

# AN8208S

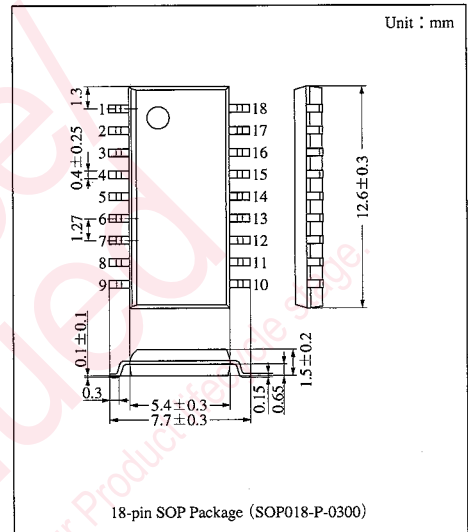
## FDD Stepping Motor Drive IC

### Overview

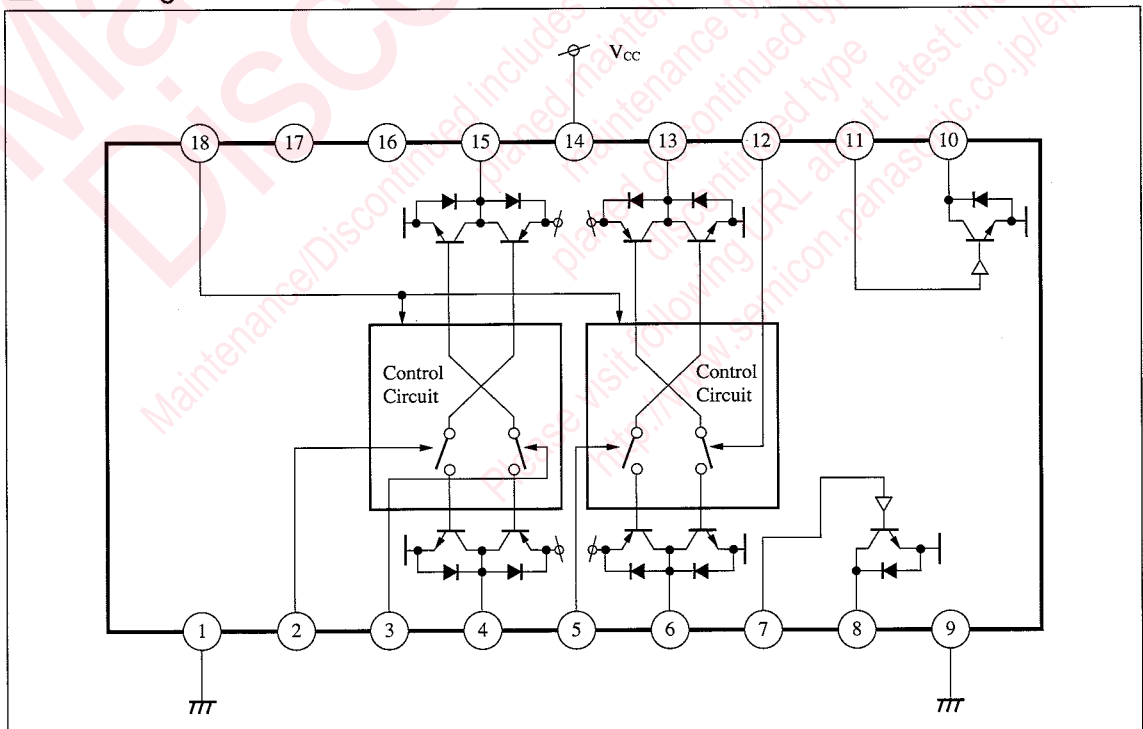
The AN8208S is a driver IC for excitation of 1/2 phase coil in FDD stepping motor.

### Features

- Operating supply voltage range :  $V_{CC}=4.4V$  to  $6V$
- Stepping motor 1/2 phase coil excitation
- Stand-by mode function incorporated
- PNP,NPN complementary full-bridge output,realizing low power dissipation
- Miniaturized surface mounting package



### Block Diagram



## Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	GND1	10	Fout (inverter output)
2	Ain ( $\phi$ 1 input)	11	Fin (inverter input)
3	Bin ( $\phi$ 1 input)	12	Din ( $\phi$ 2 input)
4	Bout (to S-motor winding 1)	13	Dout (to S-motor winding 2)
5	Cin ( $\phi$ 2 input)	14	V <sub>CC</sub>
6	Cout (to S-motor winding 2)	15	Aout (to S-motor winding 1)
7	Ein (inverter input)	16	NC
8	Eout (inverter output)	17	NC
9	GND2	18	STB (H for stand-by mode)

## Absolute Maximum Rating (Ta = 25 °C)

Parameter	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	6.5	V
Supply current	I <sub>CC</sub>	800	A
Power dissipation <sup>Note)</sup>	P <sub>D</sub>	185	mW
Operating ambient temperature	T <sub>opr</sub>	-20 to +75	°C
Storage temperature	T <sub>stg</sub>	-55 to +125	°C

Note) Package power dissipation under free air and operating ambient temperature Ta of 75°C.

## Recommended Operating Range (Ta = 25°C)

Parameter	Symbol	Range
Operating supply voltage	V <sub>CC</sub>	4.4V to 6.0V

## Electrical Characteristics (V<sub>CC</sub> = 5V, Ta = 25 ± 2°C)

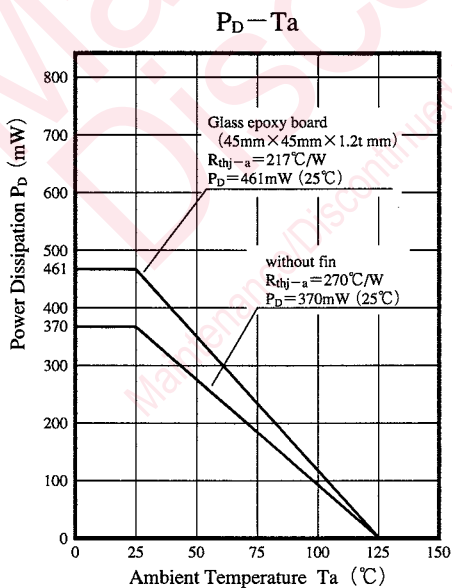
Parameter	Symbol	Condition	min	typ	max	Unit
<b>Input Terminal (Ain, Bin, Cin, Din, Ein, Fin)</b>						
(L) input level	V <sub>inL</sub>		-0.3	—	0.8	V
(L) level input current	I <sub>inL</sub>	V <sub>in</sub> = 0V	-2	—	2	μA
(H) input level	V <sub>inH</sub>		2.8	—	5.3	V
(H) level input current	I <sub>inH</sub>	V <sub>in</sub> = 5V	—	—	1	mA
<b>Input Terminal (STB)</b>						
(L) input level	V <sub>STBL</sub>		-0.3	—	2.8	V
(L) level input current	I <sub>STBL</sub>	V <sub>STBL</sub> = 0V	-1	—	—	mA
(H) input level	V <sub>STBH</sub>		4	—	5.3	V
(H) level input current	I <sub>STBH</sub>	V <sub>STBL</sub> = 5V	-300	—	300	μA
<b>Output Terminals (Aout, Bout, Cout, Dout)</b>						
(L) output voltage	V <sub>OL</sub>	I <sub>L</sub> = 300mA V <sub>in</sub> = 2.8V	—	0.3	0.4	V
(H) output voltage	V <sub>OH</sub>	I <sub>L</sub> = 300mA V <sub>in</sub> = 2.8V	4.6	4.7	—	V
<b>Others</b>						
EoutL output voltage	V <sub>OLE</sub>	I <sub>L</sub> = 50mA	—	0.35	0.5	V
FoutL output voltage	I <sub>OLF</sub>	I <sub>L</sub> = 30mA	—	0.35	0.5	V
Stand-by current	I <sub>OS</sub>	Total V <sub>in</sub> = 0V	—	—	10	μA

ICs for  
Motor

## Pin Descriptions

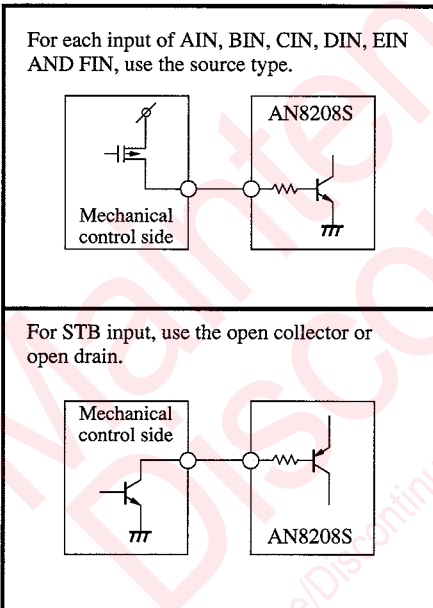
Pin No.	Pin name	Function description
1	GND1	GND terminal
2	AIN	Terminal inputting the signal of phase 1. For (H) input of this signal, (H) (source drive) is outputted to AOUT and (L) (sink drive) to BOUT.
3	BIN	Terminal inputting the signal of phase 1. For (H) input of this signal, (H) (source drive) is outputted to BOUT and (L) (sink drive) to AOUT.
4	BOUT	It is connected to one end of the stepping motor winding 1.
5	CIN	Terminal inputting the signal of phase 1. For (H) input of this signal, (H) (source drive) is outputted to COUT and (L) (sink drive) to DOUT.
6	COUT	It is connected to one end of the stepping motor winding 2.
7	EIN	It constructs the inverter of 50 mA open collector.
8	EOUT	
9	GND2	GND terminal
10	FOUT	It constructs the inverter of 30 mA open collector.
11	FIN	
12	DIN	Input terminal for phase 2 negative logic. For (H) input of this signal, (H) (source drive) is outputted to DOUT and (L) (sink drive) to COUT.
13	DOUT	It is connected to one end of the stepping motor winding 2.
14	V <sub>CC</sub>	V <sub>CC</sub> terminal
15	AOUT	It is connected to one end of the stepping motor winding 1.
16	NC	NC terminal
17	NC	
18	STB	For (H) input, the IC enters the stand-by mode (non-excitation) . It means AOUT, BOUT, COUT and DOUT enter in the open condition.

## Package Power Dissipation



■ Operation Logic

	AIN (Pin②)	BIN (Pin③)	CIN (Pin⑤)	DIN (Pin⑫)	STB (Pin⑱)		AOUT (Pin⑮)	BOUT (Pin④)	COUT (Pin⑥)	DOUT (Pin⑬)
OFF	0	0	0	0	*		F	F	F	F
Stand-by	*	*	*	*	1		F	F	F	F
Rest	0	0	*	*	0		F	F	U	U
Normal direction	1	0	*	*	0		H	L	U	U
Reverse direction	0	1	*	*	0		L	H	U	U
Not used	1	1	*	*	0		H	H	U	U
Rest	*	*	0	0	0		U	U	F	F
Normal direction	*	*	1	0	0		U	U	H	L
Reverse direction	*	*	0	1	0		U	U	L	H
Not used	*	*	1	1	0		U	U	H	H



Symbol Description	1	"H" input
	0	"L" input
	*	Uncertain input (not specified)
	H	"H" level output
	L	"H" level output
	F	Release output
	U	Not specified

ICs for Motor

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