Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

DN8897/SE/TE/S

Hall IC (Operating Temperature Range Topr=–40 to + 100˚C, Operating in Alternative Magnetic Field)

■ Overview

The DN8897/SE/TE/S is a combination of a Hall element, amplifier, Schmidt 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 Schmidt circuit, and drives the TTL or MOS IC directly.
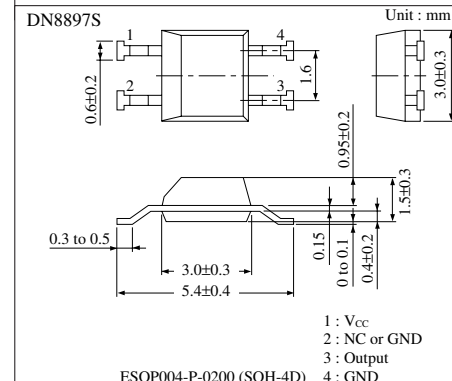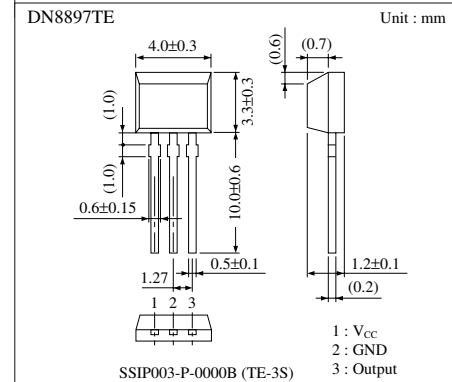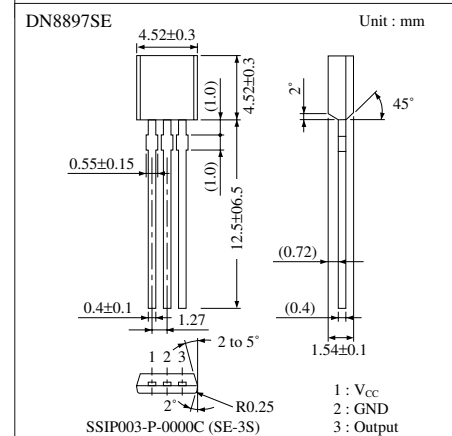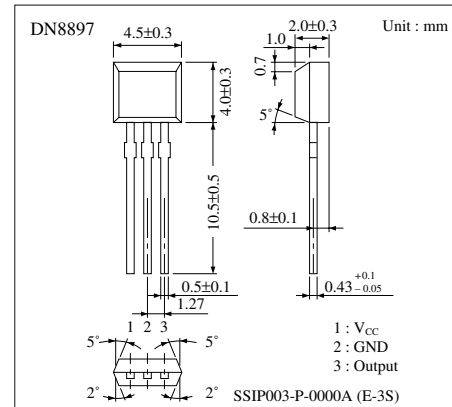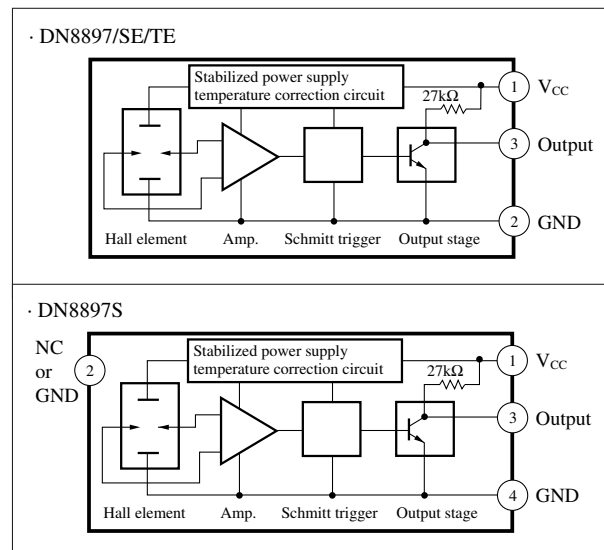
■ Features

- High sensitivity and low drift
- Stable temperature characterstics due to the additional temperture compensator
- Wide operating supply voltage range (V_{CC}=4.5 to 16V)
- Operatig in alternative magnetic field
- TTL and MOS ICs directly drivable by output
- Provided with the output pull-up resistors (typ 27kΩ)
- "0" gauss point in the zero cross type hysteresis width

■ Applications

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

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

■ Block Diagram

· DN8897/SE/TE

· DN8897S

· DN8897

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

SSIP003-P-0000A (E-3S)

· DN8897SE

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

SSIP003-P-0000C (SE-3S)

· DN8897TE

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

SSIP003-P-0000B (TE-3S)

· DN8897S

1 : V_{CC}
2 : NC or GND
3 : Output
4 : GND

ESOP004-P-0200 (SOH-4D)

■ 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	–12	–6	–0.1	mT
	$B_{2\,(H\to L)}$	V_{CC}=12V	0.1	6	12	mT
Hysteresis width	BW	V_{CC}=12V	7	10	—	mT
Output voltage	V_{OL}	V_{CC}=4.5 to16V, I_O=12mA, B=12mT	—	—	0.4	V
	V_{OH}	V_{CC}=16V, I_O=–30µA, B=–12mT	14.7	—	—	V
		V_{CC}=4.5V, I_O=–30µA, B=–12mT	2.9	—	—	V
Output short-circuit current	$-I_{OS}$	V_{CC}=16V, V_O=0V, B=–12mT	0.4	—	0.9	mA
Supply current	I_{CC}	V_{CC}=16V	1	—	6	mA
		V_{CC}=4.5V	1	—	5.5	mA

■ Hall Element Position

· DN8897   · DN8897SE   · DN8897TE   · DN8897S
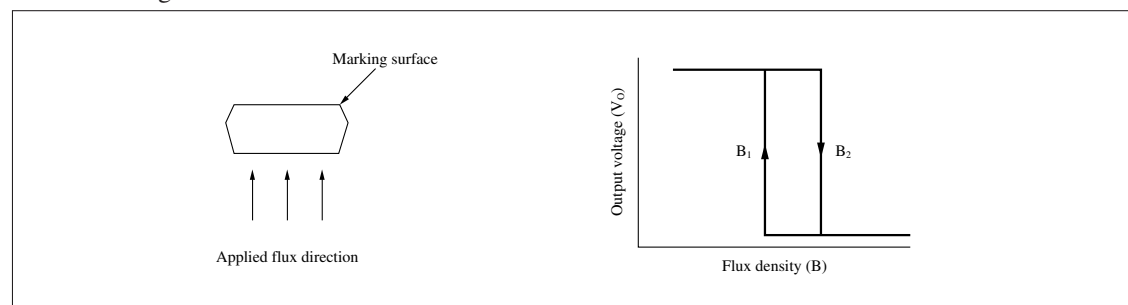
Unit : mm
The center of the Hall element is in the hatched area in the right figure.
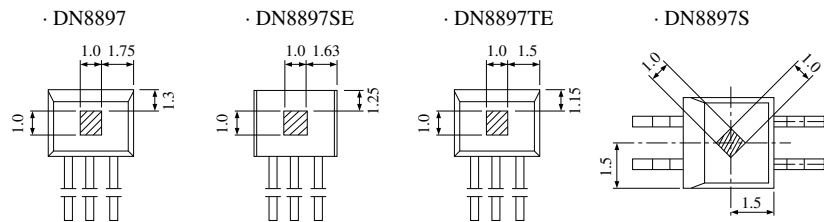
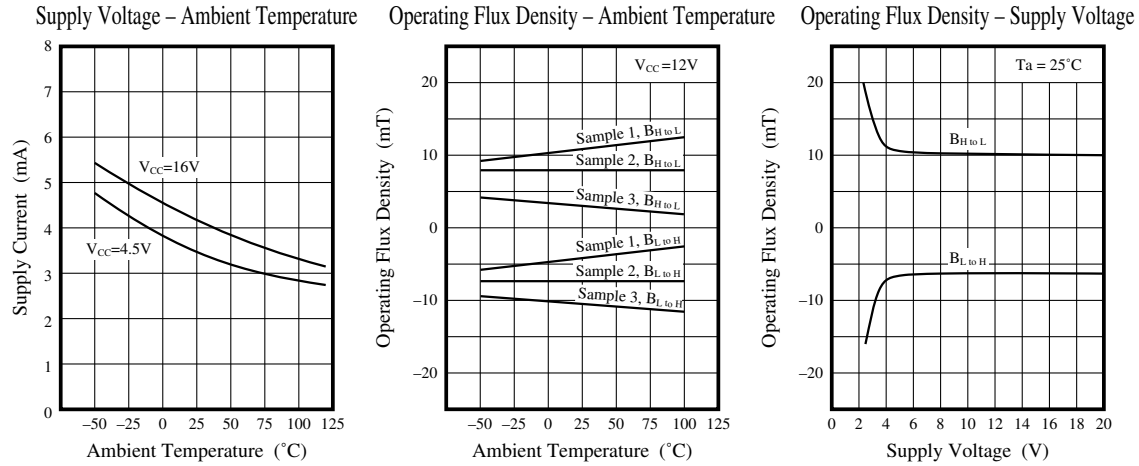| Distance from package surface to sensor (mm)	DN8897	DN8897SE	DN8897TE	DN8897S
	0.7	0.42	0.4	0.65

■ Flux-Voltage Conversion Characteristics

Marking surface

Applied flux direction

Output voltage (V_O)

Flux density (B)

B_1 B_2

■ 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.

■ Characteristics Curve

Supply Voltage – Ambient Temperature

Operating Flux Density – Ambient Temperature

Operating Flux Density – Supply Voltage

Output Low Level Voltage – Ambient Temperature