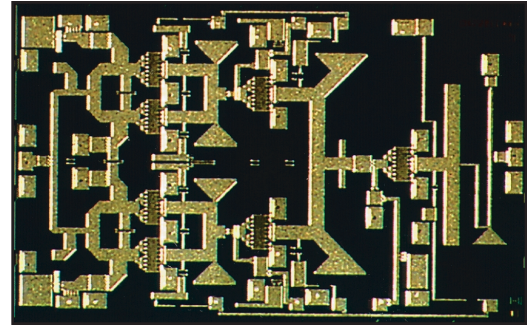


FEATURES

- High Output Power: $P_{1dB} = 30dBm$ (Typ.)
- High Gain: $G_{1dB} = 14dB$ (Typ.)
- High PAE: $\eta_{add} = 20\%$ (Typ.)
- Wide Frequency Band: 27.5-31.5 GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$
- 0.25 μm PHEMT Technology



DESCRIPTION

The FMM5803X is a high-gain, wide band 3-stage MMIC amplifier designed for operation in the 27.5-31.5 GHz frequency range. This amplifier has an input and output designed for use in 50 Ω systems. This device is well suited for point-to-point, and point-to-multi-point(LMDS) communication applications.

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

Item	Symbol	Condition	Rating	Unit
Drain Voltage	V_{DD}		10	V
Gate Voltage	V_{GG}		-3.0	V
Input Power	P_{in}		25	dBm
Storage Temperature	T_{stg}		-65 to +175	$^\circ C$
Operating Backside Temperature	T_{op}		-40 to +85	$^\circ C$

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 6 volts.
2. The forward and reverse gate currents should not exceed 4.0 and -0.33 mA respectively.
3. This product should be hermetically packaged

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

Item	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Frequency Range	f		27.5 - 31.5			GHz
Output Power at 1 dB G.C.P.	P_{1dB}		28	30	-	dBm
Power Gain at 1 dB G.C.P.	G_{1dB}	$V_{DD} = 6V$ $f = 27.5 \sim 31.5$ GHz	12*	14*	19*	dB
Drain Current	I_{ddrf}	*: at f = 27.5-30.0 GHz **: at f = 30.0-31.5 GHz	-	700	950	mA
Power-Added Efficiency	η_{add}	$I_{DD} = 650mA$ (Typ.) $Z_S = Z_L = 50\Omega$	-	20	-	%
Input Return Loss	RL_{in}		-	-12	-	dB
Output Return Loss	RL_{out}		-	-8	-	dB

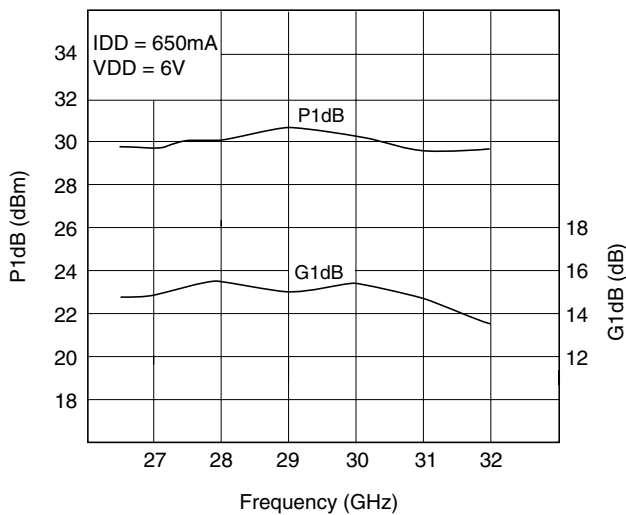
Note: RF parameter sample size 10pcs./wafer. Criteria (accept/reject)=(0/1)

G.C.P.: Gain Compression Point

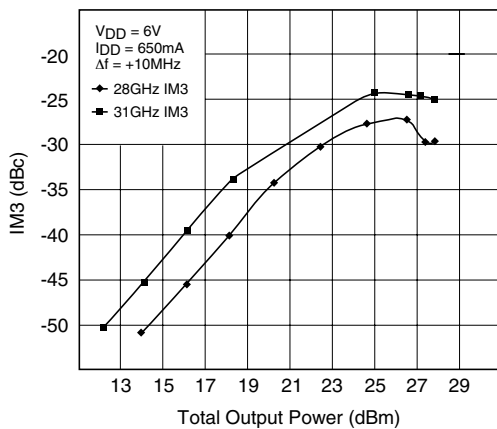
FMM5803X

27.5-31.5GHz Power Amplifier MMIC

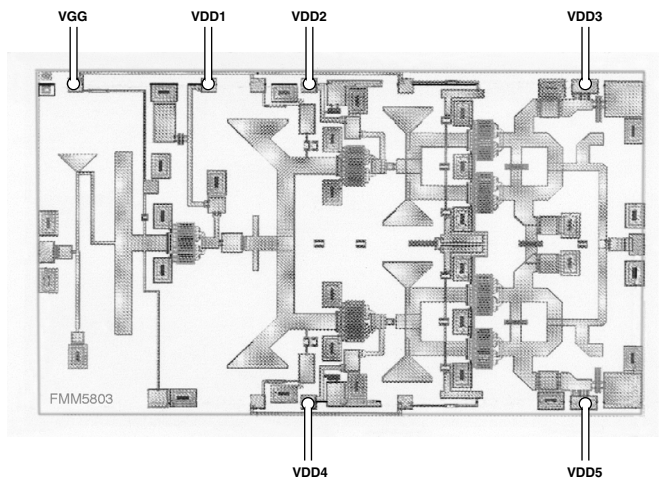
P1dB, G1dB vs. FREQUENCY



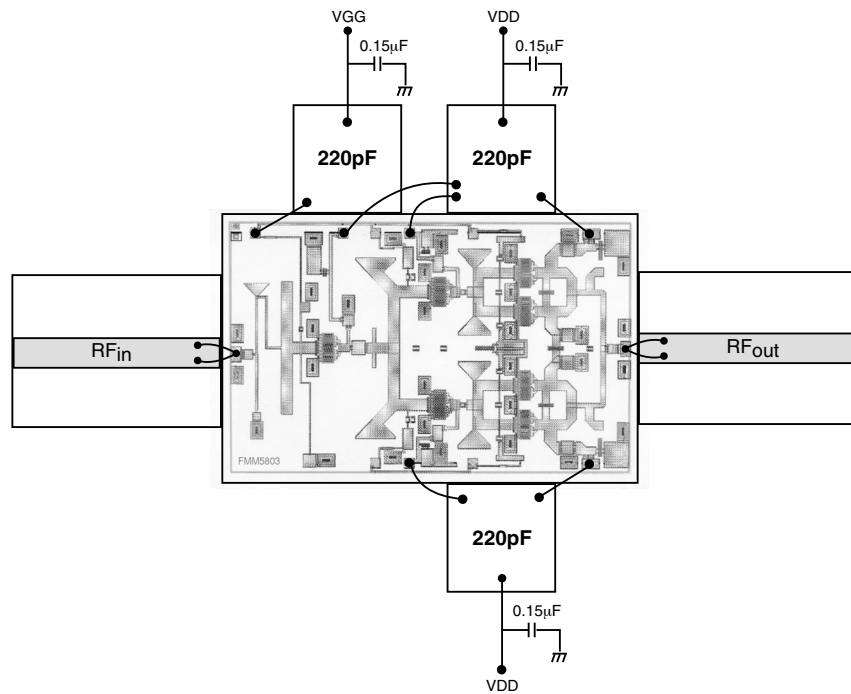
OUTPUT POWER vs. IMD



BONDING LAYOUT



ASSEMBLY DRAWING



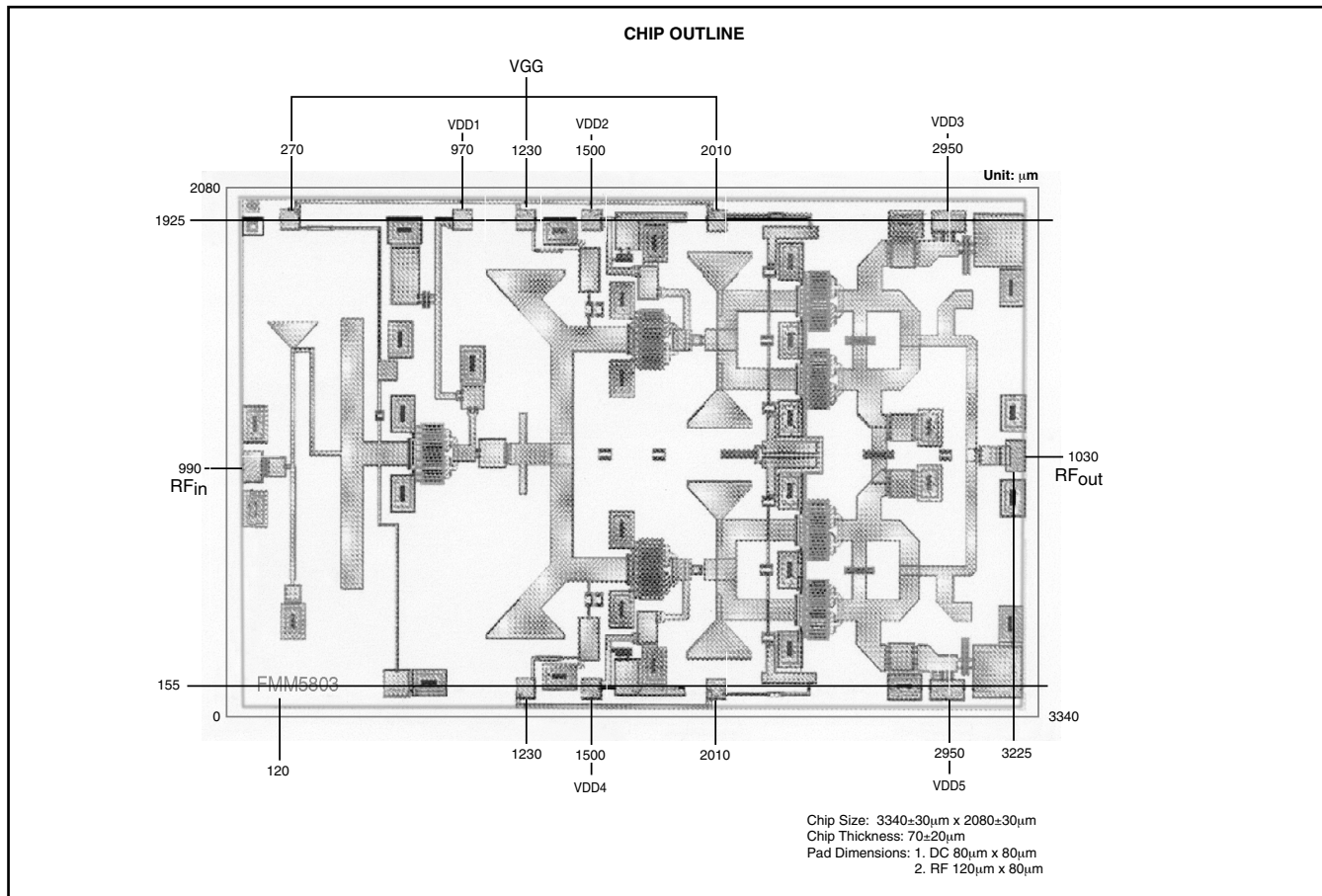
S-PARAMETERS

$V_{DD} = 6V, I_{DS} = 650mA$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
24000	.685	36.1	3.270	-30.4	.001	53.8	.230	15.4
24500	.618	16.4	3.920	-59.5	.001	34.9	.152	-12.0
25000	.547	-7.8	4.650	-89.6	.002	15.1	.111	-57.1
25500	.487	-37.2	5.380	-121.0	.002	-9.3	.129	-106.0
26000	.442	-71.2	6.100	-155.1	.002	-35.1	.176	-136.9
26500	.420	-106.9	6.540	171.1	.003	-63.8	.227	-157.6
27000	.415	-138.7	6.620	137.8	.003	-97.3	.272	-174.5
27500	.404	-166.3	6.540	107.0	.003	-120.0	.306	170.7
28000	.379	169.0	6.500	76.5	.003	-146.2	.328	156.0
28500	.337	148.9	6.520	45.8	.004	-173.6	.338	140.8
29000	.283	130.6	6.450	15.7	.004	159.7	.343	124.5
29500	.227	113.1	6.390	-14.8	.005	136.1	.341	106.4
30000	.171	99.3	6.310	-45.0	.005	110.3	.339	85.5
30500	.130	91.2	6.270	-77.3	.006	84.9	.347	61.8
31000	.126	80.2	6.130	-111.1	.008	54.5	.370	35.9
31500	.171	60.5	5.800	-147.2	.008	24.3	.415	9.7
32000	.274	29.4	5.250	173.0	.008	-11.8	.476	-15.7
32500	.423	-6.5	4.430	133.0	.008	-49.4	.533	-39.0
33000	.565	-38.7	3.310	93.7	.007	-83.8	.569	-58.4
33500	.668	-64.6	2.330	57.4	.006	-117.9	.589	-73.2

FMM5803X

27.5-31.5GHz Power Amplifier MMIC



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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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