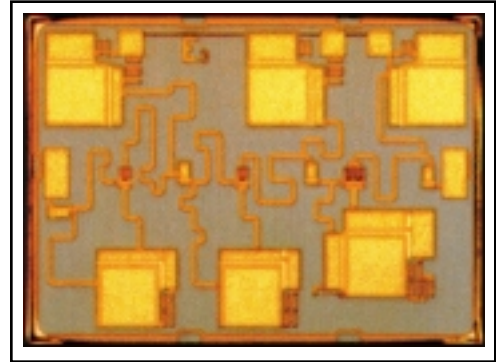


FEATURES

- Low Noise Figure: NF = 2dB (Typ.) @ f=32 GHz
- High Associated Gain: $G_{as} = 18\text{dB}$ (Typ.) @ f=32 GHz
- Wide Frequency Band: 24-32 GHz
- High Output Power: 9dBm (Typ.) @ f=32 GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$

DESCRIPTION

The FMM5703X is a LNA MMIC designed for applications in the 24-32 GHz frequency range. This product is well suited for satellite communications, radio link, and applications where low noise and high dynamic range are required.



ABSOLUTE MAXIMUM RATING (Ambient Temperature $T_a=25^\circ\text{C}$)

Item	Symbol	Condition	Rating	Unit
Drain-Source Voltage	V_{DD}		4	V
Input Power	P_{in}		-3	dBm
Storage Temperature	T_{stg}		-65 to +175	$^\circ\text{C}$
Operating Backside Temperature	T_{op}		-45 to +125	$^\circ\text{C}$

Fujitsu recommends the following conditions for the long term reliable operation of GaAs FETs:

1. The drain-source operating voltage (V_{DD}) should not exceed 3 volts.
2. This product should be hermetically packaged.

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

Item	Symbol	Conditions (2)	Limits			Unit
			Min.	Typ.	Max.	
Noise Figure	NF	$V_{DD} = 3\text{V}$ $f = 32\text{ GHz}$ $I_{DD} = 20\text{mA (Typ.)}$ $Z_S = Z_L = 50\Omega$	-	2.0	2.5	dB
Associated Gain	G_{as}		15	18	20	dB
Output Power at 1dB G.C.P.	P_{1dB}		-	9	-	dBm
Input Return Loss	RL_{in}		-	-10	-	dB
Output Return Loss	RL_{out}		-	-10	-	dB

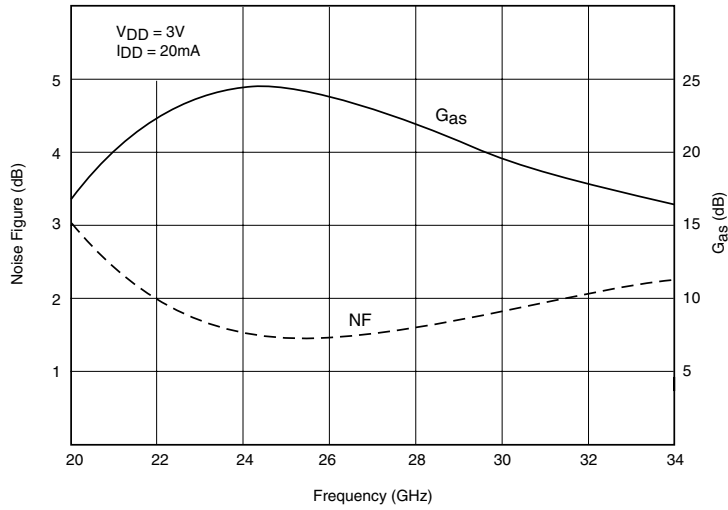
Note 1: RF parameter sample size 10pcs. Criteria (accept/reject)=(0/1)

Note 2: Electrical Characteristics specified with RF-probe measurement.

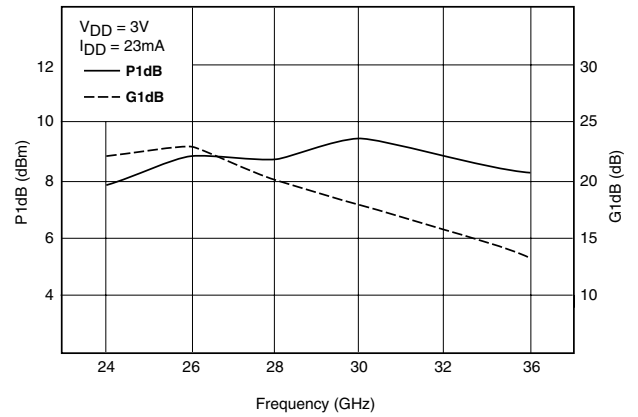
FMM5703X

24-32GHz LNA MMIC

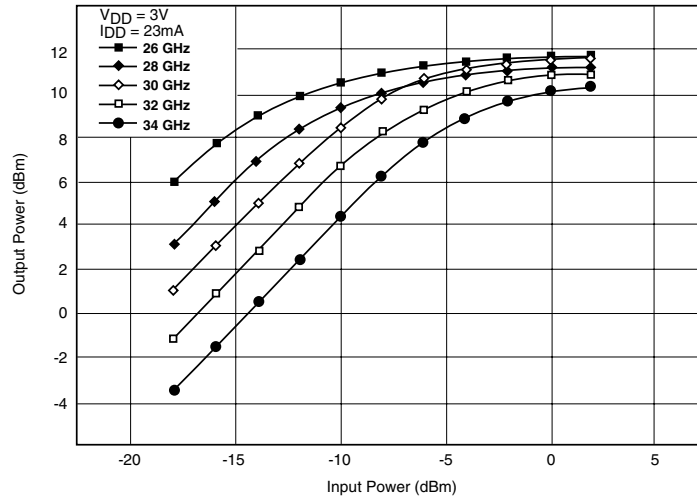
NOISE FIGURE & G_{as} vs. FREQUENCY



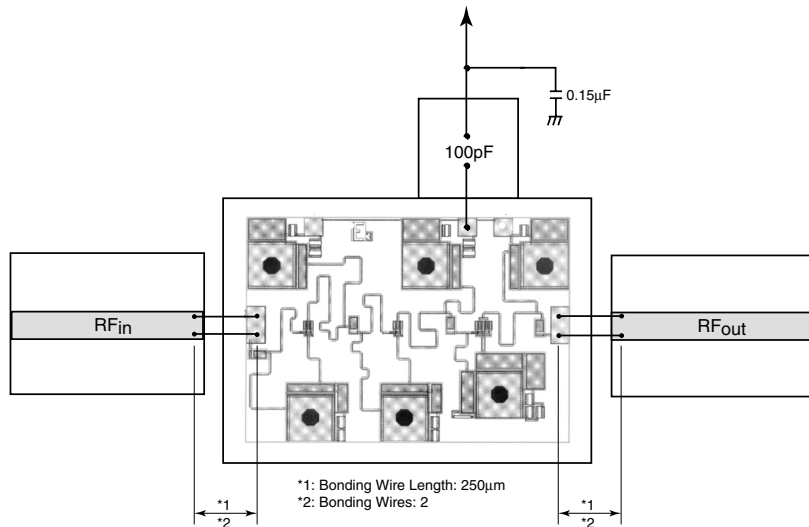
P1dB & G1dB vs. FREQUENCY



OUTPUT POWER vs. INPUT POWER



ASSEMBLY DRAWING

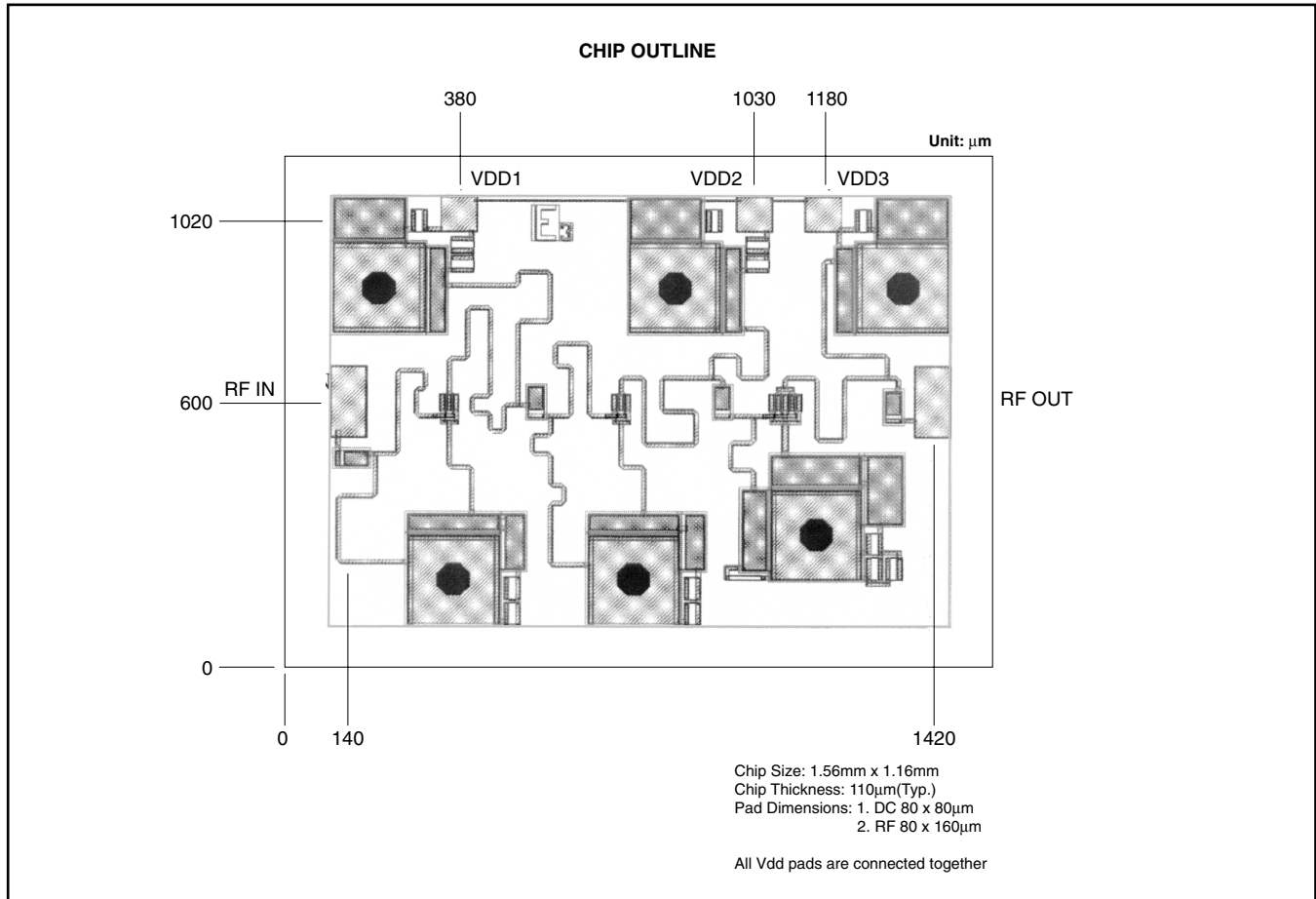


S-PARAMETERS
 $V_{DD} = 3V, I_{DS} = 20mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
16000	.898	88.7	.957	-32.4	.004	-4.1	.743	160.3
16500	.903	77.6	1.201	-46.0	.003	-33.9	.731	154.1
17000	.908	65.9	1.508	-61.4	.002	-52.1	.718	147.9
17500	.913	53.5	1.887	-76.6	.002	-46.1	.702	141.3
18000	.918	40.5	2.323	-93.1	.002	-18.1	.691	134.9
18500	.915	26.7	2.963	-109.6	.003	-50.1	.677	127.6
19000	.909	11.7	3.753	-127.4	.003	-60.3	.665	119.9
19500	.902	-4.7	4.741	-144.4	.003	-71.4	.647	111.4
20000	.875	-22.5	5.872	-164.7	.002	-80.4	.632	102.2
20500	.822	-41.6	7.260	172.9	.002	-65.4	.613	91.7
21000	.752	-62.8	8.771	150.1	.003	-25.0	.572	80.1
21500	.642	-86.0	10.306	126.2	.004	-13.8	.534	67.6
22000	.487	-108.6	11.518	99.2	.006	-27.0	.484	54.4
22500	.321	-130.1	12.476	71.4	.008	-36.2	.424	41.9
23000	.165	-151.1	12.947	46.8	.010	-52.8	.389	27.5
23500	.042	-170.6	13.409	23.3	.011	-65.6	.359	11.2
24000	.048	1.7	13.570	1.2	.011	-77.1	.325	-6.3
24500	.120	-22.9	13.504	-20.5	.012	-90.2	.309	-27.9
25000	.153	-36.4	13.369	-42.2	.012	-100.5	.283	-48.7
25500	.177	-46.3	12.706	-63.5	.011	-108.6	.256	-67.2
26000	.225	-51.8	11.999	-81.4	.012	-112.8	.270	-82.3
26500	.254	-63.2	11.378	-98.6	.013	-119.1	.299	-96.3
27000	.275	-77.1	11.201	-115.7	.015	-132.8	.344	-115.2
27500	.269	-91.0	10.768	-134.2	.015	-150.6	.370	-133.1
28000	.266	-100.2	10.120	-150.7	.016	-163.4	.375	-145.9
28500	.234	-106.3	9.290	-165.8	.015	177.0	.376	-162.3
29000	.228	-106.2	8.517	-179.5	.014	155.4	.347	-172.6
29500	.259	-113.5	8.142	168.2	.011	156.6	.349	-175.1
30000	.252	-123.4	8.029	153.4	.014	140.8	.359	174.5
30500	.263	-127.8	7.615	140.8	.014	129.0	.360	167.0
31000	.284	-137.1	7.351	129.0	.012	124.3	.364	162.1
31500	.276	-145.2	6.917	116.5	.017	116.5	.351	153.2
32000	.280	-150.9	6.691	104.3	.019	97.4	.326	148.0
32500	.293	-161.5	6.699	94.1	.019	86.3	.312	147.3
33000	.312	-172.2	6.683	82.1	.021	75.4	.305	143.3
33500	.331	175.4	6.822	70.7	.023	67.3	.301	140.8
34000	.314	163.2	6.663	55.1	.027	58.9	.284	139.5
34500	.326	151.5	6.791	41.0	.031	47.1	.273	141.2
35000	.340	140.2	6.437	27.9	.033	35.2	.286	145.6
35500	.367	127.6	6.349	16.1	.036	24.5	.314	148.6
36000	.399	116.9	6.286	4.4	.039	13.8	.357	149.0
36500	.419	100.3	6.353	-12.6	.041	4.1	.414	146.0
37000	.444	83.4	6.163	-28.0	.040	-4.9	.457	140.2
37500	.463	68.2	5.760	-44.6	.041	-11.7	.498	135.7
38000	.479	53.1	5.238	-57.5	.043	-18.3	.560	131.1
38500	.478	38.9	4.661	-71.2	.045	-21.4	.621	123.6
39000	.468	25.8	4.384	-83.3	.050	-28.3	.675	116.6
39500	.460	15.2	4.086	-94.5	.054	-36.2	.722	108.0
40000	.454	5.5	3.808	-105.7	.057	-46.8	.750	99.1

FMM5703X

24-32GHz LNA MMIC



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