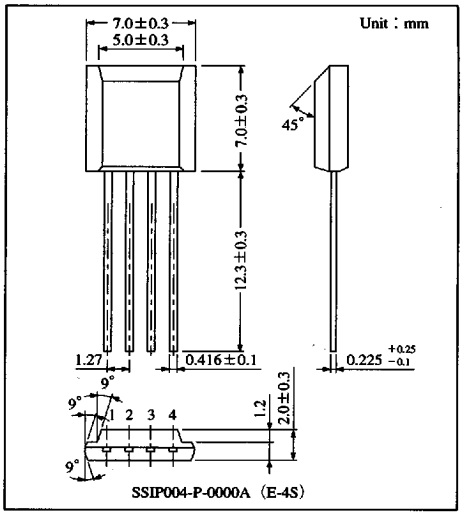
DN8762

ΔB-Type Hall IC

■ Overview

The DN8762 has a Hall element and peripheral circuits more than conventional ICs integrated on the silicon chip to make up a monolithic circuit. It is a Hall IC best suitable for the high sensitivity rotation detection.

Existence of ferromagnetic substance in front of the IC and uneveness can be detected by the magnet allocated in the back of IC (column type is recommended). However, it requires the external capacitor. In addition, it can not detect the stop position.



■ Features

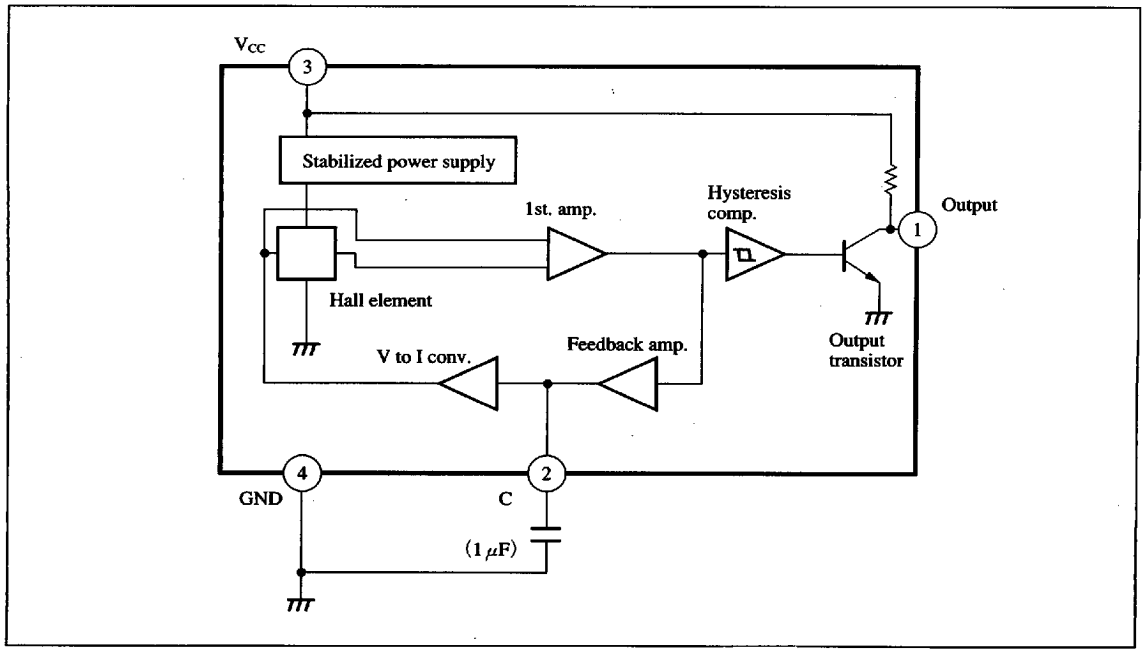
- Highly sensible for alternative magnetic field change
- Single DN8762 making up the rotation detector
- Position of magnet and sensor easily adjustable
- Wide operating temperature range
- Low frequency (up to around 1Hz) detectable (by the capacitance value of external capacitor)

■ Application

- Gear pulse sensor, rotation detection, (The static condition can not be detected.)

Note) This IC is not suitable for the car electric equipments.

■ Block Diagram



Pin Name

Pin No.	Symbol	Pin name
1	OUT	Output pin
2	C	Capacitor pin
3	V_{CC}	Power supply pin
4	GND	GND pin

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	19	V
Power supply current	I_{CC}	10	mA
Power dissipation	P_D	100	mW(at 100℃)
Minimum external capacitor	C_{min}	0.01	μF
Output pin current	I_O	15	mA
Operating ambient temperature	T_{opr}	−40 to +100	℃
Storage temperature	T_{stg}	−55 to +125	℃

Electrical Characteristics (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Operating flux density (1)	$B_{L\,to\,H}$	V_{CC}=12V, B=0	1.1	—	5.0	mT
Operating flux density (2)	$B_{H\,to\,L}$	V_{CC}=12V, B=0	0.1	—	4.0	mT
Hysteresis width	BW	$BW=B_{L\to H}-B_{H\to L}$	1.0	—	3.0	mT
Output voltage (1)	V_{OL1}	V_{CC}=18V, I_{OL}=12mA	—	—	0.4	V
Output voltage (2)	V_{OL2}	V_{CC}=4.5V, I_{OL}=12mA	—	—	0.4	V
Output pin short-circuit current	I_{OH}	V_{CC}=18V, OUT= "H"	270	360	450	μA
Power supply current (1)	I_{CC1}	V_{CC}=18V, OUT= "L"	2.5	3.3	6.0	mA
Power supply current (2)	I_{CC2}	V_{CC}=4.5V, OUT= "L"	2.5	3.3	6.0	mA

Supplementary Description

1. Since the stabilized power supply is built-in, the change of operating flux density does not depend on the power supply voltage. (only for the range of V_{CC}=4.5 to 18V).
2. The shift from output "H" to "L" level changes the power supply current by approx. 1mA.

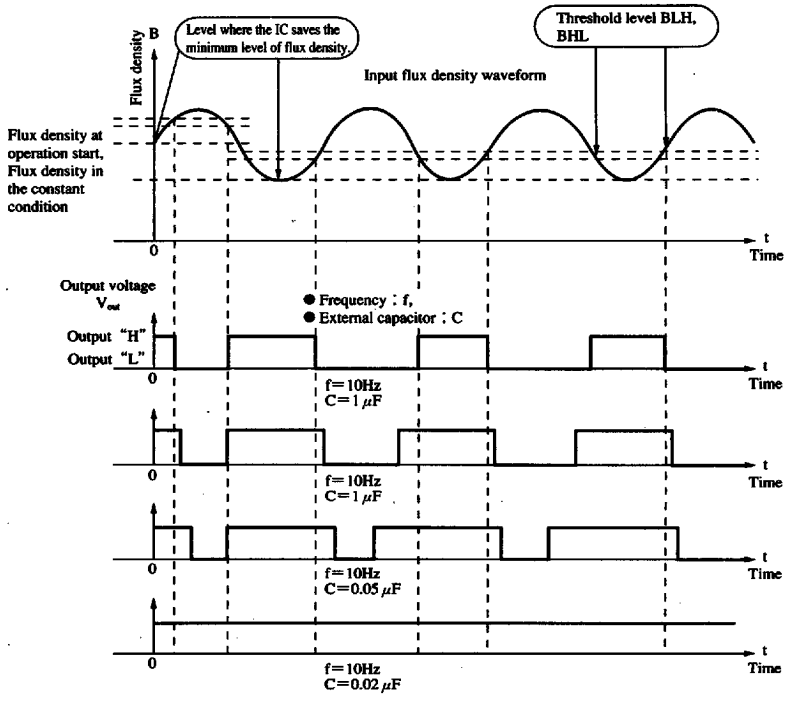
Electrical Characteristics (Ambient temperature is 25±2℃, unless otherwise specified.)

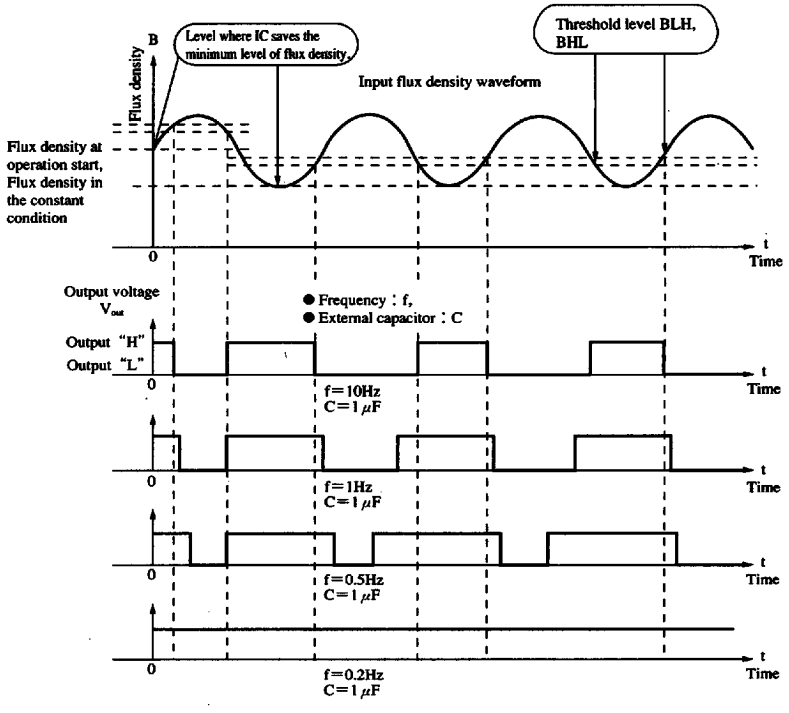
Parameter	Symbol	Condition	Reference value	Unit
Minimum operating frequency	f_{min}	V_{CC}=12V, C_T=1μF sine wave input B=0	10	Hz
Maximum operating frequency	f_{max}	V_{CC}=12V, C_T=1μF sine wave input B=0	50	kHz

■ Operating Example

Output waveform when the input frequency and external capacitor are changed

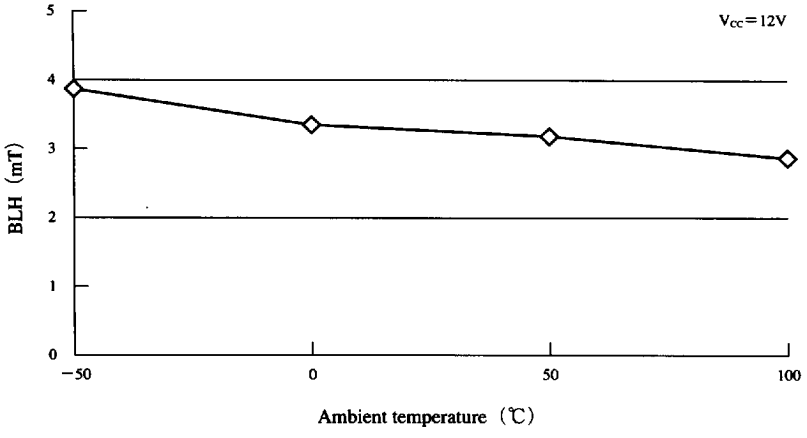
- Input amplitude of sine wave
  B_{P-P}=20mT
- Ambient temperature
  Ta=25℃
- Power supply voltage
  V_{CC}=12V



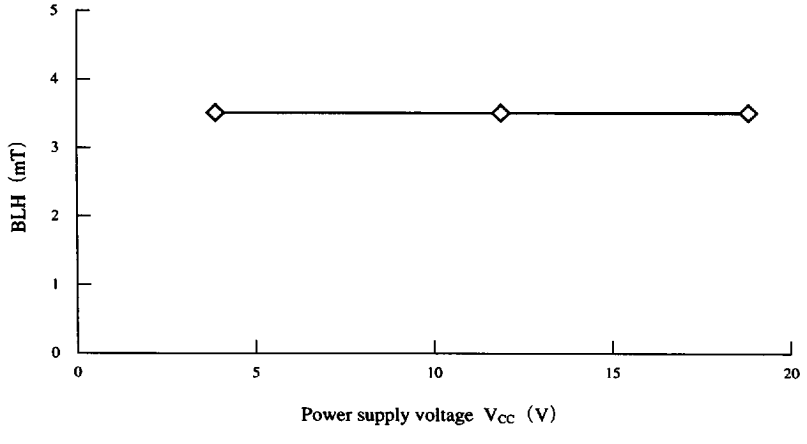


■ Characteristics Curve

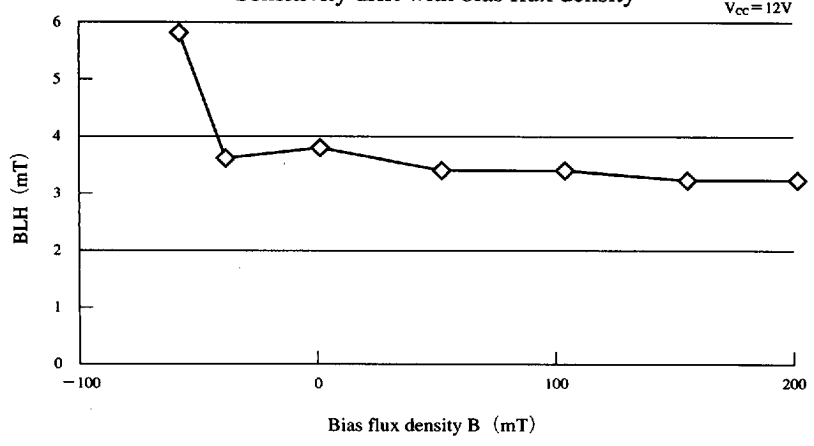
Sensitivity drift with temperature (Bias flux density=0mT)



Sensitivity drift with power supply voltage (Bias flux density=0mT)



Sensitivity drift with bias flux density



Hall ICs