

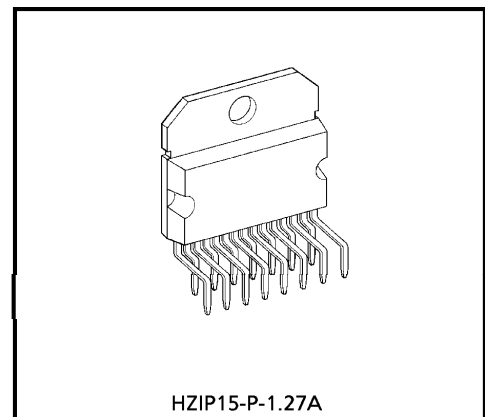
TA8082H

DUAL DC MOTOR DRIVER

The TA8082H contains two motor driver circuits with a current capacity of 1.5A for directly driving bidirectional DC motors. Inputs DI1A/B and DI2A/B are combined to select one of forward, reverse, stop, and brake modes. Since the inputs are TTL-compatible, this IC can be controlled directly from a CPU or other control system. In addition, the IC also has a low standby current function, a self-diagnostic function, and various protective functions.

FEATURES

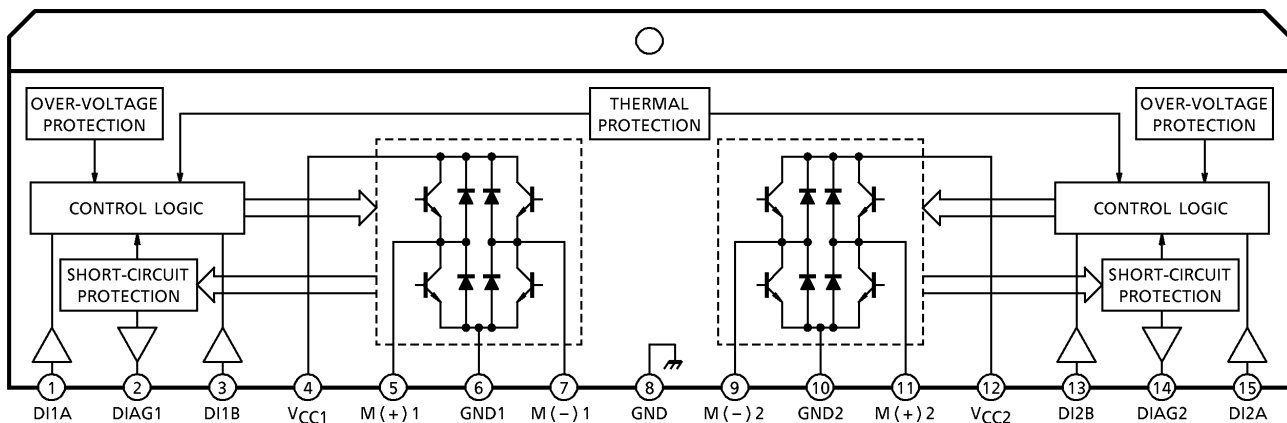
- 1.5A bidirectional DC motor driver
- Two circuits contained (power supply, self-diagnostic, and protective functions provided for each)
- Low standby current : 0.5mA (Max.)
- Self-diagnostic output
 - Short-circuit : 3A
 - Open : 10mA
- Multiple protective functions : Short-circuit, thermal-shutdown, over-voltage protection
- Built-in counter electromotive force absorption diodes.
- Plastic HZIP-15pin



HZIP15-P-1.27A

Weight : 5.7g (Typ.)

BLOCK DIAGRAM AND PIN LAYOUT



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PIN DESCRIPTION

| PIN No. | | SYMBOL | | DESCRIPTION |
|---------|----------|-------------------|-------------------|---|
| CH1 | CH2 | CH1 | CH2 | |
| 1 3 | 15 13 | DI1A DI1B | DI2A DI2B | Input pin. The signal from this pin controls the output state. (See TRUTH TABLE 1.) |
| 2 | 14 | DIAG1 | DIAG2 | Self-diagnosis output pin. (See TRUTH TABLE 2 and TIMING CHART.) This signal goes low when the output encounters over-current condition or is opened, whereas it goes high during normal operation or at the time of stop. This pin supplies an NPN open-collector output. |
| 4 | 12 | V _{CC1} | V _{CC2} | Power supply pin. This pin has a function to turn off the output when the applied voltage exceeds 32.5V, thus protecting the IC and the motor load. |
| 5 | 11 | M(+) ₁ | M(+) ₂ | Connects to the DC motor. Both the sink and the source have a current capacity of 1.5A. The circuit has a short-circuit protection function which protects the IC from load short-circuit, ground fault, or direct connection to high power. Diodes for absorbing counter electromotive force are contained on the V _{CC} and GND sides. |
| 6 | 10 | GND1 | GND2 | Grounded pin for output section. |
| 7 | 9 | M(-) ₁ | M(-) ₂ | Connects to the motor for CH1 together with pin 2 and has the same function as pin 2. This pin is controlled by the inputs from pins 6 and 7. |
| 8 | | GND | | Grounded. |

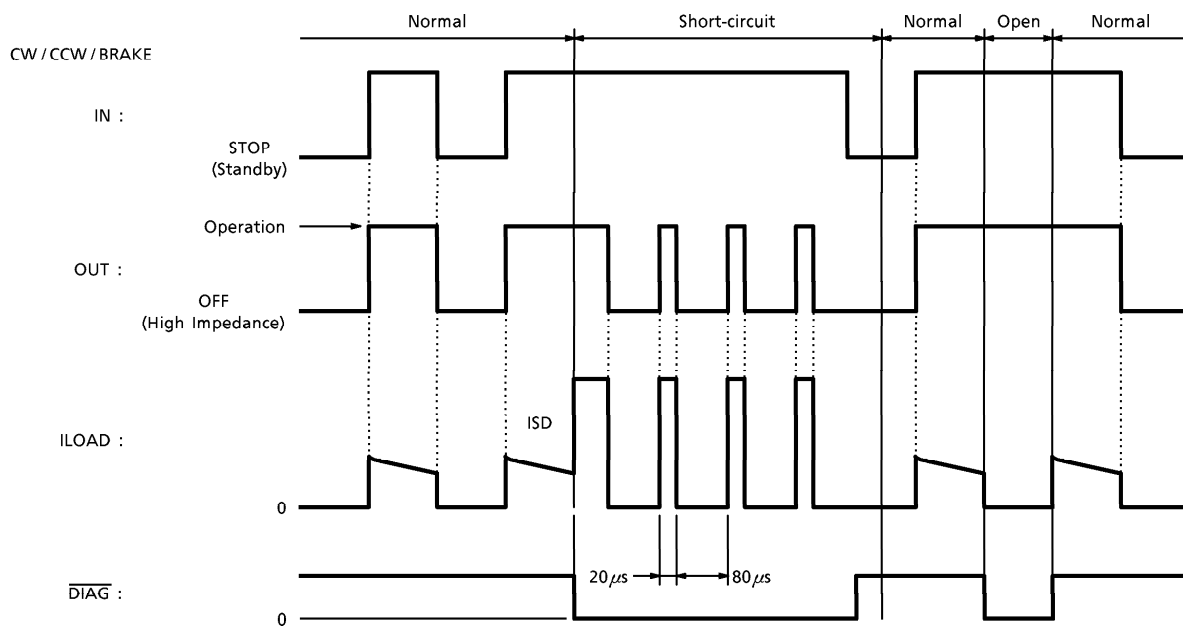
TRUTH TABLE 1 INPUT / OUTPUT

| INPUT | | OUTPUT | | OPERATION MODE |
|--------|--------|----------------------|---------------------|----------------|
| DI1/2A | DI1/2B | M(+) _{1/2} | M(-) _{1/2} | |
| H | H | L | L | Brake |
| L | H | L | H | Reverse (CCW) |
| H | L | H | L | Forward (CW) |
| L | L | OFF (High impedance) | | Stop (Standby) |

TRUTH TABLE 2 SELF-DIAGNOSIS

| INPUT | | OUTPUT | | DIAG |
|--------|--------|--------|--------|------|
| DI1/2A | DI1/2B | MODE | LOAD | |
| H | H | Brake | Normal | H |
| | | | Short | L |
| | | | Open | H |
| H/L | H/L | CCW/CW | Normal | H |
| | | | Short | L |
| | | | Open | L |
| L | L | Stop | — | H |

SELF-DIAGNOSIS TIMING CHART



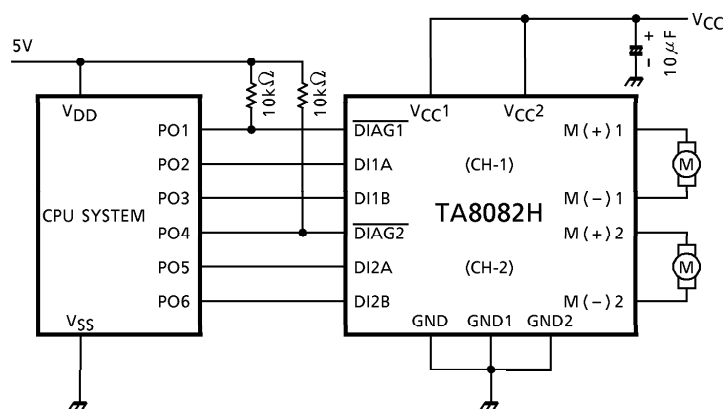
MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------|--------------------|----------------------|------|
| Power Supply Voltage | V _{CC} | 30 | V |
| | V _{CC} | 60 (1s) | |
| Input Voltage | V _{IN} | -0.3~V _{CC} | V |
| Output Current | I _{O AVE} | 1.5 | A |
| Power Dissipation | P _D | 25 | W |
| Operating Temperature | T _{opr} | -40~110 | °C |
| Storage Temperature | T _{stg} | -55~150 | °C |
| Lead Temperature-time | T _{sol} | 260 (10s) | °C |

ELECTRICAL CHARACTERISTICS ($V_{CC} = 6 \sim 16V$, $T_c = -40 \sim 110^\circ C$)

| CHARACTERISTIC | SYMBOL | PIN | TEST CIRCUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------------|-------------------|--------------------------------|--------------|---------------------------------|------|------|------|--------------|
| Power Supply Current | I_{CC1} | V_{CC1}/V_{CC2} | — | CH1 / 2 Stop | — | 0.2 | 0.5 | mA |
| | I_{CC2} | | — | CH1 or 2 CW / CCW | — | 20 | 40 | |
| | I_{CC3} | | — | CH1 / 2 CW / CCW | — | 40 | 80 | |
| | I_{CC4} | | — | CH1 / 2 Brake | — | 16 | 30 | |
| Input Voltage | V_{IL} | DI1A / B DI2A / B | — | — | — | — | 0.8 | V |
| | V_{IH} | | — | — | 2.0 | — | — | |
| Input Current | I_{IL} | DI1A / B DI2A / B | — | $V_{IN} = 0.4V$ | — | 10 | 20 | μA |
| | I_{IH} | | — | $V_{IN} = V_{CC}$ | — | 140 | 300 | |
| Output Saturation Voltage | $V_{sat} (total)$ | | — | $I_O = 1.5A, T_c = 25^\circ C$ | — | 2.2 | 2.9 | V |
| | | | — | $I_O = 1.5A, T_c = 110^\circ C$ | — | 2.2 | 2.8 | |
| Output Leakage Current | $I_{LEAK.U}$ | 1M (+) / (-) / 2M (+) / (-) | — | $V_{OUT} = 0V$ | — | — | -10 | μA |
| | $I_{LEAK.L}$ | | — | $V_{OUT} = V_{CC}$ | — | — | 10 | |
| Diode Forward Voltage | $V_{F.U}$ | | — | $I_F = 1.5A$ | — | 2.6 | — | V |
| | $V_{F.L}$ | | — | | — | 1.5 | — | |
| Output Voltage | V_{OUT} | DIAG1 / 2 | — | $I_{OL} = 3mA$ | — | 0.2 | 0.5 | V |
| Output Leakage Current | I_{LEAK} | | — | $V_{OUT} = V_{CC}$ | — | — | 5 | μA |
| Over-current Detection | I_{SD} | — | — | — | 2 | 3 | 4 | A |
| Load-open Detection | I_{OS} | — | — | — | 5 | 10 | 20 | mA |
| Shutdown Temperature | T_{SD} | — | — | — | — | 150 | — | $^\circ C$ |
| Over-voltage Detection | V_{SD} | — | — | — | 30 | 32.5 | 35 | V |
| Thermal Resistance | $R\theta_{j-c}$ | — | — | — | — | 4 | — | $^\circ C/W$ |
| Transfer Delay Time | t_{pLH} | — | — | — | — | 1 | 10 | μs |
| | t_{pHL} | — | — | — | — | 1 | 10 | |

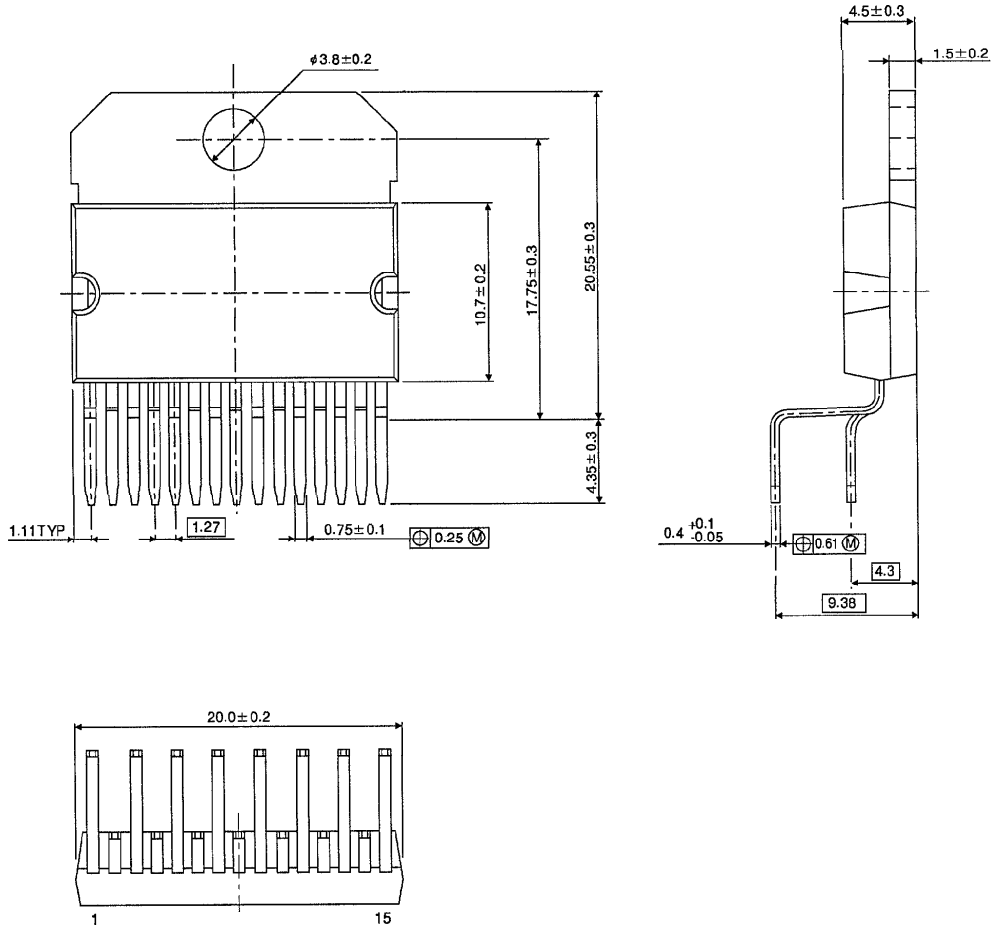
EXAMPLE OF APPLICATION CIRCUIT



- (*) Cautions for wirings
- C₁ is for absorbing disturbance, noise, etc. Connect it as close to the IC as possible.

OUTLINE DRAWING
HZIP15-P-1.27A

Unit : mm



Weight : 5.7g (Typ.)