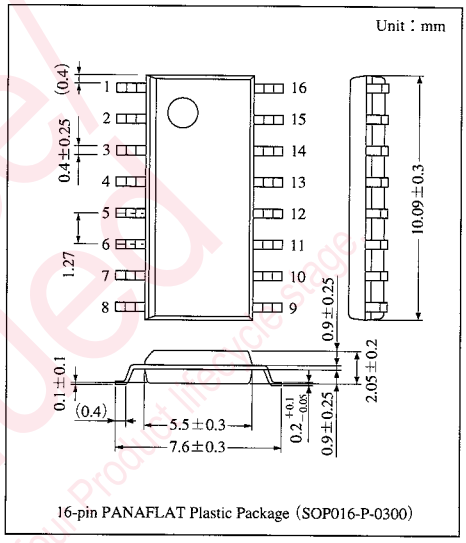
AN6664S

DC Motor Output Driver

■ Overview

The AN6664S is a forward/reverse drive IC for small DC motors. It provides 4 kinds of outputs such as forward rotation, reverse rotation, brake, and stop by the 2-bit input and is suitable as a driver for the small motors of 100 to 150mA.

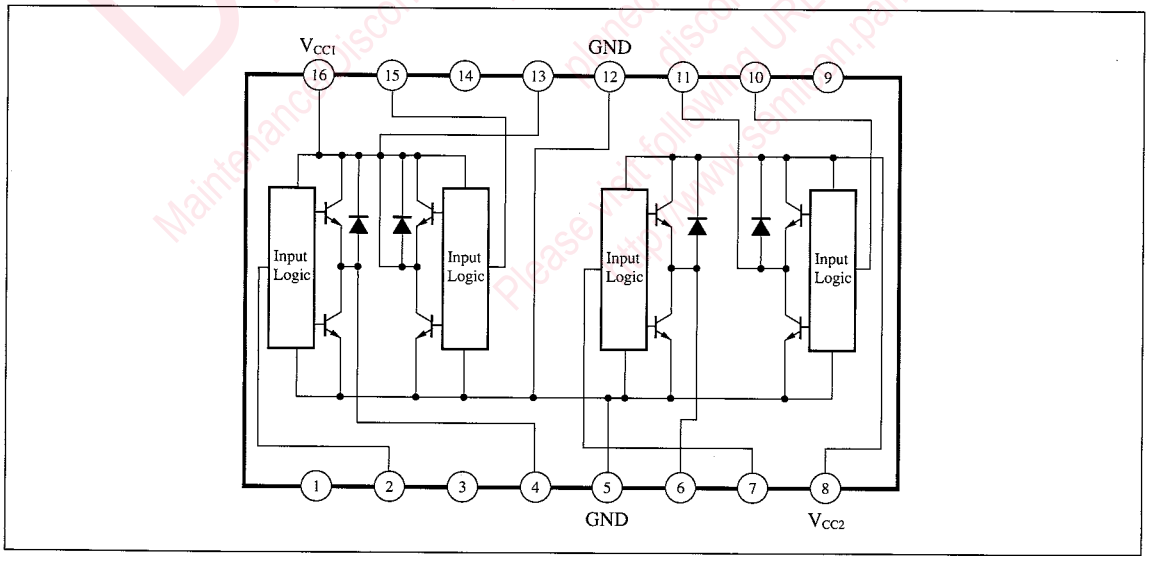


■ Features

- Wide range of operating supply voltage
  : $V_{CC(opr)}$ =3 to 16V
- Lange power dissipation
  (AN6663SP : P_D=450mW when mounted)
- Built-in low saturation voltage type output transistor
- Built-in counter elecromotive voltage suction diode
- Input voltage at the TTL level : V_{IL}=0.8V or less, V_{IH}=2V or more

ICs for Motor

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	18	V
Supply current	I_{CC}	200	mA
Power dissipation	P_D	450	mW
Output peak current	I_{OP}	±200	mA
Operating ambient temperrature	T_{opr}	−20 to +75	℃
Storage temperrature	T_{stg}	−55 to +125	℃

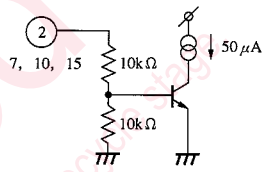
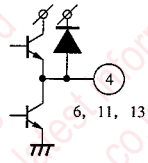
■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	3V to 16V
Output current	I_O	0mA to ±100mA
L input voltage	V_{IL}	0V to 0.8V
H input voltage	V_{IH}	2V to V_{CC}

■ Electrical Characteristics (Ta=25℃)

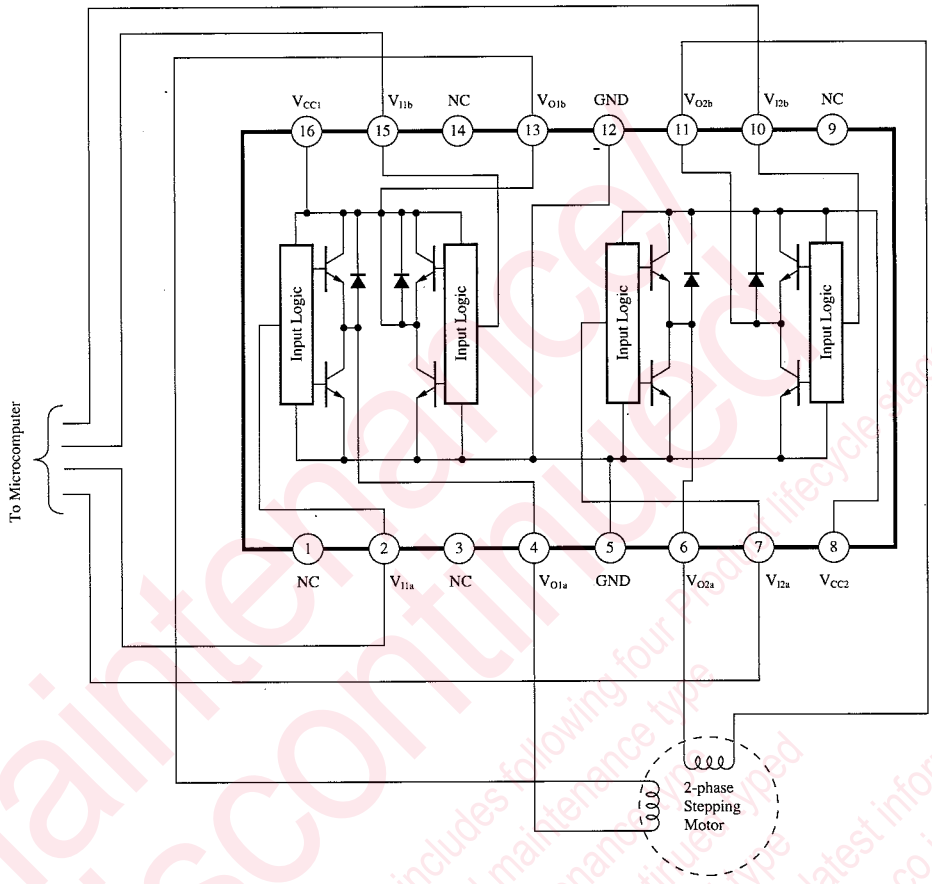
Parameter	Symbol	Condition	min	typ	max	Unit
Standby supply current	I_{CCSb}	$V_{CC1}=V_{CC2}=12V$ 0.8V for all input pins	0.6	—	2.6	mA
Supply current	I_{CC}	$V_{CC1}=V_{CC2}=12V$, $V_{I1a}=V_{I2a}=12V$ $V_{I1b}=V_{I2b}=0.8V$	8	—	24	mA
H output voltage	V_{OH}	$V_{CC1}=V_{CC2}=12V$ $I_{OH}=-150mA$	10.4	—	—	V
L output voltage	V_{OL}	$V_{CC1}=V_{CC2}=12V$ $I_{OL}=150mA$	—	—	0.5	V
Input impedance	Z_{in}	$V_{CC1}=V_{CC2}=12V$ $V_I=2V\rightarrow3V$	7	—	13	kΩ

■ Pin Descriptions

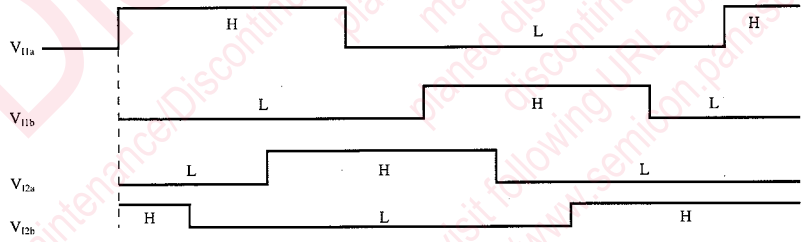
Pin No.	Pin name	Description	I/O impedance	Equivalent circuit
1, 3, 9, 14	NC	NC	—	———
2	Input pin 1a V_{I1a}	Input pins to determine the motor rotating direction	Approx. 10kΩ	
7	Input pin 2a V_{I2a}		Approx. 10kΩ	
10	Input pin 2b V_{I2b}		Approx. 10kΩ	
15	Input pin 1b V_{I1b}		Approx. 10kΩ	
4	Output pin 1a V_{O1a}	Pins to connect the motor coil	—	
6	Output pin 2a V_{O2a}		—	
11	Output pin 2b V_{O2b}		—	
13	Output pin 1b V_{O1b}		—	
5, 12	GND	GND	—	———
8	Supply voltage pin 2 V_{CC2}	Pins to input the supply voltage	—	———
16	Supply voltage pin 1 V_{CC1}			

■ Application Circuit

• When Driving the Stepping Motor (2-phase Bipolar Drive)



• Example of Input Signal (Pattern Depends on the Operating Method)



■ Supplementary Explanation

• Precautions on Use

①Truth table

Pin②	Pin⑮	Pin④	Pin⑬
L	L	HiZ	HiZ
H	L	L	H
L	H	H	L
H	H	L	L

Pin⑦	Pin⑩	Pin⑥	Pin⑪
L	L	HiZ	HiZ
H	L	L	H
L	H	H	L
H	H	L	L

②The input coltage of the input pins V_{I1a}, V_{I1b}, V_{I2a} and V_{I2b} canbe applied up to twice large than V_{CC} (It should no exceed 18V).

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