

BA6246 BA6246N BA6247 BA6247N BA6249 BA6249N

The BA6246, BA6246N, BA6247, BA6247N, BA6249, and BA6249N contain two reversible motor drivers.

The three types differ in their control logic and output mode.

The BA6246N, BA6247N, and BA6249N are SLP 10-pin package ICs.

● Features

- (1) Built-in Two reversible motor drivers.
- (2) Built-in T.S.D. circuit.
- (3) The output voltage setting terminal can set the output voltage at any desired value.

● Electrical Characteristics

Absolute maximum rating (Ta=25℃)

Parameter	Symbol	Rating		Unit
		BA6246N BA6247N BA6249N	BA6246 BA6247 BA6249	
Supply voltage	V _{CC}	20	20	V
Power dissipation	P _d	1000 ※1	2200 ※3	mW
Operating temperature range	T _{OPR}	−25~+75	−25~+75	℃
Storage temperature range	T _{STG}	−55~+125	−55~+125	℃
Input voltage range	V _{IN}	−0.2~+6	−0.2~+6	V
Output current	I _O	1.0 ※2	1.0 ※4	A

※1 To use at temperatures over Ta=25℃, derate 10mW per 1℃.

※2 Pulse with duty 1/50 : 50ms

※3 To use at a temperature higher than Ta=25℃, derate 22mW per 1℃.

※4 Pulse with duty 1/50 : 50ms

Electrical characteristics (Unless otherwise specified, Ta=25℃, V_{CC}=12V)

Parameter	Symbol	Standard value			Unit	Condition
		Min.	Typ.	Max.		
Operating voltage range	V _{CC1} V _{CC2}	8	—	18	V	
Output reference voltage (pin8)	V _R	—	—	18	V	
Quiescent device current	BA6246N	I _{CC}	—	7	mA	pin4, 5, 6; "L"
	BA6247N		—	10		
	BA6249N		—	12		
Input voltage L level	V _{IL}	—	—	1.0	V	pin4, 5, 6

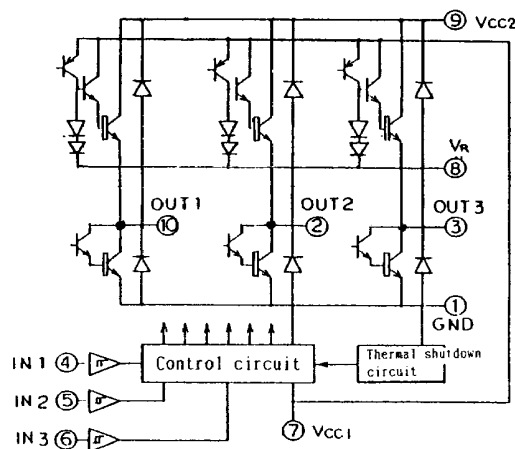
Electrical characteristics (Unless otherwise specified, $T_a=25^{\circ}\text{C}$, $V_{CC}=12\text{V}$)

Parameter	Symbol	Standard value			Unit	Condition
		Min.	Typ.	Max.		
Input voltage H level	V_{IH}	3.5	—	—	V	pin4, 5, 6
Output L voltage	V_{OL}	—	0.9	1.5	V	pin8; OPEN, $I_o=0.5\text{A}$
Output H voltage (pin2, 3, 10)	V_{OH}	10.0	10.5	—	V	pin8; OPEN, $I_o=0.5\text{A}$
Output offset voltage (pin2, 3, 10)	V_{ofs}	-0.5	0	0.5	V	$V_R=6\text{V}$, $I_o=0.5\text{A}$ Difference between V_R and output voltage
Pin 8 output current	I_o	0.5	0.8	1.6	mA	$V_R=6\text{V}$, $I_o=0.5\text{A}$

● input Truth Table

Input			Output								
Common to all types			BA6246 BA6246N			BA6247 BA6247N			BA6249 BA6249N		
pin4	pin5	pin6	pin10	pin2	pin3	pin10	pin2	pin3	pin10	pin2	pin3
L	L	L	L	L	L	L	L	L	OPEN	OPEN	OPEN
		H	L	L	L	L	L	L	OPEN	OPEN	OPEN
H	L	L	H	L	OPEN	H	L	OPEN	H	L	OPEN
H	L	H	L	H	OPEN	L	H	OPEN	L	H	OPEN
L	H	L	H	OPEN	L	H	OPEN	L	H	OPEN	L
L	H	H	L	OPEN	H	L	OPEN	H	L	OPEN	H
H	H	L	OPEN	OPEN	OPEN	L	L	L	L	L	L
		H	OPEN	OPEN	OPEN	L	L	L	L	L	L

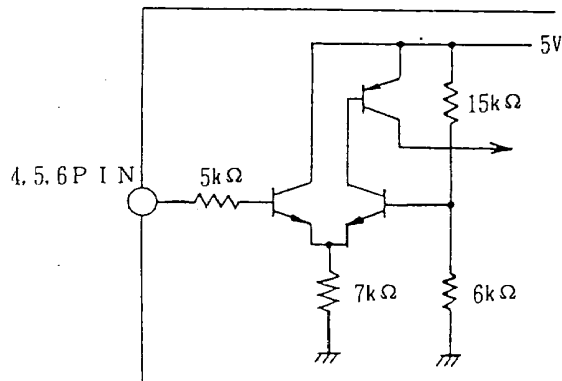
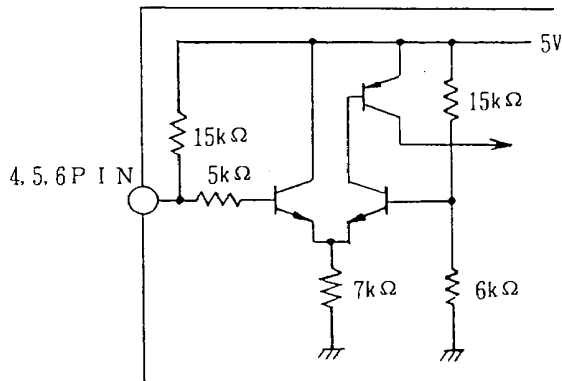
● Block Diagram (common)



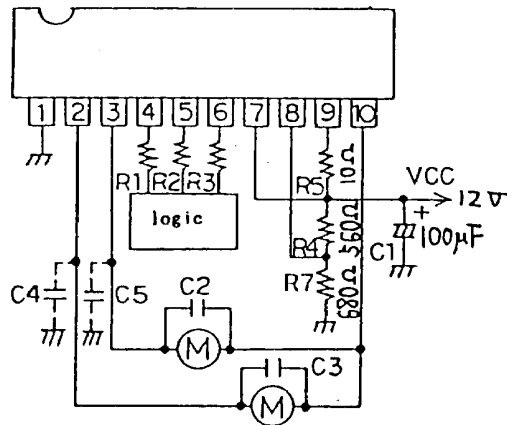
● Control Terminal

BA6246
BA6246N

BA6247, BA6249
BA6247N, BA6249N



● Typical Application Circuit (common)



※ Typical circuit for a motor rated 6V and 100mA at $V_{CC}=12V$.

C2, C3 : Capacitors to prevent parasitic oscillation (0.01 to $1\mu F$ is recommended although it depends on the mounting, power supply circuit, motor characteristics, and copper foil pattern artwork).

C4, C5 : Capacitors to prevent parasitic oscillation.

Value depend on the mounting, (0.01 to $10\mu F$ is recommended).

●Cautions

1. Input condition

- (1) The input threshold voltage has a positive temperature coefficient and is expressed by:

$$\frac{\Delta V_{IH}}{\Delta T} \approx +2.8 \text{ mV} / ^\circ\text{C} \qquad \frac{\Delta V_{IL}}{\Delta T} \approx +1.6 \text{ mV} / ^\circ\text{C} \text{ (Typ.)}$$

- (2) The BA6246 and BA6246N input terminals are pulled up to about 15k Ω (see the control terminal diagram). To secure the input level, apply an interface capable of sinking a current of 700 μA ($5\text{V}/15\text{k}\times 2$).
- (3) Be careful that the input voltage does not exceed 6V (max).

2. Changing between normal and reverse rotation

To change the rotating direction of a running motor, first apply the brake or open mode to the motor.

The required time is:

Braking: More than the braking time. When the rotation mode is changed to brake mode, some time is needed for the output "L" terminal to be dropped to GND potential by the motor's electromotive force. This is defined as the braking time.

Open : 1 μsec or more

3. When the mode is changed, C2 to C5 may momentarily prevent the motor from moving, check this is the case.

4. We recommend that you time the supply voltage so that when power is supplied, V_{CC1} rises before V_{CC2} does, and when power is turned on, V_{CC1} falls before V_{CC2} does.

5. T.S.D. circuit

The T.S.D. circuit opens the output, when the junction temperature rises to about 170 $^\circ\text{C}$.

This is released when the temperature drops by about 30 $^\circ\text{C}$.