



**-MG970 GaAs Hall Element-**

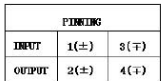
## MG970 砷化镓霍尔元件

- ## 线性砷化镓霍尔元件

- ## 卓越的热稳定特性

- ### 超薄型 SIP-4 封装

- 外形尺寸图 Dimensional Drawing (Unit MM)



- ### ● 最大额定值 Absolute Maximum Rating

Maximum Input Voltage $V_{\text{cmax}}$ [V]	12V
最大输入电压 $V_{\text{max}}$ [V]	

● 电气特性 ( 测量温度 25°C ) Electrical Characteristic ( RT=25°C )

Table 1. Electrical Characteristics of MG970

表 1. MG970 电气特性

项目 Item	符号 Symbol	测量条件 Test Condi.	最小 Min.	标准 Typ.	最大 Max.	单位 Unit
霍尔电压 Hall Voltage	$V_H$	$B = 50\text{mT}, I_C = 6\text{V}$ $T_a = \text{RT}$	78		102	mV
输入电阻 Input Resistance	$R_{in}$	$B = 0\text{mT}, I_C = 0.1\text{mA}$ $T_a = \text{RT}$	1000	1250	1500	$\Omega$
输出电阻 Output Resistance	$R_{out}$	$B = 0\text{mT}, I_C = 0.1\text{mA}$ $T_a = \text{RT}$	1800	2500	3000	$\Omega$
非平衡电压 Offset Voltage	$V_{os}$	$B = 0\text{mT}, I_C = 6\text{V}$ $T_a = \text{RT}$	-6		+6	mV
输出电压温度系数 Temp. Coeffi. of $V_H$	$ \alpha V_H $	$B = 50\text{mT}, I_C = 1\text{mA},$ $T_a = 25^\circ\text{C} \sim 125^\circ\text{C}$			0.06	%/°C
输入电阻温度系数 Temp. Coeffi. of $R_{in}$	$\alpha R_{in}$	$B = 0\text{mT}, I_C = 0.1\text{mA},$ $T_a = 25^\circ\text{C} \sim 125^\circ\text{C}$			0.3	%/°C
霍尔电压线性度 Linearity of $V_H$	$\Delta K$	$B = 0.1 - 0.5\text{T}, I_C = 1\text{mA}$ $T_a = \text{RT}$	-1		+1	%

Note:

$$1. \quad V_H = V_{H-M} - V_{os}$$

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.

$$2. \quad \alpha V_H = \frac{1}{V_H(T_{a1})} \times \frac{V_H(T_{a2}) - V_H(T_{a1})}{T_{a2} - T_{a1}} \times 100$$

$$T_{a1} = 25^\circ\text{C}, T_{a2} = 125^\circ\text{C}$$

$$3. \quad \alpha R_{in} = \frac{1}{R_{in}(T_{a1})} \times \frac{R_{in}(T_{a2}) - R_{in}(T_{a1})}{T_{a2} - T_{a1}} \times 100$$

$$T_{a1} = 25^\circ\text{C}, T_{a2} = 125^\circ\text{C}$$

$$4. \quad \Delta K = \frac{K(B_1) - K(B_2)}{\frac{K(B_1) + K(B_2)}{2}} \times 100 \quad K = \frac{V_H}{I_c \times B}$$

## ● 特征曲线图 Characteristic Curves

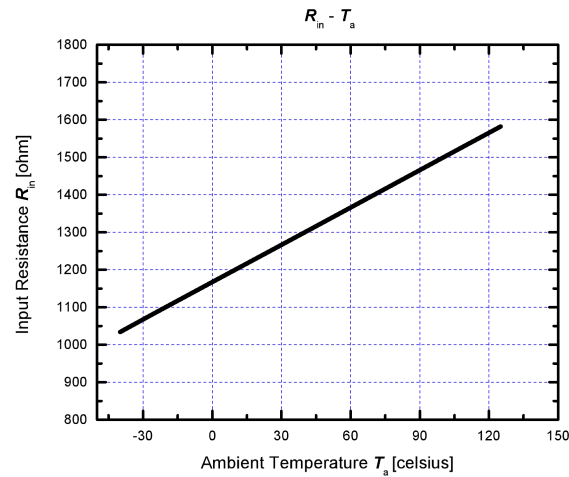
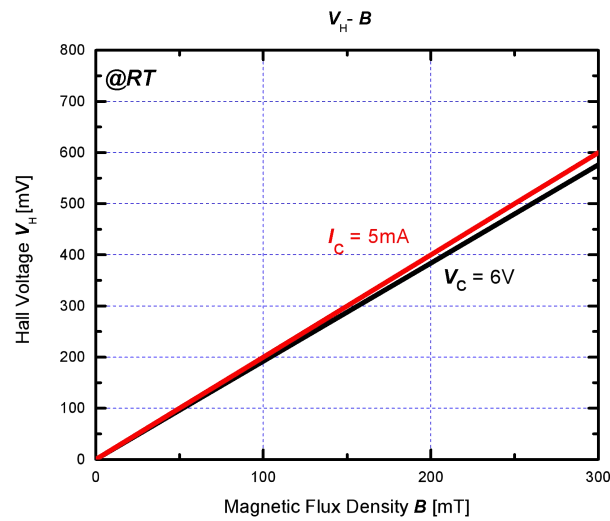
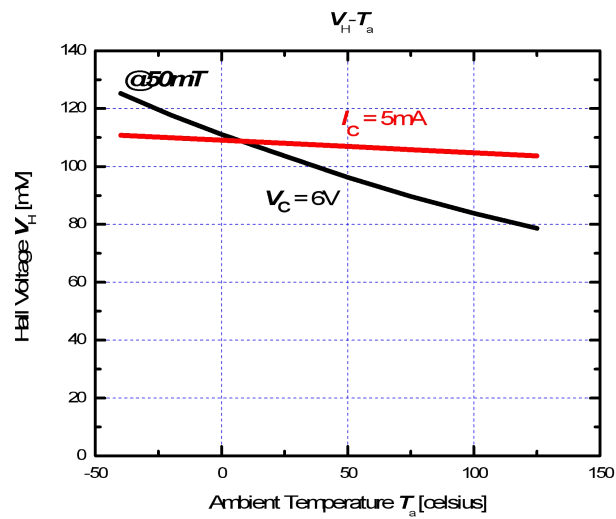


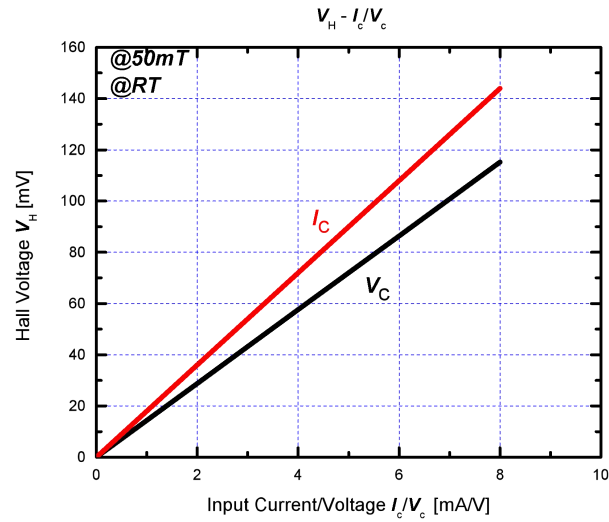
Figure 1. Input resistance  $R_{in}$  as a function of ambient temperature  $T_a$ .



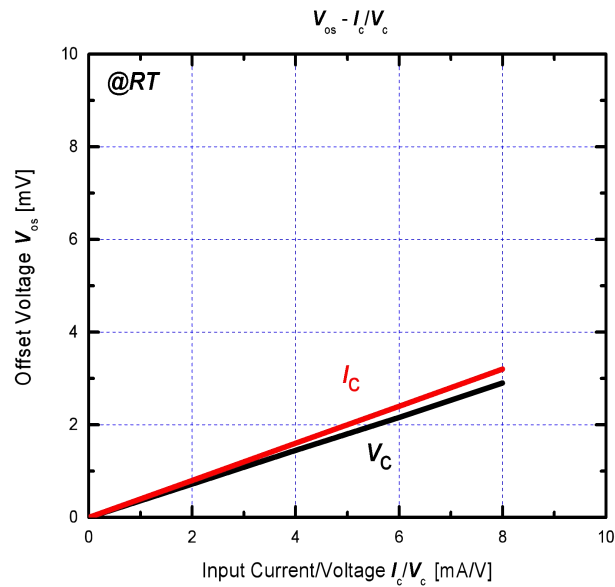
**Figure 2.** Hall voltage  $V_H$  as a function of magnetic flux density  $B$  .



**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  $I_c / V_c$ .

## ● ESD 预防措施

本产品是对ESD ( 静电放电 ) 敏感的设备。 在以下环境中处理带有ESD警告标记的霍尔元件：

- 不太可能出现静电荷的环境 ( 例如：相对湿度超过40%RH )。
- 处理器件时佩戴防静电服和腕带
- 对于直接接触器件的容器建议实施ESD防护措施。

## ● 存储注意事项

- 在开封MBB后，产品应在适当的温度和湿度 ( 5至35°C，40至60%RH ) 下储存。 强烈建议使用自密封袋，使产品远离氯气和腐蚀性气体。

### - 长期储存

产品用MBB密封，带有干燥剂，部分装有湿度指示剂。 在开封MBB后应立即检查湿度指示器。 **如果湿度指示器显示内部水分高于50%HR，请联系当地经销商。**

-**对于超过2年的储存**，建议在MBB密封的氮气中储存。 大气中的水氧会导致器件引脚氧化，从而导致引脚焊接能力变差。

## ● 安全注意事项

- 不要通过燃烧，粉碎或化学处理等方式将本产品变成气体，粉末或液体。
- 丢弃本产品时，请遵守法律和公司规定。

## 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.

- **Long-term storage**

Products are sealed in MBB with a desiccant and partially a moisture indicator. The moisture indicator should be checked right after the unsealing of MBB. **If the moisture indicator reveals the internal moisture is above 50%HR, please contact the local distributor.**

- **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.