

## GaAs Hall Element

### Absolute Maximum Ratings

Item	Symbol	Conditions	Limit	Unit
Max. Input Voltage	$V_C$	$T_a=25^\circ\text{C}$	5	V
Max. Input Power	$P_D$		25	mW
Operating Temp. Range	$T_{opr}$		-40 ~ +125	$^\circ\text{C}$
Storage Temp. Range	$T_{STG}$		-45 ~ +150	$^\circ\text{C}$

### Electrical Characteristics ( $T_a=25^\circ\text{C}$ )

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Hall Voltage	$V_H^{**}$	$B=50\text{mT}, I_c=5\text{mA}$	36	45	54	mV
Input Resistance	$R_{in}$	$B=0\text{mT}, I_c=0.1\text{mA}$	650	750	850	$\Omega$
Output Resistance	$R_{out}$	$B=0\text{mT}, I_c=0.1\text{mA}$	650	750	850	$\Omega$
Offset Voltage	$V_{OS}(V_u)$	$B=0\text{mT}, I_c=5\text{mA}$	-5		+5	mV
Temp. Coefficient of $V_H$	$\alpha V_H^{**}$	$B=50\text{mT}, I_c=5\text{mA}$ $T_a=25\sim 125^\circ\text{C}$			0.06	$\% / ^\circ\text{C}$
Temp. Coefficient of $R_{in}$	$\alpha R_{in}^{**}$	$B=0\text{mT}, I_c=0.1\text{mA}$ $T_a=25\sim 125^\circ\text{C}$			0.3	$\% / ^\circ\text{C}$
Linearity	$\Delta K^{**}$	$B=0.1/0.5\text{T}, I_c=5\text{mA}$	-1		+1	%

Notes : 1.  $V_H = V_{HM} - V_{OS}(V_u)$  (VHM: meter indication)

$$2. \alpha V_H = \frac{1}{V_H(T_1)} \times \frac{V_H(T_2) - V_H(T_1)}{(T_2 - T_1)} \times 100$$

$$3. \alpha R_{in} = \frac{1}{R_{in}(T_1)} \times \frac{R_{in}(T_2) - R_{in}(T_1)}{(T_2 - T_1)} \times 100$$

$$4. \Delta K = \frac{K(B_1) - K(B_2)}{[K(B_1) + K(B_2)] / 2} \times 100$$

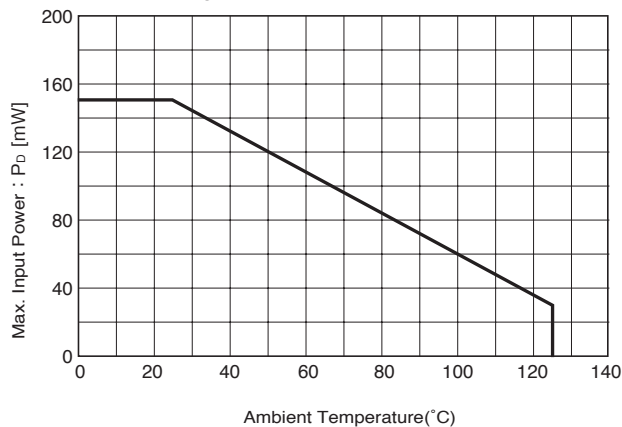
$$T_1 = 25^\circ\text{C}, T_2 = 125^\circ\text{C}$$

$$K = \frac{V_H}{I_c \cdot B}$$

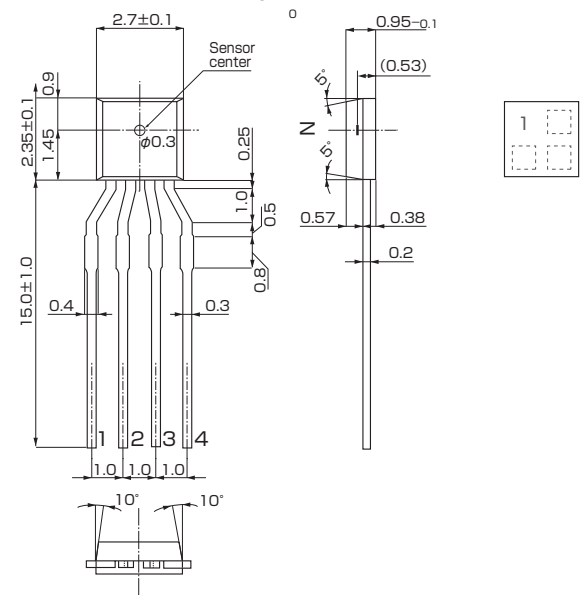
$$B_1 = 0.5\text{T}, B_2 = 0.1\text{T}$$

### Characteristic Curves

Allowable Package Power Dissipation



### Dimensional Drawing (Unit : mm)



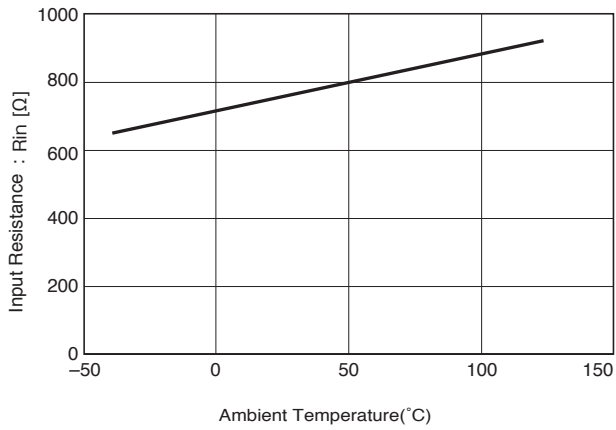
Pinning

1 (+) - 3 (-) (Input)

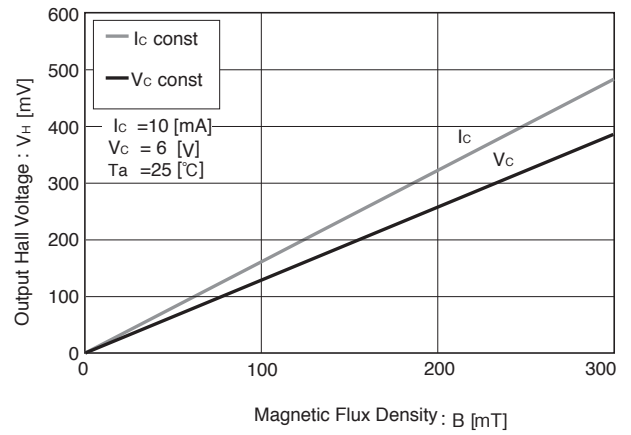
2 (+) - 4 (-) (Output)

## ● Characteristic Curves

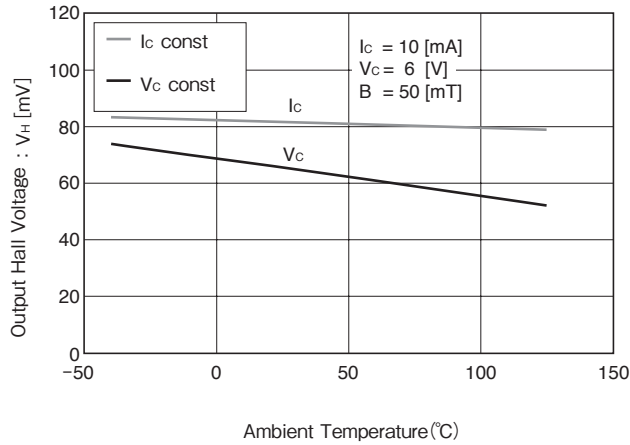
### R<sub>in</sub>-T



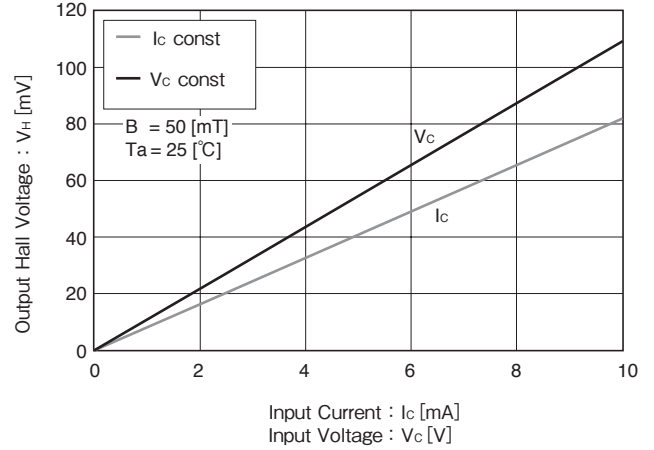
### V<sub>H</sub>-B



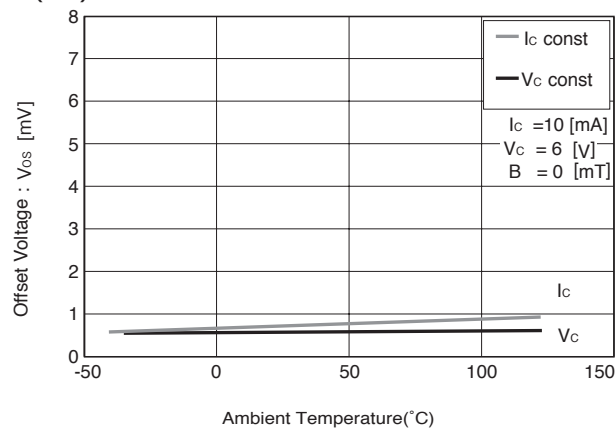
### V<sub>H</sub>-T



### V<sub>H</sub>-V<sub>c</sub>, V<sub>H</sub>-I<sub>c</sub>

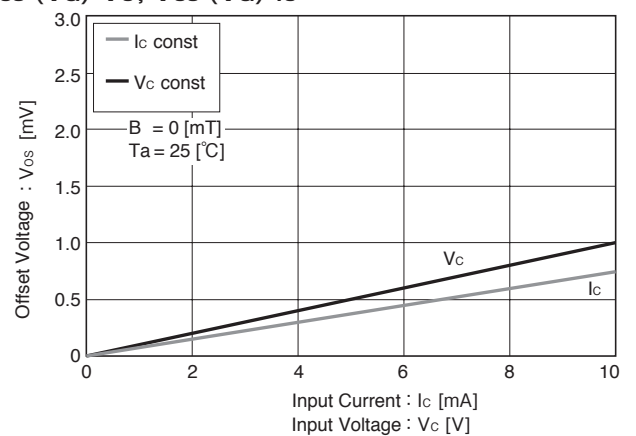


### V<sub>os</sub> (V<sub>u</sub>)-T



※Magnetic Flux Density  
 1[mT]=10 [G]

### V<sub>os</sub> (V<sub>u</sub>)-V<sub>c</sub>, V<sub>os</sub> (V<sub>u</sub>)-I<sub>c</sub>



$R_{in} = 750$  [Ω],  $V_{os} = 0.6$  [mV] [ $V_c = 6$  [V]]  
 In This Example :  $R_{in} = 750$  [Ω],  $V_{os} = 0.6$  [mV], [ $V_c = 6$  [V]]

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