# Reversible motor driver
## BA6109

The BA6109 is a monolithic IC used for driving reversible motors. Two control logic inputs allow three output modes : forward, reverse, and stop.
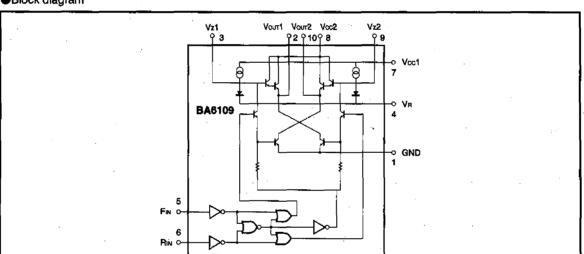
When switching from the forward or reverse mode to the stop mode, a brake is applied by absorbing the counter-electromotive force of the motor. The IC has a built-in function to absorb motor rush currents that occur when switching the output mode.

Output voltage is determined by the external constant voltage diode connected between pin 4 and GND. The motor drive transistor can tolerate a rush current of up to 800mA. The IC can drive motors with various operating voltages. Because the IC operates with a current less than 50 $\mu$A, you can directly connect the IC with CMOSs or other control logic outputs.

●Features

1) Motor driving power transistors are built in; a rush current up to 800mA is allowable.
2) Brake is applied when stopping the motor.
3) Built-in function to absorb motor rush currents.

4) Interfaces with MOS LSI devices.
5) Small number of external parts.
6) Wide range of operating supply voltage (6 ～ 18V).
7) Available in a 10-pin SIP package.

●Block diagram
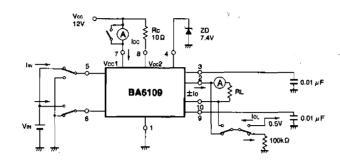
ROHM

●Measurement circuit



Fig.1

●Absolute maximum ratings (Ta=25℃)

| Parameter | Symbol | Limits | Unit |
|---|---|---|---|
| Power supply voltage | $V_{CC}$ | 18 | V |
| Power dissipation | Pd | 2200*1 | mW |
| Operating temperature | Topr | −25~75 | ℃ |
| Storage temperature | Tstg | −55~125 | ℃ |
| Output current | $I_{OUT}$ | 800*2 | mA |
| Input voltage | $V_{IN}$ | −0.3~$V_{CC}$ | V |

| FIN | RIN | $V_{out1}$ | $V_{out2}$ |
|---|---|---|---|
| 1 | 1 | L | L |
| 0 | 1 | L | H |
| 1 | 0 | H | L |
| 0 | 0 | L | L |

*1 Refer to the power damping characteristics for details.
*2 500 μs pulse with a duty ratio of 1%.

Input level 1 is 2.0 V or more
Input level 2 is 0.7 V or less

●Electrical characteristics (unless otherwise noted, Ta=25℃ and $V_{CC1}$=12V)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions | Measurement Circuit |
|---|---|---|---|---|---|---|---|
| Operating supply voltage 1 | $V_{CC1}$ | 6.0 | — | 18.0 | V | — | Fig.1 |
| Operating supply voltage 2 | $V_{CC2}$ | — | — | 18.0 | V | — | Fig.1 |
| Quiescent current | $I_Q$ | — | 15.0 | 30.0 | mA | 5, 6pin : GND, $R_L$=∞ | Fig.1 |
| Minimum input ON current | $I_{IN}$ | — | 10.0 | 50.0 | μA | $R_L$=∞ | Fig.1 |
| Input threshold voltage | $V_{INT}$ | 0.7 | — | 2.0 | V | $R_L$=∞ | Fig.1 |
| Output leakage current | $I_{OL}$ | — | — | 1.0 | mA | 5, 6pin : GND, $R_L$=∞ | Fig.1 |
| Output voltage | $V_O$ | 5.2 | 5.8 | 6.9 | V | $R_L$=60Ω, ZD=7.4V | Fig.1 |

●External dimensions (Units: mm)



HSIP10