HW-108A

•High-sensitivity InSb Hall element.
•Super mini-mold SMT package (fits SOT343 land pattern).
•Shipped in packet-tape reel (4000pcs 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˚C)

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

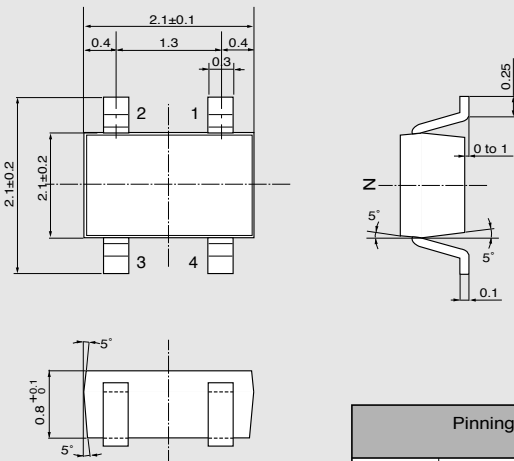Notes : 1. $V_H = VHM - V_{os}$ (VHM:meter indication)

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

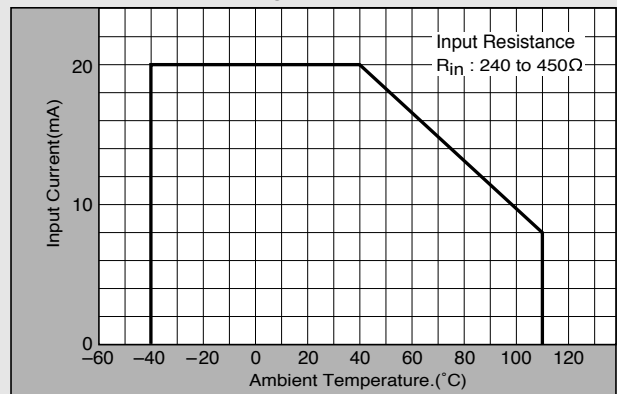$T_1 = 20$˚C, $T_2 = 0$˚C, $T_3 = 40$˚C

•Dimensional Drawing (mm)

Pinning			
Input	1(±)	3(∓)
Output	2(±)	4(∓)

•Classification of Output Hall Voltage (V_H)

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

Note : When ordering, specify 3-rank or wider range(e·g·,BCD).
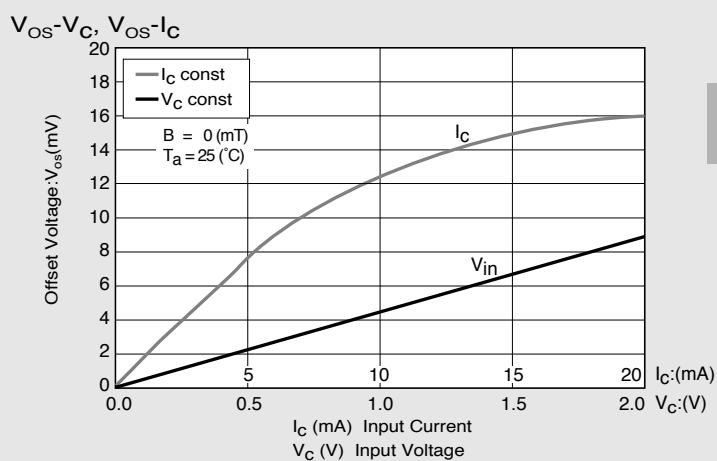
•Input Current Derating Curve

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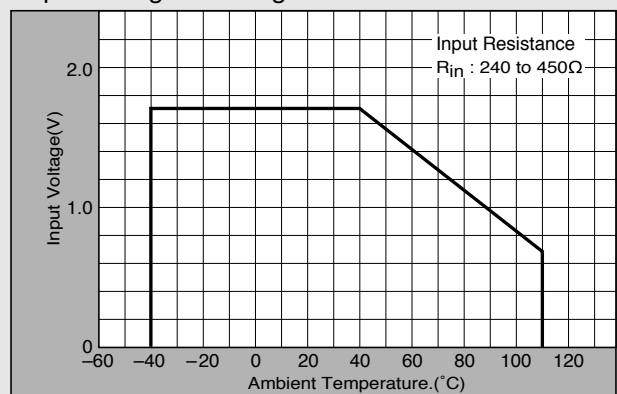
Note : For constant-voltage drive, stay within this input voltage derating curve envelope.

a

•Characteristic Curves

R_{in}-T

(Graph: Input Resistance:$R_{in}(\Omega)$ vs Ambient Temperature(°C))
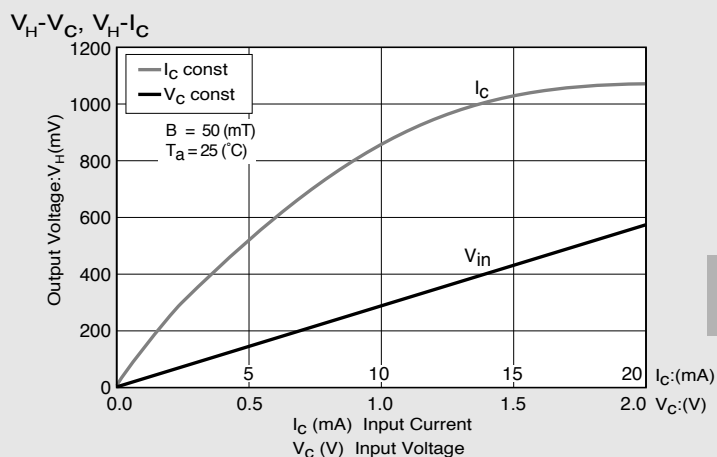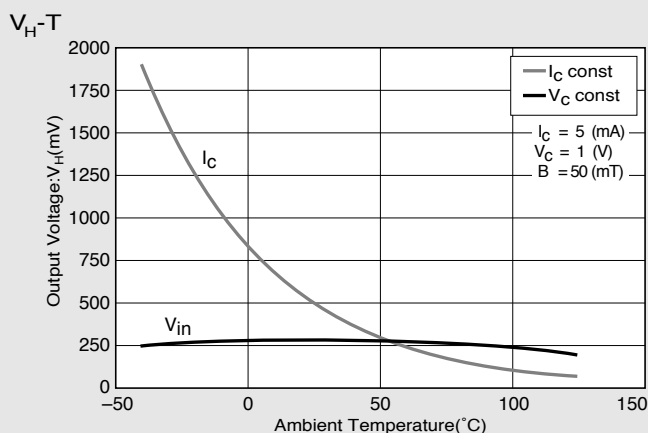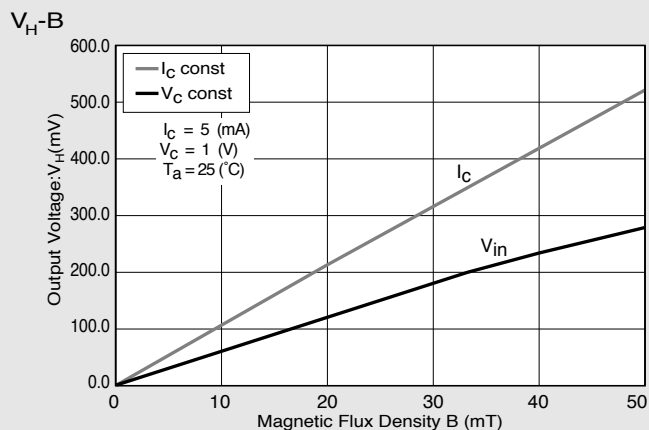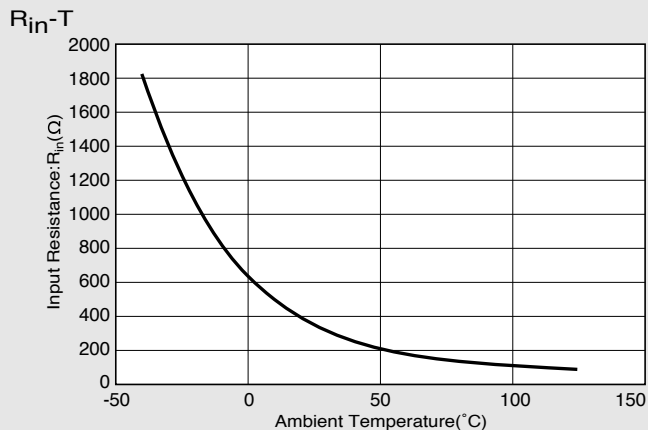
V_H-B

(Graph: Output Voltage:V_H(mV) vs Magnetic Flux Density B (mT))

- I_C const
- V_C const

$I_C = 5$ (mA)
$V_C = 1$ (V)
$T_a = 25$ (°C)

I_C

V_{in}

c

V_H-T

(Graph: Output Voltage:V_H(mV) vs Ambient Temperature(°C))

- I_C const
- V_C const

$I_C = 5$ (mA)
$V_C = 1$ (V)
$B = 50$ (mT)

I_C

V_{in}

V_H-V_C, V_H-I_C

(Graph: Output Voltage:V_H(mV))

- I_C const
- V_C const

$B = 50$ (mT)
$T_a = 25$ (°C)

I_C

V_{in}

I_C:(mA)
V_C:(V)

I_C (mA) Input Current
V_C (V) Input Voltage

g

V_{OS}-T

(Graph: Offset Voltage:V_{os}(mV) vs Ambient Temperature(°C))

- I_C const
- V_C const

$I_C = 5$ (mA)
$V_C = 1$ (V)
$B = 0$ (mT)

I_C

V_{in}

V_{OS}-V_C, V_{OS}-I_C

(Graph: Offset Voltage:V_{os}(mV))

- I_C const
- V_C const

$B = 0$ (mT)
$T_a = 25$ (°C)

I_C

V_{in}

I_C:(mA)
V_C:(V)

I_C (mA) Input Current
V_C (V) Input Voltage

i

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

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