# OH10008 (OH008)

## GaAs Hall Device

Magnetic sensor

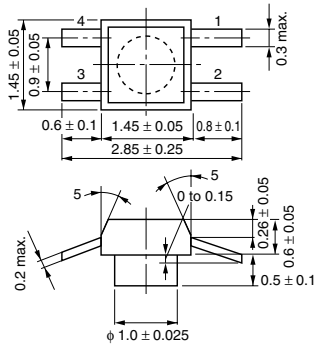
### ■ Features

- Hall voltage: typ. 105 mV ($V_C$ = 6 V, B = 0.1 T)
- Input resistance: typ. 750 kΩ
- Satisfactory linearity of GaAs hall voltage with respect to the magnetic field
- Small temperature coefficient of the hall voltage: β ≤ – 0.06%/°C
- Mini type (4-pin) package with positioning projection. Allowing automatic insertion through the magazine package.

### ■ Applications

- Thin and small hall motors (Applicable to CD, VD, VCR, FDD, and other portable equipment)
- Automotive equipment
- Measurement equipment
- Applicable to wide-varying field (OA equipment, etc.)

Unit : mm




1 : $V_C$ Input (+) side
2 : $V_H$ Output (–) side
3 : $V_C$ Input (–) side
4 : $V_H$ Output (+) side
Mini Type Package (4-pin) with positioning projection

Marking Symbol: B

### ■ Absolute Maximum Ratings $T_a$ = 25°C

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Control voltage | $V_C$ | 12 | V |
| Power dissipation | $P_D$ | 100 | mW |
| Operating ambient temperature | $T_{opr}$ | –30 to +125 | °C |
| Storage temperature | $T_{stg}$ | –55 to +125 | °C |

### ■ Electrical Characteristics $T_a$ = 25°C

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Hall voltage*1 | $V_H$ | $V_C$ = 6 V, B = 0.1 T | 80 | 105 | 130 | mV |
| Unequilibrium ratio*2, 4 | $V_{HO}$ | $V_C$ = 6 V, B = 0 T | | | ±19 | mV |
| Input resistance | $R_{IN}$ | $I_C$ = 1 mA, B = 0 T | 0.5 | 0.75 | | kΩ |
| Output resistance | $R_{OUT}$ | $I_C$ = 1 mA, B = 0 T | | 1.5 | 5 | kΩ |
| Temperature coefficient of hall voltage | β | $I_C$ = 6 mA, B = 0.1 T | | | –0.06 | %/°C |
| Temperature coefficient of input resistance | α | $I_C$ = 1 mA, B = 0 T | | | 0.3 | %/°C |
| Linearity of hall voltage*3 | γ | $I_C$ = 6 mA, B = 0.1 T/0.5 T | | | 2 | % |

Note) *1 : $V_H = \dfrac{|V_H^+| + |V_H^-|}{2}$

*2 : Output pin voltage under no-load (B = 0) condition

*3 : The linearity γ of $V_H$ is a percentage of a difference between cumulative sensitivity of $K_{H1}$ and $K_{H5}$ which are measured respectively at B = 0.1 T and 0.5 T to their average. That is,

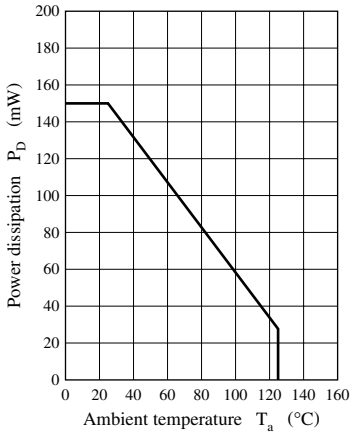
$$\gamma = \frac{K_{H5} - K_{H1}}{1/2(K_{H1} + K_{H5})}$$ (the cumulative sensitivity $K_H = \dfrac{V_H}{I_C \cdot B}$ )

*4 : $V_{HO}$ rank classification

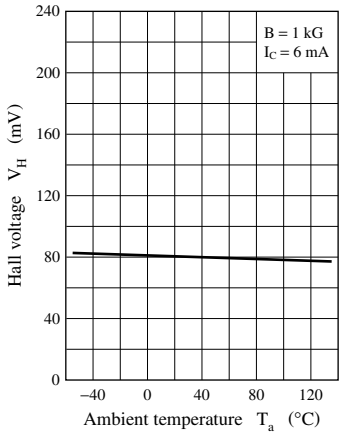
| Class | A | B | C | D | E |
|---|---|---|---|---|---|
| $V_{HO}$ (mV) | +19 to +9 | +12 to +2 | +5 to –5 | –2 to –12 | –9 to –19 |

Note) The part number parenthesis shows conventional part number.

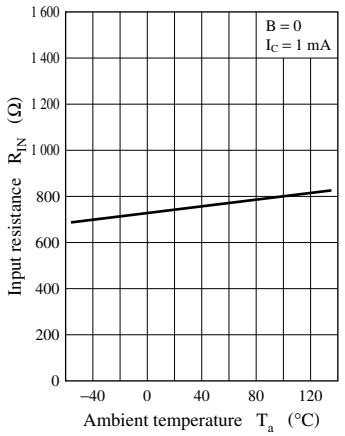
$P_D$ — $T_a$



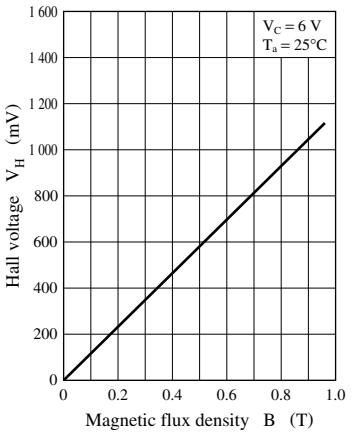

$V_H$ — $T_a$



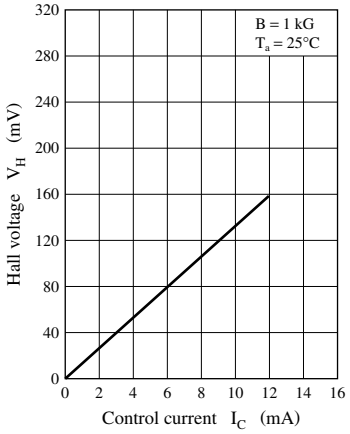

$R_{IN}$ — $T_a$



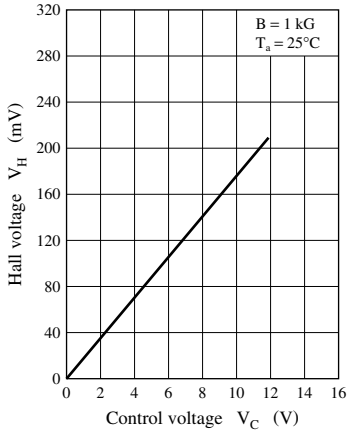

$V_H$ — B



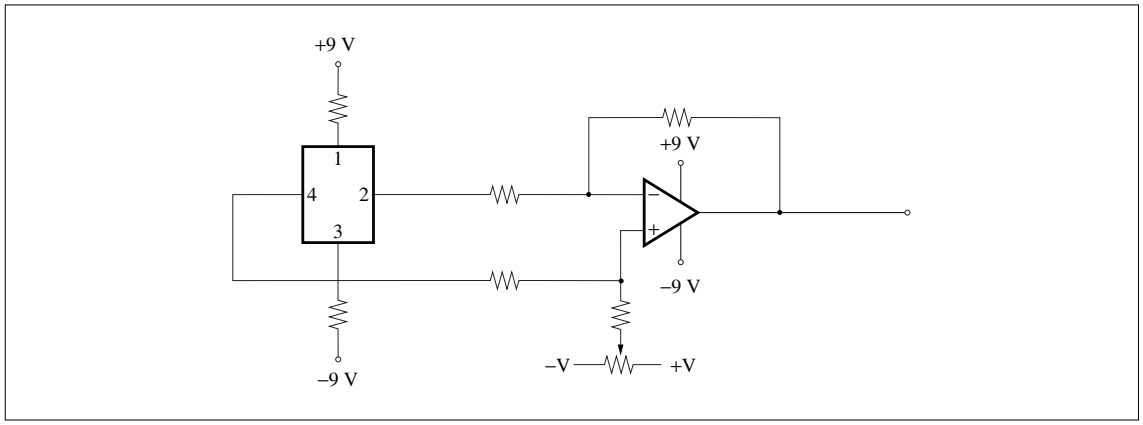

$V_H$ — $I_C$




$V_H$ — $V_C$




## ■ Typical Drive Circuit



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