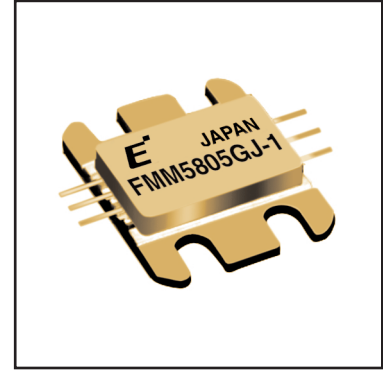


FEATURES

- High Output Power: $P_{1dB} = 31.0\text{dBm(Typ.)}$
- High Gain: $G_{1dB} = 20.0\text{dB(Typ.)}$
- High PAE: $\eta_{add} = 27\%$ (Typ.)
- Low In/Out VSWR
- Broad Band: 17.7 ~ 19.7GHz
- Impedance Matched $Z_{in}/Z_{out} = 50\Omega$



DESCRIPTION

The FMM5805GJ-1 is a high-gain, high power, 3-stage MMIC amplifier designed for operation in the 17.7-19.7GHz frequency range. This amplifier has an input and output designed for use in 50Ω systems. This device is well suited for point-to-point communication applications.

Eudyna's stringent Quality Assurance Program assures the highest reliability and consistent performance.

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

Parameter	Symbol	Condition	Rating	Unit
DC Input Voltage	V_{DD}		10	V
DC Input Voltage	V_{GG}		-7	V
Input Power	P_{in}		22	dBm
Storage Temperature	T_{stg}		-55 to +125	$^\circ\text{C}$
Operating Case Temperature	T_{op}		-40 to +85	$^\circ\text{C}$

Eudyna 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.

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

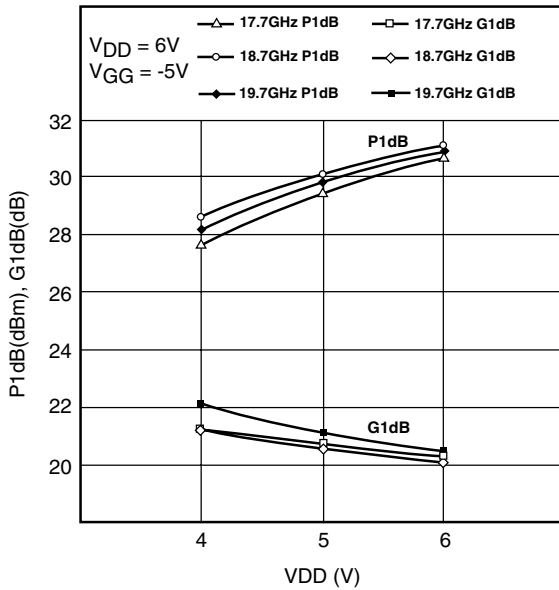
Item	Symbol	Conditions	Limits			Unit
			Min.	Typ.	Max.	
Frequency Range	f	$V_{DD} = 6V$ $V_{GG} = -5V$ $f = 17.7-19.7\text{GHz}$ $Z_S = Z_L = 50\Omega$	17.7 - 19.7			GHz
Output Power at 1 dB G.C.P.	P_{1dB}		29	31	-	dBm
Power Gain at 1 dB G.C.P.	G_{1dB}		18	20	25	dB
Gain Flatness	ΔG		-	1.0	-	dB
Drain Current at 1 dB G.C.P.	I_{ddrf}		-	800	950	mA
Gate Current at 1 dB G.C.P.	I_{ggrf}		-	-12	-15	mA
Power-Added Efficiency at 1dB G.C.P.	η_{add}		-	27	-	%
Input Return Loss	RL_{in}		-	-10	-	dB
Output Return Loss	RL_{out}		-	-6	-	dB

G.C.P.: Gain Compression Point

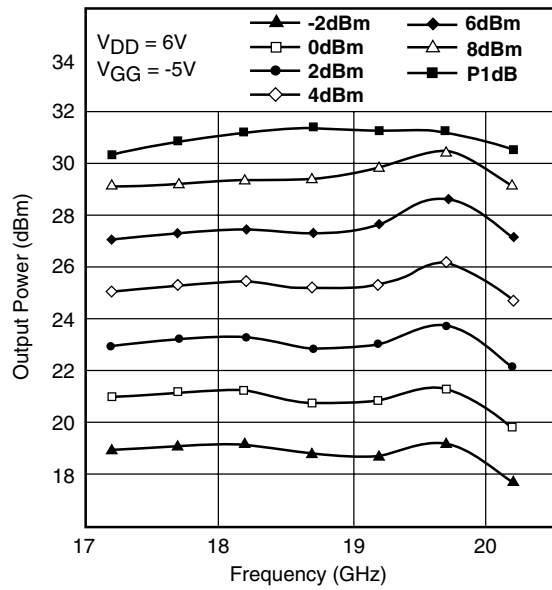
FMM5805GJ-1

17.7-19.7GHz Power Amplifier MMIC

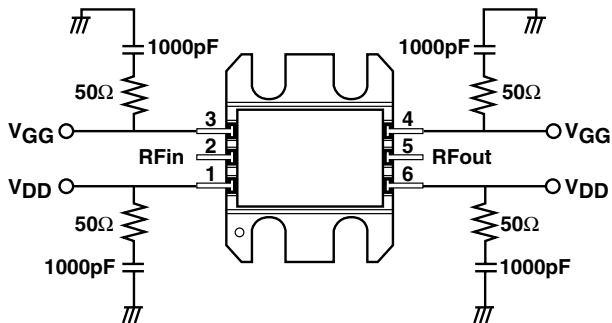
P1dB & G1dB vs. VDD



OUTPUT POWER vs. FREQUENCY



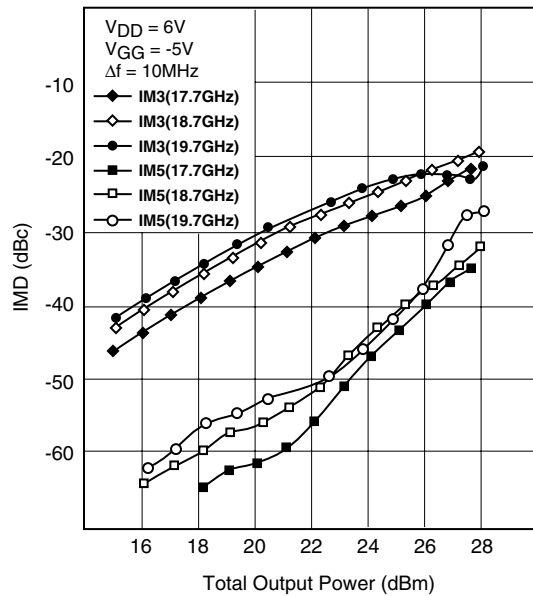
RECOMMENDED BIAS CIRCUIT



Note 1: The R/C networks are recommended on the bias supply lines, close to the package, to prevent video oscillations which could damage the module.

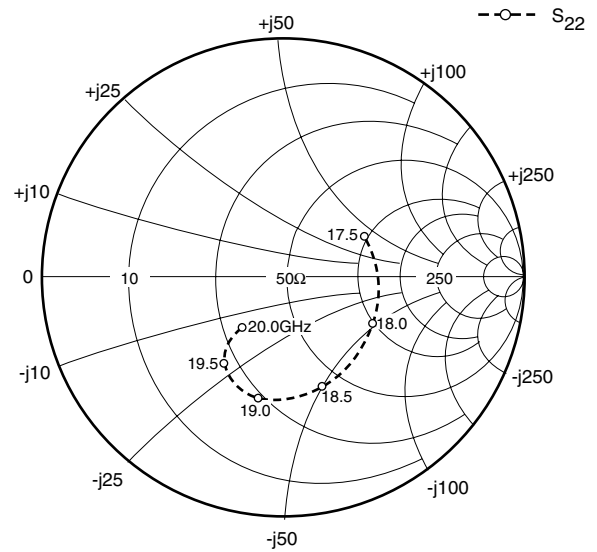
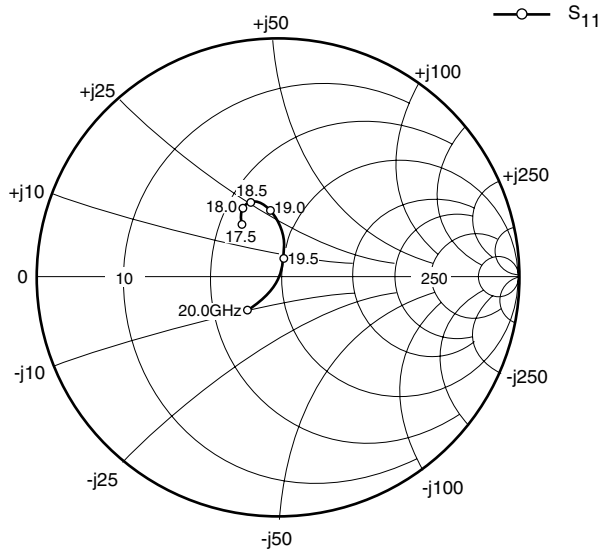
Note 2: Bias point VDD can be connected at the input side or at the output: The two pins named VDD are internally connected. The same is true for VGG.

IMD vs. OUTPUT POWER



FMM5805GJ-1

17.7-19.7GHz Power Amplifier MMIC



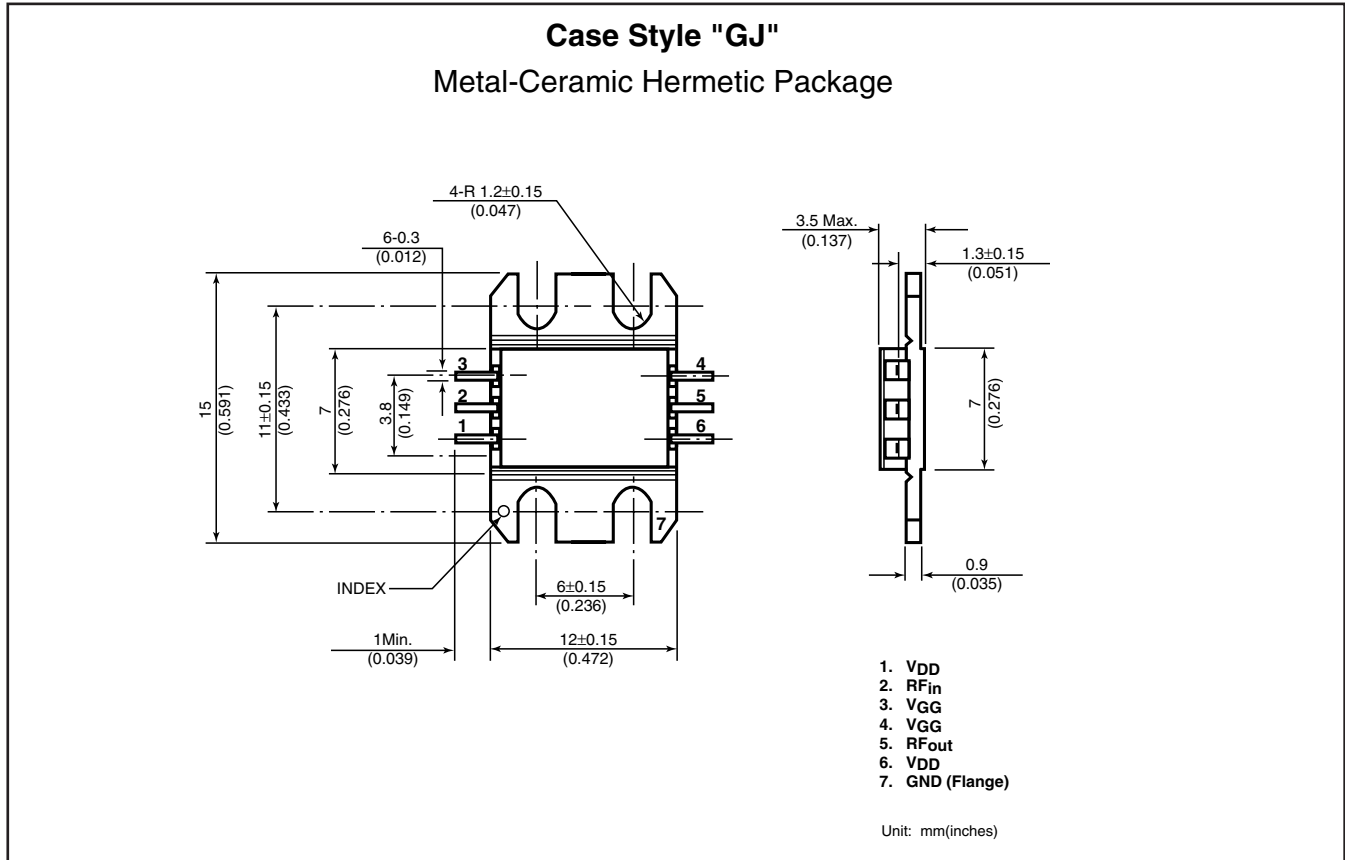
S-PARAMETERS

$V_{DD} = 6V, V_{GG} = -5V$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
17200	.207	130.8	10.960	-67.8	.004	-124.4	.360	57.9
17300	.227	128.7	11.107	-84.1	.004	-136.6	.367	48.2
17400	.252	125.6	11.247	-100.4	.004	-145.7	.372	38.0
17500	.268	123.7	11.327	-116.8	.004	-158.0	.377	27.3
17600	.286	121.7	11.438	-133.3	.004	-169.6	.382	16.4
17700	.299	119.7	11.464	-149.7	.004	-176.9	.387	5.2
17800	.309	118.3	11.474	-166.2	.003	168.6	.395	-6.1
17900	.319	116.9	11.470	177.4	.003	158.2	.404	-17.0
18000	.322	115.6	11.452	161.0	.003	146.8	.416	-27.4
18100	.330	114.3	11.402	144.7	.003	140.1	.429	-37.1
18200	.332	113.3	11.330	128.5	.003	129.2	.443	-46.3
18300	.333	112.1	11.263	112.2	.003	119.6	.458	-55.4
18400	.333	110.8	11.175	96.1	.003	112.6	.473	-63.4
18500	.333	109.8	11.080	79.9	.003	104.2	.487	-70.8
18600	.331	108.2	10.950	63.8	.003	92.0	.501	-77.7
18700	.328	106.3	10.763	48.2	.003	82.6	.510	-84.1
18800	.319	103.1	10.596	32.8	.003	76.8	.516	-90.4
18900	.306	99.4	10.540	17.8	.003	69.6	.518	-96.1
19000	.284	95.7	10.579	2.8	.003	57.2	.517	-101.6
19100	.253	91.3	10.731	-12.8	.003	48.3	.511	-106.8
19200	.220	87.0	10.916	-29.0	.003	42.0	.500	-111.7
19300	.179	82.4	11.040	-45.5	.003	25.2	.483	-116.5
19400	.133	76.7	11.159	-62.4	.003	14.1	.461	-120.8
19500	.082	70.0	11.234	-79.8	.003	10.3	.433	-124.3
19600	.029	58.2	11.277	-97.6	.003	-5.8	.402	-127.4
19700	.029	-107.2	11.121	-115.5	.002	-23.3	.367	-129.9
19800	.083	-120.6	10.968	-133.3	.002	-29.0	.333	-131.0
19900	.137	-126.7	10.756	-151.2	.002	-31.0	.301	-131.1
20000	.187	-132.5	10.419	-169.3	.002	-46.9	.271	-129.7
20100	.230	-137.8	9.962	172.9	.001	-48.3	.247	-127.5
20200	.270	-142.8	9.507	155.8	.001	-40.6	.227	-124.5

FMM5805GJ-1

17.7-19.7GHz 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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