

FEATURES

- High Output Power: $P_{1dB} = 41.5\text{dBm}$ (Typ.)
- High Gain: $G_{1dB} = 11.5\text{dB}$ (Typ.)
- High PAE: $\eta_{add} = 40\%$ (Typ.)
- Low $IM_3 = -46\text{dBc}$ @ $P_o = 30.5\text{dBm}$
- Broad Band: 3.7 ~ 4.2GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- Hermetically Sealed Package

DESCRIPTION

The FLM3742-12F is a power GaAs FET that is internally matched for standard communication bands to provide optimum power and gain in a 50 ohm system.

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	$T_C = 25^\circ\text{C}$	57.6	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:

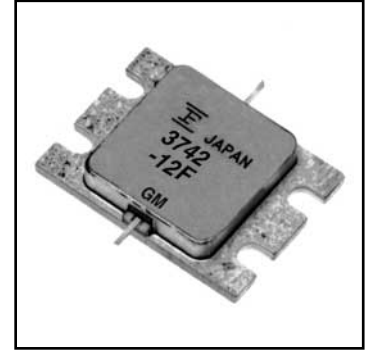
1. The drain-source operating voltage (V_{DS}) should not exceed 10 volts.
2. The forward and reverse gate currents should not exceed 32.0 and -5.6 mA respectively with gate resistance of 50 Ω .

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

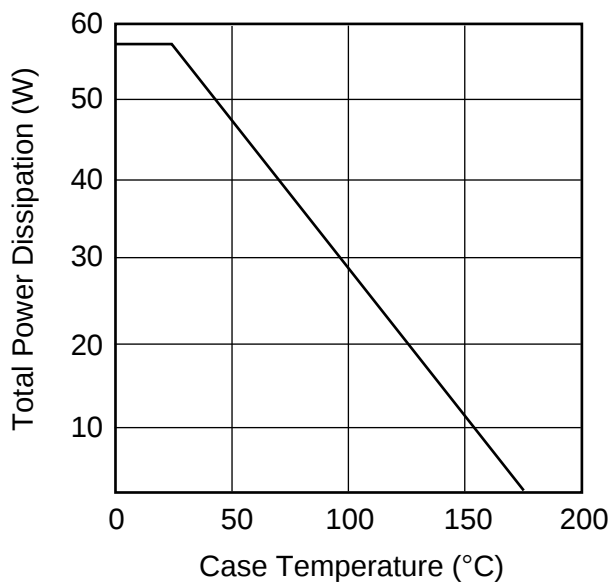
Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Saturated Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0\text{V}$	-	5800	8700	mA
Transconductance	g_m	$V_{DS} = 5\text{V}, I_{DS} = 3400\text{mA}$	-	2900	-	mS
Pinch-off Voltage	V_p	$V_{DS} = 5\text{V}, I_{DS} = 300\text{mA}$	-1.0	-2.0	-3.5	V
Gate Source Breakdown Voltage	V_{GSO}	$I_{GS} = -300\mu\text{A}$	-5.0	-	-	V
Output Power at 1dB G.C.P.	P_{1dB}	$V_{DS} = 10\text{V},$ $I_{DS} = 0.55 I_{DSS} \text{ (Typ.)},$ $f = 3.7 \sim 4.2 \text{ GHz},$ $Z_S = Z_L = 50 \text{ ohm}$	40.5	41.5	-	dBm
Power Gain at 1dB G.C.P.	G_{1dB}		10.5	11.5	-	dB
Drain Current	I_{dsr}		-	3250	3800	mA
Power-added Efficiency	η_{add}		-	40	-	%
Gain Flatness	ΔG		-	-	± 0.6	dB
3rd Order Intermodulation Distortion	IM_3	$f = 4.2 \text{ GHz}, \Delta f = 10 \text{ MHz}$ 2-Tone Test $P_{out} = 30.5\text{dBm S.C.L.}$	-44	-46	-	dBc
Thermal Resistance	R_{th}	Channel to Case	-	2.3	2.6	$^\circ\text{C/W}$
Channel Temperature Rise	ΔT_{ch}	$10\text{V} \times I_{dsr} \times R_{th}$	-	-	80	$^\circ\text{C}$

CASE STYLE: IK

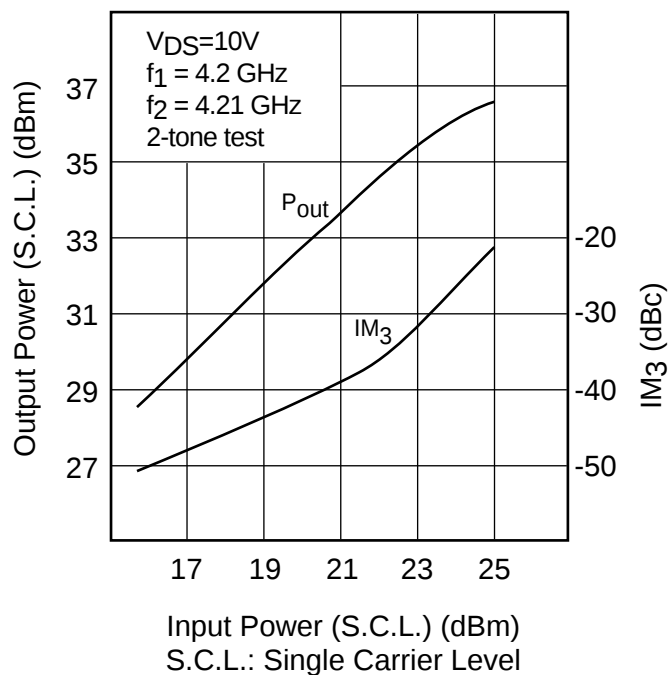
G.C.P.: Gain Compression Point, S.C.L.: Single Carrier Level



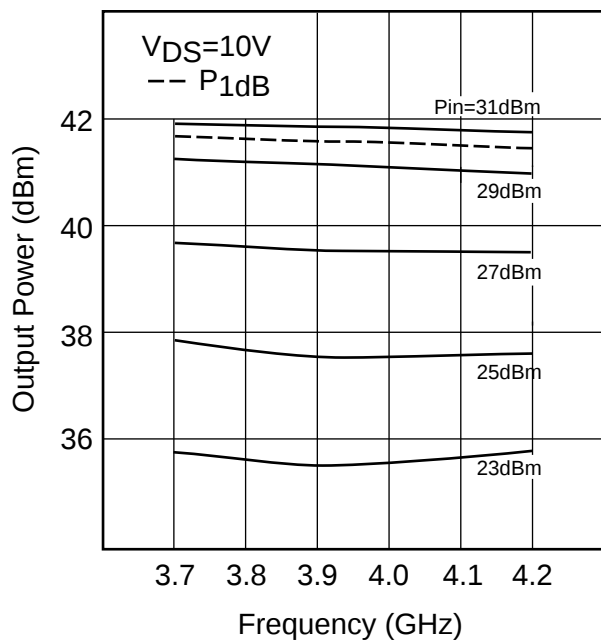
POWER DERATING CURVE



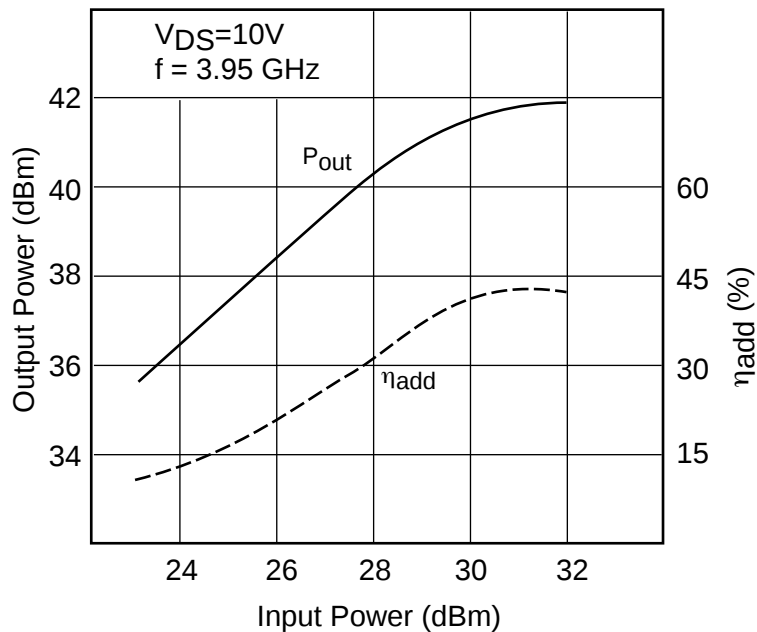
OUTPUT POWER & IM₃ vs. INPUT POWER

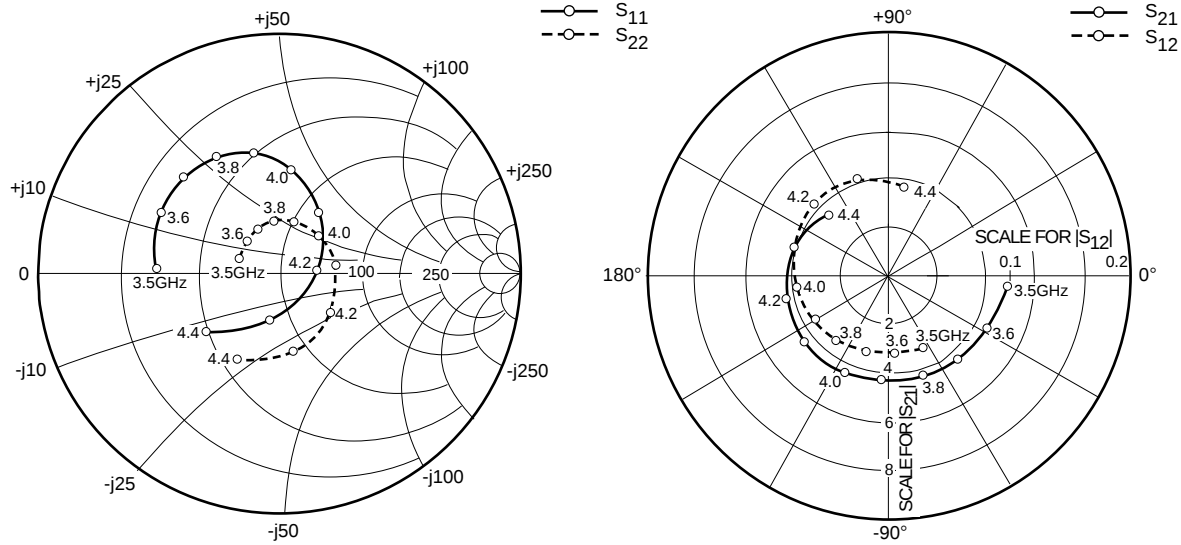


OUTPUT POWER vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER





S-PARAMETERS

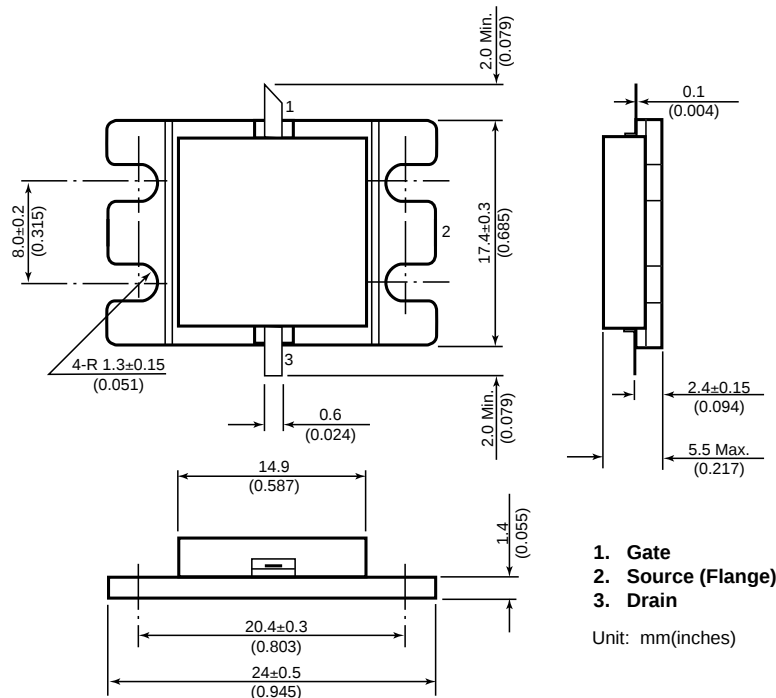
$V_{DS} = 10V$, $I_{DS} = 3400mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
3500	.508	176.8	4.905	-4.5	.066	-63.8	.181	159.5
3600	.551	152.3	4.604	-27.9	.066	-86.9	.189	136.0
3700	.571	134.7	4.379	-49.9	.066	-107.5	.200	116.6
3800	.558	118.2	4.277	-70.9	.070	-129.0	.214	96.9
3900	.514	102.3	4.258	-92.5	.072	-149.8	.219	73.8
4000	.434	83.6	4.333	-115.1	.078	-172.3	.223	44.2
4100	.296	58.4	4.402	-140.2	.083	163.6	.234	7.4
4200	.151	2.9	4.390	-167.6	.084	137.7	.265	-37.5
4300	.203	-102.6	4.138	163.3	.083	109.0	.330	-80.1
4400	.402	-143.5	3.626	134.3	.074	81.6	.401	-116.0

FLM3742-12F

C-Band Internally Matched FET

Case Style "IK" Metal-Ceramic Hermetic Package



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- 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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