# 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.

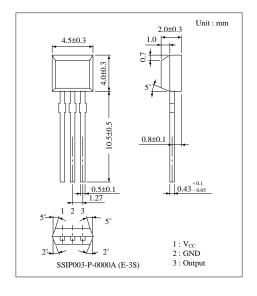
#### ■ Features

- 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)

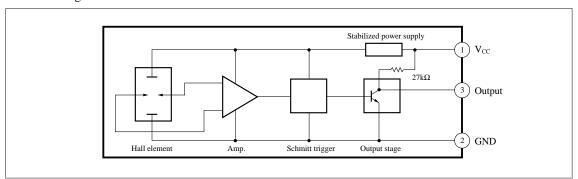
### Applications

- 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	Symbol Rating	
Supply voltage	V <sub>CC</sub>	18	V
Supply current	$I_{CC}$	8	mA
Circuit current	Io	20	mA
Power dissipation	$P_{D}$	100	mW
Operating ambient temperature	$T_{\mathrm{opr}}$	-40 to +85	°C
Storage temperature	$T_{stg}$	-55 to +125	°C

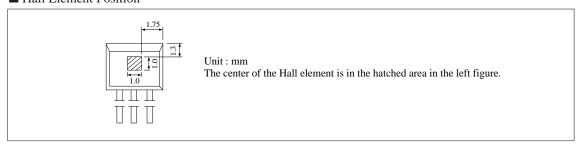
# ■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Operating flux density	B <sub>1 (L to H)</sub>	V <sub>CC</sub> =12V	-30			mT
	B <sub>2 (H to L)</sub>	V <sub>CC</sub> =12V	_		30	mT
Low output voltage	$V_{ m OL}$	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 voltage	V <sub>OH</sub>	V <sub>CC</sub> =16V, I <sub>O</sub> =-30μA, B=-30mT	14.6			V
		V <sub>CC</sub> =3.6V, I <sub>O</sub> =-30μA, B=-30mT	2.2			V
Output short-circuit current	-I <sub>OS</sub>	V <sub>CC</sub> =16V, V <sub>O</sub> =0V, B=-30mT	0.4		0.9	mA
Supply current	$I_{CC}$	V <sub>CC</sub> =16V			6	mA
		V <sub>CC</sub> =3.6V			5.5	mA

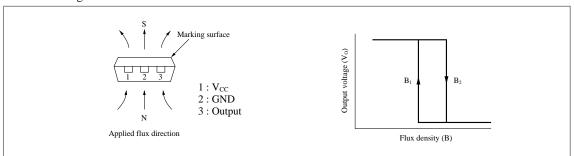
Note 1) Operating supply voltage range  $V_{CC}$  (opr)= 3.6 to 16V

Note 2) For the operating flux density,  $\pm 20$  gauss is also available as Rank A.

# ■ Hall Element Position



# ■ Flux-Voltage Conversion Characteristics



#### ■ 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;  $V_{\text{CC}}$ = 4.5 to 16V)
- 2. Change from "H" to "L" level increases the supply current by approx. 1 mA.