

PWM driver for CD

BH6573FV

BH6573FV is a 4-channel PWM driver developed for driving stepping motor, and DC motor of DSC, and also developed for driving DC motor, and actuator of CD / MD.

This IC has achieved lower power consumption of the set by using power MOSFET in output.

●Applications

CD, MD, DSC, DVC

●Features

- 1) Four channels of power MOS-H bridges are contained.
- 2) Available for PWM input.
- 3) Applicable for stepping-motor drive.
- 4) Separating VM into CH1, CH2 and CH3 / 4.
- 5) Low on-resistance 1.3Ω (typ.)
- 6) Low power consumption.
- 7) SSOP-B24 package.

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
H-bridge power supply voltage	V _M	6	V
Control circuit power supply voltage	V _{DD}	6	V
Driver output current	I _O	1000 *1	mA
Power dissipation	P _d	1025 *2	mW
Operating temperature range	T _{opr}	-40~+85	°C
Storage temperature range	T _{stg}	-55~+150	°C

*1 The current is guaranteed 1.0A is case of the current is turned on/off in a duty-ratio of less than 1/10 with a maximum on-time of 5msec.

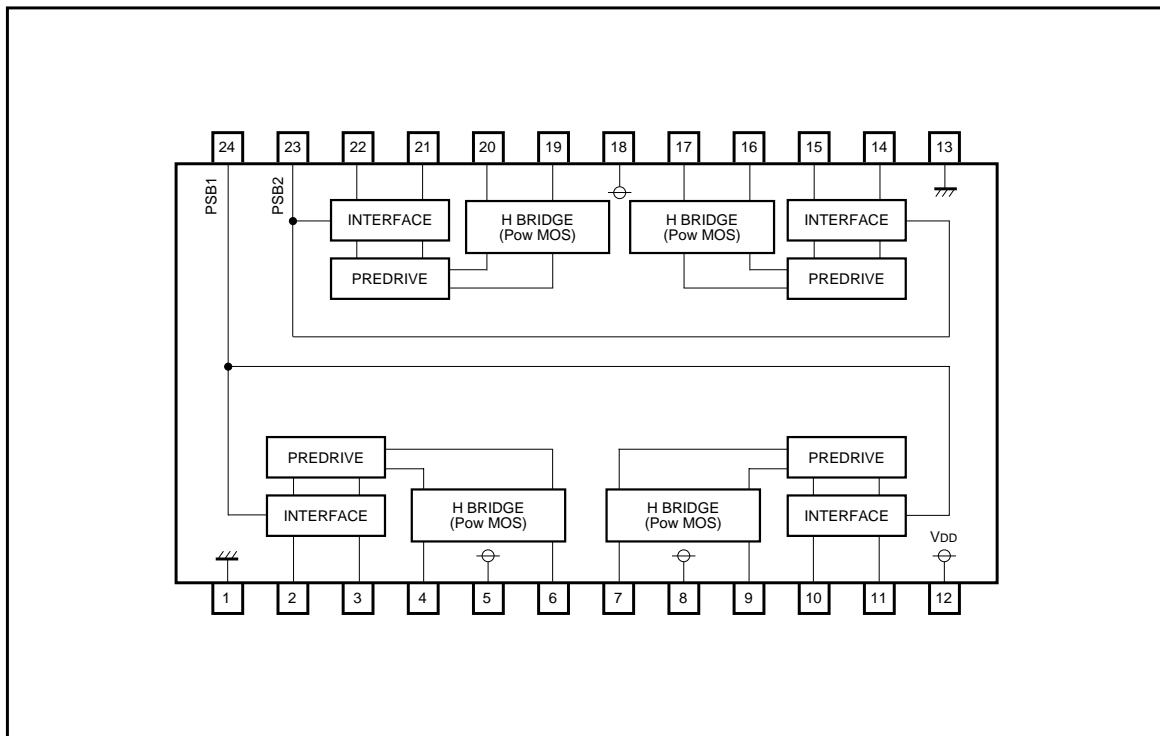
*2 When a 70mm×70mm, 1.6mm thick glass epoxy substrate having a copper foil content of less than 3% is mounted. When the circuit is used at Ta of 25°C or more, subtract 8.2mW per degree from the rating.

●Recommended operating conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
H-bridge power supply voltage	V _M	1.6	5.0	5.5	V
Control circuit power supply voltage	V _{DD}	2.0	3.0	5.5	V

Optical disc ICs

●Block diagram

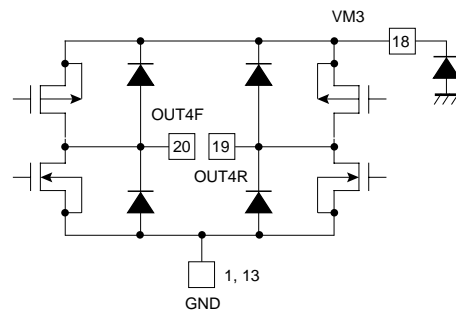
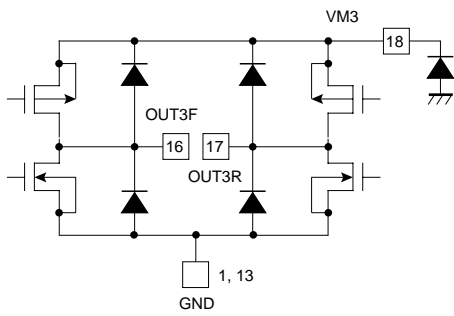
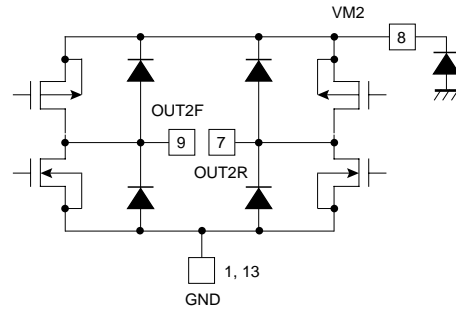
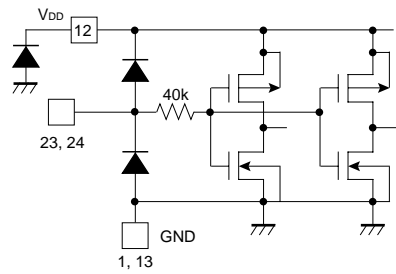
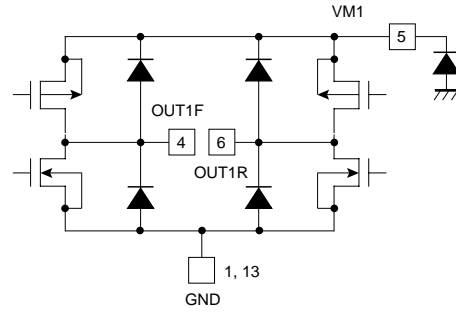
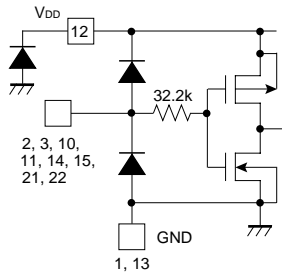


●Pin descriptions

Pin No.	Pin name	Functions	Pin No.	Pin name	Functions
1	GND	GND	13	GND	GND
2	IN1R	CH1 Reverse input	14	IN4R	CH4 Reverse input
3	IN1F	CH1 Forward input	15	IN4F	CH4 Forward input
4	OUT1F	CH1 Forward output	16	OUT4F	CH4 Forward output
5	VM1	Power supply for CH1 power block	17	OUT4R	CH4 Reverse output
6	OUT1R	CH1 Reverse output	18	VM3	Power supply for CH3, 4 power block
7	OUT2R	CH2 Reverse output	19	OUT3R	CH3 Reverse output
8	VM2	Power supply for CH2 power block	20	OUT3F	CH3 Forward output
9	OUT2F	CH2 Forward output	21	IN3F	CH3 Forward input
10	IN2F	CH2 Forward input	22	IN3R	CH3 Reverse input
11	IN2R	CH2 Reverse input	23	PSB2	CH3, 4 power save control pin
12	VDD	Power supply for pre block	24	PSB1	CH1, 2 power save control pin

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● Input output circuits



Optical disc ICs

●Electrical characteristics (unless otherwise noted, Ta=25°C, VM=5V, VDD=3V, fin=176kHz, RL=8Ω-47uH)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Measuring circuit
<H-bridge power supply voltage>							
Upon no signal	IMST	–	200	350	μA		Fig.1
<Control circuit power supply voltage>							
Upon no signal	IDD1	–	0	1	μA		Fig.1
Upon operation	IDD2	–	6	70	μA	Driving 4channels	Fig.1
<Logic input character>							
"H" level input voltage	V _{IH}	V _{DD} –0.4	–	–	V		Fig.1
"L" level input voltage	V _{IL}	–	–	0.3	V		Fig.1
"H" level input current	I _{IH}	–	–	1	μA		Fig.1
"L" level input current	I _{IL}	–1	–	–	μA		Fig.1
Output in-resistance 1	R _{ON}	–	1.3	2.0	Ω		Fig.1
Output in-resistance 2	R _{ON}	–	1.8	2.6	Ω	Sum of on-resistance of top and that of bottom (VM=5V, VDD=3V)	Fig.1
Propagation delay time	t _{RISE}	–	0.2	1	usec	Sum of on-resistance of top and that of bottom (VM=2.5V, VDD=3V)	Fig.1
	t _{FALL}	–	0.2	1	usec		Fig.1
Minimum input pulse width	t _{MIN}	220	–	–	nsec	Output pulse more than 1/2t _{MIN}	Fig.1

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Optical disc ICs

● Measuring circuit

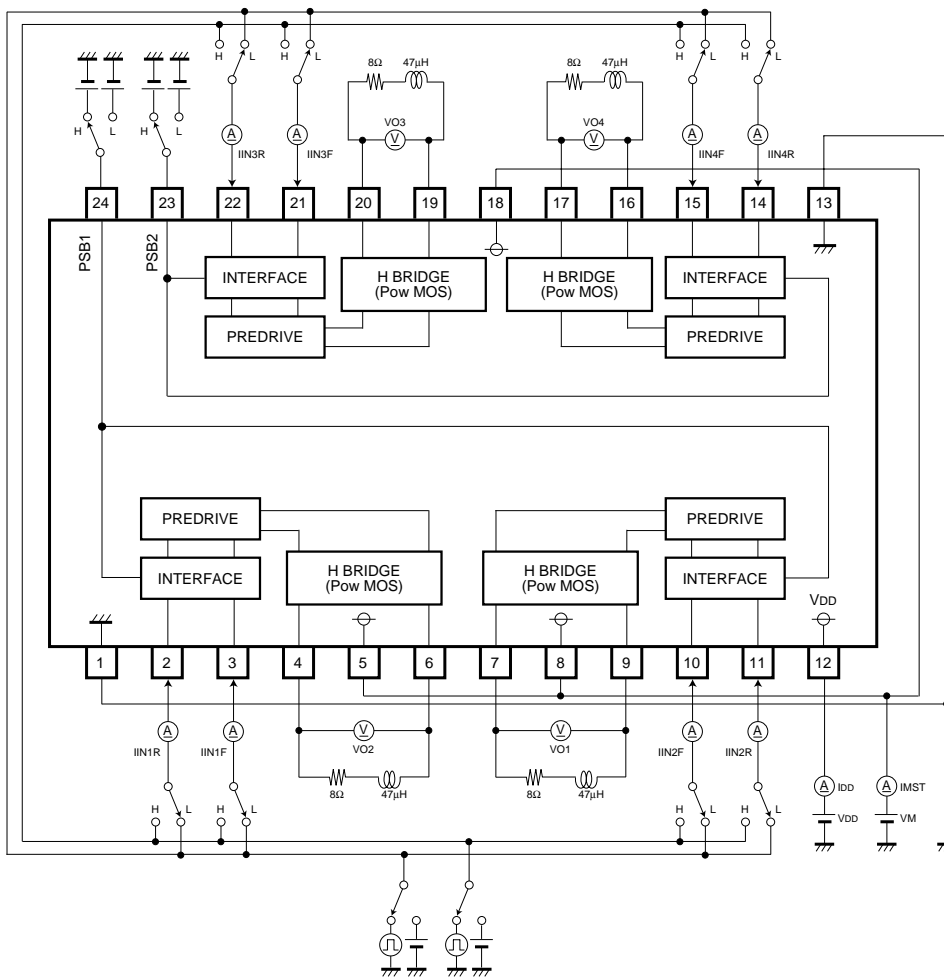


Fig.1

● Circuit operation

◎ Truth table

PSB1*	PSB2*	IN1~4F	IN1~4R	OUT1~4F	OUT1~4R
H	H	L	L	Hi-Z	Hi-Z
H	H	L	H	L	H
H	H	H	L	H	L
H	H	H	H	L	L
L	L	X	X	Hi-Z	Hi-Z

* PSB mode

PSB1	PSB2	OUT1, 2	OUT3, 4
H	H	Output is followed by truth table	Output is followed by truth table
H	L	Output is followed by truth table	Hi-Z
L	H	Hi-Z	Output is followed by truth table
L	L	Hi-Z	Hi-Z

Optical disc ICs

●Application example

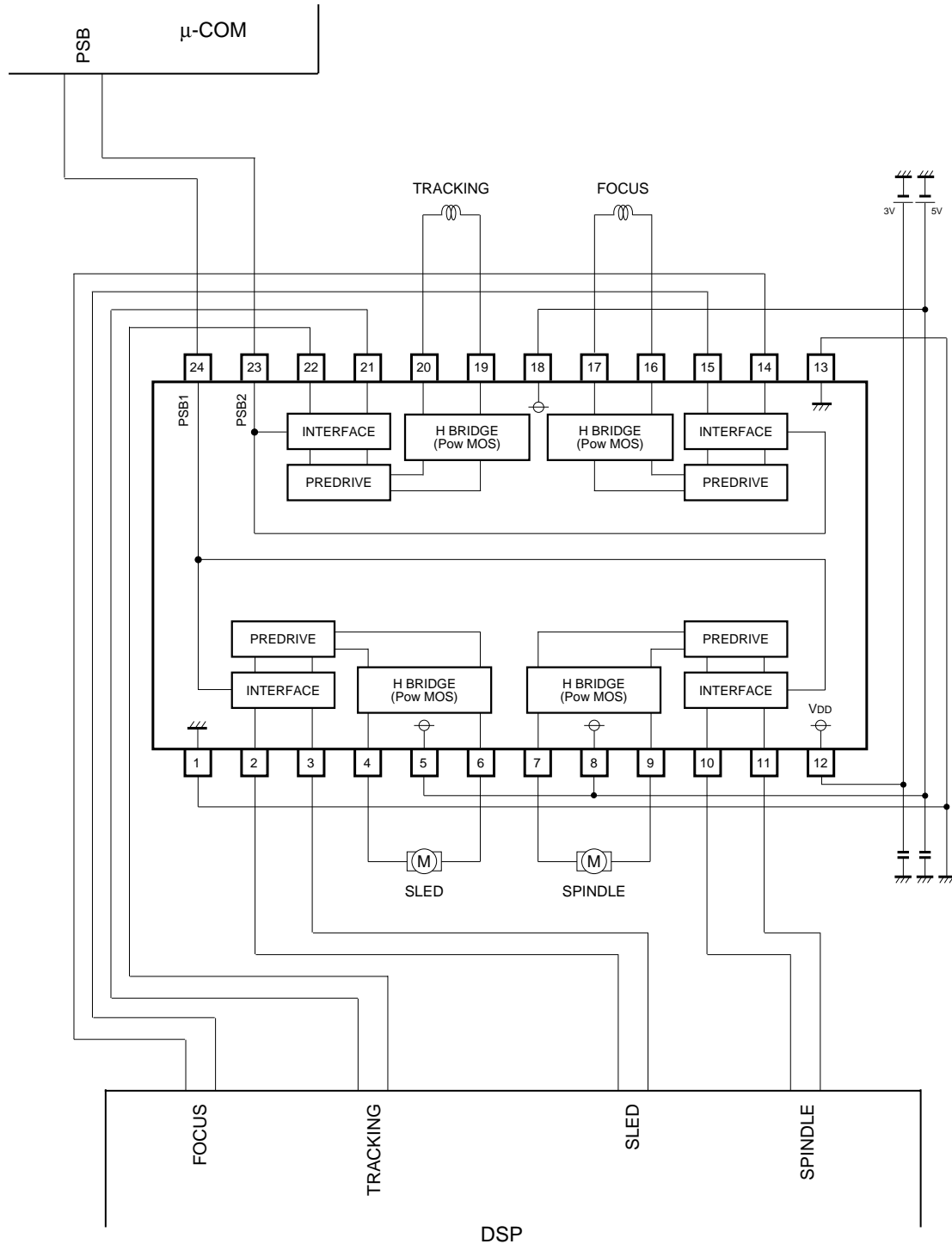


Fig.2

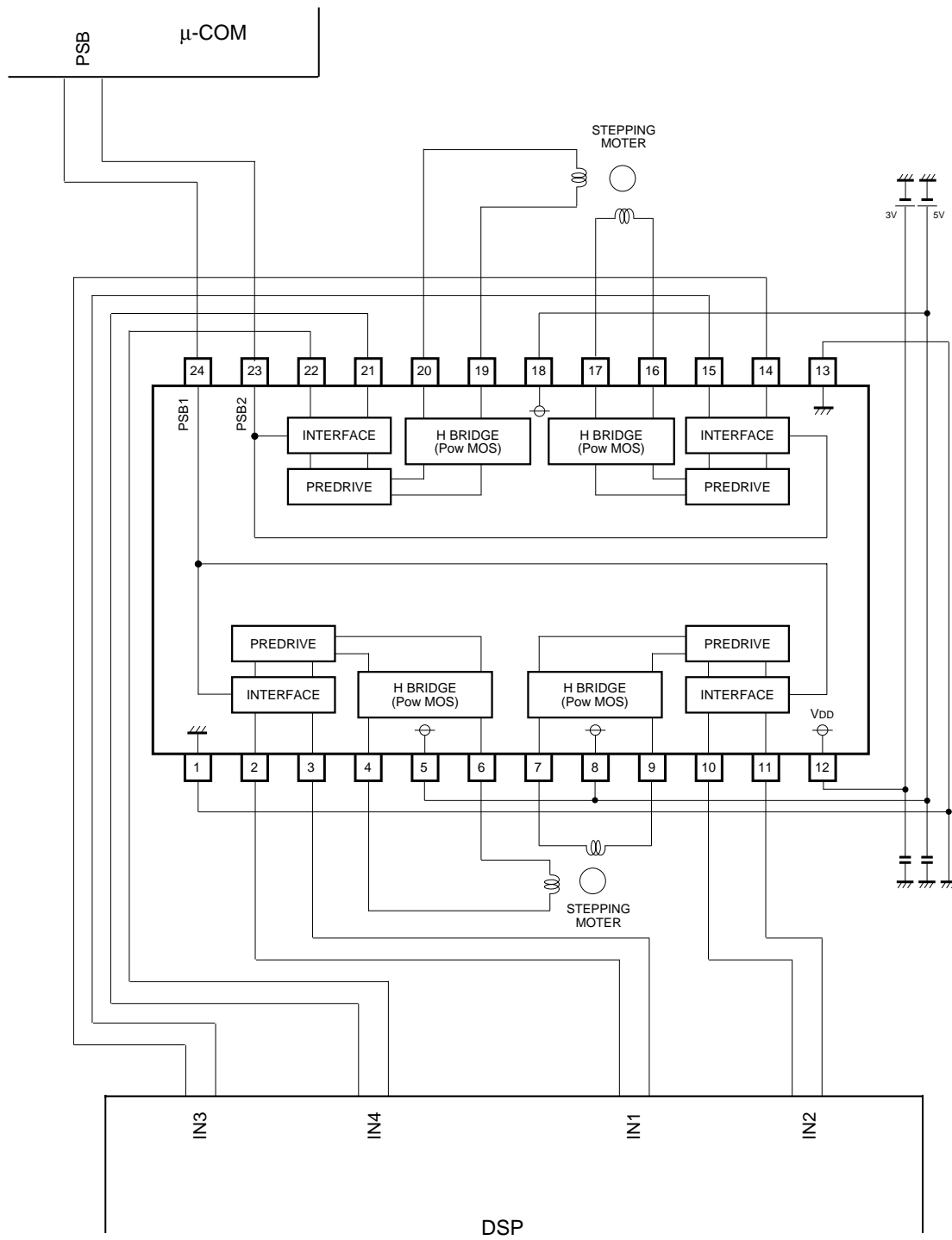


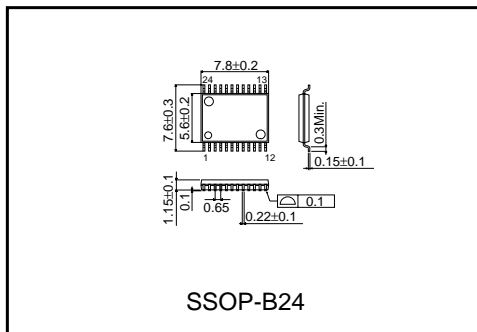
Fig.3

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●Operation notes

1. Connect a bypass capacitor (0.1 μ F) across the supply voltage lines close to the IC pins.
2. Avoid short circuit between each driver output (4, 6, 7, 9, 16, 17, 19, 20pin) and power supply (5, 8, 12, 18pin), or GND (1, 13pin). And avoid short circuit between output terminals (4-6, 7-9, 16-17, 19-20).

●External dimensions (Units : mm)



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