

## DN6848/SE/TE/S

Hall IC (Operating Temperature Range  
 $T_{opr} = -40$  to  $+100^{\circ}\text{C}$ , Operating in One  
 Way Magnetic Field)

### ■ Overview

The DN6848/SE/TE/S is a combination of a Hall element, amplifier, Schmitt circuit, and stabilized power supply/temperature compensator integrated on an identical chip by using the IC technology. It amplifies Hall element output at the amplifier, converts into a digital signal through the Schmitt circuit, and drives the TTL or MOS IC directly.

### ■ Features

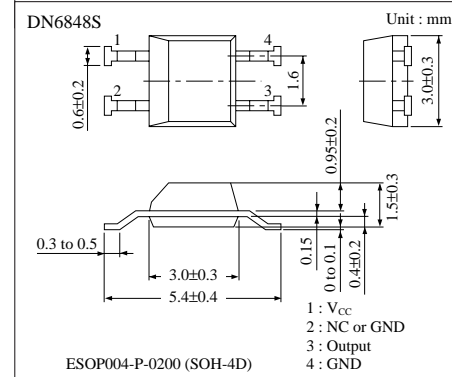
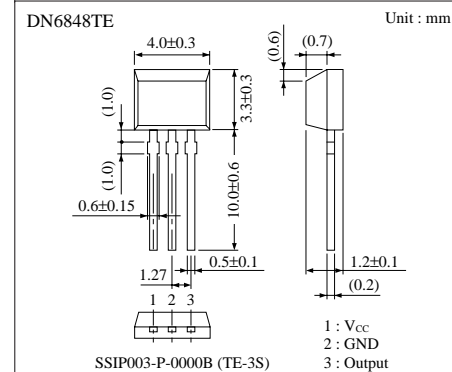
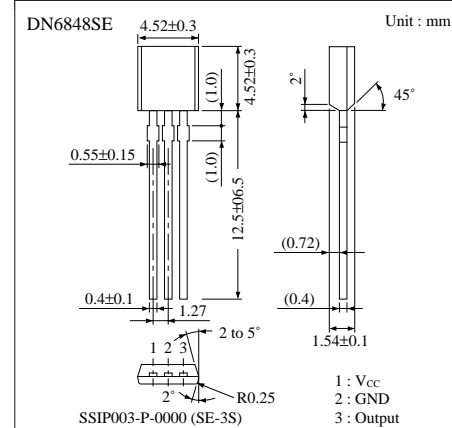
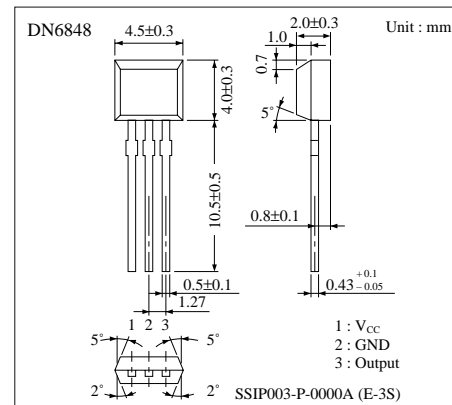
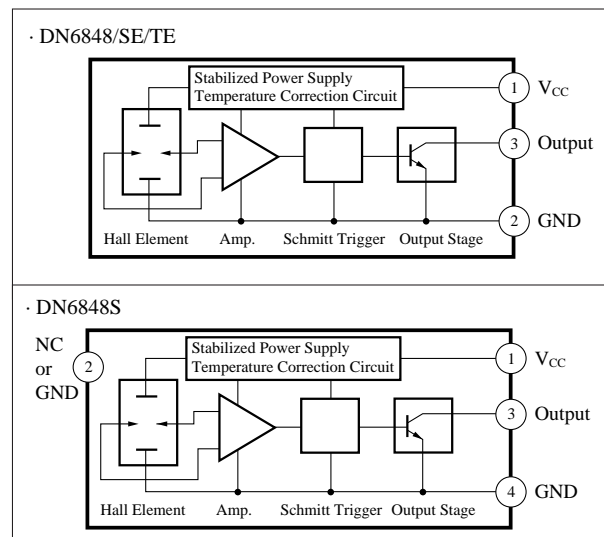
- High sensitivity and low drift
- Stable temperature characteristics due to the additional temperature compensator
- Wide operating supply voltage range ( $V_{CC}=4.5$  to  $16\text{V}$ )
- Operating in one way magnetic field
- TTL and MOS ICs directly drivable by output
- Output open collector

### ■ 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 (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	$P_D$	150	mW
Operating ambient temperature	$T_{opr}$	-40 to +100	°C
Storage temperature	$T_{stg}$	-55 to +125	°C

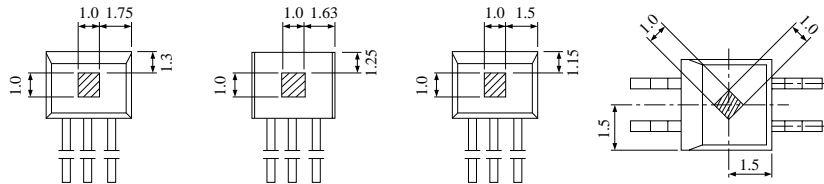
## ■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Operating flux density	$B_{1(L \text{ to } H)}$	$V_{CC}=12V$	0.5	9	21	mT
	$B_{2(H \text{ to } L)}$	$V_{CC}=12V$	1.5	11	22	mT
Hysteresis width	BW	$V_{CC}=12V$	1	2	—	mT
Low output voltage	$V_{OL}$	$V_{CC}=16V, I_O=12mA, B=22mT$	—	—	0.4	V
		$V_{CC}=4.5V, I_O=12mA, B=22mT$	—	—	0.4	V
High output current	$I_{OH}$	$V_{CC}=4.5 \text{ to } 16V$ $V_O=16V, B=0mT$	—	—	10	μA
Supply current	$I_{CC}$	$V_{CC}=16V$	—	—	6	mA
		$V_{CC}=4.5V$	—	—	5.5	mA

## ■ Hall Element Position

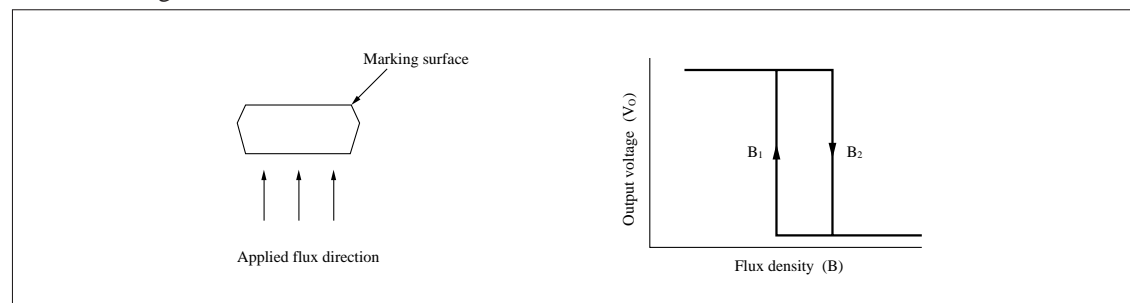
Unit : mm

The center of the Hall element is in the hatched area in the right figure.



Distance from package surface to sensor (mm)	DN6848	DN6848SE	DN6848TE	DN6848S
	0.7	0.42	0.4	0.65

## ■ Flux-Voltage Conversion Characteristics

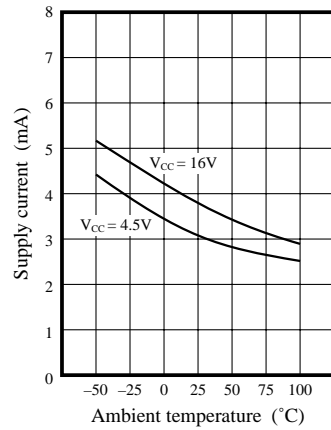


## ■ Precaution on Use

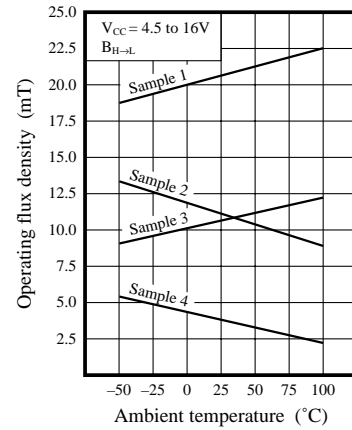
1. Change of the operation magnetic flux density does not depend on the supply voltage, because the stabilization power supply is built-in. (only for the range ;  $V_{CC}=4.5$  to  $16V$ )
2. Change from "H" to "L" level increases the supply current by approx. 1mA.

## ■ Characteristics Curve

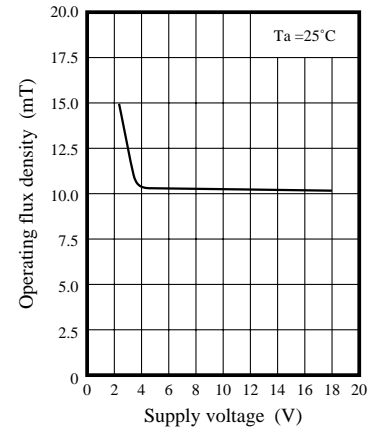
Supply voltage – Ambient temperature



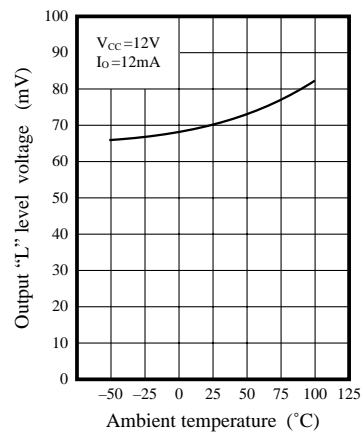
Operating flux density – Ambient temperature



Operating flux density – Supply voltage



Output low level voltage – Ambient temperature



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