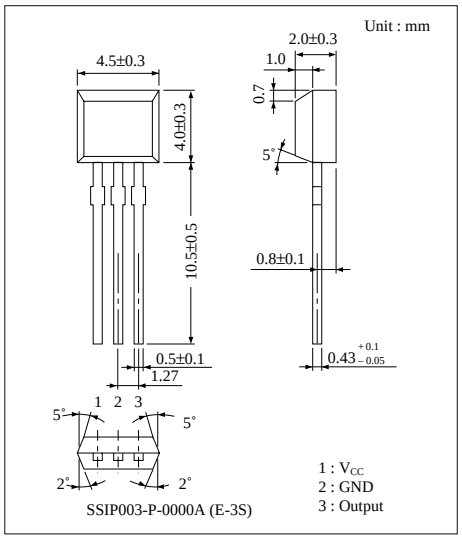
DN6851

Hall IC (Operating Supply Voltage Range V_{CC}=3.6 to 16V, Operating in Alternative Magnetic Field)

■ Overview

The DN6851 is an integrated circuit making use of Hall effects. It is designed particularly for operating at a low supply voltage in alternative magnetic field. It is suitable for various sensors and contactless switches.



■ Features

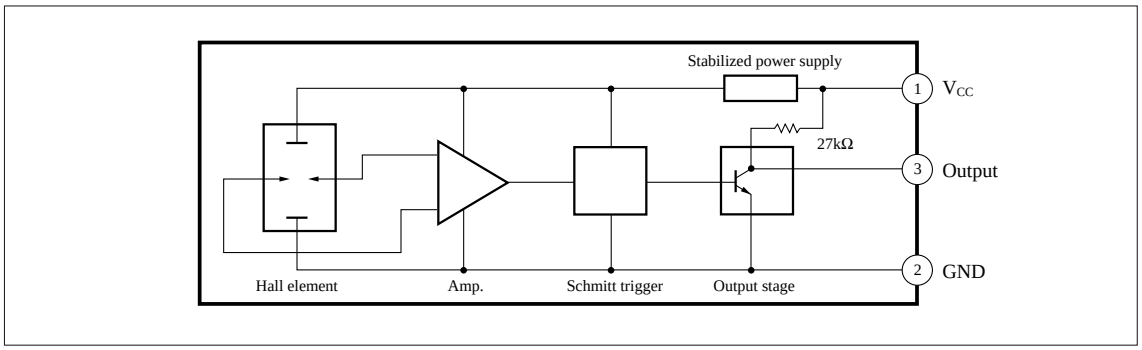
- Wide range of supply ; 3.6 to 16V
- Operating in alternative magnetic field.
- TTL and MOS ICs directly drivable by output
- Semipermanent service life because of no contact parts
- Drivable with a small magnet
- 3-pin SIL plastic package (3-SIP)

■ Applications

- Speed sensors
- Position sensors
- Rotation sensors
- Keyboard switches
- Microswitches

Note) This IC is not suitable for car electrical equipments.

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25˚C)

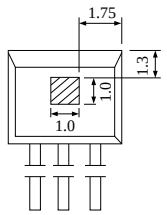
Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	18	V
Supply current	I_{CC}	8	mA
Circuit current	I_O	20	mA
Power dissipation	P_D	100	mW
Operating ambient temperature	T_{opr}	–40 to +85	˚C
Storage temperature	T_{stg}	–55 to +125	˚C

■ Electrical Characteristics (Ta=25˚C)

Parameter	Symbol	Condition	min	typ	max	Unit
Operating flux density	$B_{1\ (L\ to\ H)}$	V_{CC}=12V	–30	—	—	mT
	$B_{2\ (H\ to\ L)}$	V_{CC}=12V	—	—	30	mT
Low output voltage	V_{OL}	V_{CC}=16V, I_O=12mA, B=30mT	—	—	0.4	V
		V_{CC}=3.6V, I_O=12mA, B=30mT	—	—	0.4	V
High output voltage	V_{OH}	V_{CC}=16V, I_O=–30µA, B=–30mT	14.6	—	—	V
		V_{CC}=3.6V, I_O=–30µA, B=–30mT	2.2	—	—	V
Output short-circuit current	$–I_{OS}$	V_{CC}=16V, V_O=0V, B=–30mT	0.4	—	0.9	mA
Supply current	I_{CC}	V_{CC}=16V	—	—	6	mA
		V_{CC}=3.6V	—	—	5.5	mA

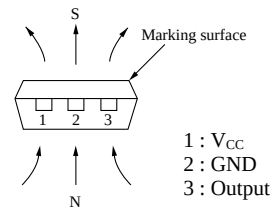
Note 1) Operating supply voltage range V_{CC} (opr)= 3.6 to 16V
Note 2) For the operating flux density, ±20 gauss is also available as Rank A.

■ Hall Element Position



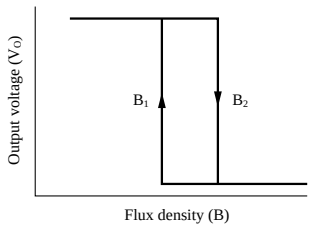
Unit : mm
The center of the Hall element is in the hatched area in the left figure.

■ Flux-Voltage Conversion Characteristics



Applied flux direction

1 : V_{CC}
2 : GND
3 : Output



■ Precaution on Use

1. Change of the operation magnetic flux density dose not depend on the supply voltage, because the stabilization power supply is built-in.
(only for the range; V_{CC} = 4.5 to 16V)
2. Change from “H” to “L” level increases the supply current by approx. 1mA.