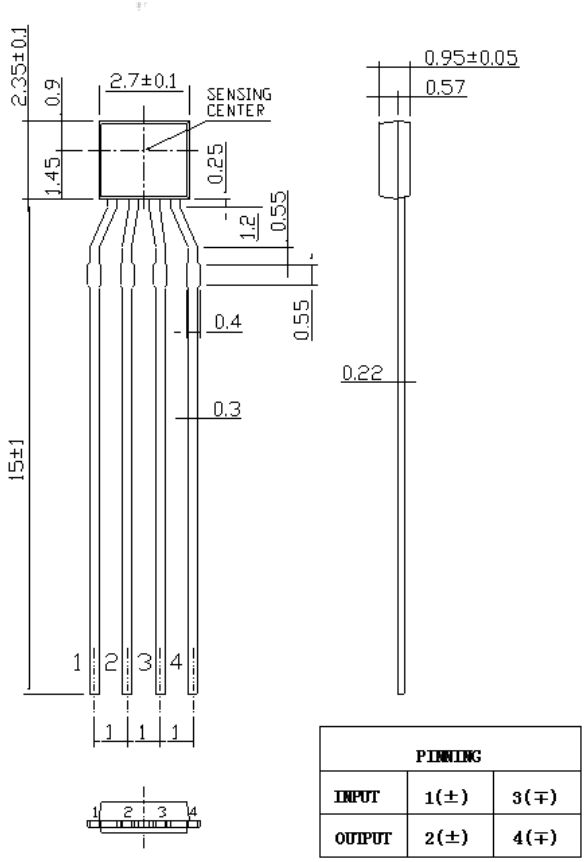
MW921 InSb Hall Element

Ultra High-sensitivity InSb Hall element

Thin-type SIP Package

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

Dimensional Drawing (Unit MM)



PINNING		
INPUT	1(±)	3(∓)
OUTPUT	2(±)	4(∓)

Absolute Maximum Rating

Operating Temperature Range	-40℃ ~ 110℃
Storage Temperature Range	-40℃ ~ 125℃
Maximum Input Current I_{cmax} [mA]	10mA

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Electrical Characteristic (RT=25℃)

Table 1. Electrical Characteristics of MW921

Item	Symbol	Test Condi.	Min.	Typ.	Max.	Unit
Hall Voltage	V_H	B = 50mT, V_C=1V T_a = RT	196		370	mV
Input Resistance	R_{in}	B = 0mT, I_C = 0.1mA T_a = RT	240		550	Ω
Output Resistance	R_{out}	B = 0mT, I_C = 0.1mA T_a = RT	240		550	Ω
Offset Voltage	V_{os}	B = 0mT, V_C = 1V T_a = RT	-7		+7	mV
Temp. Coeffi. of V_H	$\|\alpha V_H\|$	B = 50mT, I_C =1mA, T_a = 0℃ ~ 40℃		1.8		%/℃
Temp. Coeffi. of R_{in}	αR_{in}	B = 50mT, I_C =5mA, T_a = 0℃ ~ 40℃		-1.8		%/℃
Dielectric strength		100V D.C	1.0			MΩ

1. $\boldsymbol{V}_{\mathrm{H}} = \boldsymbol{V}_{\mathrm{H-M}} - \boldsymbol{V}_{\mathrm{os}}$ in which $\boldsymbol{V}_{\mathrm{H-M}}$ is the Output Hall Voltage, $\boldsymbol{V}_{\mathrm{H}}$ is the Hall Voltage and $\boldsymbol{V}_{\mathrm{os}}$ is the offset Voltage under the identical electrical stimuli.

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℃, T_2 =0℃, T_3=40℃

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Classification of Output Hall Voltage (V_H)

Table 2. Classification of Hall Voltage

Rank	V_H [mV]	Conditions
D	196 ~ 236	B=50mT, V_C=1V
E	228 ~ 274	
F	266 ~ 320	
G	310 ~ 370	

Characteristic Curves

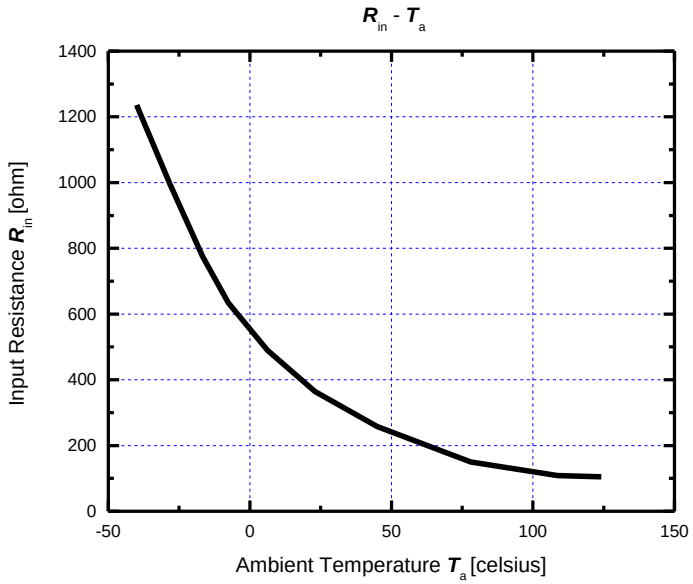

Figure 1. Input resistance R_{in} as a function of ambient temperature T_a .

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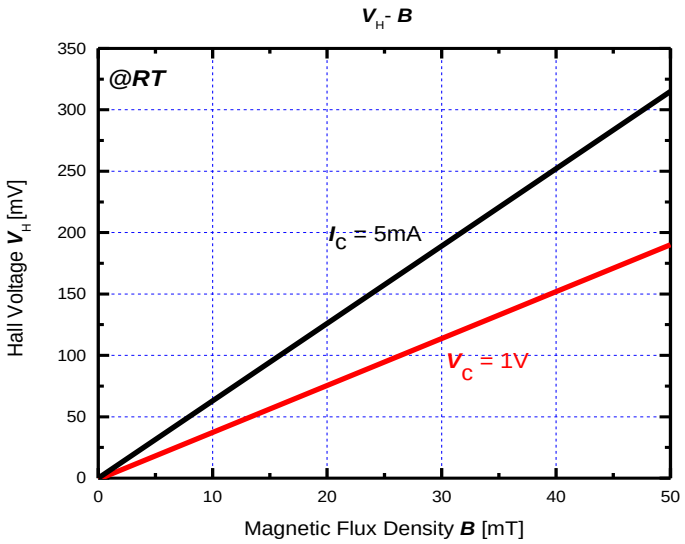

Figure 2. Hall voltage V_H as a function of magnetic flux density B .

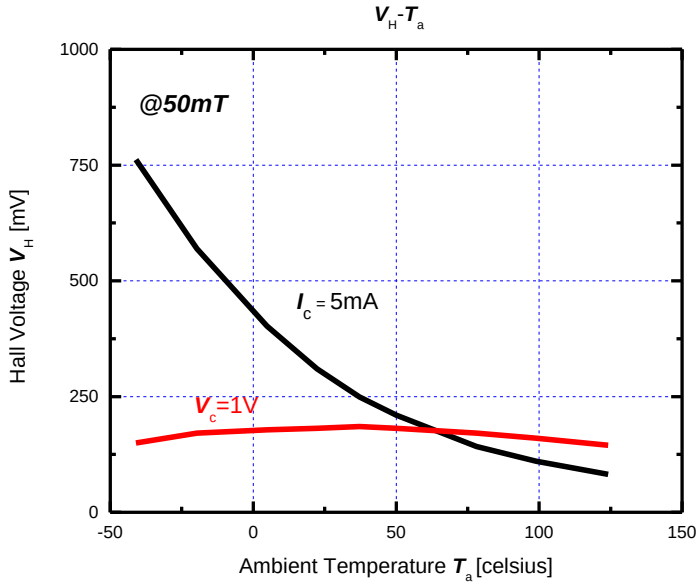

Figure 3. Hall voltage V_H as a function of ambient temperature T_a .

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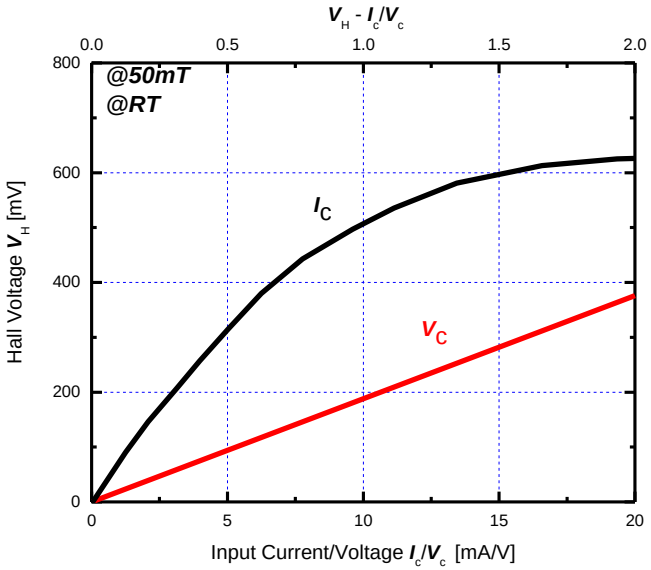

Figure 4. Hall voltage V_H as a function of electrical stimuli I_c/ V_c.

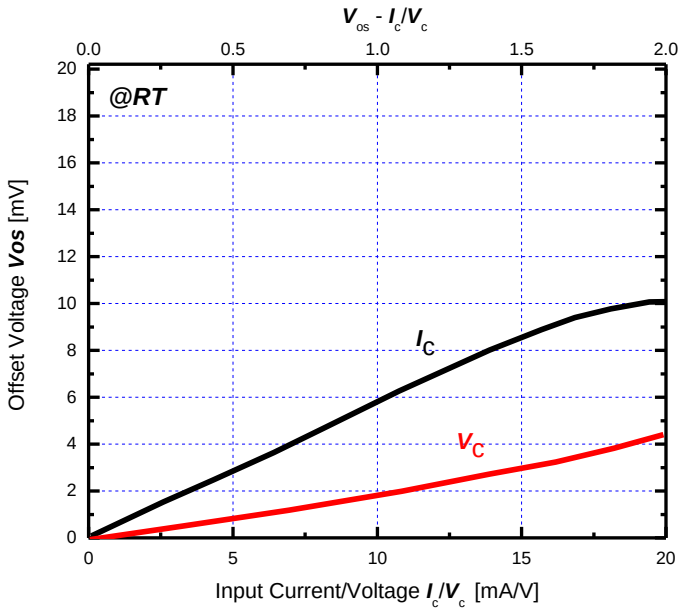

Figure 5. Offset voltage V_{os} as a function of electrical stimuli I_c/ V_c.

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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_2O 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.

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