

**SANYO**

No.3185A

**LB9052**

Monolithic Digital IC

Switching Type Hall IC

The LB9052 is a Hall IC that is operated in the presence of an alternating magnetic field and produces a digital output. The LB9052 contains a silicon Hall generator, an amplifier, a Schmitt trigger circuit on chip and especially suited for detection of magnetism (ex. detection of the rotation of a small magnet-used substance).

**Applications**

- Detection of magnetism
- Contactless switch
- Detection of the rotation, position of a magnetic substance

**Features**

- Wide operating voltage range (3.6 to 16V)
- Operated in the presence of an alternating magnetic field
- High sensitivity (sensitive to low magnetism)
- Output capable of direct driving a TTL, MOS IC
- Small SEP package

**Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$** 

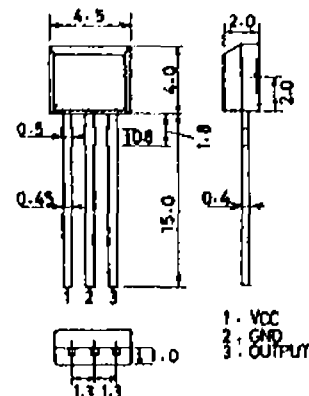
|                             |                                      |             | unit             |
|-----------------------------|--------------------------------------|-------------|------------------|
| Maximum Supply Voltage      | $V_{CC\max}$                         | 18          | V                |
| Maximum Supply Current      | $I_{CC\max}$                         | 8           | mA               |
| Maximum Output Current      | $I_{O\max}$                          | 20          | mA               |
| Allowable Power Dissipation | $P_{d\max}$ $T_a = 85^\circ\text{C}$ | 100         | mW               |
| Operating Temperature       | $T_{opg}$                            | -40 to +85  | $^\circ\text{C}$ |
| Storage Temperature         | $T_{stg}$                            | -55 to +125 | $^\circ\text{C}$ |

**Allowable Operating Range at  $T_a = 25^\circ\text{C}$** 

|                         |                   |           | unit |
|-------------------------|-------------------|-----------|------|
| Operating Voltage Range | $V_{CC\text{op}}$ | 3.6 to 16 | V    |

**Case Outline 3105-S31C**

(unit : mm)



The application circuit diagrams and circuit constants herein are included as an example and provide no guarantee for designing equipment to be mass-produced. The information herein is believed to be accurate and reliable. However, no responsibility is assumed by SANYO for its use; not for any infringements of patents or other rights of third parties which may result from its use.

Specifications and information herein are subject to change without notice.

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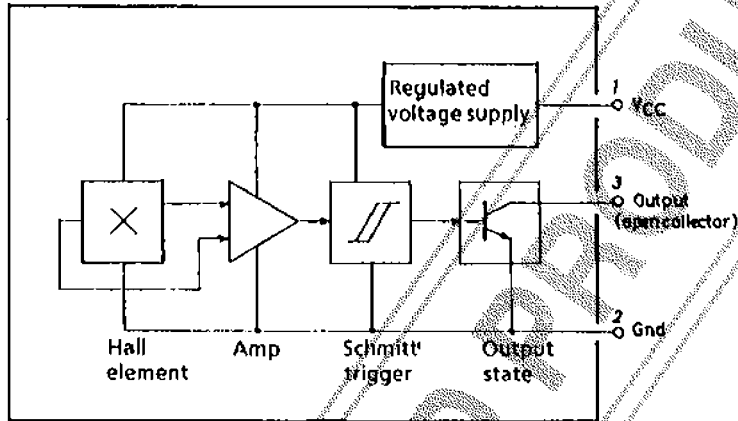
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# LB9052

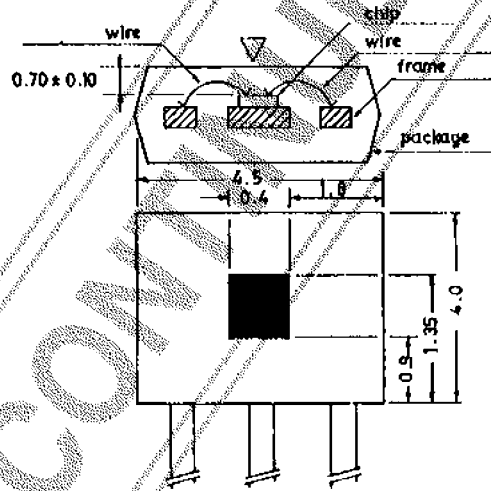
## Electrical Characteristics at $T_a = 25^\circ\text{C}$

|                          |           |  | min | typ | max | unit          |
|--------------------------|-----------|--|-----|-----|-----|---------------|
| Release Point            | $B_{LH}$  | $V_{CC} = 12\text{V}, V_O: L \rightarrow H$                                  | 100 |     |     | Gauss         |
| Operate Point            | $B_{HL}$  | $V_{CC} = 12\text{V}, V_O: H \rightarrow L$                                  |     |     | 600 | Gauss         |
| Output 'L'-Level Voltage | $V_{OL1}$ | $V_{CC} = 16\text{V}, I_O = 12\text{mA}, B = 600\text{Gauss}$                |     |     | 0.4 | V             |
|                          | $V_{OL2}$ | $V_{CC} = 3.6\text{V}, I_O = 12\text{mA}, B = 600\text{Gauss}$               |     |     | 0.4 | V             |
| Output Current           | $I_{OH}$  | $V_{CC} = 3.6\text{V to } 16\text{V}, V_O = 18\text{V}, B = 600\text{Gauss}$ |     |     | 10  | $\mu\text{A}$ |
| Supply Current           | $I_{CC1}$ | $V_{CC} = 16\text{V}$  |     |     | 6   | $\text{mA}$   |
|                          | $I_{CC2}$ | $V_{CC} = 3.6\text{V}$   |     |     | 6.5 | $\text{mA}$   |

## Pin Assignment and Block Diagram



## Location of the Hall Generator and Cross-Sectional View of the Hall IC



The Hall generator is located in the dashed area.

## Magnetic Flux to Electric Voltage Transduce Characteristic

