MG1A01 GaAs Hall

MG1A01砷化镓霍尔元件

- Linear GaAs Hall Element

线性砷化镓霍尔元件

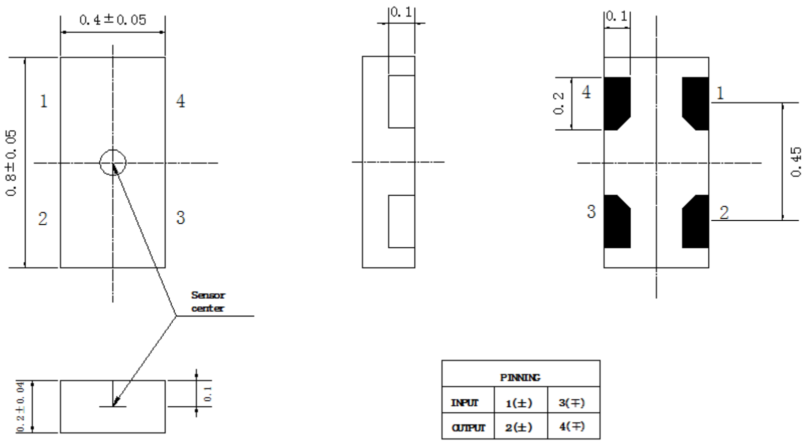
- Excellent Thermal Characteristics

卓越的热稳定特性

- Thin-type DFN Package

超薄 DFN 封装

外形尺寸图 Dimensional Drawing (Unit MM)



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

Sensing center diameter Φ = 0.3 mm

最大额定值 Absolute Maximum Rating

Operating Temperature Range -40℃ ~ 125℃
工作温度
Storage Temperature Range -40℃ ~ 150℃
存储温度
Maximum Input Voltage V_c [V] 9.5V
最大输入电压V_c [V]
Maximum Input Power P_0 [mW] 105mW
最大输入功率

电气特性（室温 25℃）Electrical Characteristics（RT=25℃）

Table 1. Electrical Characteristics of MG1A01.

表 1. MG1A01 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 = 50mT, V_C=6V T_a = RT	55		75	mV
输入电阻 Input Resistance	R_{in}	B = 0mT, I_C = 0.1mA T_a = RT	650		850	Ω
输出电阻 Output Resistance	R_{out}	B = 0mT, I_C = 0.1mA T_a = RT	650		850	Ω
非平衡电压 Offset Voltage	V_{os}	B = 0mT, V_C = 6V T_a = RT	-5		+5	mV
输出电压温度系数 Temp. Coeffi. of V_H	$\|\alpha V_H\|$	B = 50mT, I_C =5mA, T_a = 25℃ ~ 125℃			0.06	%/℃
输入电阻温度系数 Temp. Coeffi. of R_{in}	αR_{in}	B = 0mT, I_C =0.1mA, T_a = 25℃ ~ 125℃			0.3	%/℃
线性度 linearity	ΔK	B = 0.1 ~ 0.5T, I_C =5mA, T_a = RT	-2		2	%

Note:

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. $\alpha \boldsymbol{V}_{\mathrm{H}} = \frac{1}{V_{\mathrm{H}}(T_{a1})} \times \frac{V_{\mathrm{H}}(T_{a2}) - V_{\mathrm{H}}(T_{a1})}{T_{a2} - T_{a1}} \times 100$

   $T_{a1} = 25℃, \quad T_{a2} = 125℃$

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

   $T_{a1} = 25℃, \quad T_{a2} = 125℃$

4. $\Delta K = \frac{K(B_1) - K(B_2)}{\frac{K(B_1)+K(B_2)}{2}} \times 100 \qquad K = \frac{V_{\mathrm{H}}}{I_c \times B}$

● 特征曲线图 Characteristic Curves

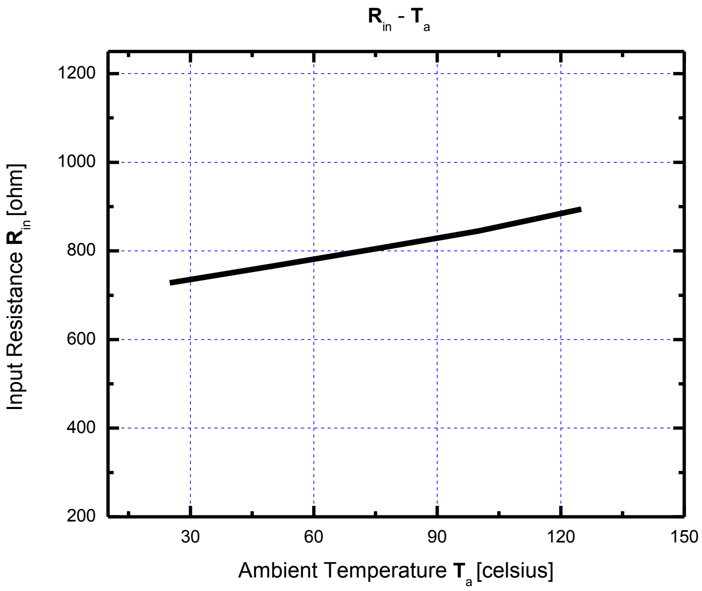


Figure 1. Input resistance $\boldsymbol{R}_{in}$ as a function of ambient temperature $\boldsymbol{T}_a$.

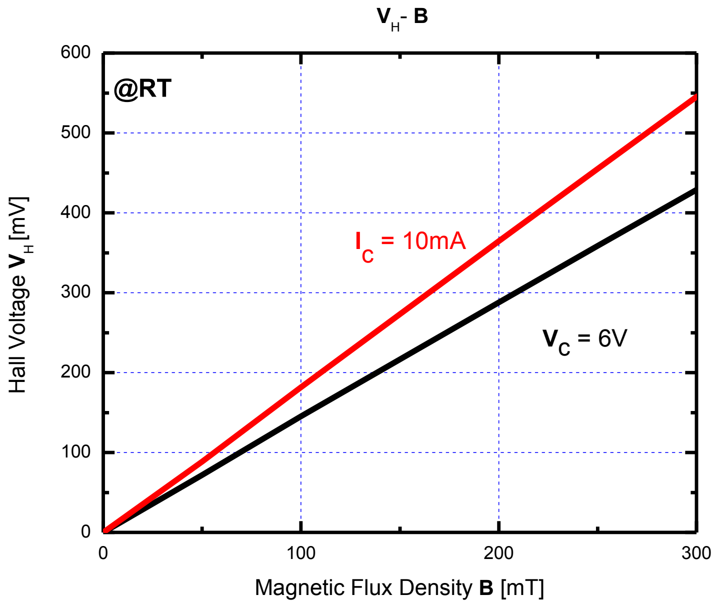


Figure 2. Hall voltage V_H as a function of magnetic flux density $\boldsymbol{B}$.

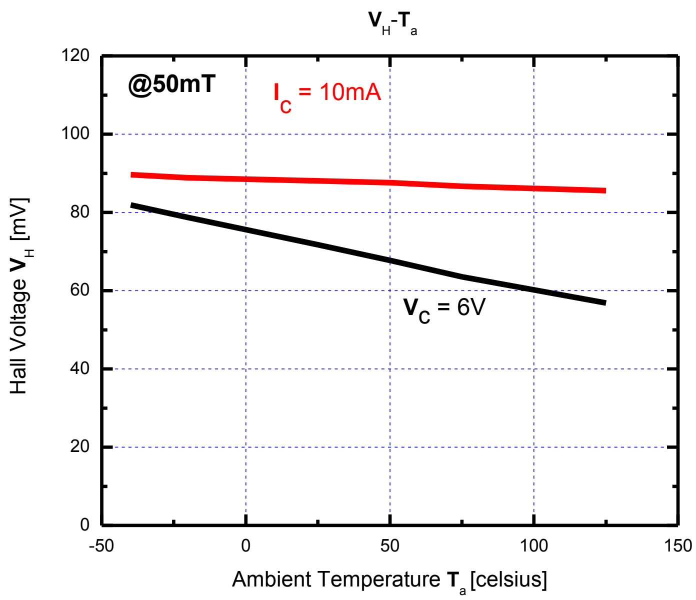


Figure 3. Hall voltage V_H as a function of ambient temperature T_a.

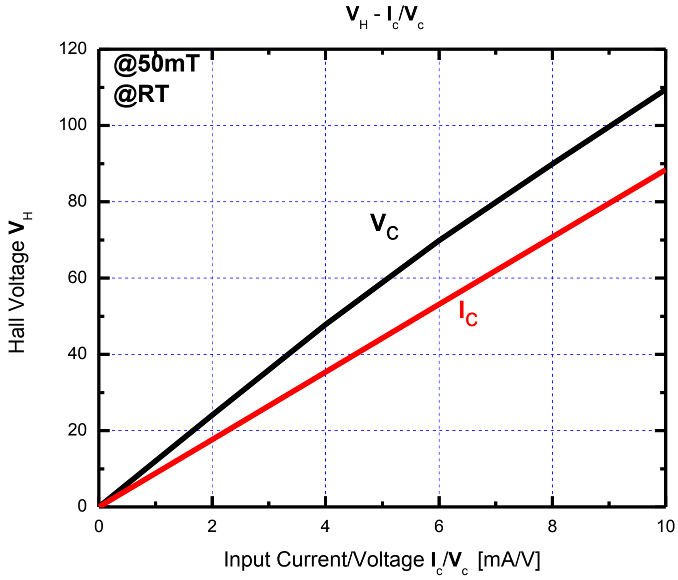


Figure 4. Hall voltage V_H as a function of electrical stimuli I_c/ V_c.

● 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

-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. Keeping products away from chlorine and corrosive gas.

- Long-term storage

  Products are sealed in MBB.

- 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.