

TYPE

STRUCTURE Silicon Monolithic Integrated Circuit

PRODUCT SERIES 2ch Stepping Motor Driver

BD6874GSW

FEATURES • Built in 2 Full-ON Drivers

Under Developing

Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limit	Unit
Power supply voltage	VCC	-0.5 to +7.0	V
Motor power supply voltage	VM	-0.5 to +7.0	V
Control input voltage	VIN	-0.5 to VCC+0.5	V
Power dissipation	Pd	610*1	mW
Operating temperature range	Topr	-25 to +85	°C
Junction temperature	Tjmax	125	°C
Storage temperature range	Tstg	-55 to +125	°C
H-bridge output current	lout	-300 to +300*2	mA/ch

^{*1} Reduced by 6.1mW/°C over 25°C, when mounted on a glass epoxy board (114.3mm × 76.2mm × 1.6mm)

●Operating Conditions (Ta=-25°C to +85°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit
Power supply voltage	VCC	2.5	3.0	5.5	٧
Motor power supply voltage	VM	2.5	5.0	5.5	٧
Control input voltage	VIN	0		VCC	٧ -
H-bridge output current	lout	•	-	±200*3	mA/ch

^{*3} Must not exceed Pd or ASO.

The product described in this specification is a strategic product (and/or service) subject to COCOM regulations. It should not be exported without authorization from the appropriate government authorities.

This product isn't designed for protection against radioactive rays.

^{*2} Must not exceed Pd, ASO, or Tjmax of 125°C.



●Package Outline

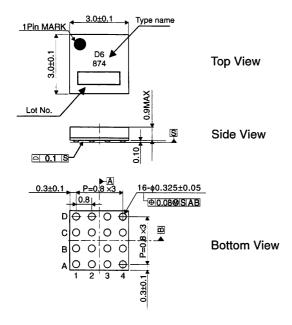


Fig.1 BGA016W030 Package (Unit: mm)

●Pin Arrangement (Top View)

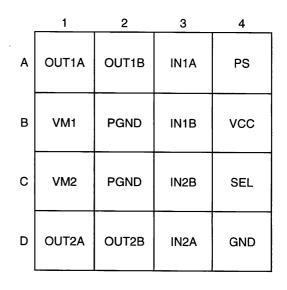


Fig.2 BD6874GSW Pin Arrangement (Top View)

Block Diagram

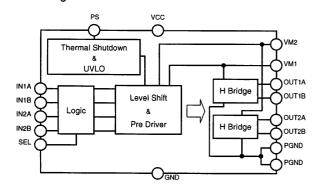


Fig.3 BD6874GSW Block Diagram

●Pin No. and Pin Name

No.	Pin name
1A	OUT1A
2A	OUT1B
ЗА	IN1A
4A	PS
1B	VM1
2B	PGND
3B	IN1B
4B	VCC
1C	VM2
2C	PGND
3C	IN2B
4C	SEL
1D	OUT2A
2D	OUT2B
3D	IN2A
4D	GND



●BD6874GSW Electrical Characteristics (Unless otherwise specified Ta=25°C, VCC=3.0V, VM=5.0V)

Parameter			Target Limit		-	,
Parameter	Symbol Mi	Min.	Тур.	Max.	Unit	Conditions
Overall						
Circuit current during standby operation	ICCST		0		μA	PS=L
Circuit current	ICC		0.9		mA	PS=H with no signal
Control input						
High level input voltage	VINH		-		V	IN1A~IN2B, SEL, PS
Low level input voltage	VINL		-		V	IN1A~IN2B, SEL, PS
High level input current	IINH		30		μΑ	IN1A~IN2B, SEL, PS; VIN=3V
Low level input current	IINL		0		μΑ	IN1A~IN2B, SEL, PS; VIN=0V
Pull-down resistor	RIN		100		kΩ	IN1A~IN2B, SEL, PS
UVLO						
UVLO voltage	VUVLO		-		V	
Full-ON Drive block (ch1 and ch2)						
Output ON-Resistance	RON		1.0		Ω	Io=±100mA on high and low sides in total
Turn-on time	ton		0.6		μs	With 20Ω load
Turn-off time	toff		0.08		μs	With 20Ω load
Rise time	tr		0.15		μs	With 20Ω load
Fall time	tf		0.03		μs	With 20Ω load



Operation Notes

(1) Absolute maximum ratings

Use of the IC in excess of absolute maximum ratings such as the applied voltage or operating temperature range (Topr) may result in IC damage. Assumptions should not be made regarding the state of the IC (short mode or open mode) when such damage is suffered. The implementation of a physical safety measure such as a fuse should be considered when use of the IC in a special mode where the absolute maximum ratings may be exceeded is anticipated.

(2) Power supply lines

Regenerated current may flow as a result of the motor's back electromotive force. Insert capacitors between the power supply and ground pins to serve as a route for regenerated current. Determine the capacitance in full consideration of all the characteristics of the electrolytic capacitor, because the electrolytic capacitor may loose some capacitance at low temperatures. If the connected power supply does not have sufficient current absorption capacity, regenerative current will cause the voltage on the power supply line to rise, which combined with the product and its peripheral circuitry may exceed the absolute maximum ratings. It is recommended to implement a physical safety measure such as the insertion of a voltage clamp diode between the power supply and GND pins.

(3) Ground potential

Ensure a minimum GND pin potential in all operating conditions.

(4) Setting of heat

Use a thermal design that allows for a sufficient margin in light of the power dissipation (Pd) in actual operating conditions.

(5) Actions in strong magnetic field

Use caution when using the IC in the presence of a strong magnetic field as doing so may cause the IC to malfunction.

(6) ASO

When using the IC, set the output transistor for the motor so that it does not exceed absolute maximum ratings or ASO.

(7) Thermal shutdown circuit

This IC incorporates a TSD (thermal shutdown) circuit (TSD circuit). If the temperature of the chip reaches the following temperature, the motor coil output will be opened. The thermal shutdown circuit (TSD circuit) is designed only to shut the IC off to prevent runaway thermal operation. It is not designed to protect the IC or guarantee its operation. Do not continue to use the IC after operating this circuit or use the IC in an environment where the operation of this circuit is assumed.

TSD ON temperature [°C]	Hysteresis temperature [°C]
(Typ.)	(Typ.)
150	25

(8) Ground Wiring Pattern

When using both small signal and large current GND patterns, it is recommended to isolate the two ground patterns, placing a single ground point at the application's reference point so that the pattern wiring resistance and voltage variations caused by large currents do not cause variations in the small signal ground voltage. Be careful not to change the GND wiring pattern of any external components, either.

Notes

- No technical content pages of this document may be reproduced in any form or transmitted by any
 means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the
 product described in this document are for reference only. Upon actual use, therefore, please request
 that specifications to be separately delivered.
- Application circuit diagrams and circuit constants contained herein are shown as examples of standard
 use and operation. Please pay careful attention to the peripheral conditions when designing circuits
 and deciding upon circuit constants in the set.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or
 otherwise dispose of the same, no express or implied right or license to practice or commercially
 exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).

Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

About Export Control Order in Japan

Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.

In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.





Thank you for your accessing to ROHM product informations.

More detail product informations and catalogs are available,
please contact your nearest sales office.

Please contact our sales offices for details;

```
U.S.A / San Diego
                        TEL: +1(858)625-3630
                                                 FAX: +1(858)625-3670
       Atlanta
                        TEL: +1(770)754-5972
                                                 FAX: +1(770)754-0691
       Dallas
                        TEL: +1(972)312-8818
                                                 FAX: +1(972)312-0330
Germany / Dusseldorf
                        TEL: +49(2154)9210
                                                 FAX: +49(2154)921400
United Kingdom / London TEL: +44(1)908-282-666
                                                 FAX: +44(1)908-282-528
France / Paris
                        TEL: +33(0)1 56 97 30 60 FAX: +33(0) 1 56 97 30 80
China / Hong Kong
                        TEL: +852(2)740-6262
                                                 FAX: +852(2)375-8971
       Shanghai
                        TEL: +86(21)6279-2727
                                                 FAX: +86(21)6247-2066
       Dilian
                        TEL: +86(411)8230-8549
                                                 FAX: +86(411)8230-8537
       Beijing
                        TEL: +86(10)8525-2483
                                                 FAX: +86(10)8525-2489
Taiwan / Taipei
                        TEL: +866(2)2500-6956
                                                 FAX: +866(2)2503-2869
Korea / Seoul
                        TEL: +82(2)8182-700
                                                 FAX: +82(2)8182-715
Singapore
                        TEL: +65-6332-2322
                                                 FAX: +65-6332-5662
Malaysia / Kuala Lumpur
                        TEL: +60(3)7958-8355
                                                 FAX: +60(3)7958-8377
Philippines / Manila
                        TEL: +63(2)807-6872
                                                 FAX: +63(2)809-1422
Thailand / Bangkok
                        TEL: +66(2)254-4890
                                                 FAX: +66(2)256-6334
```

Japan / (Internal Sales)

Tokyo 2-1-1, Yaesu, Chuo-ku, Tokyo 104-0082

TEL: +81(3)5203-0321 FAX: +81(3)5203-0300

Yokohama 2-4-8, Shin Yokohama, Kohoku-ku, Yokohama, Kanagawa 222-8575

TEL: +81(45)476-2131 FAX: +81(45)476-2128

Nagoya Dainagayo Building 9F 3-28-12, Meieki, Nakamura-ku, Nagoya, Aichi 450-0002

TEL: +81(52)581-8521 FAX: +81(52)561-2173

Kyoto 579-32 Higashi Shiokouji-cho, Karasuma Nishi-iru, Shiokoujidori, Shimogyo-ku,

Kyoto 600-8216

TEL: +81(75)311-2121 FAX: +81(75)314-6559

(Contact address for overseas customers in Japan)

Yokohama TEL: +81(45)476-9270 FAX: +81(045)476-9271