

# AN6663S, AN6663SP

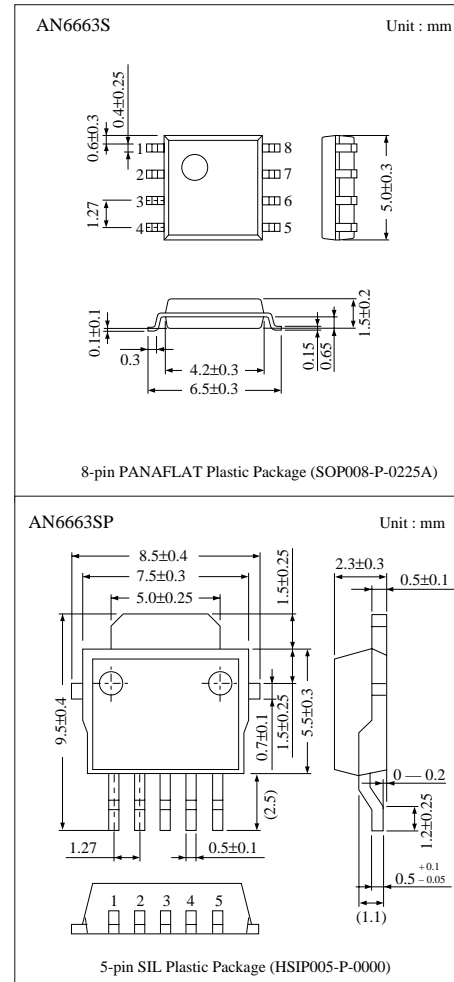
## Bridge Drivers

### ■ Overview

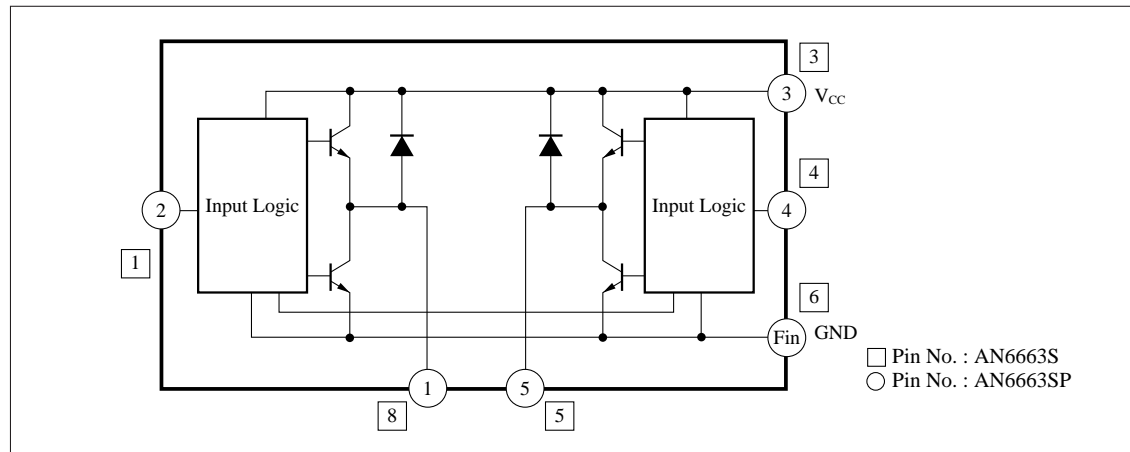
The AN6663S and AN6663SP are the forward/reverse drive ICs for small DC motors. They provide 4 kinds of outputs such as forward rotation, reverse rotation, brake, and stop by the 2bit input and are optimum as the drivers for the small motors of 100 to 150mA.

### ■ Features

- Wide range of operating supply voltage  
:  $V_{CC(opr)} = 3$  to  $16V$
- Large power dissipation  
(AN6663SP :  $P_D = 1.45W$  when mounted)
- Built-in low saturation voltage type output transistor
- Built-in counter electromotive voltage suction diode
- Input voltage at the TTL level :  $V_{IL} = 0.8V$  or less,  
 $V_{IH} = 2V$  or more



### ■ Block Diagram



## ■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Supply voltage		V <sub>CC</sub>	18	V
Supply current		I <sub>CC</sub>	200	mA
Power dissipation	AN6663S	P <sub>D</sub>	361	mW
	AN6663SP		500	
Output peak current	AN6663S	I <sub>OP</sub>	±150	mA
	AN6663SP		±200	
Operating ambient temperature		T <sub>opr</sub>	-20 to +75	°C
Storage temperature		T <sub>stg</sub>	-55 to +125	°C

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

Parameter		Symbol	Range
Operating supply voltage range		V <sub>CC</sub>	3V to 16V
Output current	AN6663S	I <sub>O</sub>	0mA to ±50mA
	AN6663SP	I <sub>O</sub>	0mA to ±100mA
L input voltage		V <sub>IL</sub>	0V to 0.8V
H input voltage		V <sub>IH</sub>	2V to V <sub>CC</sub>

## ■ Electrical Characteristics (V<sub>CC</sub>=12V, Ta=25°C)

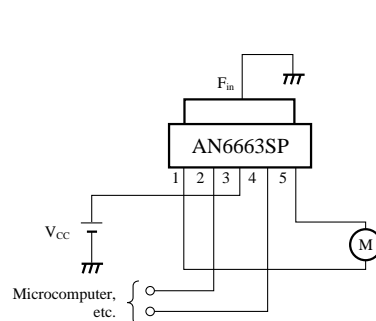
Parameter	Symbol	Condition	min	typ	max	Unit
Standby supply current	I <sub>CCsb</sub>	V <sub>I1</sub> =V <sub>I2</sub> =0.8V	0.3	0.8	1.3	mA
Supply current	I <sub>CC</sub>	V <sub>I1</sub> =V <sub>I2</sub> =0.8V	4	8	12	mA
H output voltage	V <sub>OH</sub>	I <sub>OH</sub> =-100mA <sup>Note)</sup>	10	10.8	—	V
L output voltage	V <sub>OL</sub>	I <sub>OL</sub> =100mA <sup>Note)</sup>	—	0.3	0.5	V
Input impedance	Z <sub>in</sub>	V <sub>I</sub> =2V→3V	7	10	13	kΩ

Note) AN6663SP is I<sub>OH</sub>=-150mA, I<sub>OL</sub>=150mA

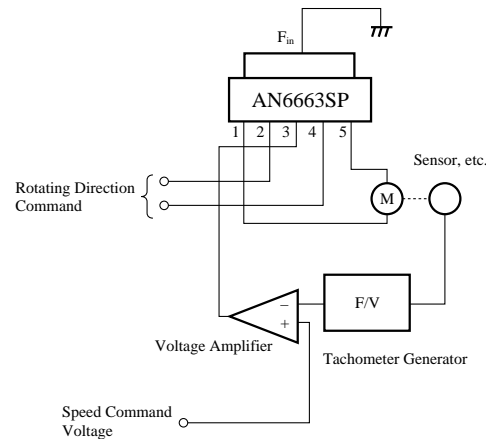
## ■ Application Circuit

- AN6663SP

1. Basic Circuit



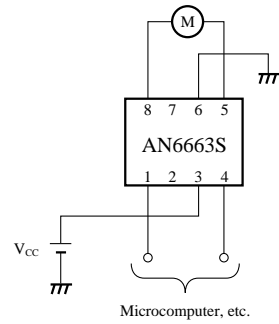
2. When Controlling Speed



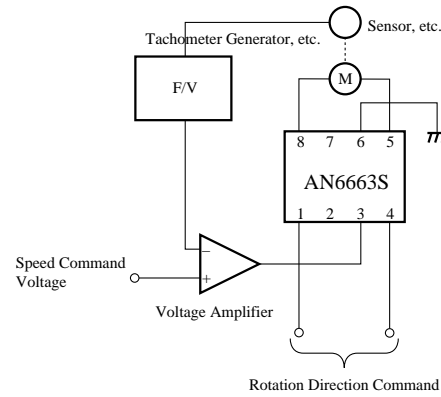
## ■ Application Circuit(Cont.)

### • AN6663S

#### 1. Basic Circuit



#### 2. When Controlling Speed



## ■ Pin Descriptions

Pin No.		Pin name	Description	I/O impedance	Equivalent circuit
AN6663SP	AN6663S				
1	8	Output pin 1 $V_{O1}$	Pin to connect the motor coil	—	
2	1	Input pin 1 $V_{I1}$	Input pin to determine the motor rotating direction	Approx. 10k $\Omega$	
3	3	Supply voltage $V_{CC}$	Pin to input the supply voltage	—	—
4	4	Input pin 2 $V_{I2}$	Input pin to determine the motor rotating direction	Approx. 10k $\Omega$	
5	5	Output pin 2 $V_{O2}$	Pin to connect the motor coil	—	

The numbers marked with \* are the AN6663S

## ■ Pin Descriptions (Cont.)

Pin No.		Pin name	Description	I/O impedance	Equivalent circuit
AN6663SP	AN6663S				
FIN	6	Ground pin GND	Ground pin	—	—————
—	2, 7	NC	NC for the AN6663S	—	—————

## ■ Supplementary Explanation

### • Precautions on Use

1 Truth table

$V_{I1}$	$V_{I2}$	$V_{O1}$	$V_{O2}$	Motor operation
L	L	HiZ	HiZ	Motor stop
H	L	L	H	Forward rotation
L	H	H	L	Reverse rotation
H	H	L	L	Brake

2 The input voltage of the input pins  $V_{I1}$  and  $V_{I2}$  can be applied up to twice larger than  $V_{CC}$  (it should not exceed 18V).