

MG970 GaAs Hall

MG970 砷化镓霍尔元件

- Linear GaAs Hall Element

线性砷化镓霍尔元件

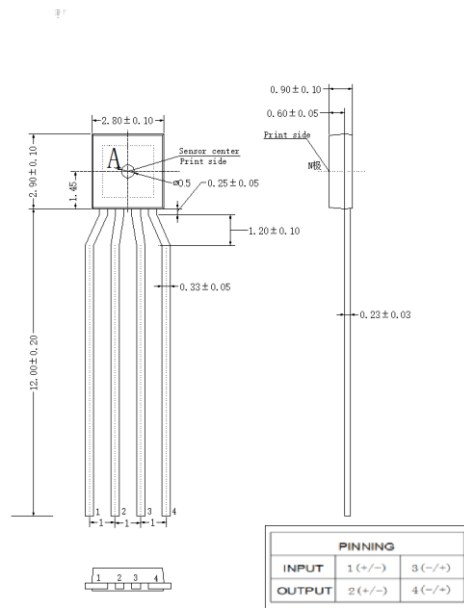
- Excellent Thermal Characteristics

卓越的热稳定特性

- SSIP-4 Package

超薄型 SIP-4 封装

- 外形尺寸图 Dimensional Drawing (Unit MM)



- 最大额定值 Absolute Maximum Rating

Operating Temperature Range 工作温度	-40°C ~ 125°C
Storage Temperature Range 存储温度	-40°C ~ 150°C
Maximum Input Voltage V_{cmax} [V] 最大输入电压 V_{max} [V]	12V

● 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	Ω
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	Ω
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}	αR_{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	ΔK	$B = 0.1 - 0.5\text{T}, I_c = 1\text{mA}$ $T_a = \text{RT}$	-1		+1	%

Note:

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

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.

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

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

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

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

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

● 特征曲线图 Characteristic Curves

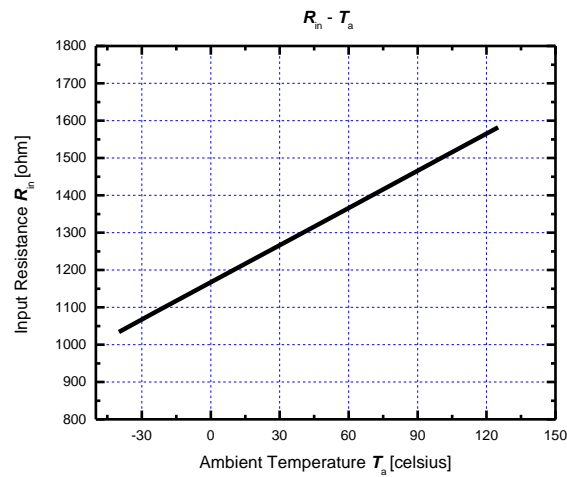


Figure 1. Input resistance R_{in} as a function of ambient temperature T_a .

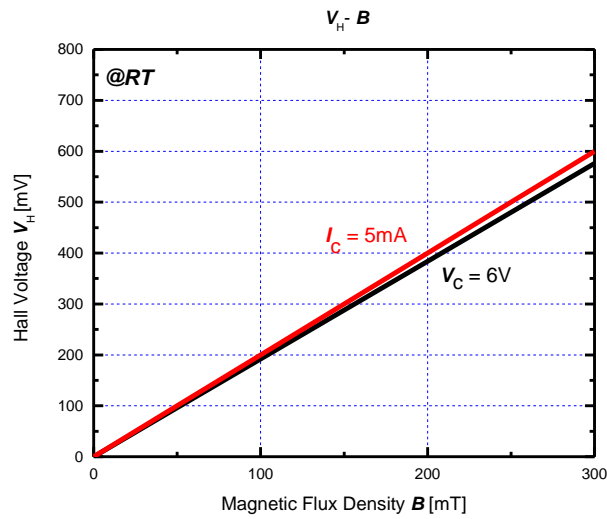


Figure 2. Hall voltage V_H as a function of magnetic flux density B .

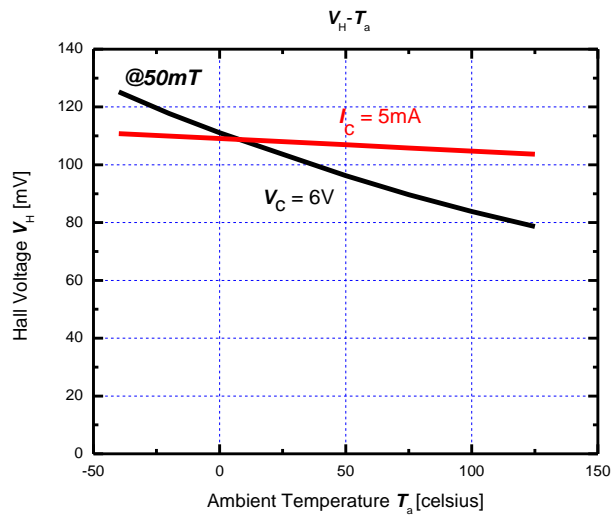


Figure 3. Hall voltage V_H as a function of ambient temperature T_a .

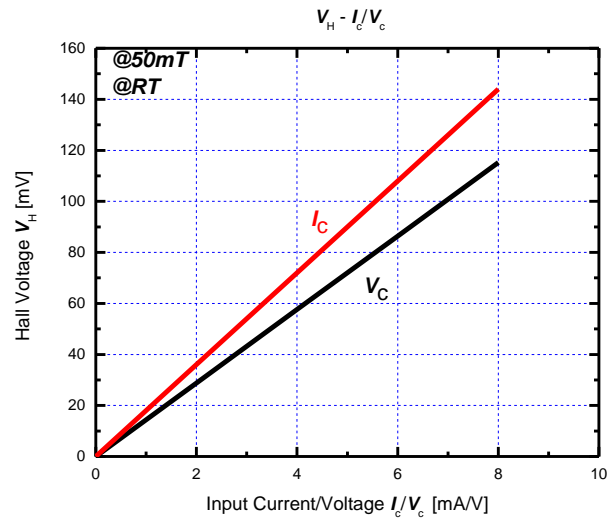


Figure 4. Hall voltage V_H as a function of electrical stimuli I_c/V_c .

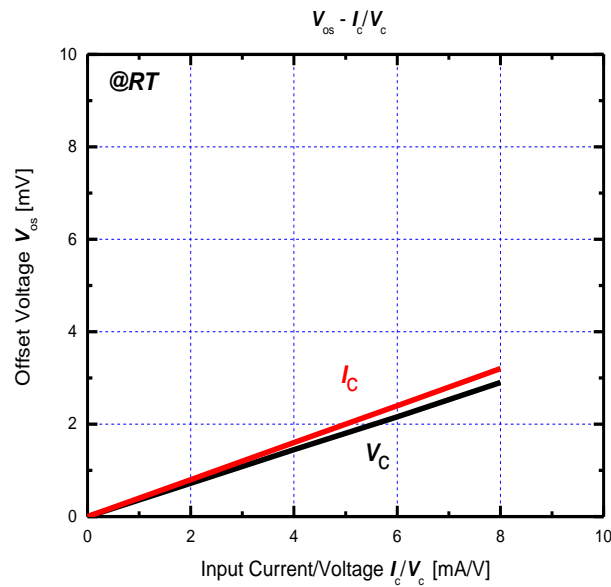


Figure 5. Offset voltage V_{os} as a function of electrical stimuli I_c/V_c .

● 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密封的氮气氛中储存。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%RH, please contact the local distributor.**

- **For storage longer than 2 years**, it is recommended to store in nitrogen atmosphere with MBB sealed. Oxygen and H₂O 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.