

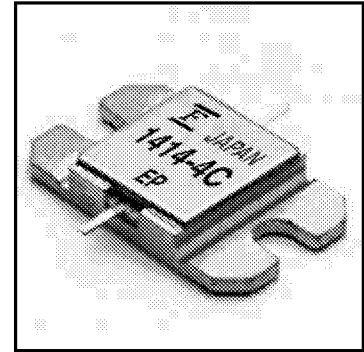
FLM1414-4C

Internally Matched Power GaAs FETs



FEATURES

- High Output Power: $P_{1dB} = 35.5\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 5.0\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 21\%$ (Typ.)
- Broad Band: 14.0 ~ 14.5GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed



DESCRIPTION

The FLM1414-4C is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

Fujitsu'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	$T_C = 25^\circ\text{C}$	25	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 8.0 and -2.2 mA respectively with gate resistance of 100 Ω .

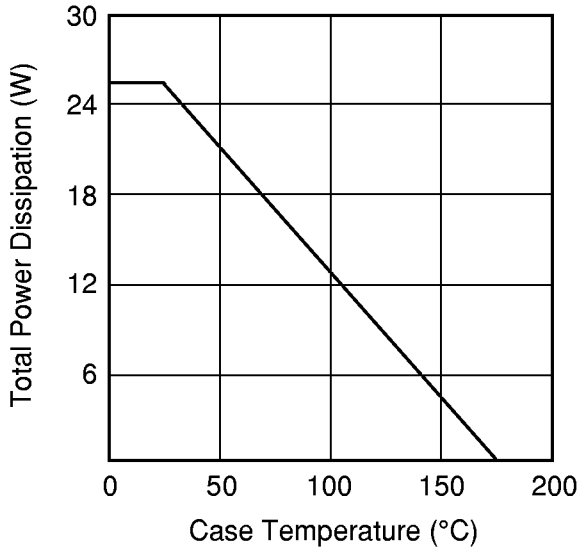
ELECTRICAL CHARACTERISTICS (Ambient Temperature $T_a=25^\circ\text{C}$)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	1800	2700	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 1100\text{mA}$	-	1000	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 90\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -90\mu\text{A}$	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.6 I_{DSS}$ (Typ.), $f = 14.0 \sim 14.5 \text{GHz},$ $Z_S = Z_L = 50 \text{ohm}$	34.5	35.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		4.0	5.0	-	dB
Drain Current	I_{dsr}		-	1100	1300	mA
Power-added Efficiency	η_{add}		-	21	-	%
Thermal Resistance	R_{th}		Channel to Case	-	5	6

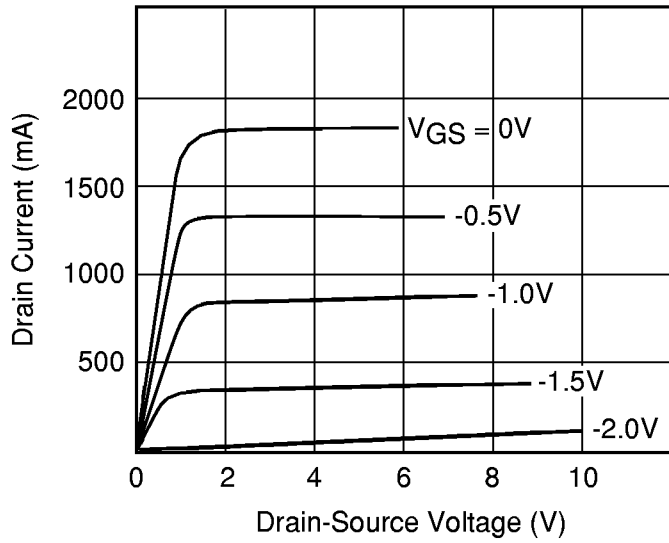
CASE STYLE: IA

G.C.P.: Gain Compression Point

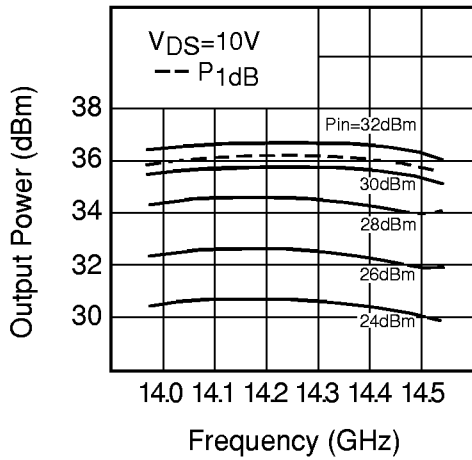
POWER DERATING CURVE



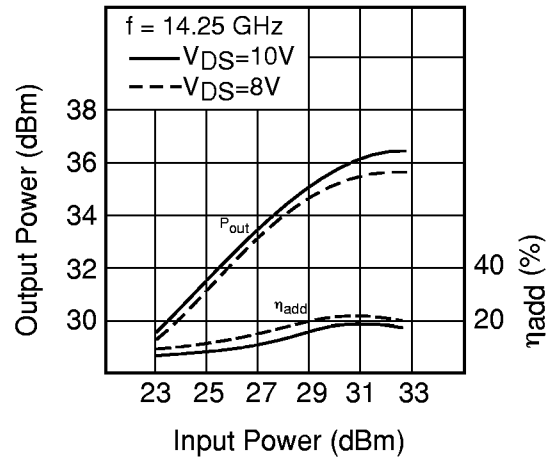
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE

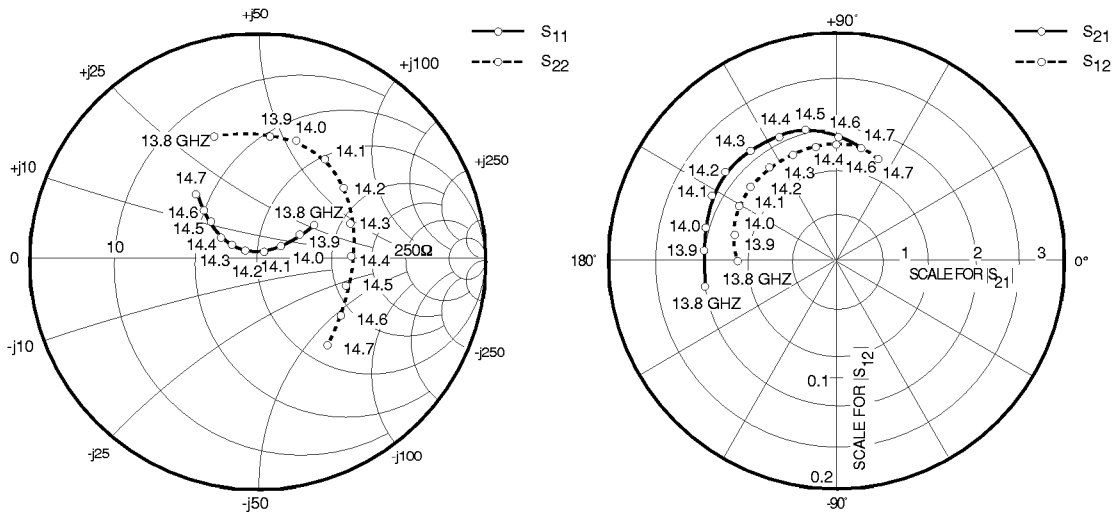


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





S-PARAMETERS

$V_{DS} = 10V, I_{DS} = 1100mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13800	.30	31	1.99	-173	.09	179	.59	103
13900	.24	29	1.99	174	.09	164	.56	89
14000	.15	23	2.09	165	.10	153	.53	73
14100	.06	39	2.12	152	.10	140	.51	57
14200	.06	128	2.13	138	.10	126	.48	41
14300	.14	152	2.12	126	.11	113	.45	23
14400	.23	151	2.05	114	.10	100	.42	3
14500	.30	145	1.99	104	.10	91	.41	-17
14600	.36	141	1.84	91	.10	79	.44	-37
14700	.41	135	1.71	79	.10	66	.48	-52

Case Style "IA"
Metal-Ceramic Hermetic Package

