

## DN6853

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

### Overview

The DN6853 is an integrated circuit making use of Hall effects. It is designed particularly for operating at a low supply voltage with the alternating field. It is suitable for various sensors and contactless switches.

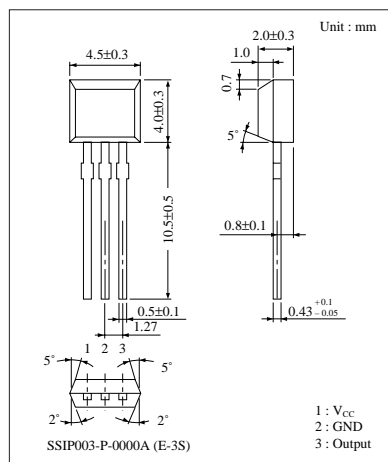
### Features

- Wide range of supply voltage : 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)
- Open collector

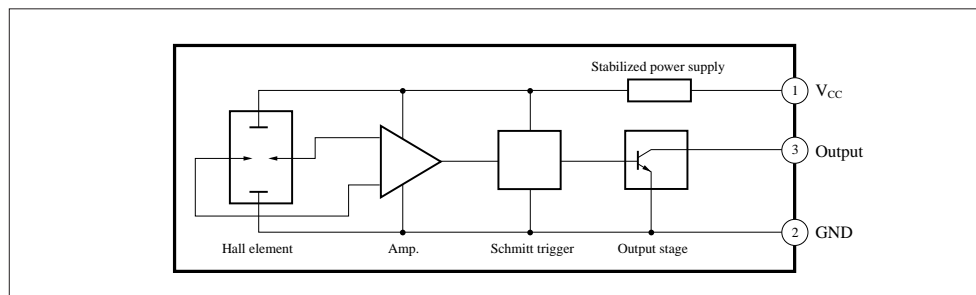
### Applications

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

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



### Block Diagram



### Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

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	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to + 125	$^\circ\text{C}$

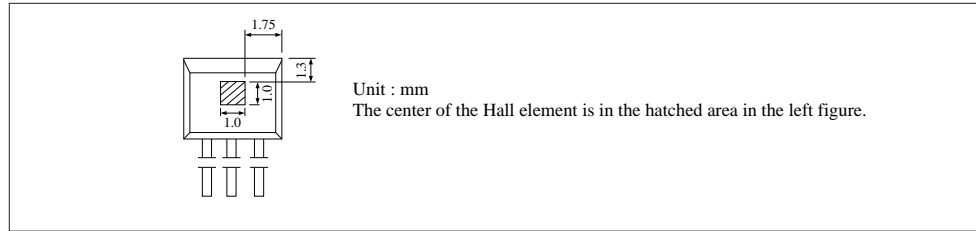
## ■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Operating flux density	B <sub>1</sub> (L to H)	V <sub>CC</sub> =12V	-30	—	—	mT
	B <sub>2</sub> (H to L)	V <sub>CC</sub> =12V	—	—	30	mT
Low output voltage	V <sub>OL</sub>	V <sub>CC</sub> =16V, I <sub>O</sub> =12mA, B=30mT	—	—	0.4	V
		V <sub>CC</sub> =3.6V, I <sub>O</sub> =12mA, B=30mT	—	—	0.4	V
High output current	I <sub>OH</sub>	V <sub>CC</sub> =16V, V <sub>O</sub> =18V, B=-30mT	—	—	10	μA
		V <sub>CC</sub> =3.6V, V <sub>O</sub> =18V, B=-30mT	—	—	10	μA
Supply current	I <sub>CC</sub>	V <sub>CC</sub> =16V	—	—	6	mA
		V <sub>CC</sub> =3.6V	—	—	5.5	mA

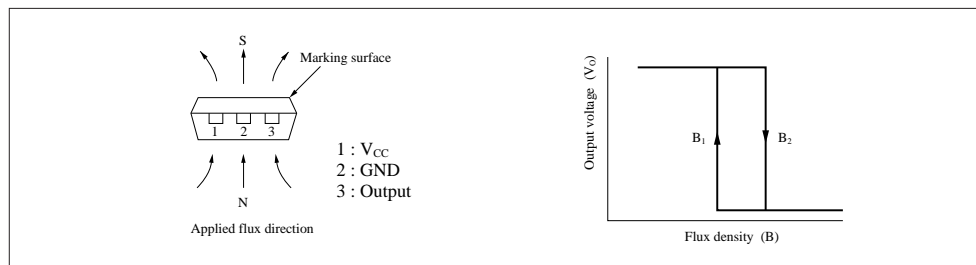
Note 1) Operating supply voltage range V<sub>CC</sub> (opr)= 3.6 to 16V

Note 2) For the operating flux density, ±200 mT is also available as Rank A.

## ■ Hall Element Position



## ■ Flux-Voltage Conversion Characteristics



## ■ Precaution on Use

- 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<sub>CC</sub>= 4.5 to 16V)
- Change from "H" to "L" level increases the supply current by approx. 1mA.