

# HW-101A-4T

Shipped in packet-tape reel(3,000pcs per reel)

Notice : It is requested to read and accept "IMPORTANT NOTICE" written on the back of the front cover of this catalogue.

## ●Absolute Maximum Ratings

| Item                  | Symbol |                      | Limit      | Unit |
|-----------------------|--------|----------------------|------------|------|
| Max. Input Current    | $I_C$  | Const. Current Drive | 20         | mA   |
| Operating Temp. Range | Topr.  |                      | -40 ~ +110 | °C   |
| Storage Temp. Range   | Tstg.  |                      | -40 ~ +125 | °C   |

Note : For constant-voltage drive, stay within this input voltage derating curve envelope.

## ●Electrical Characteristics(T<sub>a</sub>=25°C)

| Item                                 | Symbol                            | Conditions   | Min. | Typ. | Max. | Unit |
|--------------------------------------|-----------------------------------|--|------|------|------|------|
| Output Hall Voltage                  | $V_H^*$                           | Const. Voltage Drive<br>B=50mT, V <sub>C</sub> =1V | 168  |      | 320  | mV   |
| Input Resistance                     | R <sub>in</sub>                   | B=0mT, I <sub>C</sub> =0.1mA                       | 240  |      | 550  | Ω    |
| Output Resistance                    | R <sub>out</sub>                  | B=0mT, I <sub>C</sub> =0.1mA                       | 240  |      | 550  | Ω    |
| Offset Voltage                       | V <sub>os</sub> (V <sub>u</sub> ) | B=0mT, V <sub>C</sub> =1V                          | -7   |      | +7   | mV   |
| Temp. Coefficient of V <sub>H</sub>  | $\alpha V_H^*$                    | Average on 0~40°C<br>B=50mT, I <sub>C</sub> =5mA   |      | -1.8 |      | %/°C |
| Temp. Coefficient of R <sub>in</sub> | $\alpha R_{in}^*$                 | Average on 0~40°C<br>B=0mT, I <sub>C</sub> =0.1mA  |      | -1.8 |      | %/°C |
| Dielectric Strength                  |                                   | 100V D.C   | 1.0  |      |      | MΩ   |

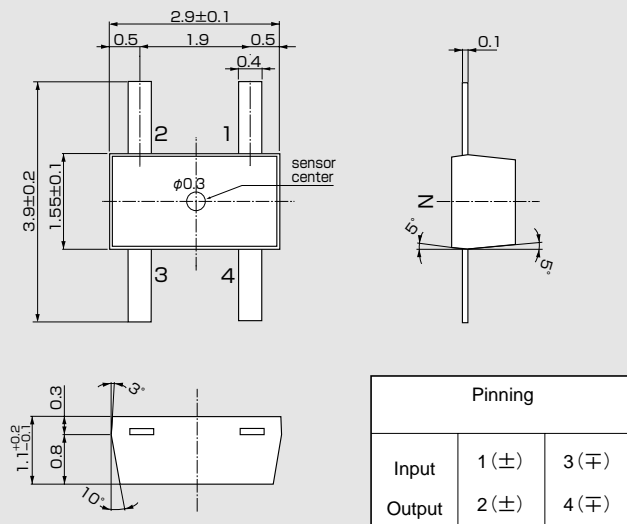
Notes : 1. V<sub>H</sub> = V<sub>HM</sub> - V<sub>os</sub>(V<sub>u</sub>) (V<sub>HM</sub>:meter indication)

$$2. \alpha V_H = \frac{1}{V_H(T_1)} \times \frac{V_H(T_3) - V_H(T_2)}{(T_3 - T_2)} \times 100$$

$$3. \alpha R_{in} = \frac{1}{R_{in}(T_1)} \times \frac{R_{in}(T_3) - R_{in}(T_2)}{(T_3 - T_2)} \times 100$$

$$T_1 = 20^\circ\text{C}, T_2 = 0^\circ\text{C}, T_3 = 40^\circ\text{C}$$

## ●Dimensional Drawing(Unit : mm)

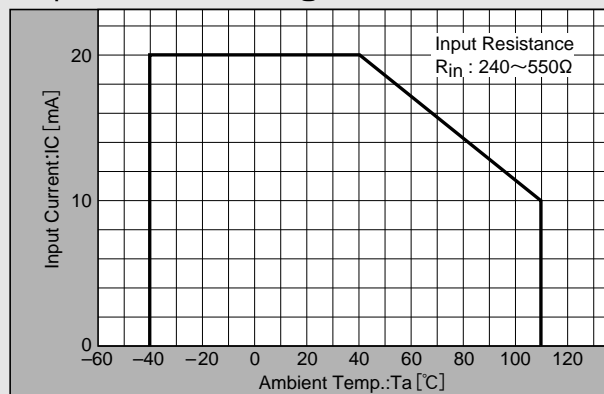


## ●Classification of Output Hall Voltage (V<sub>H</sub>)

| Rank | V <sub>H</sub> [ mV ] | Conditions   |
|------|-----------------------|--|
| C    | 168 ~ 204             | B=50mT, V <sub>C</sub> =1V<br>Constant Voltage Drive |
| D    | 196 ~ 236             |  |
| E    | 228 ~ 274             |  |
| F    | 266 ~ 320             |  |

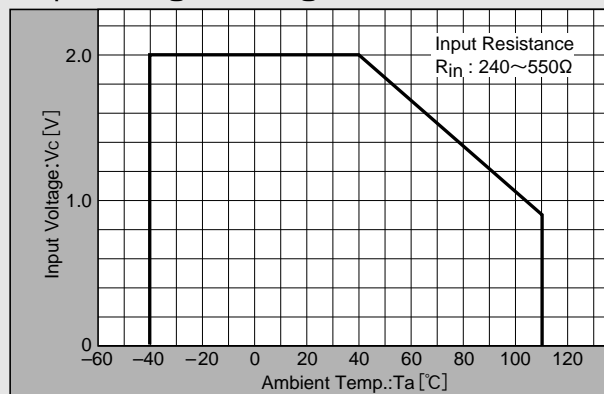
Note : When ordering, specify 3-rank or wider range(e.g.,C,D,E).

## ●Input Current Derating Curve



Note : R<sub>in</sub> of Hall element decreases rapidly as ambient temperature increases. Ensure compliance with input current derating curve envelope, throughout the operating temperature range.

## ●Input Voltage Derating Curve

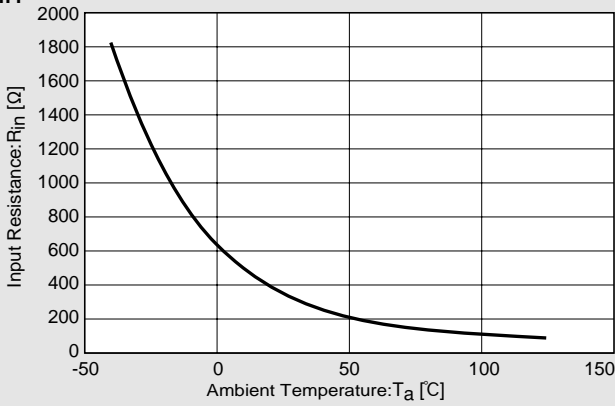


Note : For constant-voltage drive, stay within this input voltage derating curve envelope.

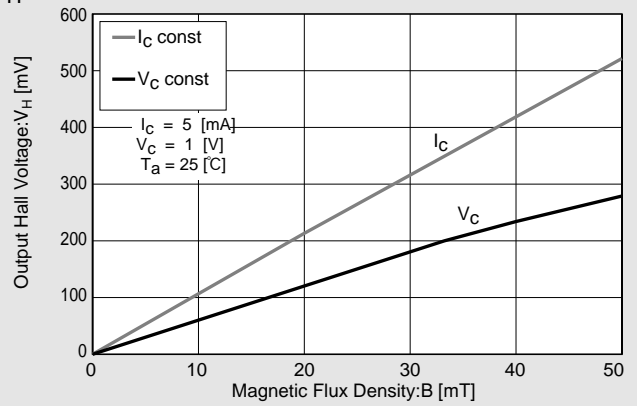
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●Characteristic Curves

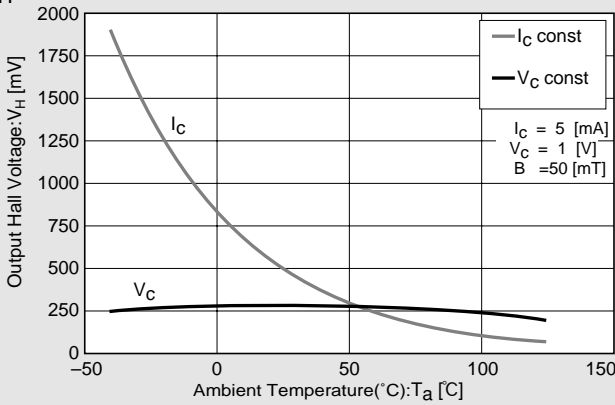
$R_{in}-T$



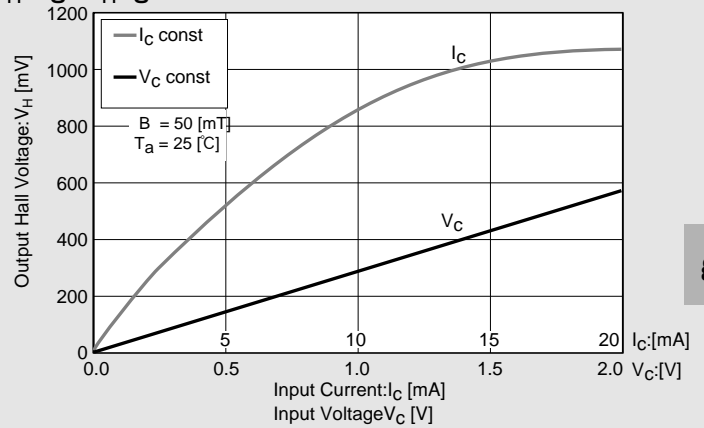
$V_H-B$



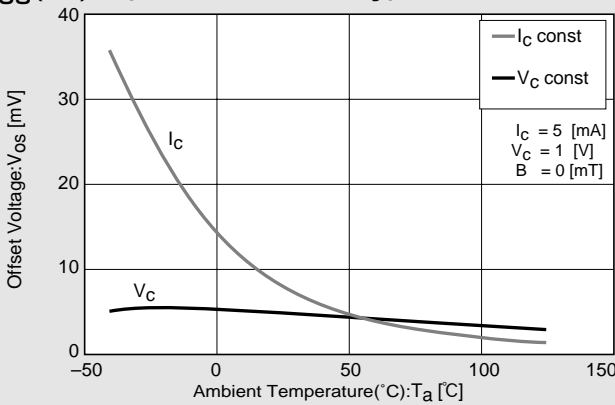
$V_H-T$



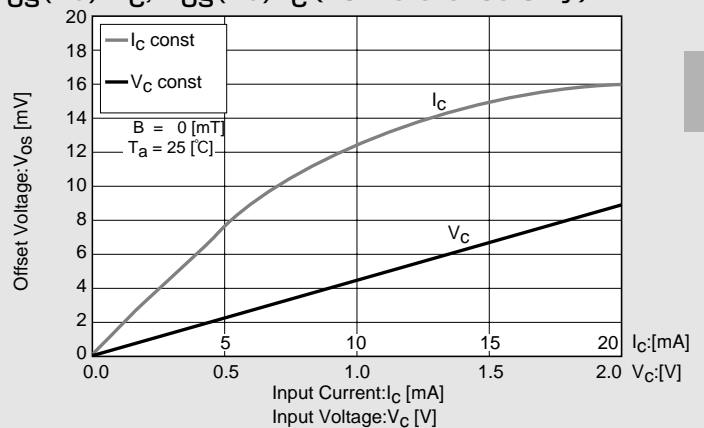
$V_H-V_C, V_H-I_C$



$V_{OS}(V_u)-T$  (For reference only)



$V_{OS}(V_u)-V_C, V_{OS}(V_u)-I_C$  (For reference only)



※Magnetic Flux Density  
 1[mT]=10[G]

In This Example :  $R_{in}=350$  [Ω],  $V_{OS}=4.7$  [mV],  $[V_C=1$  [V]]

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June 2, 2010