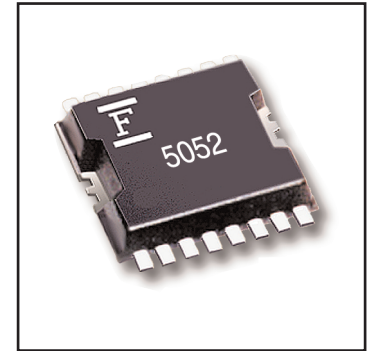


# FMM5052ZE

## MMIC Power Amplifier

### FEATURES

- Wide Frequency Band: 0.8 to 2.7GHz
- Medium Power: P1dB=26dBm (Typ.) @ f=0.8 - 2.7GHz
- High Linear Gain: GL=19dB (Typ.) @ f=0.8 - 2.7GHz
- Impedance Matched Zin/Zout = 50Ω
- Wide Operating Temperature Range
- Small Size: SSOP-16 Plastic Package for SMT Applications



### DESCRIPTION

The FMM5052ZE is a MMIC power amplifier that includes a three-stage amplifier, internally matched, for broadband applications in the 0.8 to 2.7GHz frequency range. This product is uniquely suited for use in cellular, W-CDMA/PCS, MMDS, and WLL base station amplifiers as it offers high gain, long term reliability and ease of use.

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

### ABSOLUTE MAXIMUM RATINGS (Case Temperature Tc=25°C)

Item	Symbol	Rating	Unit
DC Input Voltage	V <sub>DD1,2</sub>	10	V
DC Input Voltage	V <sub>GG1,2</sub>	-8	V
Input Power	P <sub>in</sub>	15	dBm
Storage Temperature	T <sub>stg</sub>	-55 to +125	°C
Operating Case Temperature	T <sub>op</sub>	-40 to +85	°C

### RECOMMENDED OPERATING CONDITIONS (Case Temperature Tc=25°C)

Item	Symbol	Limit	Unit
DC Input Voltage	V <sub>DD</sub>	≤8	V
Gate Current	V <sub>GG</sub>	≤-3	V

### ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

Item	Symbol	Test Conditions	Limit			Unit
			Min.	Typ.	Max.	
Frequency Range	f		0.8 - 2.7			GHz
Output Power at 1dB G.C.P.	P <sub>1dB</sub>	V <sub>DD1,2</sub> =8V, V <sub>GG1,2</sub> =-3V, P <sub>in</sub> =-5dBm	25.0	26.0	-	dBm
Linear Gain	G <sub>L</sub>		17.0	19.0	-	dB
Gain Flatness	ΔG		-	±1.0	±1.5	dB
Input Return Loss	RL <sub>in</sub>		-	-12	-	dB
DC Input Current	I <sub>DD</sub>	V <sub>DD1,2</sub> =8V, V <sub>GG1,2</sub> =-3V	-	220	300	mA
DC Input Current	I <sub>GG</sub>		-4.0	-2.0	-	mA

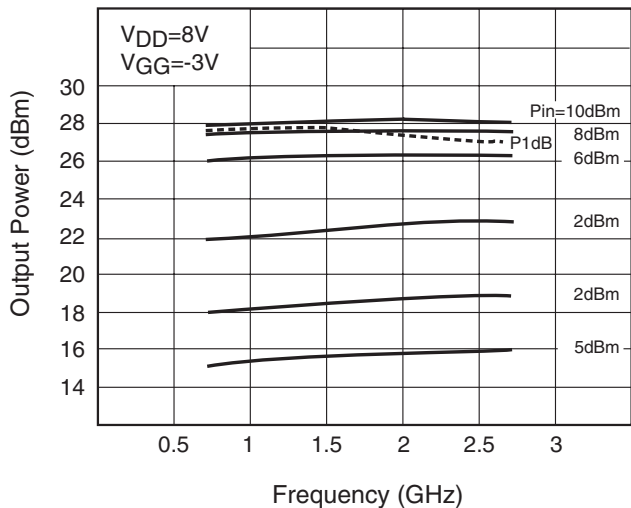
CASE STYLE: ZE

G.C.P.: Gain Compression Point

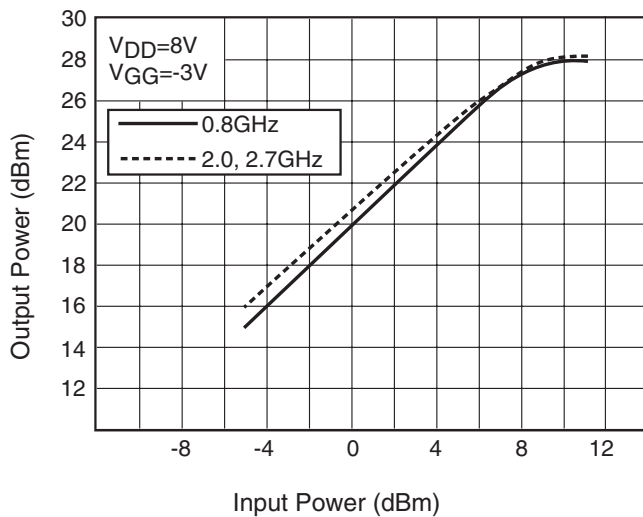
# FMM5052ZE

## MMIC Power Amplifier

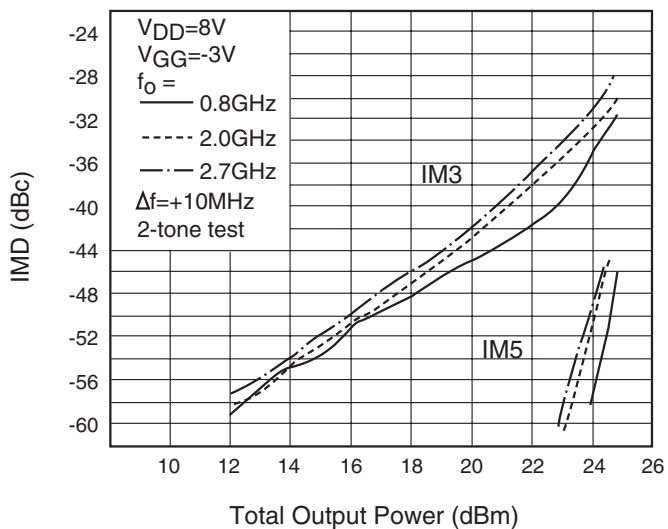
OUTPUT POWER vs. FREQUENCY



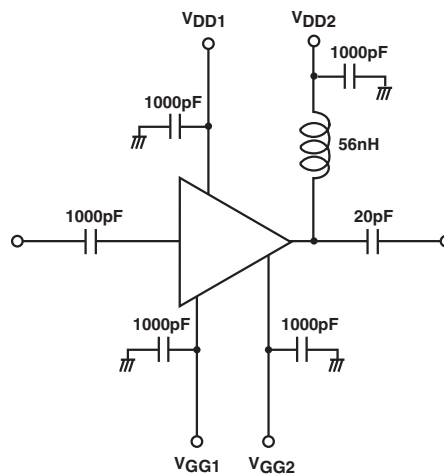
OUTPUT POWER vs. INPUT POWER



OUTPUT POWER vs. IMD



RECOMMENDED TEST CIRCUIT



**S-PARAMETERS**

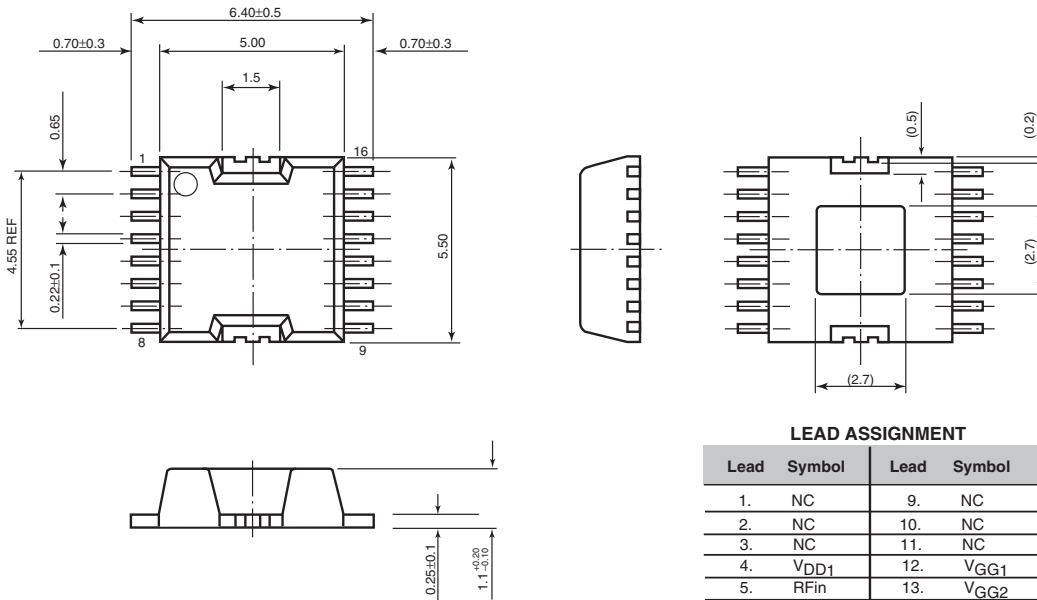
$V_{DD} = 8V, V_{GG} = -3V$

FREQUENCY (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	0.085	-83.4	9.543	-16.7	0.014	-14.9	0.269	114.8
600	0.035	-75.6	9.710	-25.6	0.014	-16.8	0.221	112.5
700	0.016	22.1	9.848	-33.8	0.013	-22.9	0.180	111.2
800	0.047	54.4	9.940	-41.8	0.013	-24.0	0.149	110.7
900	0.078	56.0	10.063	-49.6	0.013	-29.2	0.123	111.2
1000	0.107	55.3	10.138	-57.0	0.012	-29.4	0.104	112.7
1100	0.132	51.9	10.245	-64.6	0.012	-32.8	0.084	114.2
1200	0.156	48.4	10.328	-72.0	0.012	-35.5	0.071	113.8
1300	0.174	44.6	10.421	-79.7	0.011	-37.7	0.057	117.5
1400	0.191	40.3	10.497	-87.3	0.012	-41.6	0.047	116.0
1500	0.204	36.0	10.604	-94.9	0.011	-56.2	0.040	115.4
1600	0.219	31.8	10.721	-102.7	0.011	-52.0	0.030	111.4
1700	0.225	27.2	10.821	-110.9	0.010	-61.3	0.029	102.6
1800	0.228	22.7	10.883	-119.0	0.010	-65.1	0.031	85.6
1900	0.226	19.6	10.957	-127.6	0.009	-66.5	0.040	69.4
2000	0.220	16.9	11.049	-136.2	0.009	-79.4	0.061	50.0
2100	0.206	15.6	11.062	-145.6	0.007	-91.3	0.092	29.5
2200	0.206	17.8	10.939	-154.0	0.006	-87.9	0.108	17.5
2300	0.198	17.7	10.977	-162.9	0.007	-102.4	0.129	14.0
2400	0.184	18.5	11.100	-172.4	0.006	-124.6	0.167	9.6
2500	0.169	25.8	11.073	178.6	0.004	-125.3	0.204	6.4
2600	0.161	38.1	10.992	168.0	0.004	-145.4	0.249	0.1
2700	0.184	53.0	10.737	156.8	0.007	-169.0	0.290	-5.5
2800	0.226	63.3	10.615	145.6	0.009	174.6	0.330	-11.4
2900	0.300	64.7	10.089	134.2	0.007	149.2	0.359	-18.3
3000	0.352	67.5	9.953	120.2	0.007	157.1	0.396	-22.7
3100	0.446	67.5	9.239	108.4	0.007	136.2	0.428	-28.5
3200	0.555	64.5	8.539	90.7	0.009	126.4	0.460	-35.3
3300	0.648	57.6	6.986	78.0	0.011	126.4	0.456	-46.5
3400	0.747	50.7	6.272	65.4	0.012	112.2	0.413	-43.3
3500	0.808	42.6	5.057	53.1	0.013	97.1	0.442	-48.4

# FMM5052ZE

## MMIC Power Amplifier

### Case Style "ZE"



#### LEAD ASSIGNMENT

Lead	Symbol	Lead	Symbol
1.	NC	9.	NC
2.	NC	10.	NC
3.	NC	11.	NC
4.	VDD1	12.	VGG1
5.	RFin	13.	VGG2
6.	NC	14.	RF <sub>out</sub> /VDD2
7.	NC	15.	NC
8.	NC	16.	NC

Unit: mm  
Note:

1. The dimensions in parenthesis do not include resin burrs.
2. Unless otherwise specified, the dimensional tolerance should be  $\pm 0.15$ mm.

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Fujitsu Compound Semiconductor Products contain **gallium arsenide (GaAs)** which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- Do not put this product 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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