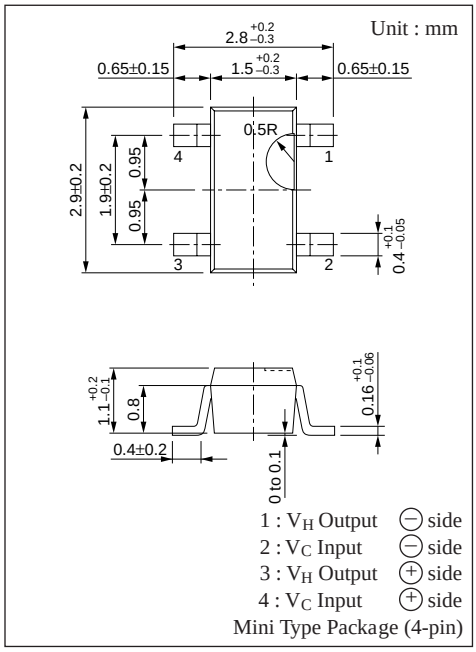
OH023

GaAs hall element

Magnetic sensor



Marking Symbol : OT

■ Features

- Hall voltage : typ. 90mV(V_C= 3V, B= 0.1T)
- Input resistance : typ. 2kΩ(min. 1.5kΩ)
- Output resistance : typ. 7kΩ(max. 10kΩ)
- Sealed in the Mini type (4-pin) package. Automatic insertion through taping and magazine.

■ Applications

- Various hall motor
  (Applicable to CD, VD, VCR, FDD, and other portable equipment)
- Applicable to wide-varying field (OA equipment, etc.)

■ Absolute Maximum Ratings (Ta= 25˚C)

Parameter	Symbol	Rating	Unit
Control voltage	V_C	6	V
Power dissipation	P_D	150	mW
Operating ambient temperature	T_{opr}	–10 to +125	˚C
Storage temperature	T_{stg}	– 55 to +125	˚C

■ Electrical Characteristics (Ta= 25˚C)

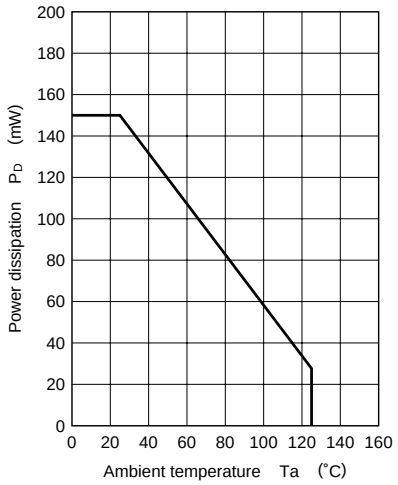
Parameter	Symbol	Condition	min	typ	max	Unit
Hall voltage	V_H*1	V_C= 3V, B= 0.1T	70	90	110	mV
Unbalance voltage	V_{HO}	V_C= 3V, B= 0T			±9.5	mV
Input Resistance	R_{IN}	I_C= 0.1mA, B= 0T	1.5	2	3	kΩ
Output resistance	R_{OUT}	I_C= 0.1mA, B= 0T	5	7	10	kΩ
Temperature coefficient of hall voltage	β	I_C=1.5mA, B= 0.1T			– 0.06	%/˚C
Temperature coefficient of input resistance	α	I_C= 0.1mA, B= 0T			0.3	%/˚C
Linearity of hall voltage	γ *2	I_C=1mA, B= 0.05T/0.1T			2	%

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

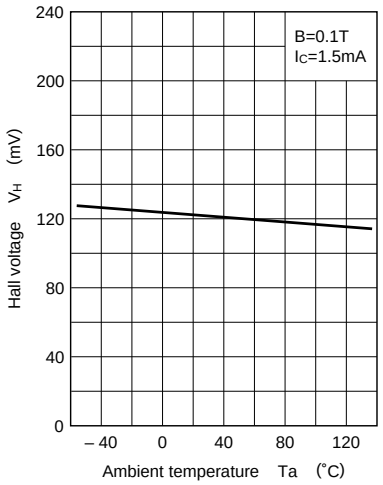
*2 The linearity γ of V_H is a percentage of the cumulative sensitivity of $K_{H0.05}$ and $K_{H0.1}$ measured at B= 0.05T and 0.1T for the average value.

$$\gamma = \frac{K_{H0.1} - K_{H0.05}}{1/2\,(K_{H0.05} + K_{H0.1})} \quad \left(\text{Percentage of the cumulative sensitivity } K_H = \frac{V_H}{I_C \cdot B} \right)$$

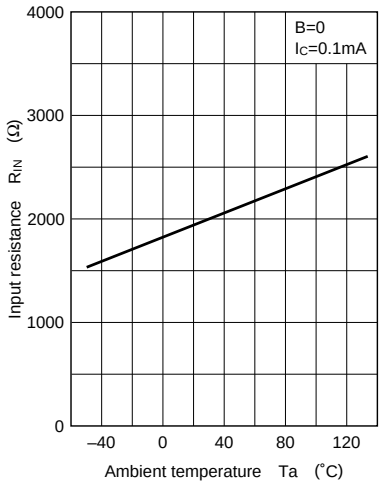
P_D – Ta



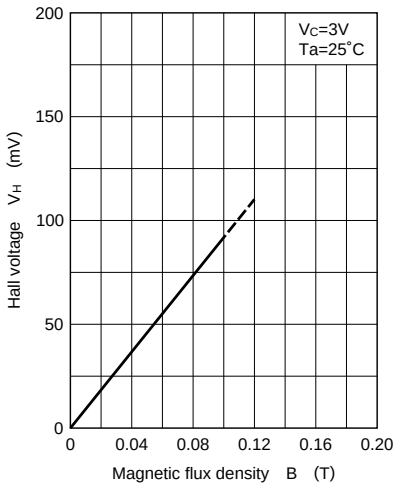
V_H – Ta



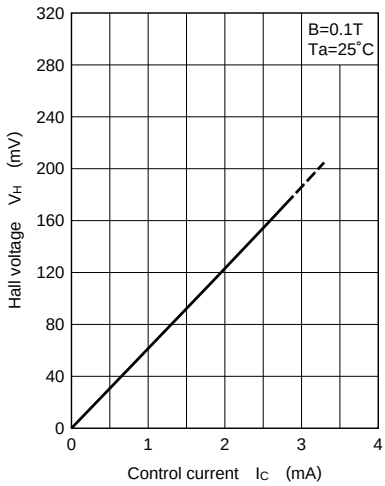
R_{IN} – Ta



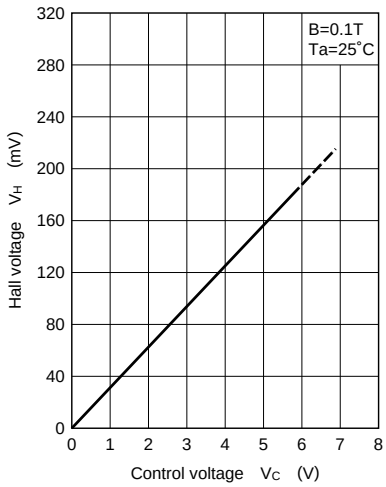
V_H – B



V_H – I_C



V_H – V_C



■ Typical Drive Circuit