

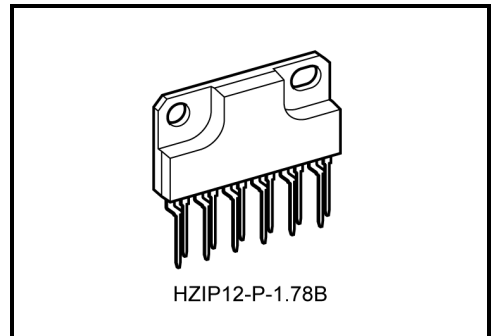
# TA8061H

## DUAL HIGHSIDE DRIVER WITH DIAGNOSIS

The TA8061H is a 1.5A highside driver containing two circuits. Each circuit has a self-diagnostic function which produces a diagnostic output. The input is TTL-compatible. This IC has other various protective functions

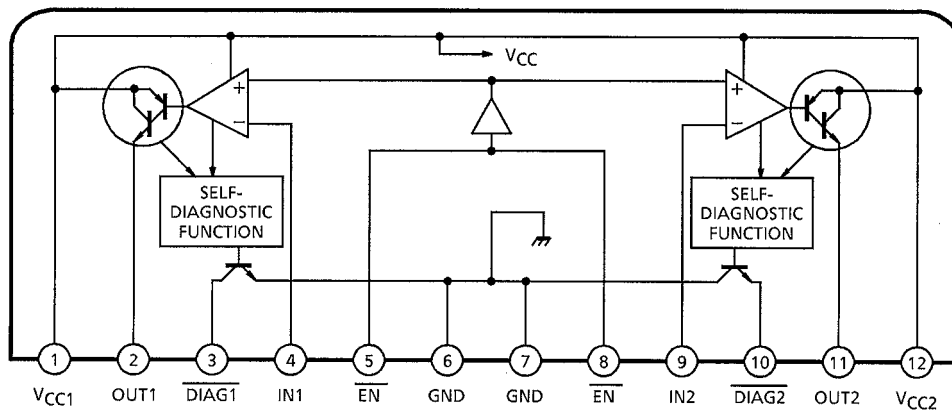
### FEATURES

- Output current capacity : 1.5A
- Diagnostic function : Load-open (10mA or less) and over-current (3A or more) detection
- Protective function : Short-circuit protection (latch) and thermal-shutdown / over-voltage protection (nonlatch)
- Low standby current : 0.5mA (max.)
- Two circuits contained
- Power package HZIP-12pin

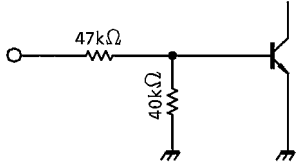


Weight: 4.0 g (typ.)

### BLOCK DIAGRAM AND PIN LAYOUT



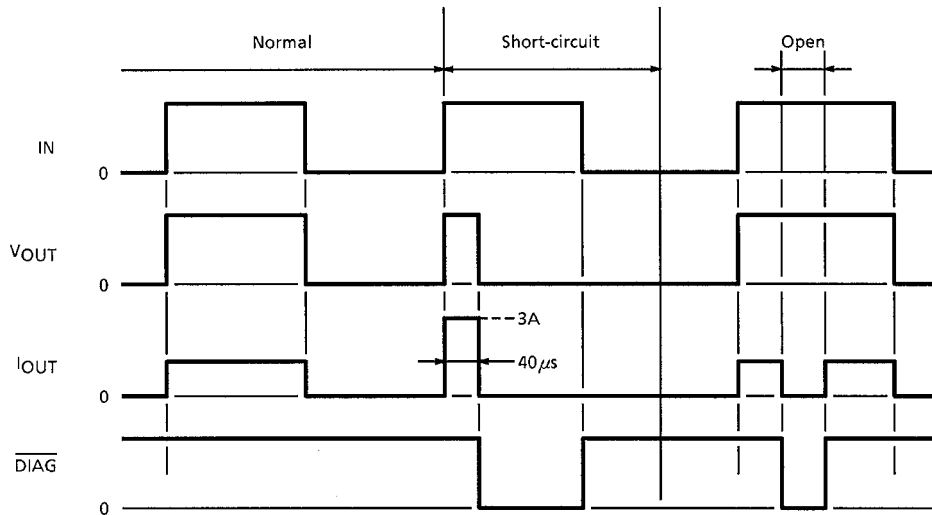
## PIN DESCRIPTION

| PIN No. | SYMBOL                   | DESCRIPTION  |
|---------|--------------------------|--|
| 1, 12   | V <sub>CC</sub>          | Power supply pin. A function for protection against over-voltage is provided so that the output will turn off when the applied voltage exceeds 27.5V (Typ.). This function works to protect the IC and load.   |
| 2, 11   | OUT                      | PNP-type complementary output pin with a current capacity of 1.5A. When the output pin is supplied with a current exceeding the detection current (typically 3A) because of load short-circuit, the output is latched to the OFF state to protect the IC. To restart, turn off the input once, then raise it high. |
| 3, 10   | $\overline{\text{DIAG}}$ | Self-diagnosis detection pin. This signal goes low when the output is short-circuited or opened while the input is on (high). The output will be latched when the load is short-circuited, but will not when the load is opened. This pin supplies an NPN open-collector output.                                   |
| 4, 9    | IN                       | TTL-compatible input pin. The circuit is shown as follows.<br>   |
| 5, 8    | $\overline{\text{EN}}$   | When this signal goes high, both channels 1 and 2 are placed in standby state (0.5mA Max.).  |
| 6, 7    | GND                      | Grounded.  |

## TRUTH TABLE

| IN | OUT        |          | $\overline{\text{DIAG}}$ |
|----|------------|----------|--------------------------|
| H  | H<br>(ON)  | Normal   | H                        |
|    |            | Abnormal | L                        |
| L  | L<br>(OFF) | —        | H                        |

## TIMING CHART



## MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC        | SYMBOL           | RATING               | UNIT |
|-----------------------|------------------|----------------------|------|
| Power Supply Voltage  | V <sub>CC</sub>  | 30                   | V    |
|                       | V <sub>CC</sub>  | 60 (1s)              |      |
| Input Voltage         | V <sub>IN</sub>  | 18                   | V    |
| Output Voltage        | V <sub>OUT</sub> | -0.3~V <sub>CC</sub> | V    |
| Output Current        | I <sub>OUT</sub> | 1.5                  | A    |
| Power Dissipation     | P <sub>D</sub>   | 25                   | W    |
| Operating Temperature | T <sub>opr</sub> | -40~110              | °C   |
| Storage Temperature   | T <sub>stg</sub> | -55~150              | °C   |
| Lead Temperature time | T <sub>sol</sub> | 260 (10s)            | °C   |

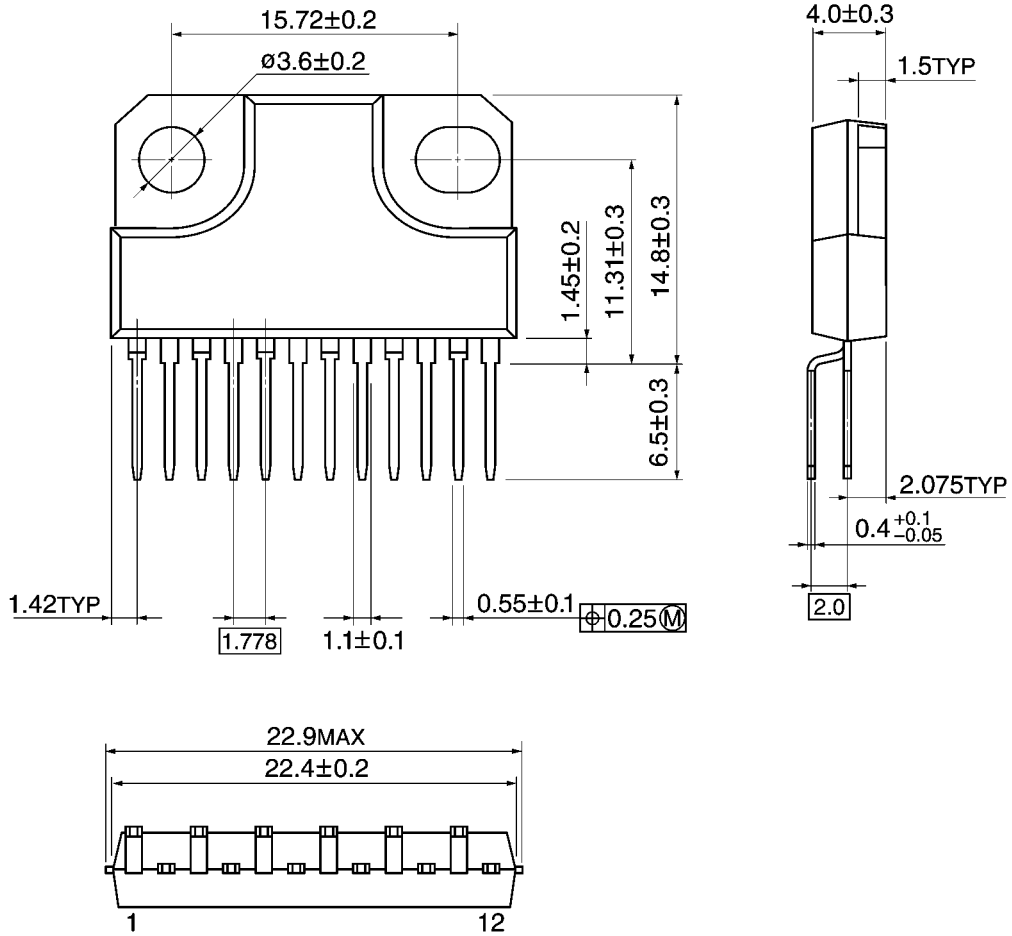
## ELECTRICAL CHARACTERISTICS ( $V_{CC} = 12V$ , $T_a = 25^\circ C$ )

| CHARACTERISTIC         | SYMBOL     | PIN                   | TEST CIR-CUIT | TEST CONDITION                 | MIN  | TYP. | MAX  | UNIT       |
|------------------------|------------|-----------------------|---------------|--------------------------------|------|------|------|------------|
| Power Supply Current   | $I_{CC}$   | $V_{CC1,2}$           | —             | In standby state               | —    | —    | 0.5  | mA         |
|                        |            |                       | —             | $\overline{EN} = "L"$ IN = "L" | —    | 4    | 8    |            |
|                        |            |                       | —             | CH1 or CH2 = ON                | —    | 20   | 40   |            |
|                        |            |                       | —             | CH1, CH2 = ON                  | —    | 35   | 60   |            |
| Input Voltage          | $V_{IH}$   | IN1, 2                | —             |                                | 2    | —    | —    | V          |
|                        | $V_{IL}$   |                       | —             |                                | -0.3 | —    | 0.8  |            |
| Input Current          | $I_{IH}$   | IN1, 2                | —             | $V_{IN} = 3V$                  | —    | —    | 0.12 | mA         |
|                        | $I_{IL}$   |                       | —             | $V_{IN} = 0.8V$                | —    | —    | 0.03 |            |
| Output Voltage         | $V_{OH}$   | OUT1, 2               | —             | $I_{OUT} = 1A$                 | —    | 1.2  | 1.5  | V          |
|                        | $V_{OL}$   | $\overline{DIAG1, 2}$ | —             | $I_{OUT} = 3mA$                | —    | 0.2  | 0.5  |            |
| Output Leakage Current | $I_{LEAK}$ | OUT1, 2               | —             | $V_{OUT} = 0V$                 | —    | —    | 10   | $\mu A$    |
|                        |            | $\overline{DIAG1, 2}$ | —             | $V_{OUT} = 5V$                 | —    | —    | 10   |            |
| Over-current Detection | $I_{SD1}$  | OUT1, 2               | —             |                                | —    | 3.0  | —    | A          |
| Load-Open Detection    | $I_{SD2}$  | OUT1, 2               | —             |                                | —    | 25   | —    | mA         |
| Over-voltage Detection | $V_{SD}$   | $V_{CC1,2}$           | —             |                                | —    | 27.5 | —    | V          |
| Shutdown Temperature   | $T_{SD}$   |                       | —             |                                | —    | 150  | —    | $^\circ C$ |
| Transfer Delay Time    | $t_{pLH}$  | OUT1, 2               | —             | $I_{OUT} = 1A$                 | —    | 1    | —    | $\mu s$    |
|                        | $t_{pHL}$  |                       |               |                                | —    | 5    | —    |            |

## PACKAGE DIMENSIONS

HZIP12-P-1.78B

Unit: mm



Weight: 4.0g (Typ.)

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