

# DATA SHEET

Part No.	AN41204A
Package Code No.	HQFP048-P-0707

Maintenance/Discontinued  
(planned maintenance type, maintenance type, planned discontinued type, discontinued type)  
Maintenance/Discontinued includes following four Product lifecycle stage.

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# AN41204A

## Motor Driver for Optical Disk

### ■ Features

- 1-channel, low-vibration, three-phase, full-wave PWM motor driver
- 5-channel linear input PWM driver

### ■ Applications

- For Optical Disk

### ■ Package

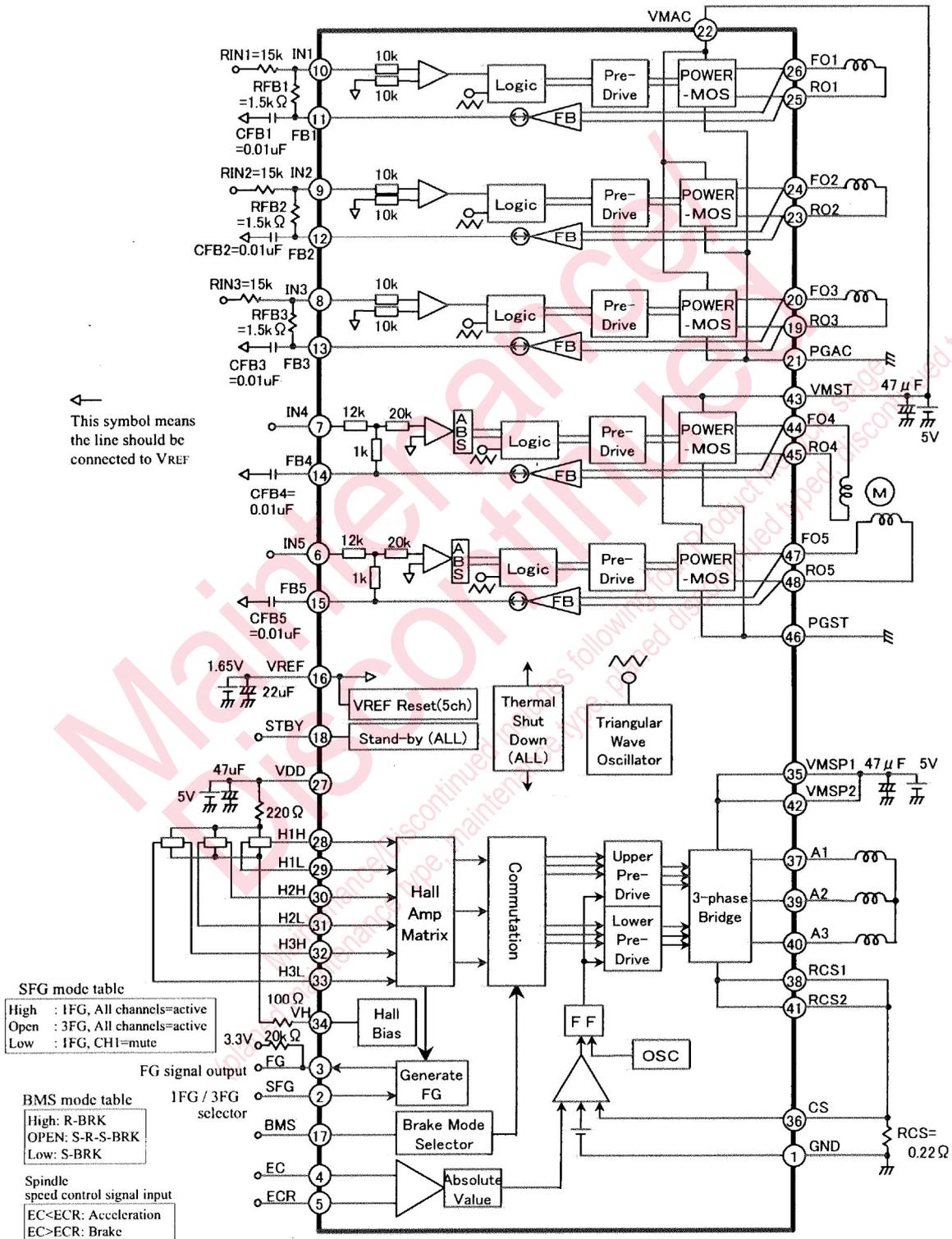
- Quad 48-pin plastic package (QFP type)

### ■ Type

- Silicon monolithic IC

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■ Block Diagram



### ■ Pin Descriptions

Pin No.	Pin name	Description
1	GND	Control circuit ground
2	SFG	SP FG mode selection input
3	FG	SP FG signal input
4	EC	SP control signal input
5	ECR	SP reference voltage input
6	IN5	Ch.5 control signal input
7	IN4	Ch.4 control signal input
8	IN3	Ch.3 control signal input
9	IN2	Ch.2 control signal input
10	IN1	Ch.1 control signal input
11	FB1	Ch.1 feedback output
12	FB2	Ch.2 feedback output
13	FB3	Ch.3 feedback output
14	FB4	Ch.4 feedback output
15	FB5	Ch.5 feedback output
16	VREF	Ch. reference voltage input
17	BMS	SP Brake mode selection input
18	STBY	Total shutdown input
19	RO3	Ch.3 inverted output
20	FO3	Ch.3 non-inverted output
21	PGAC	Ch.1, Ch.2 and Ch.3 coil drive ground
22	VMAC	Ch.1, Ch.2 and Ch.3 coil drive power supply
23	RO2	Ch.2 inverted output
24	FO2	Ch.2 non-inverted output
25	RO1	Ch.1 inverted output
26	FO1	Ch.1 non-inverted output
27	VDD	Control circuit power supply
28	H1H	SP hall element 1 positive input
29	H1L	SP hall element 1 negative input
30	H2H	SP hall element 2 positive input
31	H2L	SP hall element 2 negative input
32	H3H	SP hall element 3 positive input
33	H3L	SP hall element 3 negative input
34	VH	Hall bias output
35	VMSP1	SP motor drive power supply

## ■ Pin Descriptions (Continued)

Pin No.	Pin name	Description
36	CS	SP output current detection
37	A1	SP driver output 1
38	RCS1	SP driver common source output
39	A2	SP driver output 1
40	A3	SP driver output 1
41	RCS2	SP driver common source output
42	VMSP2	SP motor drive power supply
43	VMST	Ch.4 and Ch.5 motor drive power supply
44	FO4	Ch.4 non-inverted output
45	RO4	Ch.4 inverted output
46	PGST	Ch.4 and Ch.5 motor drive ground
47	FO5	Ch.5 non-inverted output
48	RO5	Ch.5 inverted output

### ■ Absolute Maximum Ratings

A No.	Parameter	Symbol	Rating	Unit	Notes
1	Supply voltage	VMSP VMST VMAC VDD	6.0	V	
2	Supply current	IVMSP IVMAC IVMST IVDD	1 200 3 000 2 000 100	mA	*2
3	Power dissipation	P <sub>D</sub>	307.9	mW	*3
4	Operating ambient temperature	T <sub>opr</sub>	-30 to +85	°C	*1
5	Storage temperature	T <sub>stg</sub>	-55 to +150	°C	*1
6	Operating ambient atmospheric pressure	P <sub>opr</sub>	$1.013 \times 10^5 \pm 0.61 \times 10^5$	Pa	
7	Operating constant gravity	G <sub>opr</sub>	9 810	m/s <sup>2</sup>	
8	Operating shock	S <sub>opr</sub>	4 900	m/s <sup>2</sup>	
9	Supply voltage applied range	VMSP VMST VMAC VDD	-0.3 to +6.0	V	
10	Drive power supply /output instantaneous current spindle	I(o)	±3 000	mA	o = 37, 38, 39, 40, 41 *4
11	Drive output current for channels 1, 2 and 3	I(p)	±1 000	mA	p = 19, 20, 23, 24, 25, 26
12	Drive output current for channels 4 and 5	I(q)	±1 000	mA	q = 44, 45, 47, 48
13	Drive output voltage	V(l)	7.0	V	l = 19, 20, 23, 24, 25, 26, 44, 45, 47, 48
		V(m)			m = 37, 39, 40
14	Control signal input voltage	V(n)	GND to VDD	V	n = 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 28, 29, 30, 31, 32, 33
15	Hall bias current	IHB(x)	30	mA	x = 34

Notes) Do not apply current or voltage from outside to any pin not listed above other than the power supply and ground pins. In the current, (+) means the current flowing into IC and (-) means the current flowing out of IC.

\*1 : T<sub>a</sub> = 25°C except storage temperature and operating ambient temperature.

\*2 : Make sure that channels 1 to 5 do not have a current flow exceeding 1 000 mA

\*3 : When using this IC, observe the power dissipation characteristic curve. Be sure to use the IC so that the power dissipation of the IC without heat sink will not exceed 307.9 mW at T<sub>a</sub> = 85°C.

\*4 : Permissible for a period not exceeding 1 ms.

## ■ Operating Supply Voltage Range

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Supply voltage range	VDD	4.0	5.0	5.5	V	
	VMAC VMST VMSP	3.5	5.0	5.5		

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