



# LB9051

## Switching Type Hall IC

### Overview

The LB9051 is a Hall IC that is operated in the presence of an alternating magnetic field and produces a digital output. The LB9051 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.

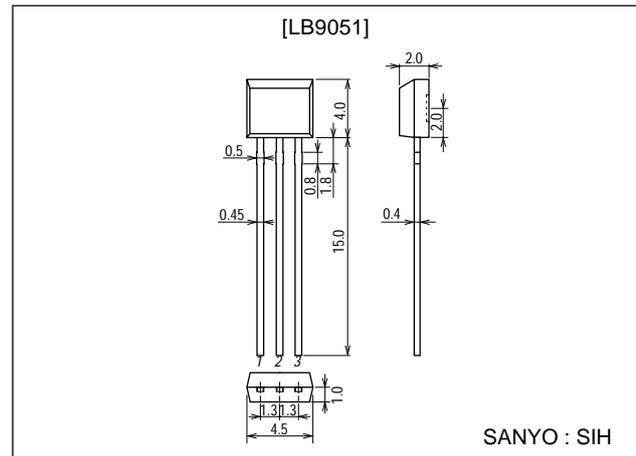
### Features

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

### Package Dimensions

unit:mm

3105-SIH



### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC</sub> max		18	V
Maximum supply current	I <sub>CC</sub> max		8	mA
Maximum output current	I <sub>O</sub> max		20	mA
Allowable power dissipation	Pd max	Ta=80°C	100	mW
Operating temperature	Topr		-40 to +85	°C
Storage temperature	Tstg		-55 to +125	°C

#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Release point	B <sub>LH</sub>	V <sub>CC</sub> =12V, V <sub>O</sub> : L → H	-300			Gauss
Operate point	B <sub>HL</sub>	V <sub>CC</sub> =12V, V <sub>O</sub> : H → L			300	Gauss
Output low-level voltage	V <sub>OL1</sub>	V <sub>CC</sub> =16V, I <sub>O</sub> =12mA, B=300Gauss			0.4	V
	V <sub>OL2</sub>	V <sub>CC</sub> =3.6V, I <sub>O</sub> =12mA, B=300Gauss			0.4	V
Output high-level voltage	V <sub>OH1</sub>	V <sub>CC</sub> =16V, I <sub>O</sub> =-30μA, B=-300Gauss	14.6			V
	V <sub>OH2</sub>	V <sub>CC</sub> =3.6V, I <sub>O</sub> =-30μA, B=-300Gauss	2.2			V

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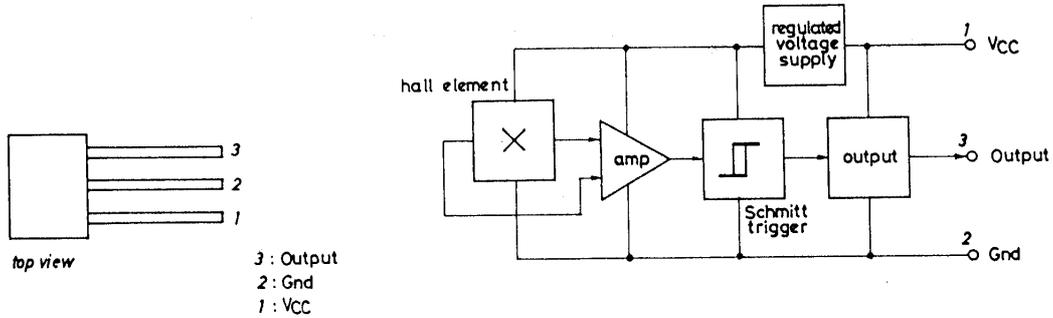
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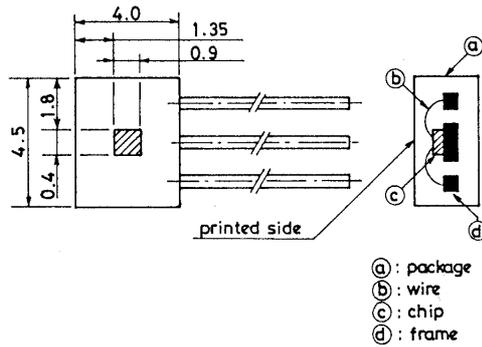
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output short current	$-I_{OS}$	$V_{CC}=16V, V_O=0V, B=-300\text{Gauss}$	0.4		0.9	mA
Supply current	$I_{CC1}$	$V_{CC}=16V$			6	mA
	$I_{CC2}$	$V_{CC}=3.6V$			5.5	mA

## Pin Assignment and Block Diagram

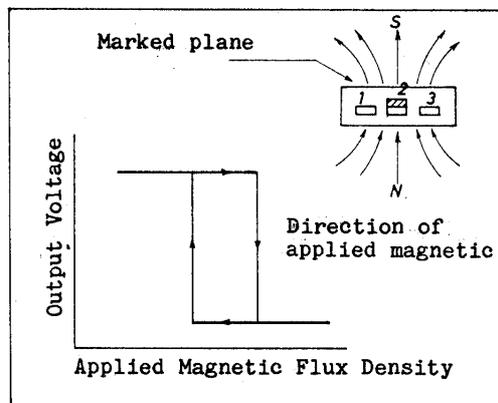


## Location of the Hall Generator and Cross-sectional View of the Hall IC



The Hall generator is located in the dashed area.

## Magnetic Flux to Electric Voltage Transduce Characteristic



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