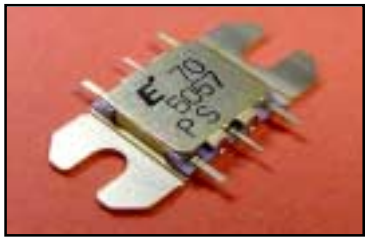
FMM5057VF

7.1-8.5GHz Power Amplifier MMIC



FEATURES

- High Output Power: Pout = 34.0dBm (typ.)
- High Linear Gain: GL=26.0dB (typ.)
- Low VSWR
- Broad Band: 7.1 ~ 8.5GHz
- Impedance Matched Zin/Zout = 50Ω
- Small Hermetic Metal-Ceramic Package (VF)

DESCRIPTION

The FMM5057VF is a MMIC amplifier that contains a four-stages amplifier, internally matched, for standard communications band in the 7.1 to 8.5GHz frequency range.
Eudyna Devices's stringent Quality Assurance Program assures the highest reliability and consistent performance.

ABSOLUTE MAXIMUM RATINGS (Case Temperature Tc=25℃)

Item	Symbol	Rating	Unit
DC Input Voltage	VDD	12	V
DC Input Voltage	VGG	-7	V
Inpur Power	Pin	14	dBm
Storage Temperature	Tstg	-55 to +125	℃

RECOMMENDED OPERATING CONDITIONS

Item	Symbol	Condition	Unit
DC Input Voltage at TC=25℃	VDD	10	V
Input Power at TC=25℃	Pin	12	dBm
DC Input Current at TC=25℃	IDD	≦1200	mA
Operating Case Temperature	Tc	-40 to +85	℃

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25℃)

Item	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Frequency Range	f			7.1 - 8.5		GHz
Output Power at 1dB G.C.P.	P1dB	VDD=10.0V	32.0	34.0	-	dBm
Power Gain at 1dB G.C.P.	G1dB	VGG = -5 V	23.0	26.0	-	dB
Gain Flatness	delta-G	f=7.1 to 8.5 GHz	-	2.4	4.0	dB
Input VSWR	VSWRi		-	2:01	2.6 : 1	-
Output VSWR	VSWRo		-	2:01	-	-
DC Input Current	IDD	VDD=10V; VGG=-5V	-	1100	1200	mA
DC Input Current	IGG		-	5.0	15.0	mA
Channel Temperature Rise	delta Tch		-	50	-	℃

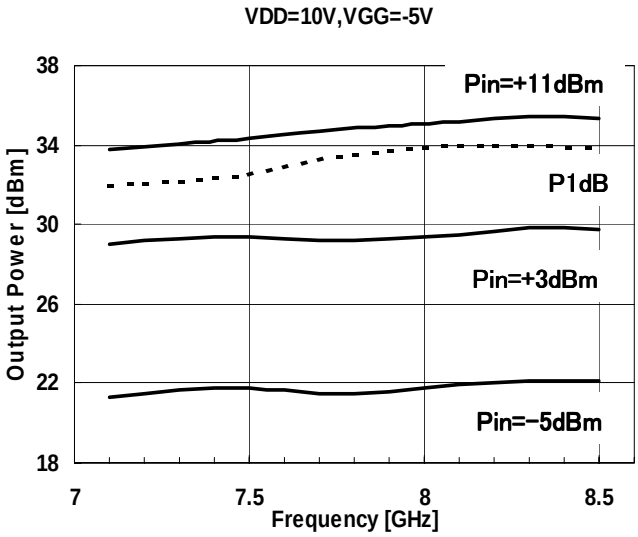
1dB G.C.P. : 1dB Gain Compression Point
Note:Gain is referred to Linear Gain measured at Pin=-3dBm

ESD	Class 0	~ 250V
Note: Based on JEDEC JESD22-A114-C		

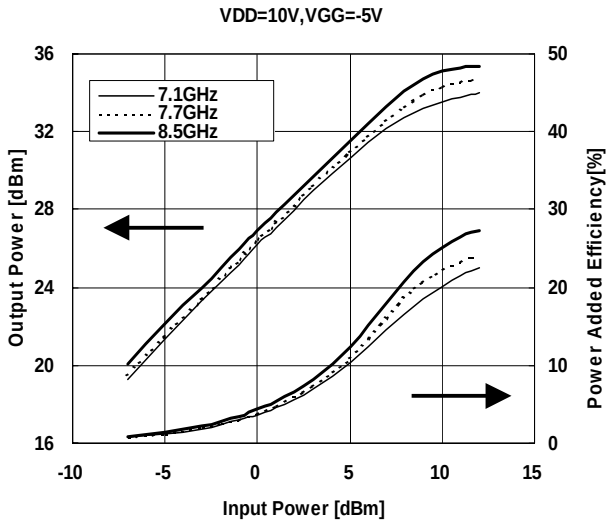
Case Style	**VF**

RoHS Compliance	**Yes**

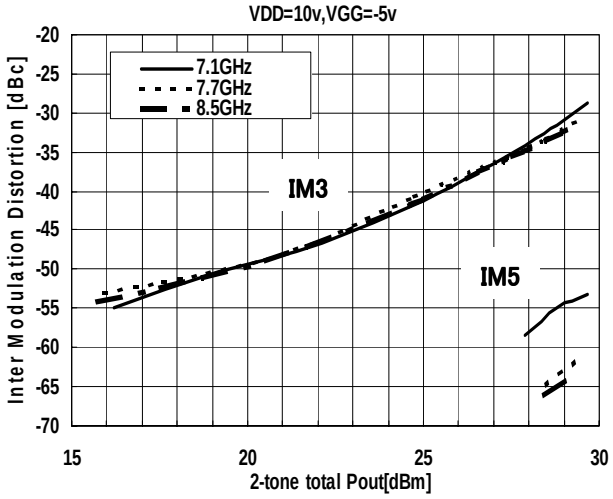
OUTPUT POWER vs. FREQUENCY



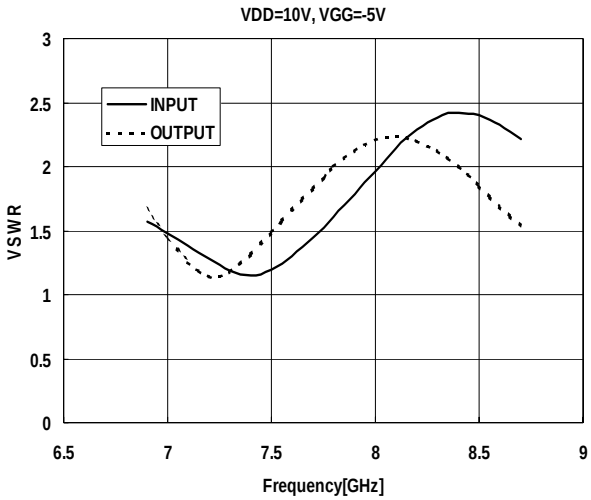
OUTPUT POWER , POWER ADDED EFFICIENCY vs. INPUT POWER



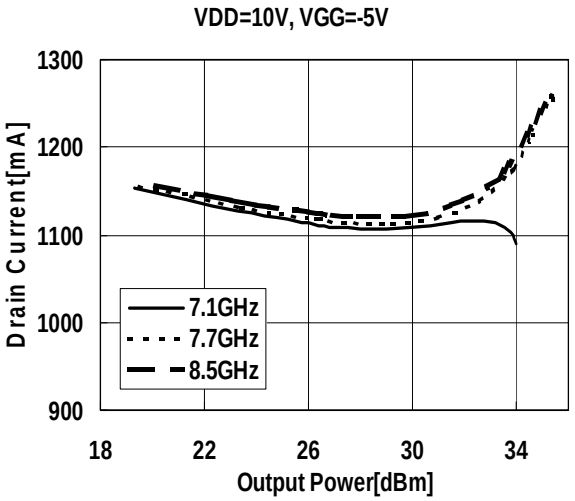
IMD vs OUTPUT POWER



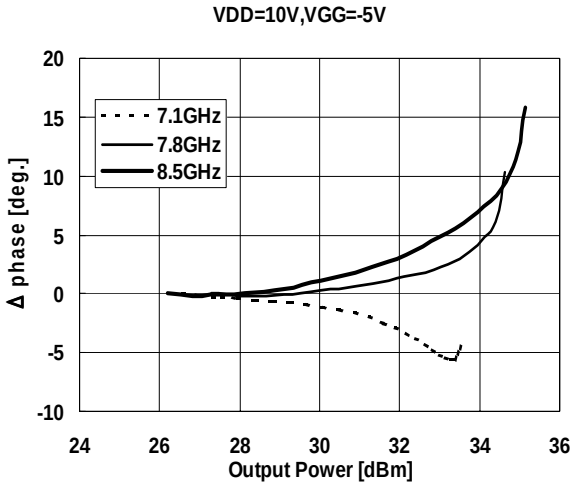
VSWR vs. FREQUENCY



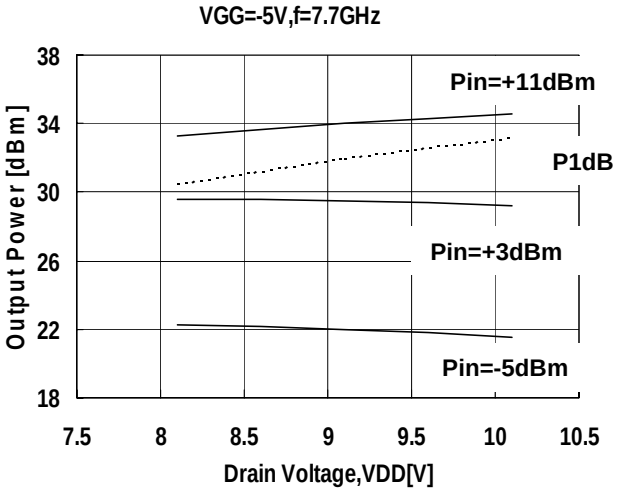
DRAIN CURRENT vs OUTPUT POWER



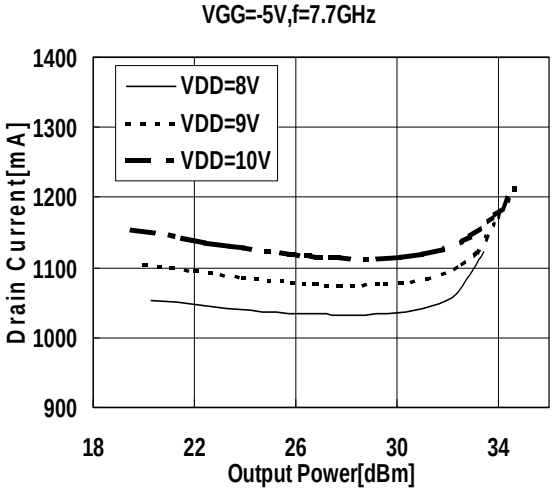
AMPM vs OUTPUT POWER



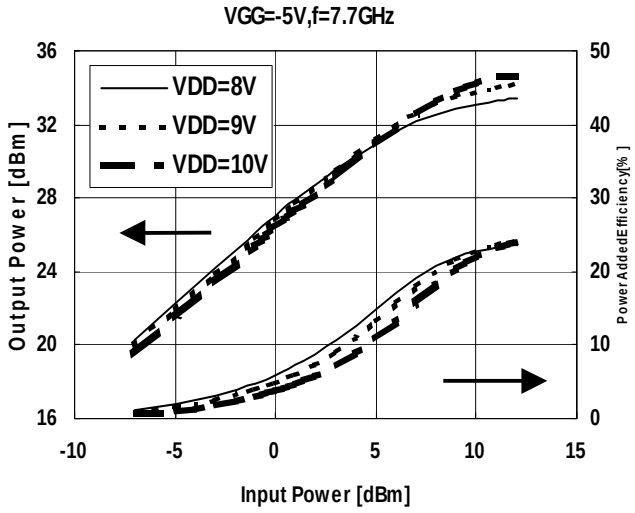
OUTPUT POWER vs. DRAIN VOLTAGE



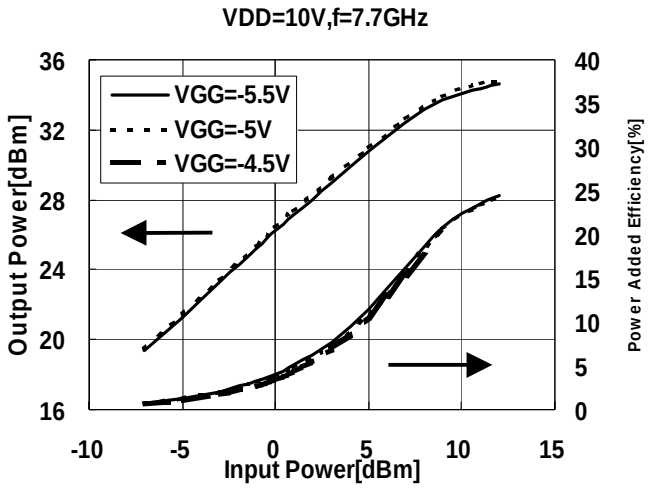
DRAIN CURRENT vs OUTPUT POWER



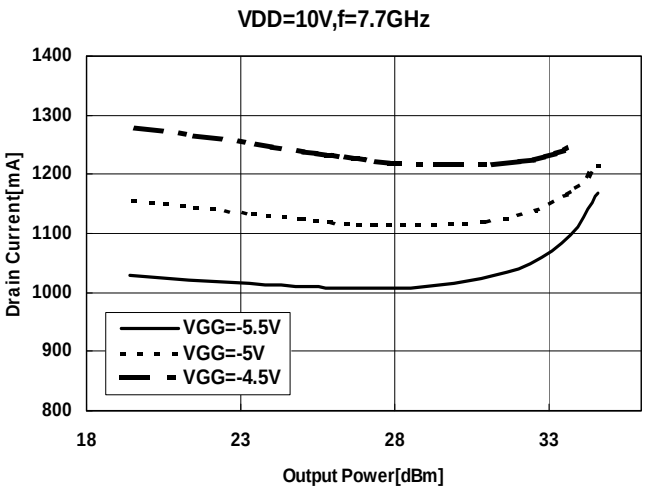
OUTPUT POWER , POWER ADDED EFFICIENCY vs. INPUT POWER



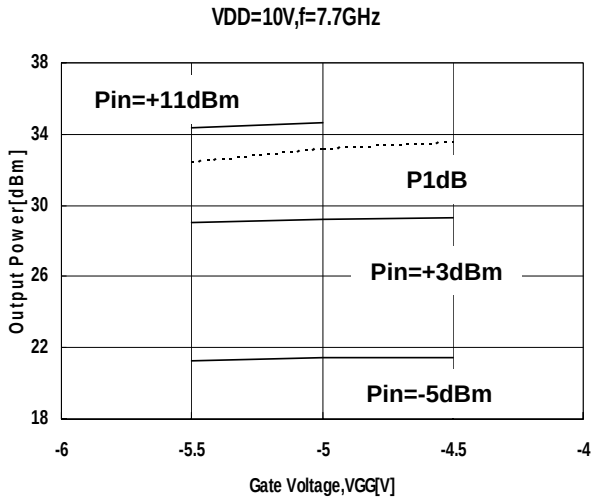
OUTPUT POWER , POWER ADDED EFFICIENCY vs. INPUT POWER



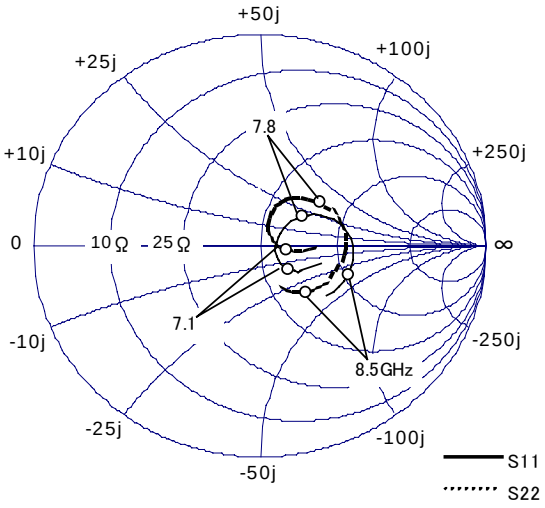
DRAIN CURRENT vs OUTPUT POWER

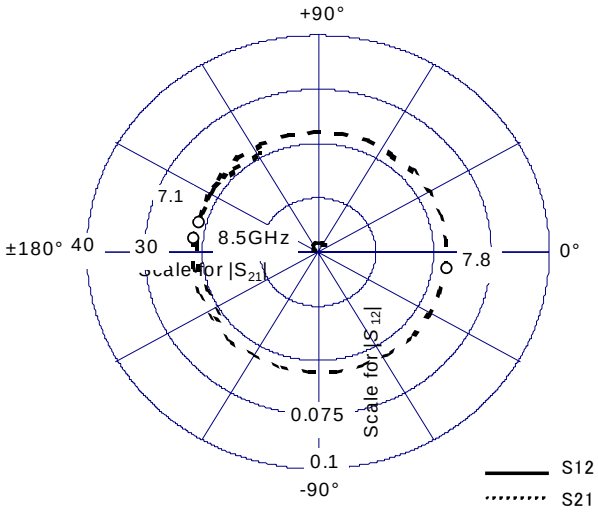


OUTPUT POWER vs. GATE VOLTAGE



■ S-PARAMETER

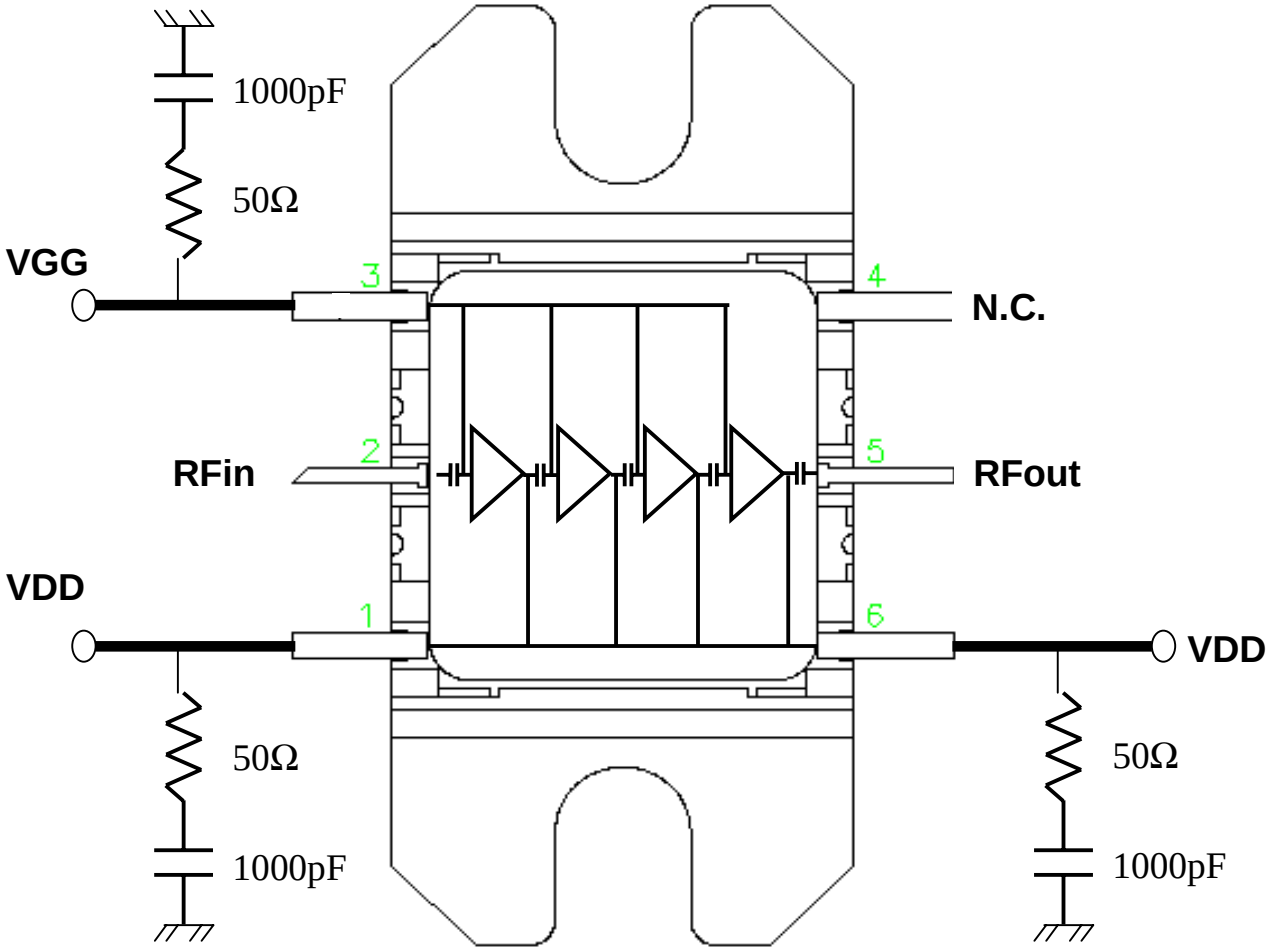




VDD=10.0V , VGG=-5.0V

Frequency	S11		S21		S12		S22	
[GHz]	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
6.9	0.22	-32.75	20.21	-147.13	0.0018	141.10	0.25	-1.17
7	0.19	-38.49	20.78	-171.17	0.0017	139.86	0.18	-7.55
7.1	0.16	-42.30	21.29	164.64	0.0017	144.62	0.11	-6.51
7.2	0.12	-42.44	21.74	140.28	0.0018	148.20	0.07	20.06
7.3	0.09	-32.59	22.04	115.51	0.0020	146.45	0.08	63.42
7.4	0.07	-2.59	22.24	90.84	0.0022	148.64	0.14	73.27
7.5	0.09	28.05	22.33	66.15	0.0025	143.94	0.20	68.70
7.6	0.13	38.99	22.35	41.55	0.0028	139.92	0.25	59.98
7.7	0.18	40.08	22.42	17.21	0.0031	134.35	0.29	49.76
7.8	0.23	36.58	22.37	-7.47	0.0033	127.55	0.33	38.34
7.9	0.28	31.41	22.44	-32.13	0.0036	121.48	0.36	26.63
8	0.33	24.61	22.42	-56.99	0.0038	116.50	0.38	14.30
8.1	0.36	16.99	22.41	-82.39	0.0040	105.95	0.38	1.81
8.2	0.39	8.76	22.35	-108.02	0.0042	97.60	0.37	-10.89
8.3	0.41	-0.24	22.15	-133.79	0.0044	89.83	0.36	-23.72
8.4	0.42	-9.50	21.99	-160.00	0.0044	81.16	0.33	-35.94
8.5	0.41	-19.29	21.71	173.43	0.0043	72.49	0.30	-47.13
8.6	0.40	-28.69	21.40	146.38	0.0041	63.50	0.26	-57.41

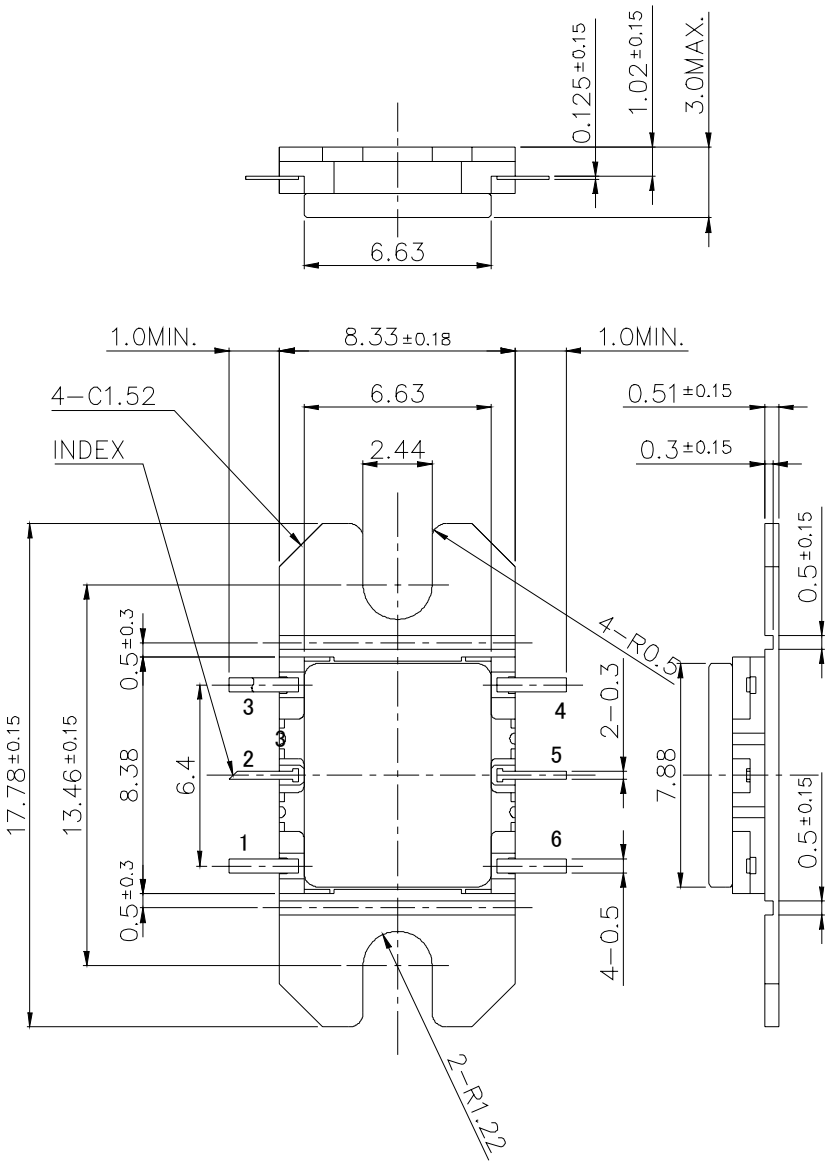
■ Recommended Bias Circuit and Internal Block Diagram



Note 1: The RC 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.

PIN ASSIGMENT
1 : VDD
2 : RF in
3 : VGG
4 : N.C.
5 : RF out
6 : VDD

■ **Package Out Line**



PIN ASSIGMENT
1 : VDD
2 : RF in
3 : VGG
4 : N.C.
5 : RF out
6 : VDD

Unit : mm

FMM5057VF

7.1-8.5GHz Power Amplifier MMIC

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