

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

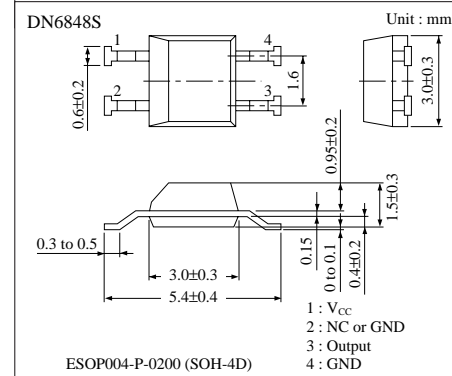
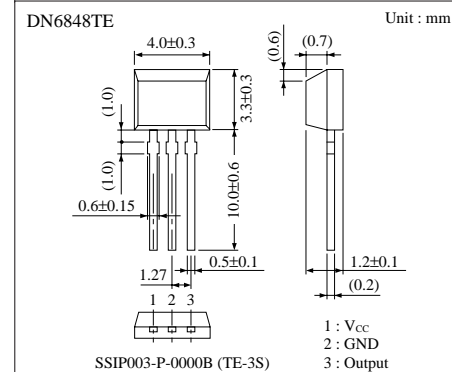
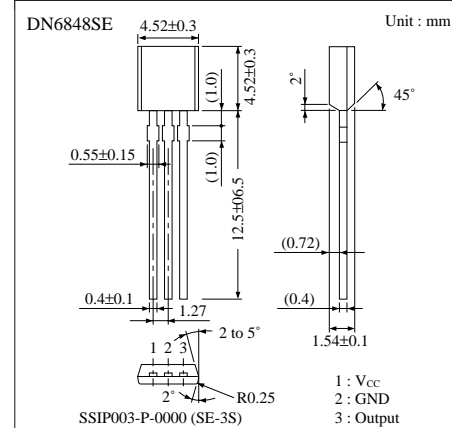
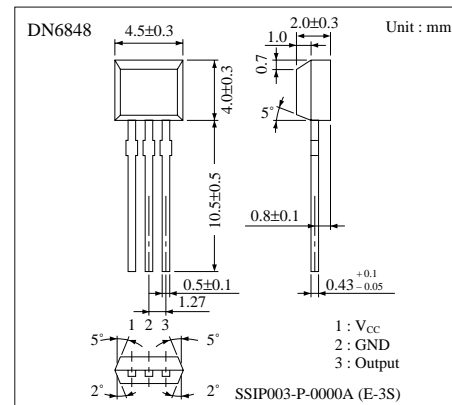
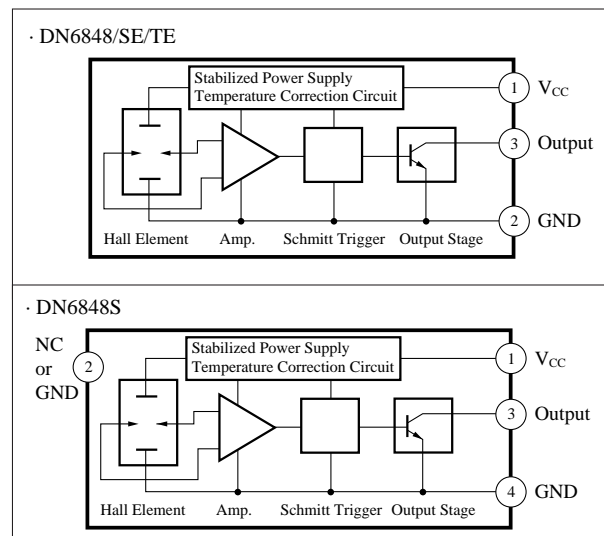
- High sensitivity and low drift
- Stable temperature characteristics due to the additional temperature compensator
- Wide operating supply voltage range ($V_{CC}=4.5$ to 16V)
- Operating in one way magnetic field
- TTL and MOS ICs directly drivable by output
- Output open collector

■ 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 |

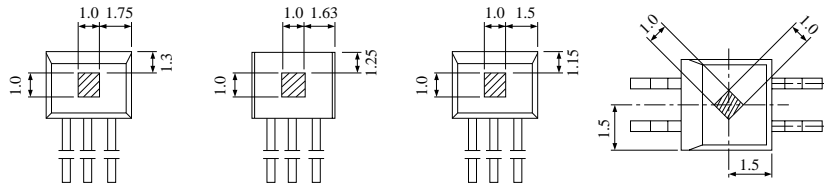
■ Electrical Characteristics (Ta=25°C)

| Parameter | Symbol | Condition | min | typ | max | Unit |
|------------------------|-------------------|---|-----|-----|-----|------|
| Operating flux density | $B_{1(L\ to\ H)}$ | $V_{CC}=12V$ | 0.5 | 9 | 21 | mT |
| | $B_{2(H\ to\ L)}$ | $V_{CC}=12V$ | 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} | $V_{CC}=4.5\ to\ 16V$ $V_O=16V, B=0mT$ | — | — | 10 | μA |
| Supply current | I_{CC} | $V_{CC}=16V$ | — | — | 6 | mA |
| | | $V_{CC}=4.5V$ | — | — | 5.5 | mA |

■ Hall Element Position

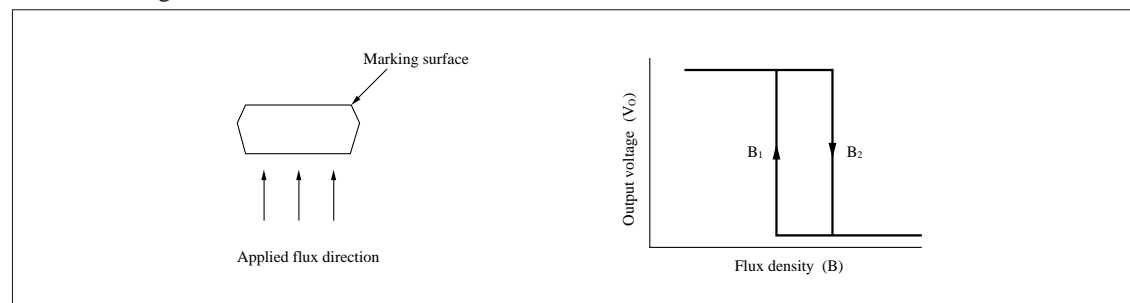
Unit : mm

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

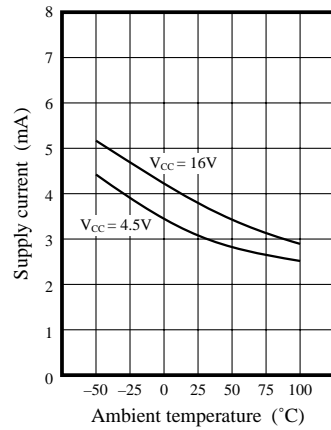


■ Precaution on Use

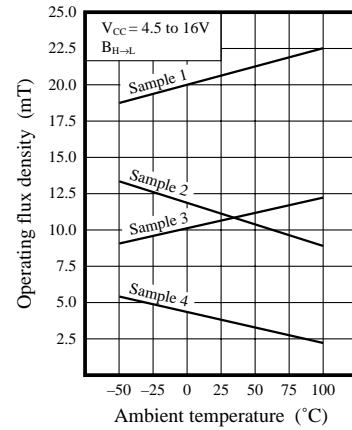
1. Change of the operation magnetic flux density does not depend on the supply voltage, because the stabilization power supply is built-in. (only for the range ; $V_{CC}=4.5$ to $16V$)
2. Change from "H" to "L" level increases the supply current by approx. 1mA.

■ Characteristics Curve

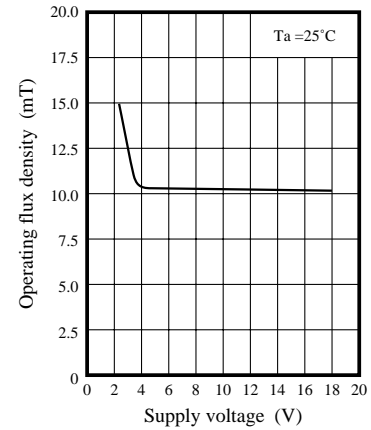
Supply voltage – Ambient temperature



Operating flux density – Ambient temperature



Operating flux density – Supply voltage



Output low level voltage – Ambient temperature

