

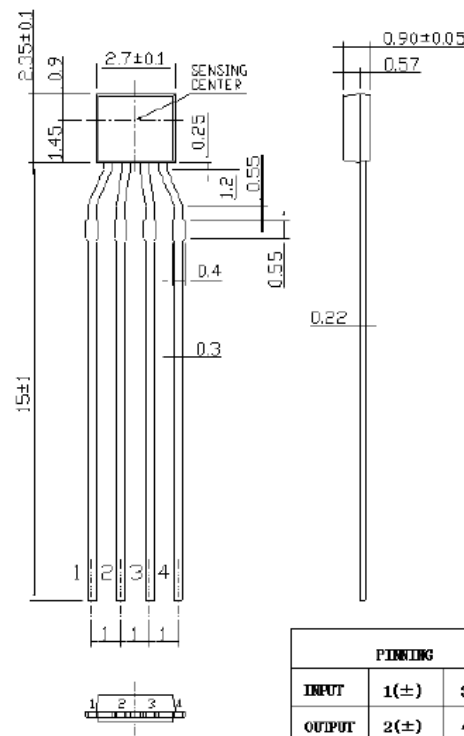
# MW922 InSb Hall Element

Ultra High-sensitivity InSb Hall element

Thin-type SIP Package

Shipped in Bulk by Pack (500Pcs devices per pack)

## Dimensional Drawing (Unit MM)



## Absolute Maximum Rating

Operating Temperature Range     $-40^{\circ}\text{C} \sim 110^{\circ}\text{C}$   
 Storage Temperature Range     $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$   
 Maximum Input Current  $I_{cmax}$  [mA]    10mA

## Electrical Characteristic ( RT=25°C )

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Table 1. Electrical Characteristics of MW922

Item	Symbol	Test Condi.	Min.	Typ.	Max.	Unit
Hall Voltage	$V_H$	$B = 50\text{mT}, I_C = 1\text{V}$ $T_a = \text{RT}$	310		415	mV
Input Resistance	$R_{in}$	$B = 0\text{mT}, I_C = 0.1\text{mA}$ $T_a = \text{RT}$	240		550	$\Omega$
Output Resistance	$R_{out}$	$B = 0\text{mT}, I_C = 0.1\text{mA}$ $T_a = \text{RT}$	240		550	$\Omega$
Offset Voltage	$V_{os}$	$B = 0\text{mT}, I_C = 1\text{V}$ $T_a = \text{RT}$	-7		+7	mV
Temp. Coeffi. of $V_H$	$ \alpha V_H $	$B = 50\text{mT}, I_C = 1\text{mA}$ , $T_a = 0^\circ\text{C} \sim 40^\circ\text{C}$		1.8		%/ $^\circ\text{C}$
Temp. Coeffi. of $R_{in}$	$\alpha R_{in}$	$B = 50\text{mT}, I_C = 5\text{mA}$ , $T_a = 0^\circ\text{C} \sim 40^\circ\text{C}$		-1.8		%/ $^\circ\text{C}$
Dielectric strength		100V D.C	1.0			M $\Omega$

- $V_H = V_{H-M} - V_{os}$  in which  $V_{H-M}$  is the Output Hall Voltage,  $V_H$  is the Hall Voltage and  $V_{os}$  is the offset Voltage under the identical electrical stimuli.
- $$\alpha V_H = \frac{1}{V_H(T_1)} \times \frac{V_H(T_3) - V_H(T_2)}{(T_3 - T_2)} \times 100$$
- $$\alpha R_{in} = \frac{1}{R_{in}(T_1)} \times \frac{R_{in}(T_3) - R_{in}(T_2)}{(T_3 - T_2)} \times 100 \quad T_1 = 20^\circ\text{C}, T_2 = 0^\circ\text{C}, T_3 = 40^\circ\text{C}$$

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

Table 2. Classification of Hall Voltage

Rank	$V_H$ [mV]	Conditions
G	310 ~ 370	B=50mT, $V_C=1V$
H	360 ~ 415	

## Characteristic Curves

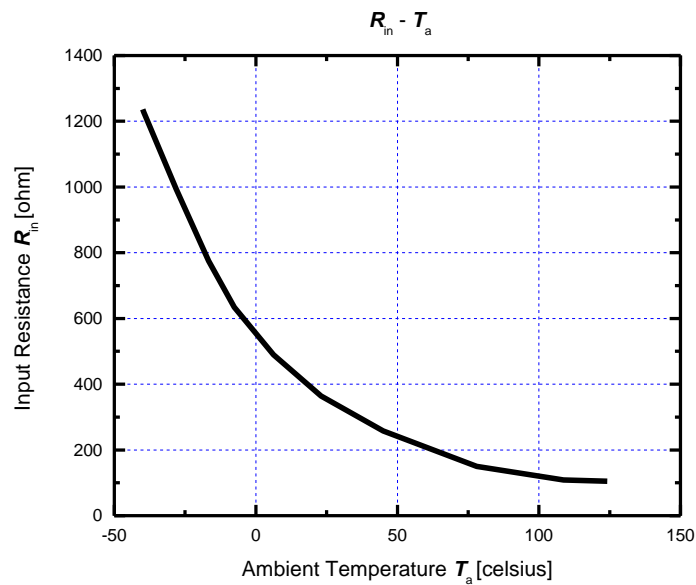


Figure 1. Input resistance  $R_{in}$  as a function of ambient temperature  $T_a$ .

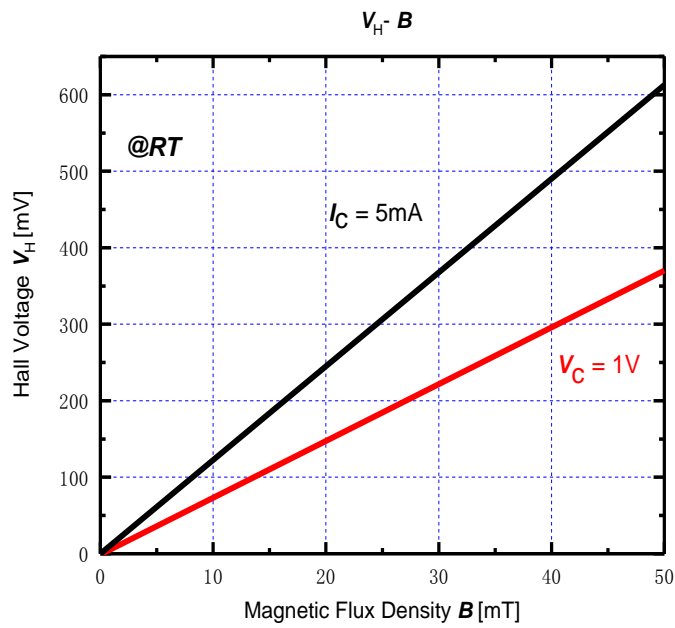


Figure 2. Hall voltage  $V_H$  as a function of magnetic flux density  $B$ .

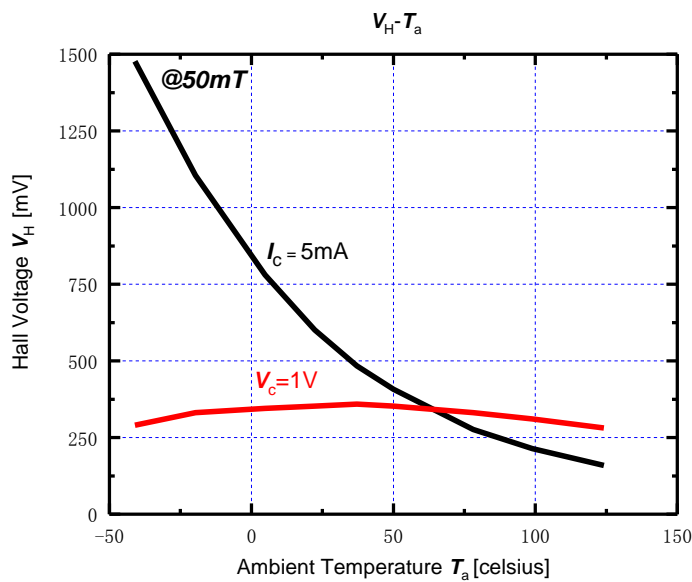


Figure 3. Hall voltage  $V_H$  as a function of ambient temperature  $T_a$ .

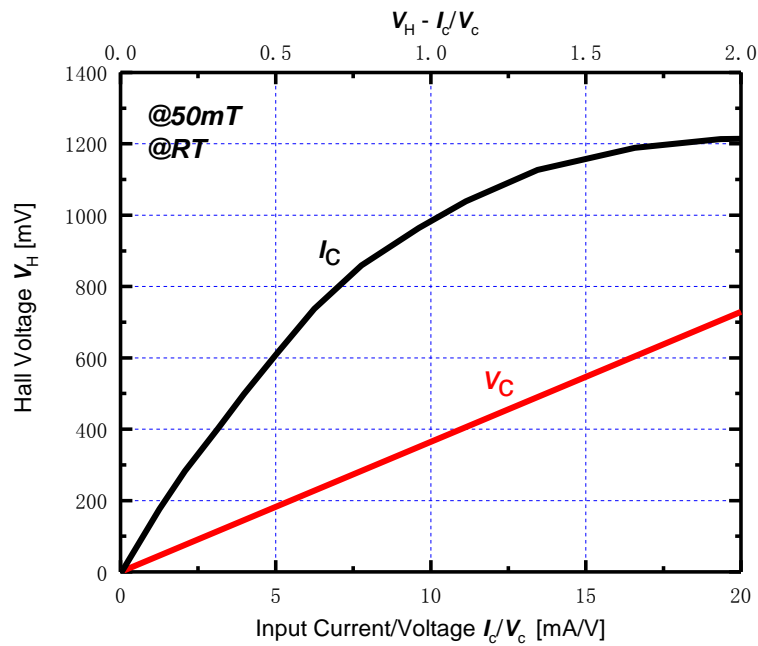


Figure 4. Hall voltage  $V_H$  as a function of electrical stimuli  $I_c/V_c$ .

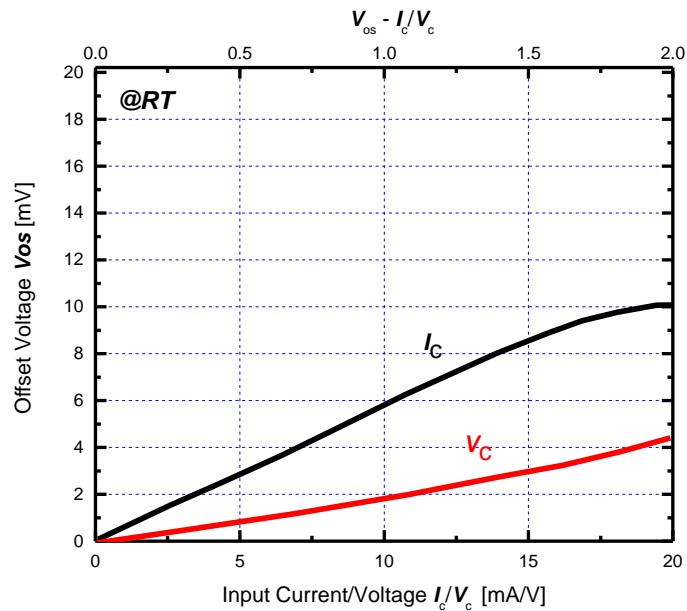


Figure 5. Offset voltage  $V_{os}$  as a function of electrical stimuli  $I_c/V_c$ .

## Precautions for ESD

This product is the device that is sensitive to ESD (Electrostatic Discharge). Handling Hall Elements with the ESD-Caution mark under the environment in which

- Static electrical charge is unlikely to arise. (Ex; Relative Humidity; over 40%RH).
- Wearing the antistatic suit and wristband when handling the devices.
- Implementing measures against ESD as for containers that directly touch the devices.

## Precautions for Storage

- Products should be stored at an appropriate temperature and humidity (5 to 35°C, 40 to 60%RH) after the unsealing of MBB. **Using self-sealer is highly recommended.** Keeping products away from chlorine and corrosive gas.
- **For storage longer than 2 years**, it is recommended to store in nitrogen atmosphere with MBB sealed. Oxygen and H<sub>2</sub>O of atmosphere oxidizes leads of products and lead solder ability get worse.

## Precautions for Safety

- Do not alter the form of this product into a gas, powder or liquid through burning, crushing or chemical processing.
- Observe laws and company regulations when discarding this product.