

HW-109A

- High-sensitivity InSb Hall element.
- SMT package with sensing area leaned 45°.
- Shipped in packet-tape reel (5000pcs per reel).

•Absolute Maximum Ratings

Item	Symbol		Limit	Unit
Max. Input Current	I_C	Const. Current Drive	20	mA
Operating Temp. Range	$T_{opr.}$		-40 to +110	°C
Storage Temp. Range	$T_{stg.}$		-40 to +125	°C

•Electrical Characteristics($T_A=25^\circ\text{C}$)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Hall Voltage	V_H	Const. Voltage Drive $B=50\text{mT}$, $V_C=IV$	122		320	mV
Input Resistance	R_{in}	$B=0\text{mT}$, $I_C=0.1\text{mA}$	250		450	Ω
Output Resistance	R_{out}	$B=0\text{mT}$, $I_C=0.1\text{mA}$	250		450	Ω
Offset Voltage	V_{OS}	$B=0\text{mT}$, $V_C=IV$	-7		+7	mV
Temp. Coefficient of V_H	αV_H	$B=50\text{mT}$, $I_C=5\text{mA}$		-1.8		%/°C
Temp. Coefficient of R_{in}	αR_{in}	$B=0\text{mT}$, $I_C=0.1\text{mA}$		-1.8		%/°C
Dielectric Strength		100V D.C	1.0			M Ω

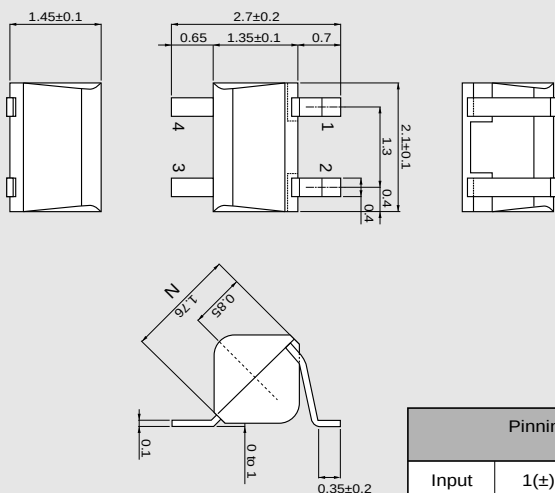
Notes : 1. $V_H = V_{HM} - V_{OS}$ (V_{HM} :meter indication)

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

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

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

•Dimensional Drawing (mm)

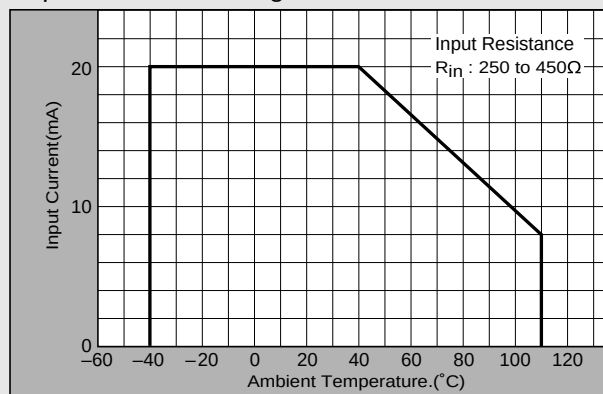


•Classification of Output Hall Voltage (V_H)

Rank	V_H [mV]	Conditions
A	122 to 150	$B=50\text{mT}$, $V_C=IV$ Constant Voltage Drive
B	144 to 174	
C	168 to 204	
D	196 to 236	
E	228 to 274	
F	266 to 320	

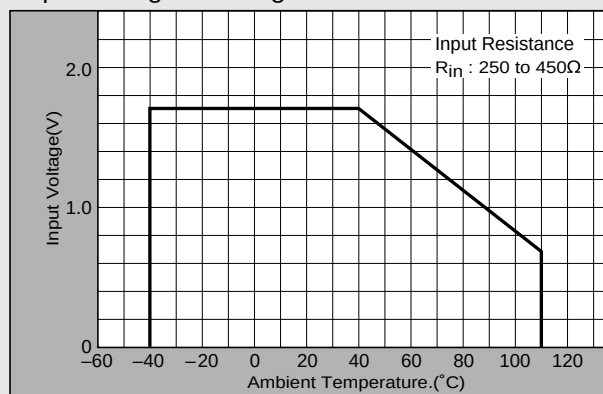
Note : When ordering, specify 3-rank or wider range(e.g.,BCD).

•Input Current Derating Curve



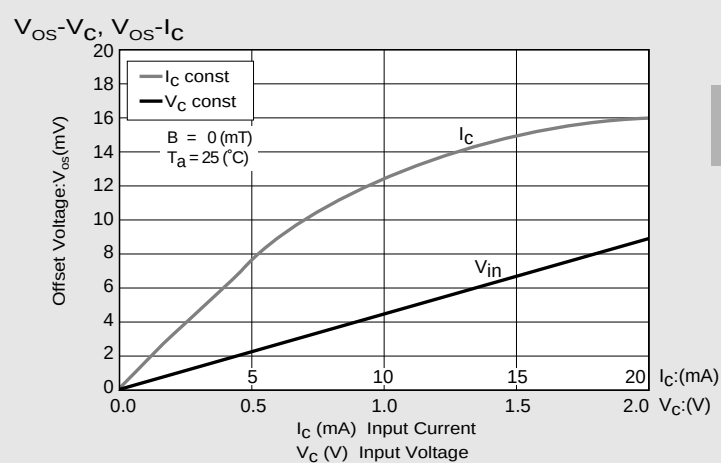
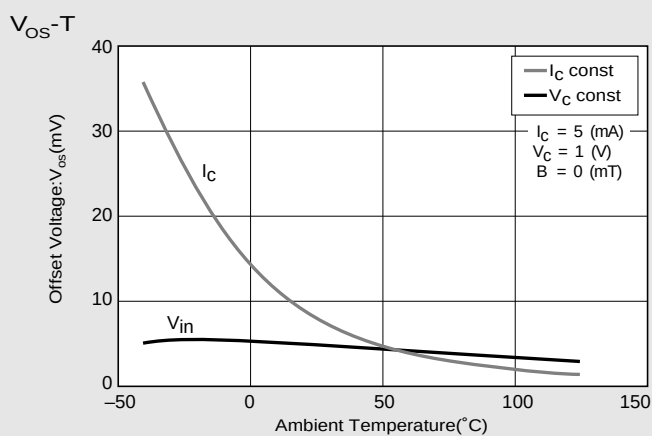
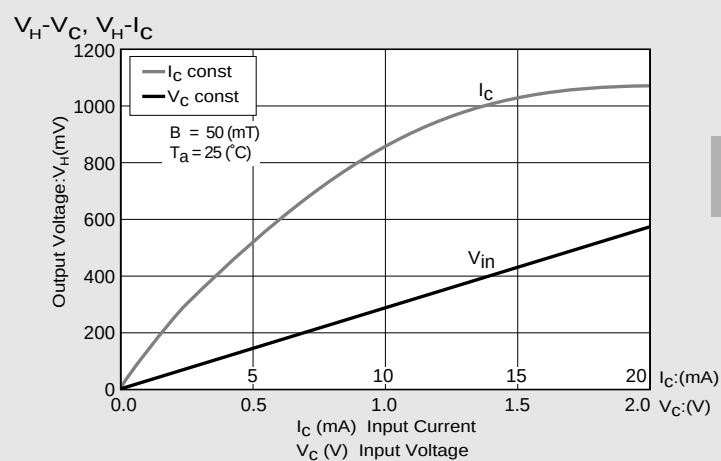
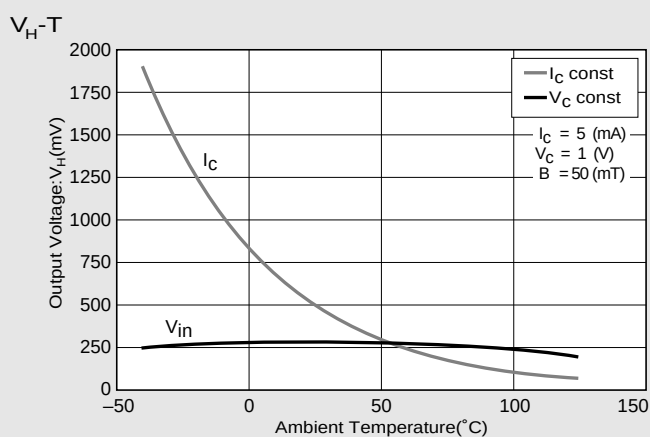
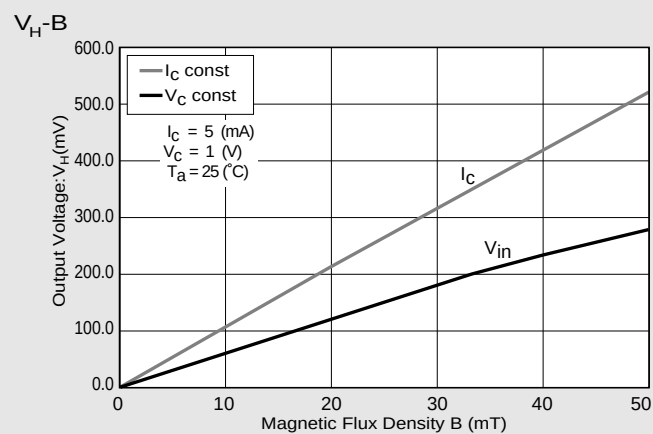
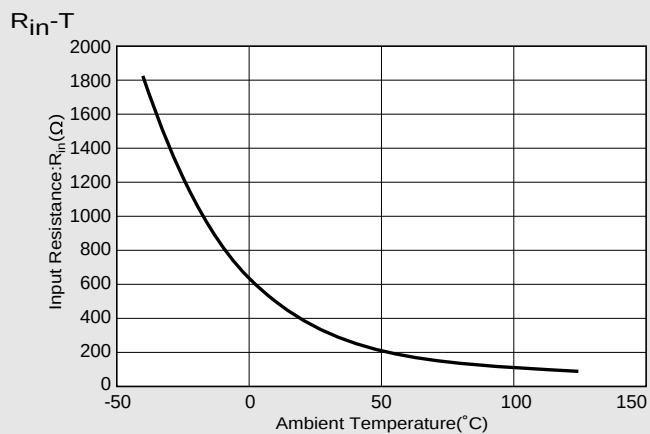
Note : R_{in} of Hall element decreases rapidly as ambient temperature increases. Ensure compliance with input current derating curve envelope, throughout the operating temperature range.

•Input Voltage Derating Curve



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

•Characteristic Curves



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

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