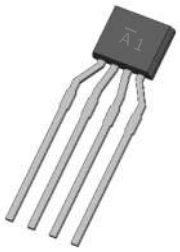
Confidential

GaAs Hall Sensor Specification	Date : 2025. 11. 25

SPECIFICATION

(Approval sheet of GaAs Hall Sensor)

Part Name	GaAs Hall Sensor	Image
Product No.	HE42CX3B22	
Customer Code	-	
Revision	Rev.09	
Manufacturer	Futurecore Co., Ltd (Nanostech_Tianjin)	

DESIGNED BY	CHECKED BY	APPROVED BY
J.H.Cha	Duanbin	D.M.Cho
2025.11.25	2025.11.25	2025.11.25

Content

2. Electrical Characteristic

2.1 Absolute maximum ratings

[Ta=25℃]

Parameter	Symbol	Rating	Unit
Maximum Input Voltage	Vc	10	V
Maximum Power Dissipation	Pmax	150	mW
Operating Temperature Range	Top	-40 ~ +125	℃
Storage Temperature Range	Tst	-40 ~ +150	℃

2.2 General electrical specifications

[Ta=25℃]

Parameter	Symbol	Conditions	Min	Max	Unit
Output Hall Voltage	Vh	Vin＝6V, B＝50mT	55	75	mV
Input Resistance	Rin	Ic＝0.1mA, B＝0mT	650	850	Ω
Output Resistance	Rout	Ic＝0.1mA, B＝0mT	650	850	Ω
Offset Voltage	Vo	Vin＝6V, B＝0mT	-8	+8	mV

※ Vh＝Vhm－Vo (Vhm : The output voltage measured at 50mT)

2.3 Other electrical specifications (For reference only)

[Ta=25℃]

Parameter	Symbol	Conditions	Min	Max	Unit
Temp. Coeff. of Vh	αVh	Ta＝25~125℃, B=50mT, Ic=5mA	-	-0.07	%/℃
Temp. Coeff. of Rin	αRin	Ta＝25~125℃, B=0mT, Ic=0.1mA	-	0.3	%/℃
Linearity	ΔK	B=0.1T/0.5T Ic=5mA	-2	+2	%

※ αVh : $\frac{1}{Vh[T1]} \times \frac{Vh[T2] - Vh[T1]}{[T2 - T1]} \times 100$

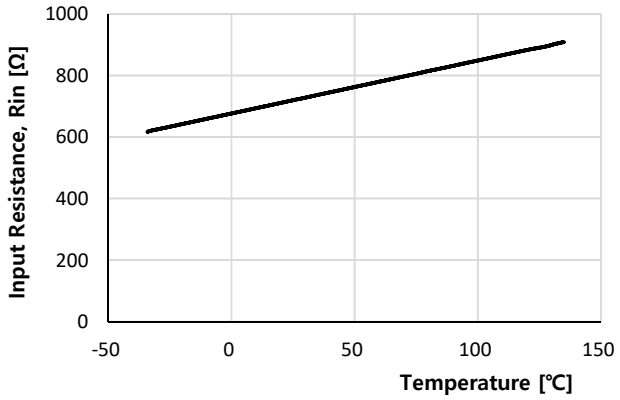
※ αRin : $\frac{1}{Rin[T1]} \times \frac{Rin[T2] - Rin[T1]}{[T2 - T1]} \times 100$

※ △K : $\frac{K[B1] - K[B2]}{[K(B1) + K(B2)] / 2} \times 100$

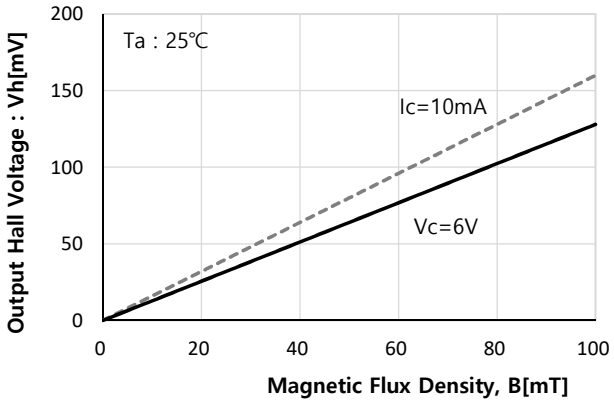
T1 = 25℃, T2 = 125℃
K = Vh / (Ic*B)
B1 = 0.5T, B2 = 0.1T

2.4 Characteristic graphs

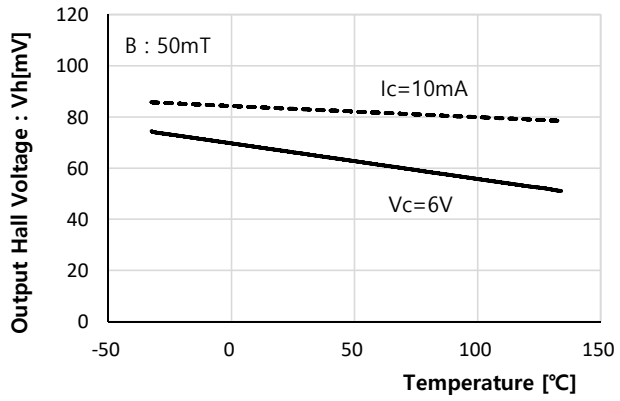
■ Rin-T



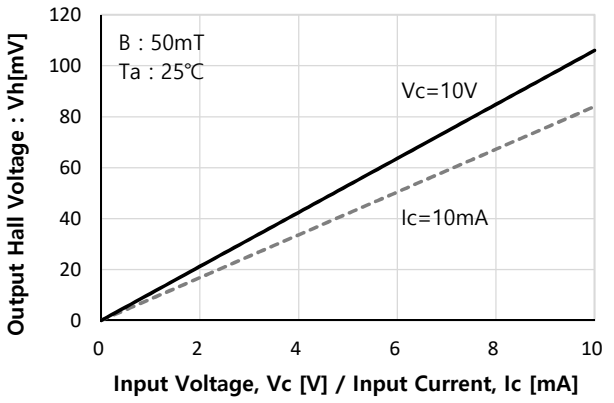
■ Vh-B



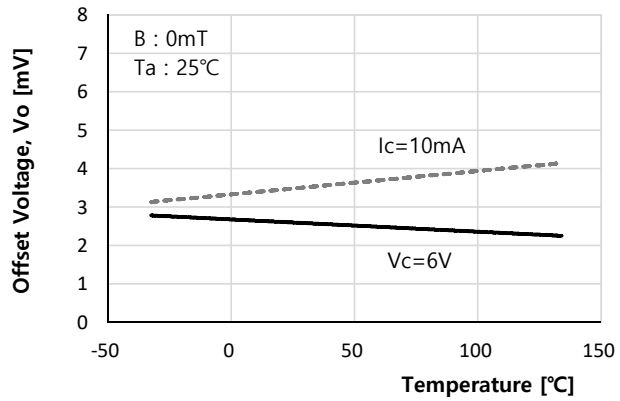
■ Vh-T



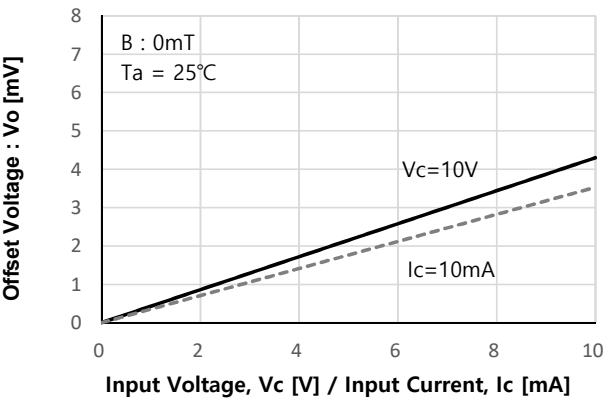
■ Vh-Vc, Vh-Ic



■ Vo-T [For reference only]



■ Vo-Vc, Vo-Ic [For reference only]

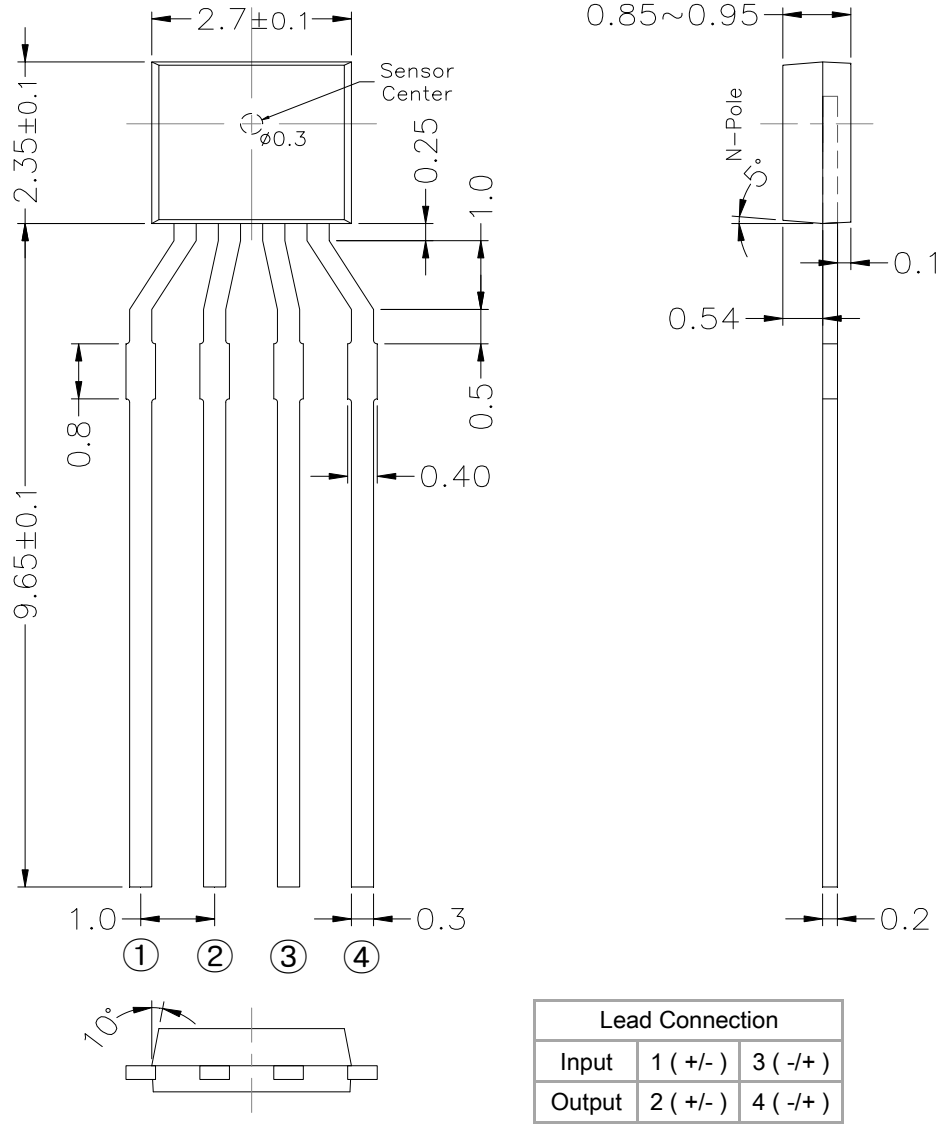


※Magnetic Flux Density 1[mT] = 10 [G]

3. Package Specification

3.1 Package Dimensions [unit : mm]

1) Outline Dimension



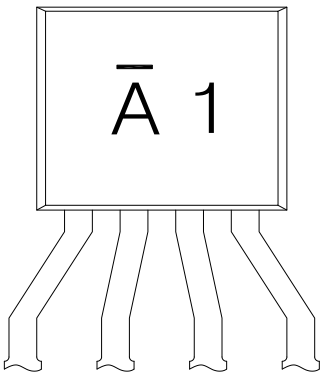
Lead Connection		
Input	1 (+/-)	3 (-/+)
Output	2 (+/-)	4 (-/+)

2) Marking (Production Code)

ⓐ 1'st Character & Bar : Production Year/Month

ⓑ 2'nd Character : Production Date

※ Marking Method : Laser Marking



4. Marking Table

4.1 1'st Character & Bar : Production Year/Month

年	1月	2月	3月	4月	5月	6月	7月	8月	9月	10月	11月	12月
2023	$\overline{5}$ ·	$\overline{6}$ ·	$\overline{7}$ ·	$\overline{8}$ ·	$\overline{9}$ ·	$\overline{A}$	$\overline{B}$	$\overline{C}$	$\overline{D}$	$\overline{E}$	$\overline{F}$	$\overline{G}$
2024	$\overline{H}$	$\overline{J}$	$\overline{K}$	$\overline{L}$	$\overline{M}$	$\overline{N}$	$\overline{P}$	$\overline{R}$	$\overline{S}$	$\overline{T}$	$\overline{U}$	$\overline{V}$
2025	5	6	7	8	9	A	B	C	D	E	F	G
2026	H	J	K	L	M	N	P	R	S	T	U	V
2027	5	6	7	8	9	A	B	C	D	E	F	G
2028	H	J	K	L	M	N	P	R	S	T	U	V

4.2 2'nd Character: Production Date

Date	1	2	3	4	5	6	7	8	9	10	
Mark	1	2	3	4	5	6	7	8	9	A	
Date	11	12	13	14	15	16	17	18	19	20	
Mark	B	C	D	E	F	G	H	J	K	L	
Date	21	22	23	24	25	26	27	28	29	30	31
Mark	M	P	R	S	T	U	V	W	X	Y	Z

5. Reflow Profile

5.1 Lead Frame

1) The material of lead frame is phosphor bronze alloy and the die bonded surface is plated by silver. The minimum thickness of plating is 3.0㎛.

2) Lead is plated by pure Sn and the thickness is controlled by 4~12㎛.

5.2 Reflow Condition (For Reference)

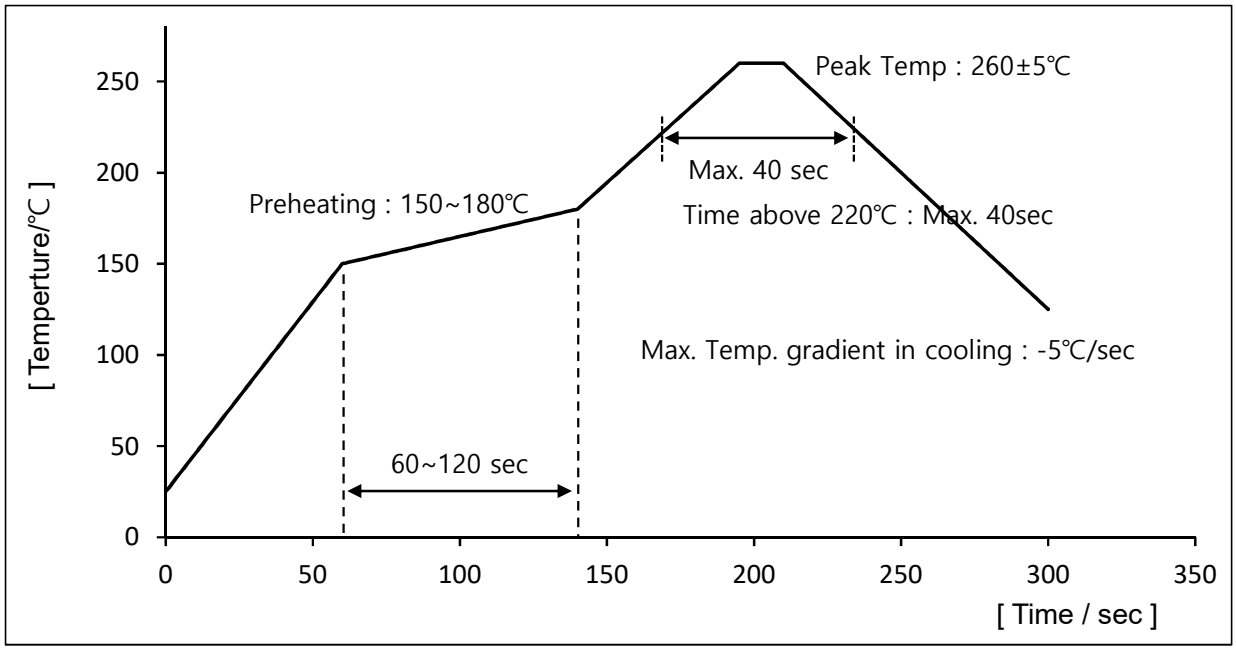
1) No rapid heating and cooling is desired.

2) Preheating is recommended for 1～2minutes at 150～180℃.

3) Reflowing is recommended for 10～20seconds at 220～260℃.

4) The number of times of reflow soldering should be two or less.

5) Solderability should be checked by yourself, because it is depend on solder paste and other parameters.

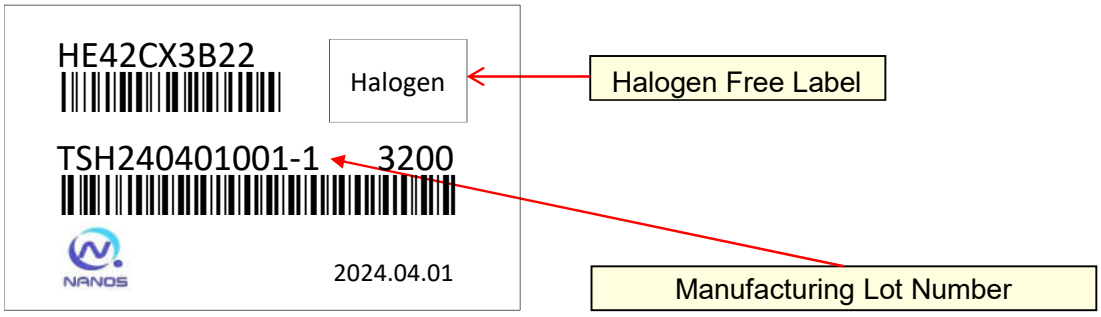


5.3 Soldering Method and Temperature (For Reference)

Items	Methods	Temperature
Reflow	Soldering by passing the heated zone	Max 260℃ in 10sec
Solder Iron	Soldering by solder-iron	Max 350℃ in 3sec

6. Packing Structure

6.1 Label



6.2 Packing

1 Inner Box : 3,200ea Hall Sensor

Inspection Sheet

1 Outer Box : 12,800ea Hall Sensor

Packing Finished

7. Reliability Test Specification

7.1 Test item and condition

No.	Test Item	Test condition	Quantity	Time
1	High Temp. High Humidity	Ta=85±5℃, Relative Humidity=85±5%RH	22pcs	1,000HR
2	High Temp. Operating	Ta=125±5℃, Vc=6.0V±10%	22pcs	1,000HR
3	Preconditioning	Preconditioning : Ta=150±5℃, 24HR Moisture Absorption : Ta=85±5℃, 85±5%RH, 168HR Reflow : Ta=260±5℃, 10sec	22pcs	2Cycle
4	High Temp. Storage	Ta=150±5℃	22pcs	1,000HR
5	Temp. Cycle	-55±5℃, 30min ↔ 25℃, 5min ↔ 150±5℃, 30min	22pcs	50Cycle

7.2 Criterion for judging

After each reliability test, samples should be store at least 24hrs in room temp. & humidity, and then measure.

Item	Spcification
Rin	Change rate [%] : ±20%↓
Rout	
Vh	
Vo	Max. ±16mV

8. Important Precautions

1) Reprinting or reproducing this document in whole or in part without our prior written consent is prohibited.

2) The storage period is one year in the vacuum packaging state, and one year in the vacuum packaging is opened.
(※ Product storage environment recommendation : N2 Gas & temperature below 30℃ & humidity 60% Rh)

3) The quality and performance of the product are guaranteed for one year based on the date of manufacture.
(This is based on the storage environment)

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