



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.

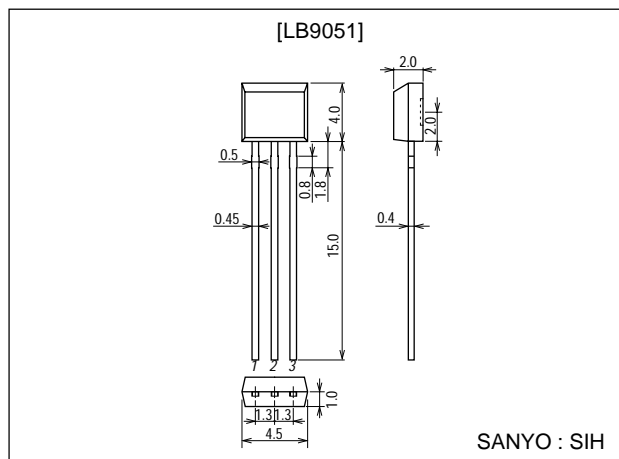
Features

- 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 _{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	Ta=80°C	100	mW
Operating temperature	T _{opr}		-40 to +85	°C
Storage temperature	T _{stg}		-55 to +125	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Release point	B _{LH}	V _{CC} =12V, V _O : L → H	-300			Gauss
Operate point	B _{HIL}	V _{CC} =12V, V _O : H → L			300	Gauss
Output low-level voltage	V _{OL1}	V _{CC} =16V, I _O =12mA, B=300Gauss			0.4	V
	V _{OL2}	V _{CC} =3.6V, I _O =12mA, B=300Gauss			0.4	V
Output high-level voltage	V _{OH1}	V _{CC} =16V, I _O =-30μA, B=-300Gauss	14.6			V
	V _{OH2}	V _{CC} =3.6V, I _O =-30μA, B=-300Gauss	2.2			V

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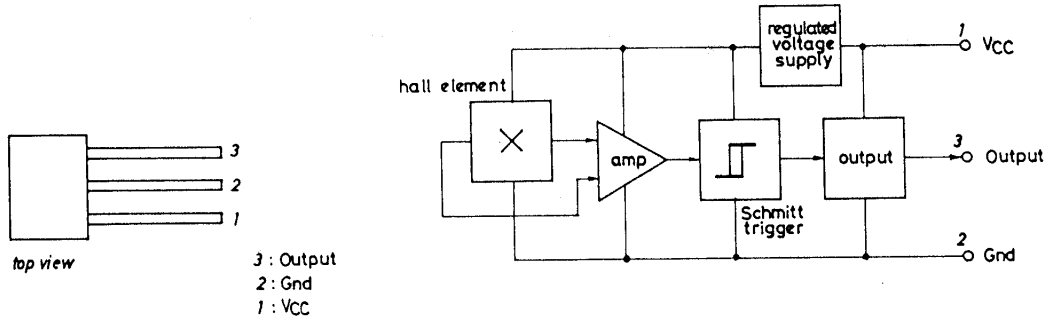
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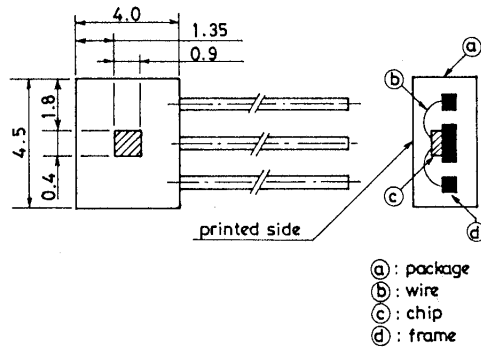
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output short current	$-I_{OS}$	$V_{CC}=16V, V_O=0V, B=-300Gauss$	0.4		0.9	mA
Supply current	I_{CC1}	$V_{CC}=16V$			6	mA
	I_{CC2}	$V_{CC}=3.6V$			5.5	mA

Pin Assignment and Block Diagram

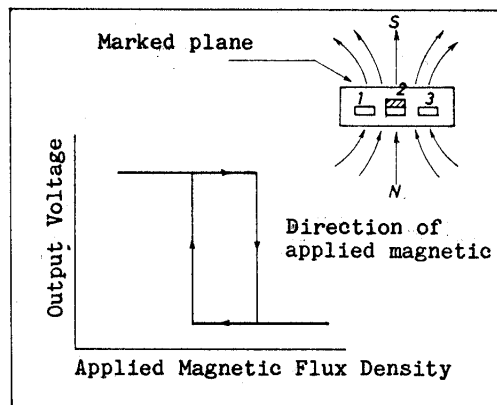


Location of the Hall Generator and Cross-sectional View of the Hall IC



The Hall generator is located in the dashed area.

Magnetic Flux to Electric Voltage Transduce Characteristic



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