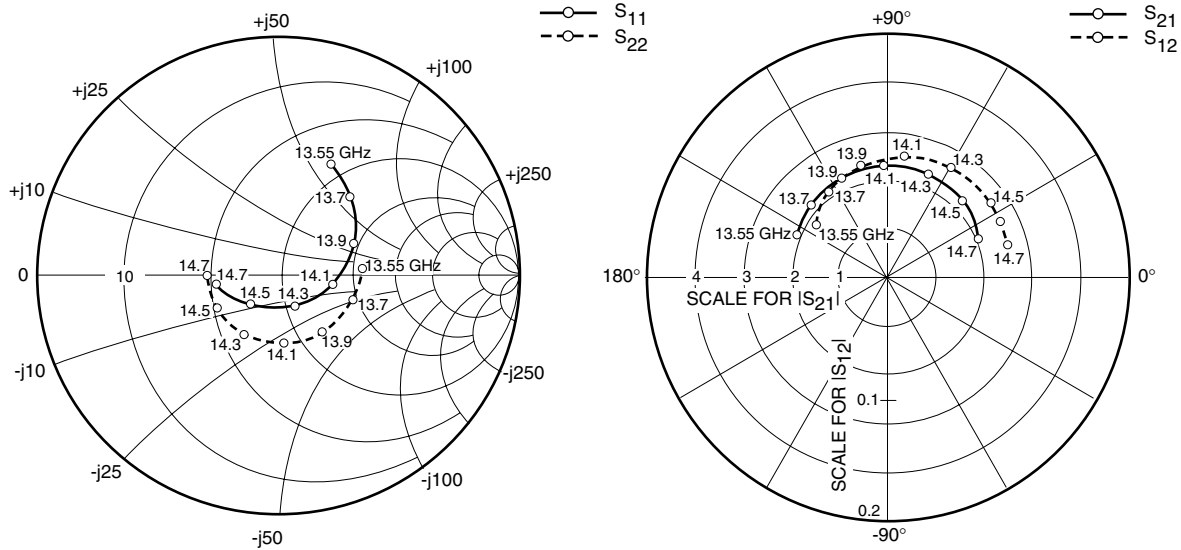


### OUTPUT POWER vs. INPUT POWER



# FLM1314-8F

X, Ku-Band Internally Matched FET



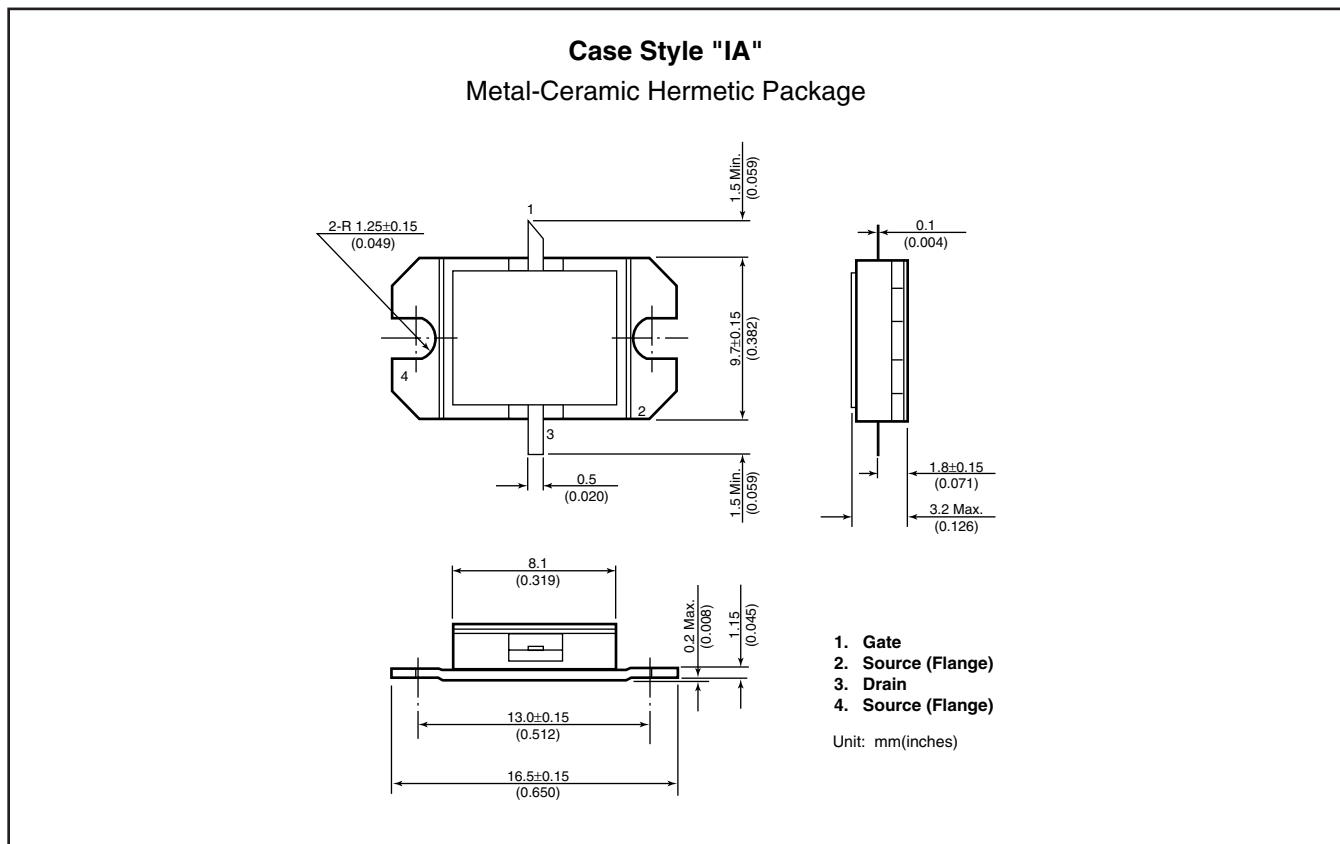
## S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 2400mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13550	.514	64.8	2.077	154.3	.075	143.1	.350	4.6
13600	.493	59.1	2.103	148.7	.079	137.6	.337	-2.7
13650	.470	53.7	2.133	143.3	.083	131.6	.330	-11.2
13700	.443	48.0	2.171	137.5	.085	125.0	.323	-19.0
13750	.418	41.5	2.191	131.9	.088	121.5	.314	-27.5
13800	.393	35.1	2.211	126.4	.091	114.0	.306	-36.2
13850	.367	29.6	2.237	120.7	.093	110.2	.301	-44.3
13900	.339	22.7	2.261	115.1	.095	104.0	.296	-52.8
13950	.313	15.0	2.274	109.3	.093	99.3	.294	-61.3
14000	.290	7.7	2.292	103.6	.099	93.5	.292	-69.1
14050	.260	-0.2	2.302	97.9	.098	87.7	.286	-78.1
14100	.232	-9.4	2.304	92.1	.101	83.2	.284	-86.2
14150	.206	-19.3	2.308	86.2	.102	76.4	.282	-94.9
14200	.184	-31.9	2.307	80.3	.103	69.4	.281	-103.8
14250	.160	-45.5	2.301	74.6	.104	64.4	.284	-112.6
14300	.148	-62.2	2.297	68.5	.103	59.7	.285	-120.6
14350	.138	-81.2	2.281	62.8	.106	53.5	.285	-128.9
14400	.139	-98.7	2.254	57.0	.103	48.6	.285	-137.1
14450	.146	-117.3	2.225	51.4	.104	41.5	.288	-144.6
14500	.165	-133.8	2.197	45.7	.105	36.1	.289	-151.9
14550	.186	-146.0	2.163	39.9	.105	31.0	.286	-160.0
14600	.213	-156.8	2.128	34.5	.103	25.8	.287	-166.3
14650	.236	-165.0	2.083	28.9	.100	21.7	.292	-172.7
14700	.262	-172.3	2.042	23.6	.102	15.4	.293	-179.0

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- 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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