

FMM5057VF

7.1-8.5GHz Power Amplifier MMIC

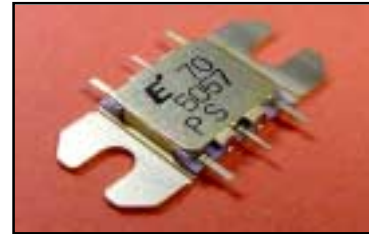
FEATURES

- 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 = 50 Ω
- 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°C)

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

RECOMMENDED OPERATING CONDITIONS

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

ELECTRICAL CHARACTERISTICS (Case Temperature Tc=25°C)

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	VDD=10V; VGG=-5V	-	2:01	2.6 : 1	-
Output VSWR	VSWRo		-	2:01	-	-
DC Input Current	IDD		-	1100	1200	mA
DC Input Current	IGG		-	5.0	15.0	mA
Channel Temperature Rise	delta Tch		-	50	-	°C

1dB G.C.P. : 1dB Gain Compression Point

Note: Gain is referred to Linear Gain measured at Pin=-3dBm

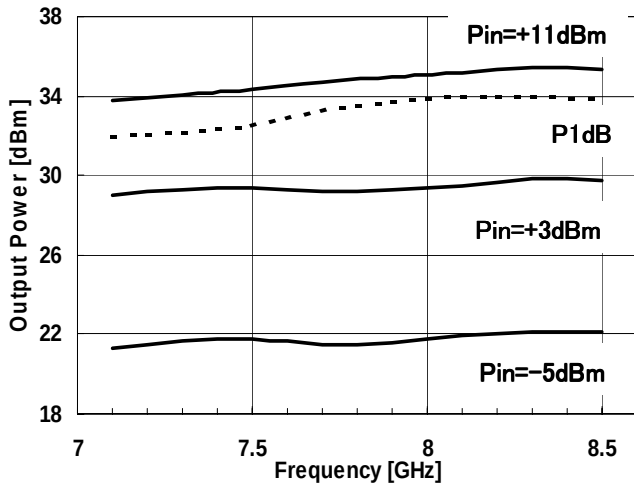
ESD	Class 0	~ 250V
Note: Based on JEDEC JESD22-A114-C		
Case Style	VF	
RoHS Compliance	Yes	

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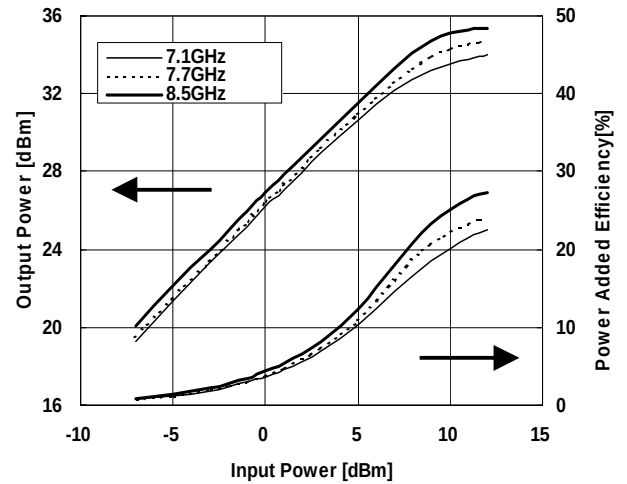
OUTPUT POWER vs. FREQUENCY

VDD=10V, VGG=-5V



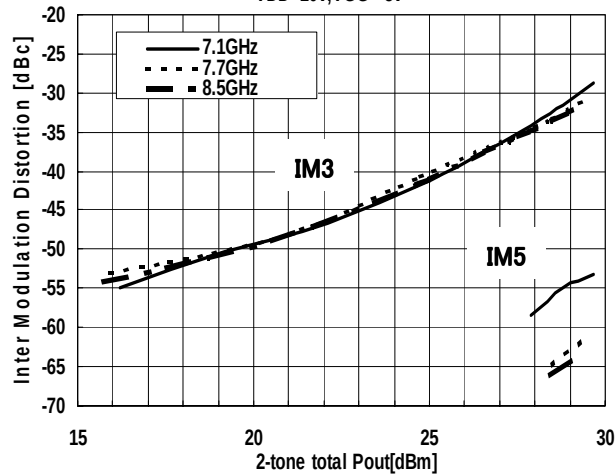
OUTPUT POWER, POWER ADDED EFFICIENCY vs. INPUT POWER

VDD=10V, VGG=-5V



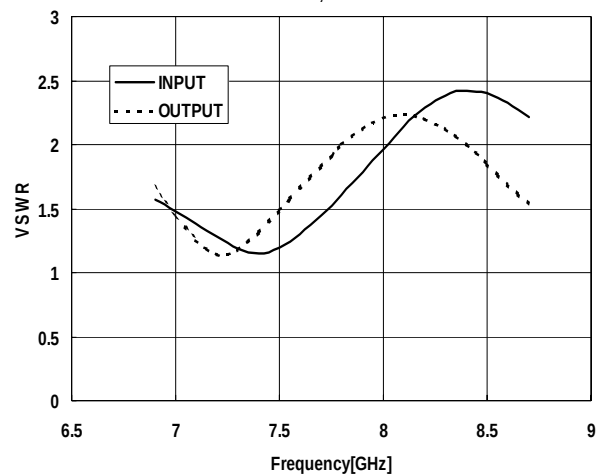
IMD vs. OUTPUT POWER

VDD=10V, VGG=-5V



VSWR vs. FREQUENCY

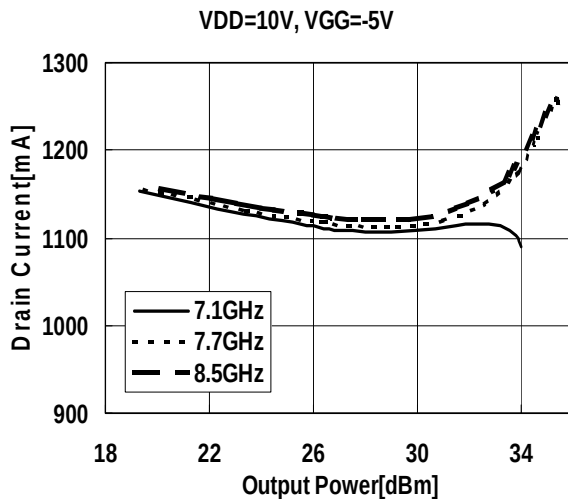
VDD=10V, VGG=-5V



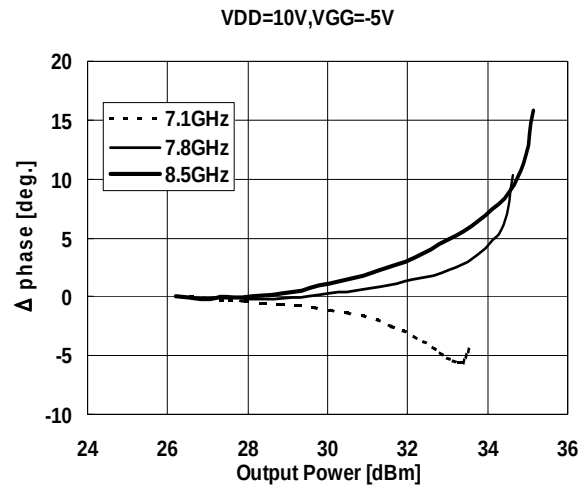
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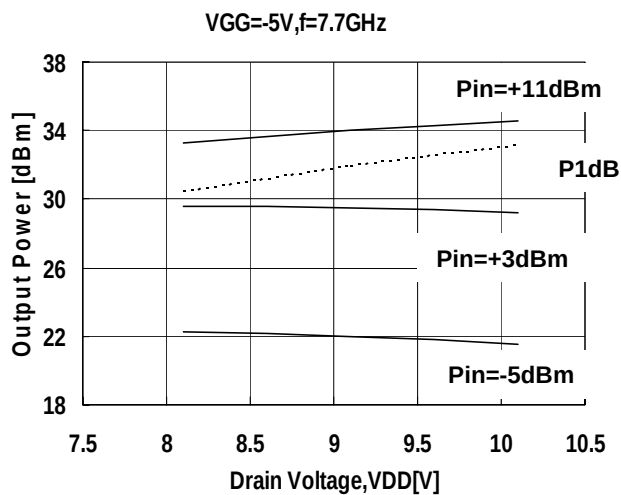
DRAIN CURRENT vs OUTPUT POWER



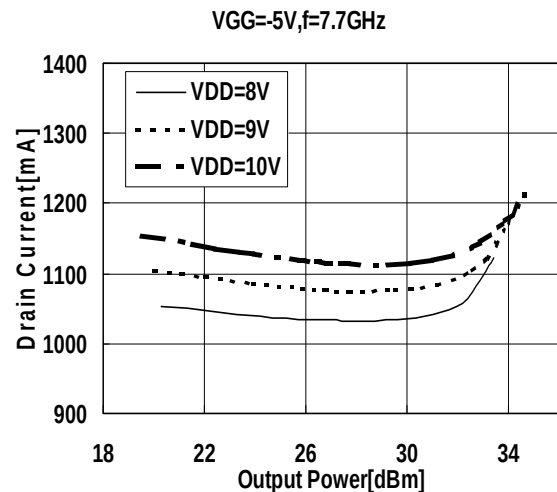
AMPM vs OUTPUT POWER



OUTPUT POWER vs. DRAIN VOLTAGE



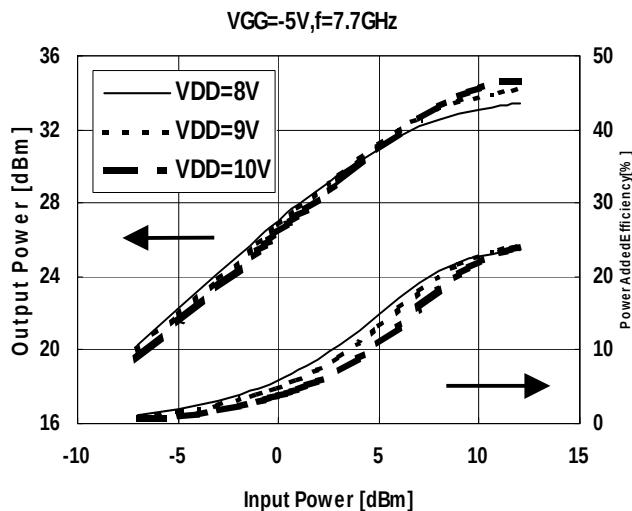
DRAIN CURRENT vs OUTPUT POWER



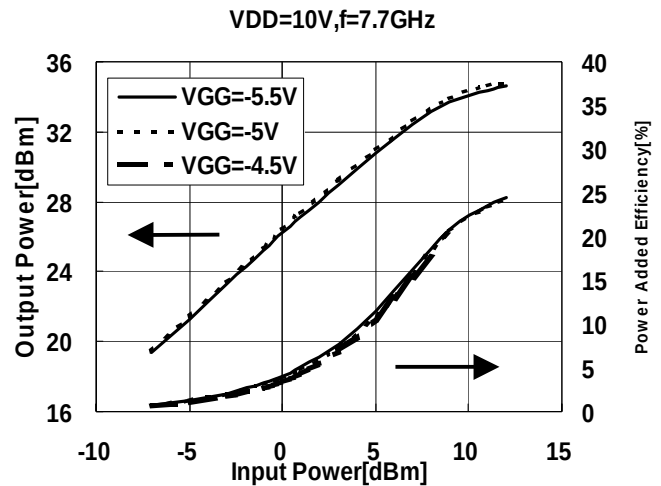
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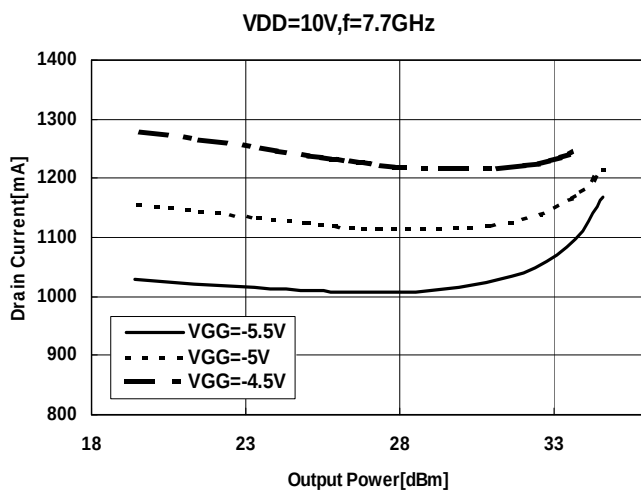
OUTPUT POWER , POWER ADDED EFFICIENCY
vs. INPUT POWER



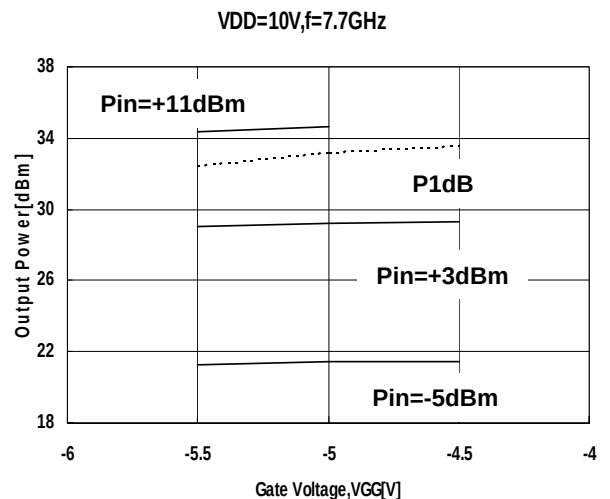
OUTPUT POWER , POWER ADDED EFFICIENCY
vs. INPUT POWER



DRAIN CURRENT vs OUTPUT POWER



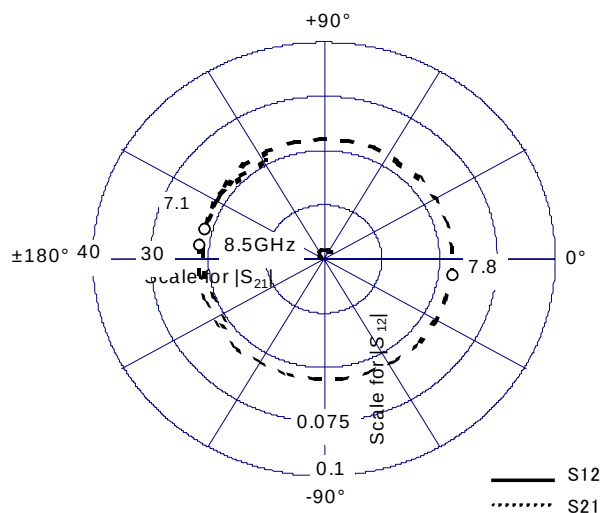
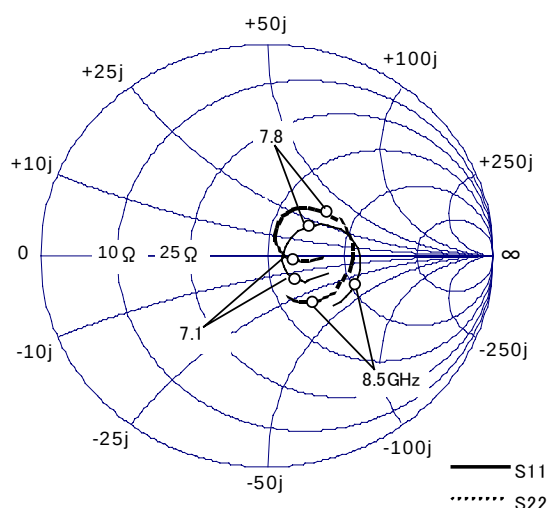
OUTPUT POWER vs. GATE VOLTAGE



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S-PARAMETER



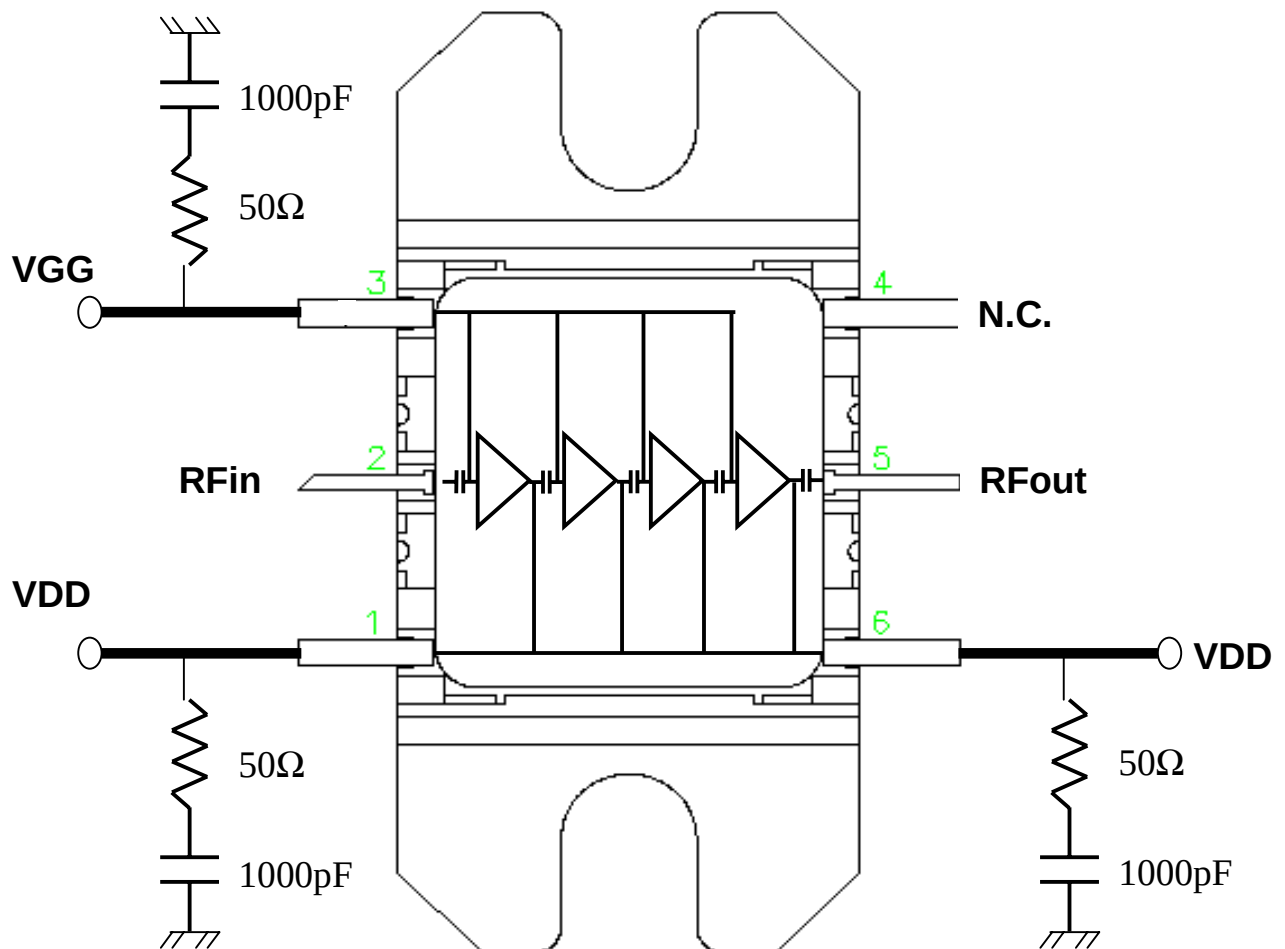
VDD=10.0V , VGG=-5.0V

Frequency [GHz]	S11		S21		S12		S22	
	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

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■ 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 ASSIGNMENT

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

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[illegible]

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

Eudyna

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For further information please contact :

Eudyna Devices USA Inc.

2355 Zanker Rd.
San Jose, CA 95131-1138, U.S.A.
TEL: +1 408 232-9500
FAX: +1 408 428-9111

Eudyna Devices Europe Ltd.

150 Edinburgh Avenue
Slough, Berkshire, SL1 4SS
United Kingdom
TEL: +44 (0) 1753 849950
FAX: +44 (0) 1753 577128

Eudyna Devices International Srl

Via Toglio 8/2 - 20158
Milano, Italy
TEL: +39-02-3705 2921
FAX: +39-02-3705 2920

Eudyna Devices Asia Pte. Ltd.

Hong Kong Branch
Suite 1906B, Tower 6, China Hong Kong City
33 Canton Road, Tsimshatsui, Kowloon
Hong Kong
TEL: +852-2377-0227
FAX: +852-2377-3921

Eudyna Devices Inc.

1000 Kamisukiahara, showa-cho
Nakakomagun, Yamanashi
409-3883, Japan
(Kokubo Industrial Park)
TEL +81-55-275-4411
FAX +81-55-275-9461

Sales Division

1, Kanai-cho, Sakae-ku
Yokohama, 244-0845, Japan
TEL +81-45-853-8156
FAX +81-45-853-8170

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- Do not put these products 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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