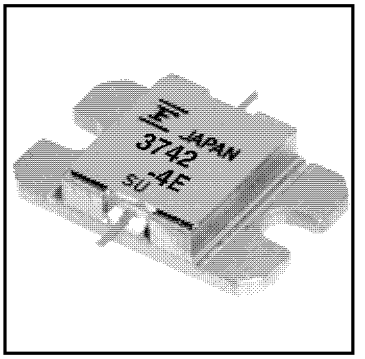
FLM3742-4E
Internally Matched Power GaAs FETs

FUJITSU

FEATURES

- High Output Power: P_{1dB} = 36dBm (Typ.)
- High Gain: G_{1dB} = 12dB (Typ.)
- High PAE: η_{add} = 34% (Typ.)
- Low IM_3 = -45dBc@Po = 25dBm
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched Zin/Zout = 50Ω
- Hermetically Sealed Package



DESCRIPTION

The FLM3742-4E 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 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	25	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 8.0 and -2.2 mA respectively with gate resistance of 100Ω.

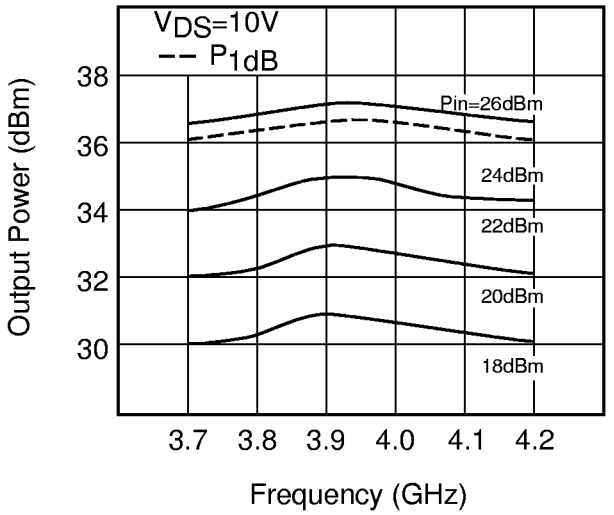
ELECTRICAL CHARACTERISTICS (Ambient Temperature Ta=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	V_{DS} = 5V, V_{GS} = 0V	-	1800	2700	mA
Transconductance	gm	V_{DS} = 5V, I_{DS} =1100mA	-	1000	-	mS
Pinch-off Voltage	V_p	V_{DS} = 5V, I_{DS} =90mA	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	I_{GS} = -90μA	-5	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	V_{DS} =10V, I_{DS} = 0.6 I_{DSS} (Typ.), f = 3.7 ~ 4.2 GHz, Z_S=Z_L=50 ohm	35	36	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		11	12	-	dB
Drain Current	I_{dsr}		-	1100	1300	mA
Power-added Efficiency	ηadd		-	34	-	%
Gain Flatness	ΔG		-	-	±0.6	dB
3rd Order Intermodulation Distortion	IM_3	f = 4.2 GHz, Δf = 10 MHz 2-Tone Test P_{out} = 25dBm S.C.L.	-42	-45	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	5	6	°C/W

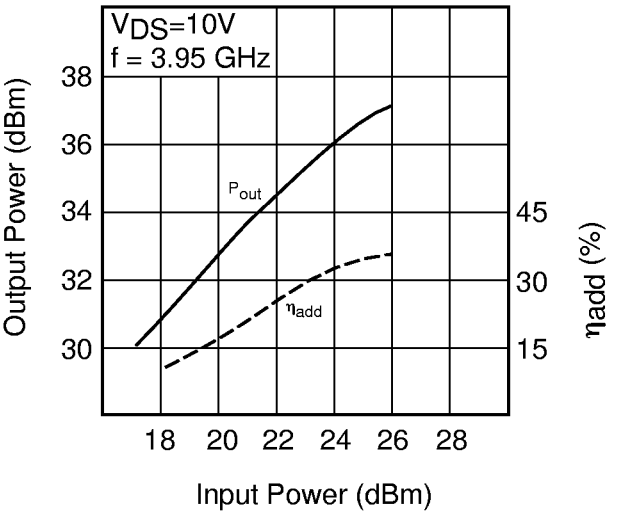
CASE STYLE: IB

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

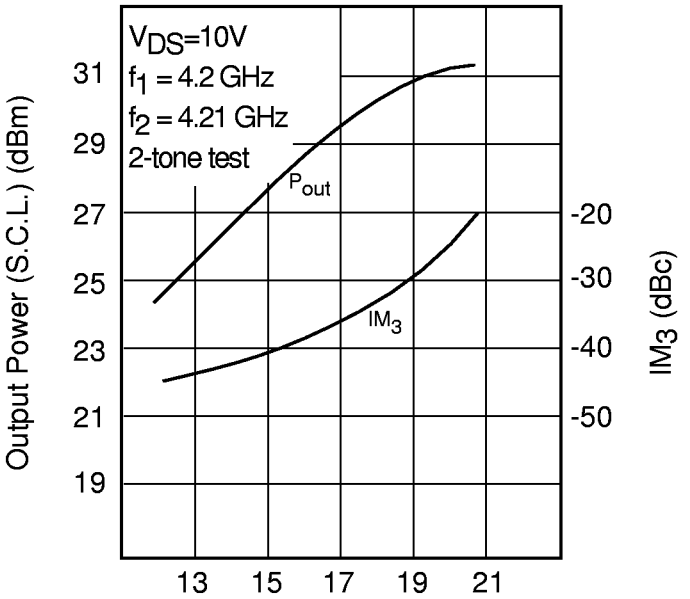
OUTPUT POWER vs. FREQUENCY

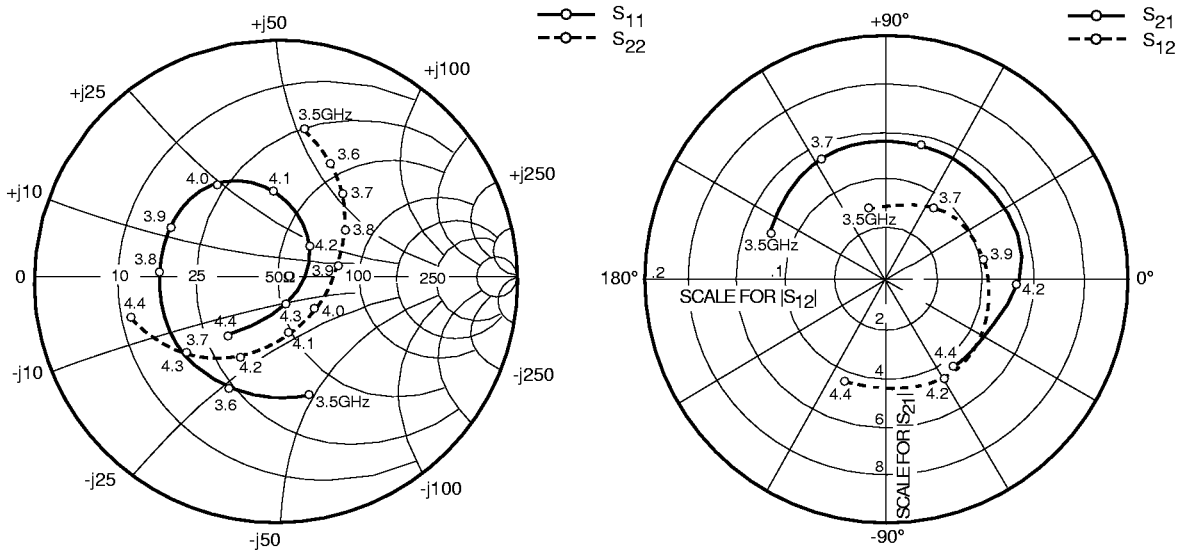


OUTPUT POWER vs. INPUT POWER



OUTPUT POWER & IM_3 vs. INPUT POWER





S-PARAMETERS

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

FREQUENCY	S11		S21		S12		S22	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.487	-71.1	4.755	156.7	.059	99.4	.628	76.8
3600	.466	-110.3	5.151	135.8	.067	77.8	.547	64.0
3700	.476	-148.0	5.418	114.3	.074	54.8	.450	50.2
3800	.490	178.5	5.597	92.8	.080	32.3	.355	33.6
3900	.486	148.6	5.705	71.4	.086	10.7	.268	10.3
4000	.442	119.7	5.797	49.3	.091	-10.8	.214	-27.5
4100	.350	88.9	5.813	26.2	.096	-34.1	.241	-74.5
4200	.211	46.9	5.671	1.2	.098	-58.3	.343	-111.4
4300	.121	-48.2	5.304	-24.8	.096	-83.1	.469	-139.9
4400	.266	-126.9	4.694	-50.8	.089	-108.3	.577	-163.0

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Case Style "IB"
Metal-Ceramic Hermetic Package