

# HW-109A

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 B=50mT, $V_C=1\text{V}$	168		320	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	$V_{os}(Vu)$	B=0mT, $V_C=1\text{V}$	-7		+7	mV
Temp. Coefficient of $V_H$	$\alpha V_H$	Average on 0~40°C B=50mT, $I_C=5\text{mA}$		-1.8		%/°C
Temp. Coefficient of $R_{in}$	$\alpha R_{in}$	Average on 0~40°C B=0mT, $I_C=0.1\text{mA}$		-1.8		%/°C
Dielectric Strength		100V D.C	1.0			M $\Omega$

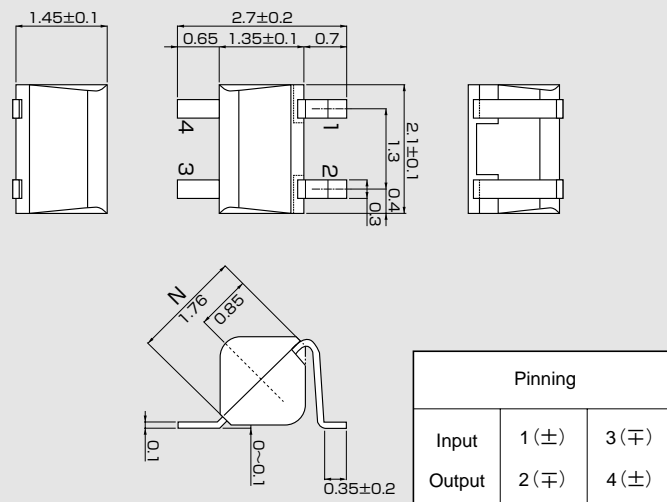
Notes : 1.  $V_H = V_{HM} - V_{os}(Vu)$  (VHM:meter indication)

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

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

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

## ●Dimensional Drawing(Unit : mm)

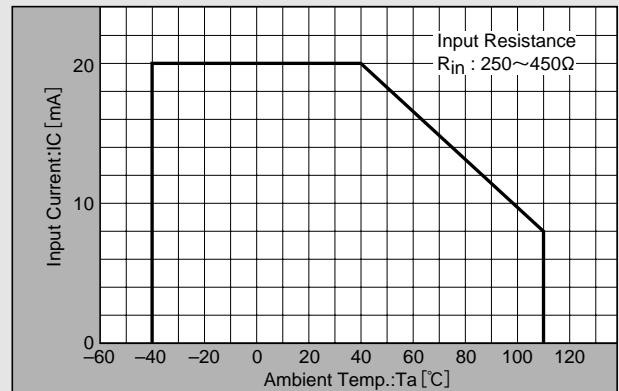


## ●Classification of Output Hall Voltage ( $V_H$ )

Rank	$V_H$ [ mV ]	Conditions
C	168 ~ 204	B=50mT, $V_C=1\text{V}$ Constant Voltage Drive
D	196 ~ 236	
E	228 ~ 274	
F	266 ~ 320	

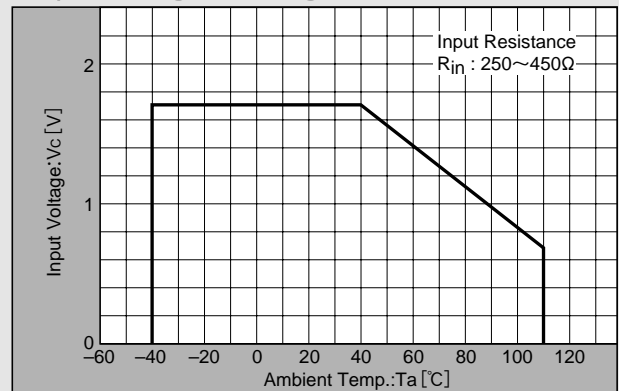
Note : When ordering, specify 3-rank or wider range(e.g.,C,D,E).

## ●Input Current Derating Curve



Note :  $R_{in}$  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

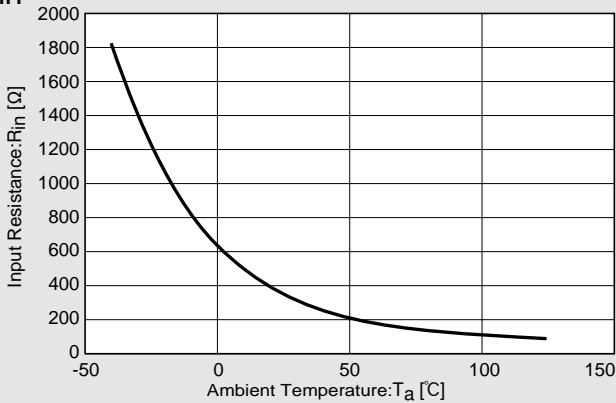


Note : For constant-voltage drive, stay within this input voltage derating curve envelope.

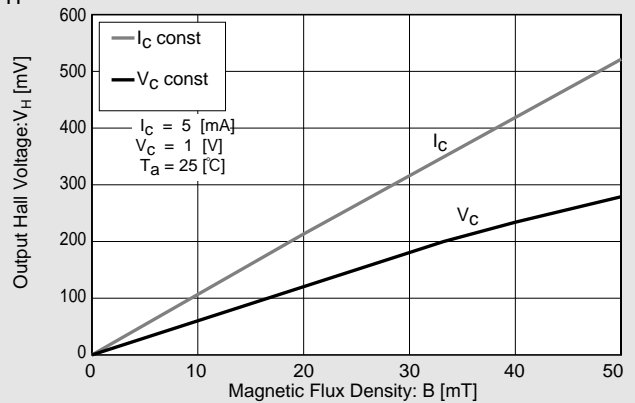
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●Characteristic Curves

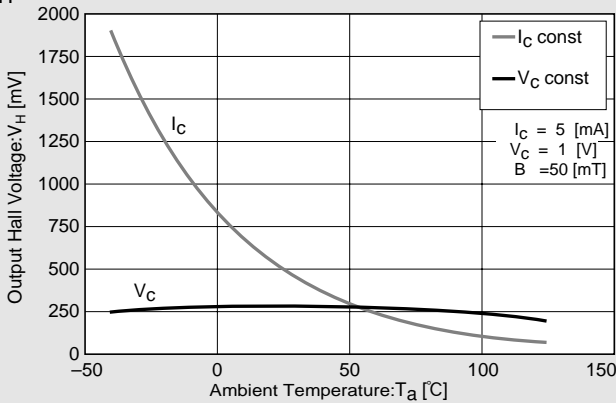
$R_{in}-T$



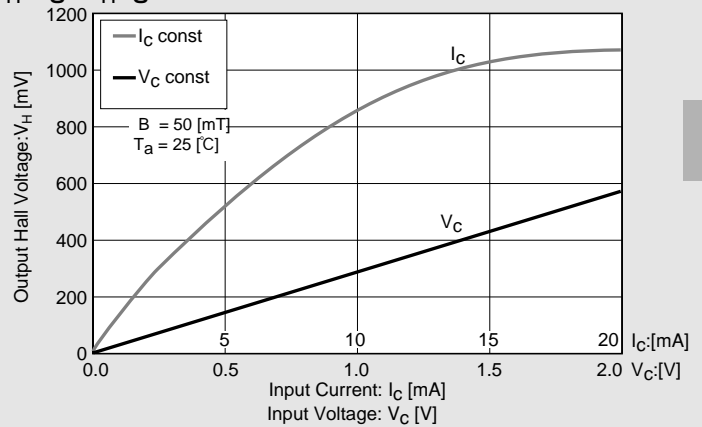
$V_H-B$



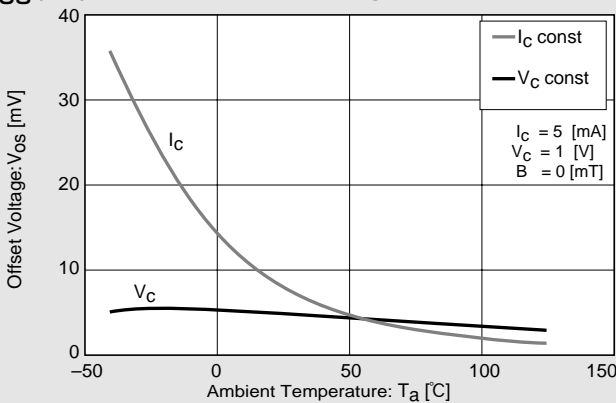
$V_H-T$



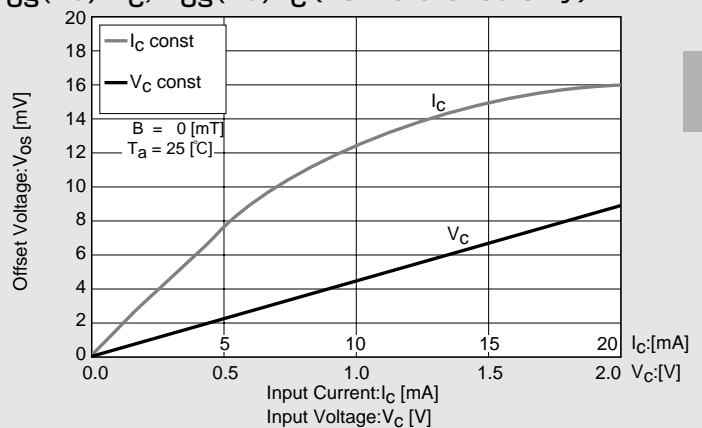
$V_H-V_C, V_H-I_C$



$V_{OS}(V_U)-T$  (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 :  $R_{in}=350$  [ $\Omega$ ],  $V_{OS}=4.7$  [mV],  $[V_C=1$  [V]]

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June 2, 2010