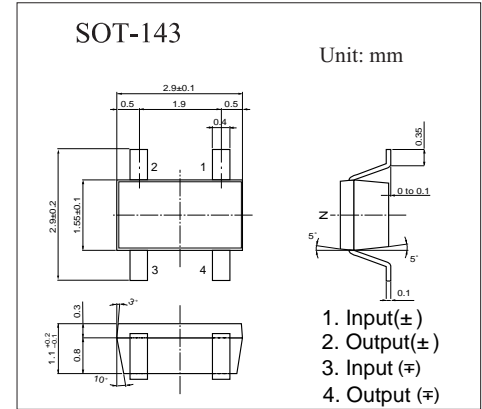


## High-sensitivity InSb Hall element HW101A

### ■ Features

- High-sensitivity InSb Hall element
- Mini-mold SMT package



### ■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	Rating	Unit
Input Current	I <sub>c</sub>	20	mA
Operating Temp. Range	T <sub>opr</sub>	-40 to +110	°C
Storage Temp. Range	T <sub>stg</sub>	-40 to +125	°C

Note: 1. Part mounted on FR-4 PC board with recommended pad layout

### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output Hall Voltage	V <sub>H</sub>	Const. Voltage Drive B=50mT, V <sub>c</sub> =IV	122		370	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>	B=0mT, V <sub>c</sub> =IV	-7		+7	V
Temp. Coefficient of V <sub>H</sub>	αV <sub>H</sub>	B=50mT, I <sub>c</sub> =5mA		-1.8		%/°C
Temp. Coefficient of R <sub>in</sub>	αR <sub>in</sub>	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>HM</sub>:meter indication)

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

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

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

# HW101A

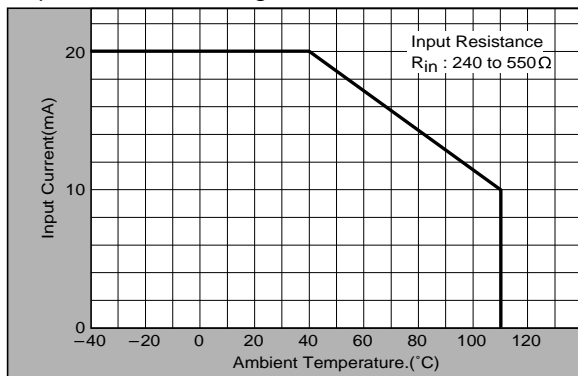
## Classification of Output Hall Voltage (V<sub>H</sub>)

Rank	V <sub>H</sub> [ mV ]	Conditions
A	122 to 150	B=50mT, V <sub>c</sub> =1V Constant Voltage Drive
B	144 to 174	
C	168 to 204	
D	196 to 236	
E	228 to 274	
F	266 to 320	
G	310 to 370	

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

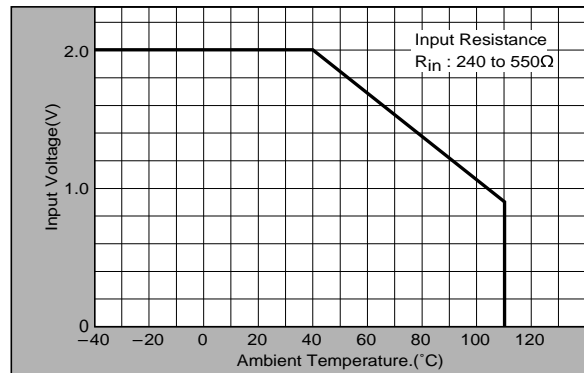
### ■ Typicl Characteristics

#### •Input Current Derating Curve

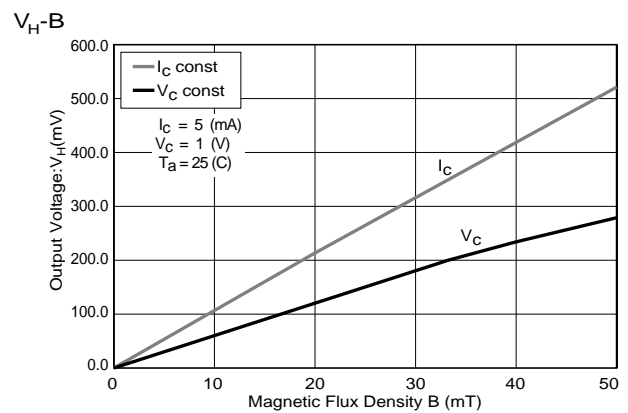
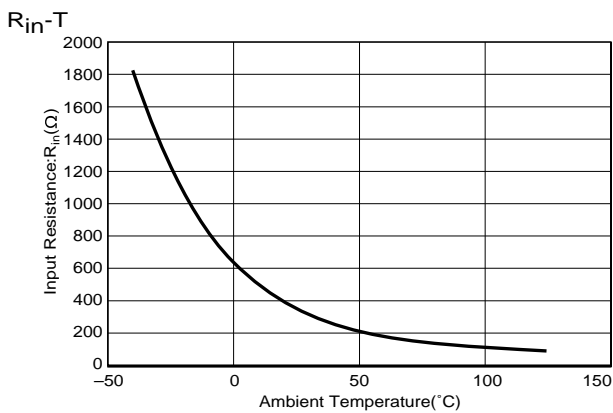


Note : R<sub>in</sub> of Hall element decreases rapidly as ambient temperature increases. Ensure compliance with input current derating curve envelope, throughout the operating temperature range.

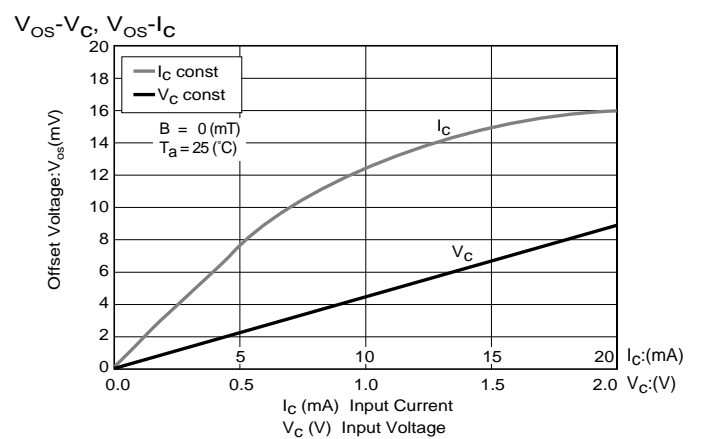
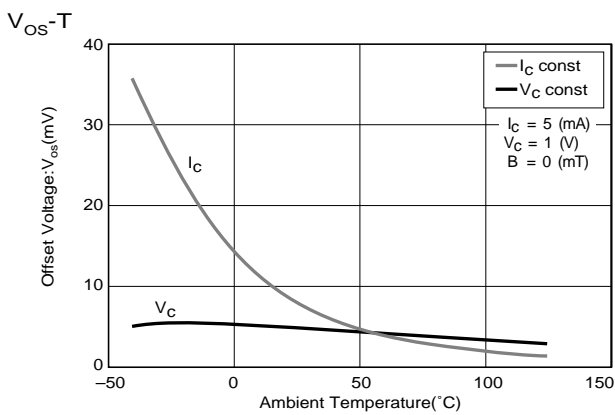
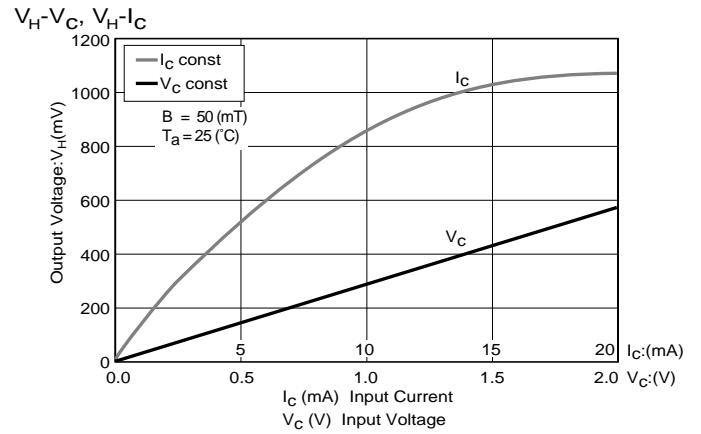
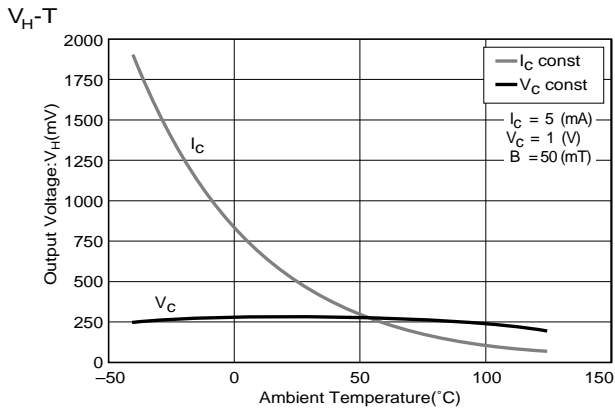
#### •Input Voltage Derating Curve



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



# HW101A



\*Magnetic Flux Density  
 1(mT)=10(G)

In This Example :  $R_{in}=350(\Omega)$ ,  $V_{OS}=4.7$ (mV),  $V_C=1$ (V)