

# HW-105A

Shipped in packet-tape reel(5,000pcs 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 ( $T_a=25^\circ\text{C}$ )

| Item                          | Symbol            | Conditions                                      | Min. | Typ. | Max. | Unit       |
|-------------------------------|-------------------|---|------|------|------|------------|
| Output Hall Voltage           | $V_H^*$           | Const. Voltage Drive<br>B=50mT, $V_C=1\text{V}$ | 168  |      | 274  | mV         |
| Input Resistance              | $R_{in}$          | B=0mT, $I_C=0.1\text{mA}$                       | 250  |      | 450  | $\Omega$   |
| Output Resistance             | $R_{out}$         | B=0mT, $I_C=0.1\text{mA}$                       | 250  |      | 450  | $\Omega$   |
| Offset Voltage                | $V_{os}(V_u)$     | B=0mT, $V_C=1\text{V}$                          | -10  |      | +10  | mV         |
| Temp. Coefficient of $V_H$    | $\alpha V_H^*$    | Average on 0~40°C<br>B=50mT, $I_C=5\text{mA}$   |      | -1.8 |      | %/°C       |
| Temp. Coefficient of $R_{in}$ | $\alpha R_{in}^*$ | Average on 0~40°C<br>B=0mT, $I_C=0.1\text{mA}$  |      | -1.8 |      | %/°C       |
| Dielectric Strength           |                   | 100V D.C  | 1.0  |      |      | M $\Omega$ |

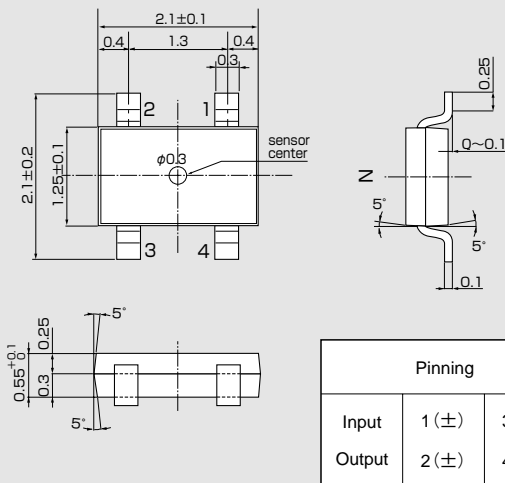
Notes : 1.  $V_H = V_{HM} - V_{os}(V_u)$  ( $V_{HM}$ :meter indication)

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

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

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

## ●Dimensional Drawing(Unit : mm)

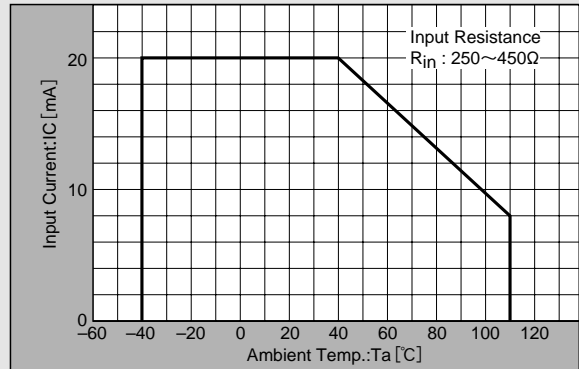


## ●Classification of Output Hall Voltage ( $V_H$ )

| Rank | $V_H$ [mV] | Conditions  |
|------|------------|---|
| C    | 168 ~ 204  | B=50mT, $V_C=1\text{V}$<br>Constant Voltage Drive |
| D    | 196 ~ 236  |   |
| E    | 228 ~ 274  |   |

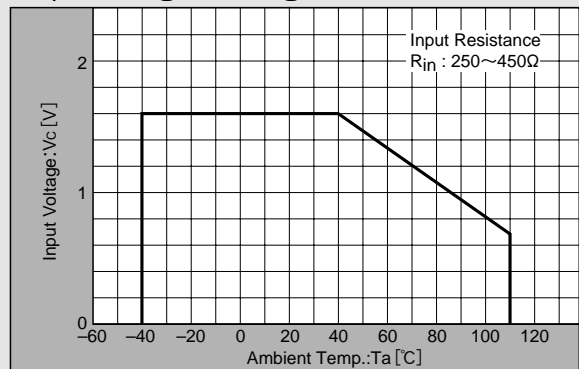
Note : When ordering, specify 3-rank or wider range(e-g.,C,D,E).

## ●Input Current Derating Curve



Note :  $R_{in}$  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



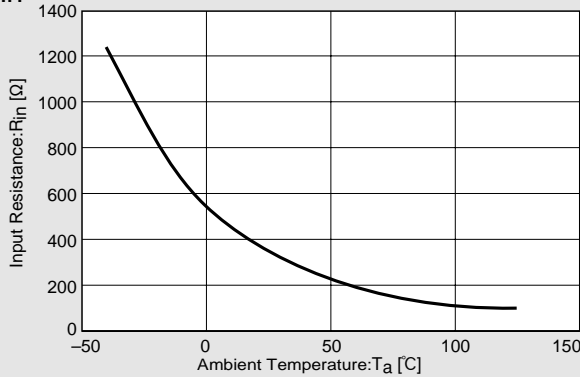
Note : For constant-voltage drive, stay within this input voltage derating curve envelope.

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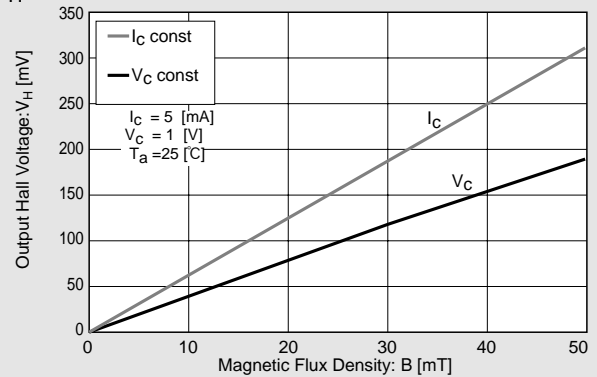
a

●Characteristic Curves

$R_{in}$ -T

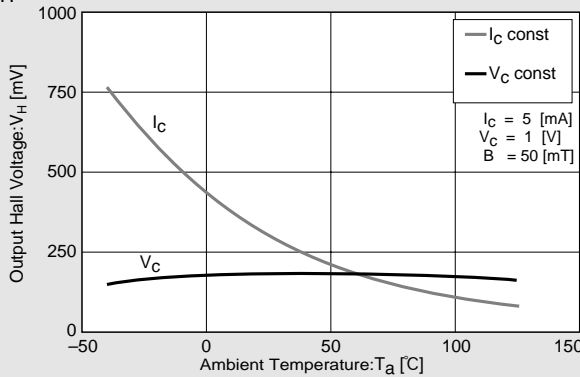


$V_H$ -B

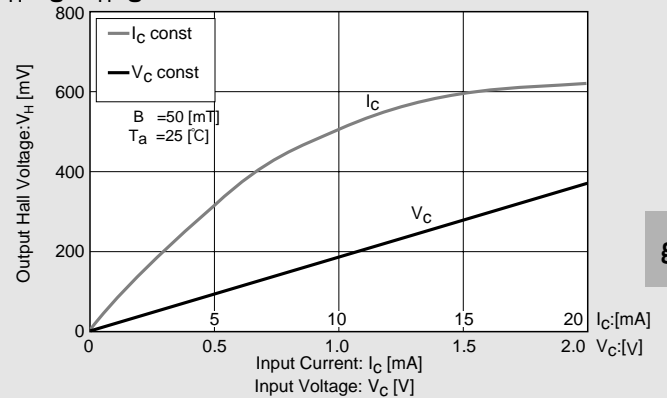


c

$V_H$ -T

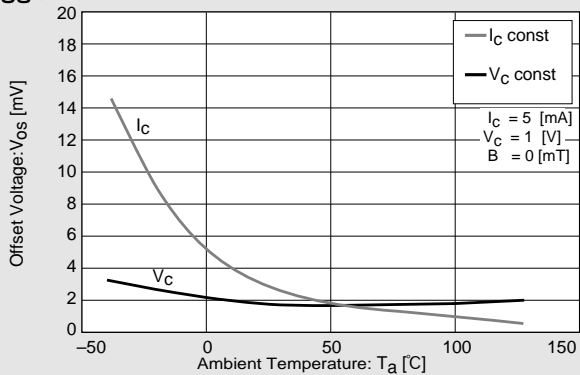


$V_H$ - $V_C$ ,  $V_H$ - $I_C$

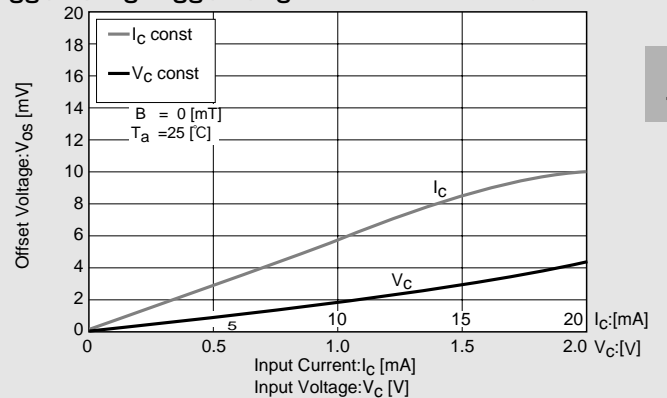


g

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



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



j

※Magnetic Flux Density  
 1[mT]=10[G]

In This Example :  $R_{in}=350$  [ $\Omega$ ],  $V_{OS}=1.9$  (mV), [ $V_C=1$  [V]]

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