**HG-166A**

Shipped in packet-tape reel(4,000pcs per reel)

Notice: It is requested to read and accept "IMPORTANT NOTICE" written on the back of the front cover of this catalogue.

### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Limit</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Input Voltage</td>
<td>$V_c$</td>
<td>12</td>
<td>V</td>
</tr>
<tr>
<td>Max. Input Power</td>
<td>$P_D$</td>
<td>150</td>
<td>mW</td>
</tr>
<tr>
<td>Operating Temp. Range</td>
<td>Topr.</td>
<td>$-40 \sim +125$</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temp. Range</td>
<td>Tsp.</td>
<td>$-40 \sim +150$</td>
<td>°C</td>
</tr>
</tbody>
</table>

### Electrical Characteristics (T<sub>a</sub>=25°C)

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Hall Voltage</td>
<td>$V_{th}$</td>
<td>$B=50\text{mT}, V_c=6\text{V}$</td>
<td>78</td>
<td>102</td>
<td></td>
<td>mV</td>
</tr>
<tr>
<td>Input Resistance</td>
<td>$R_{in}$</td>
<td>$B=0\text{mT}, I_C=0.1\text{mA}$</td>
<td></td>
<td>1,000</td>
<td>1,250</td>
<td>1,500</td>
</tr>
<tr>
<td>Offset Voltage</td>
<td>$V_{os}$</td>
<td>$B=0\text{mT}, V_c=6\text{V}$</td>
<td></td>
<td>$-8$</td>
<td></td>
<td>mV</td>
</tr>
<tr>
<td>Temp. Coefficient of $V_{th}$</td>
<td>$a_{V_{th}}$</td>
<td>$B=50\text{mT}, I_C=1\text{mA}$</td>
<td></td>
<td>0.06</td>
<td></td>
<td>%/C</td>
</tr>
<tr>
<td>Temp. Coefficient of $R_{in}$</td>
<td>$a_{R_{in}}$</td>
<td>$B=0\text{mT}, I_C=0.1\text{mA}$</td>
<td></td>
<td>0.3</td>
<td></td>
<td>%/C</td>
</tr>
<tr>
<td>Linearity</td>
<td>$\Delta K$</td>
<td>$B=0.1/0.5\text{mT}, I_C=1\text{mA}$</td>
<td>2</td>
<td></td>
<td></td>
<td>%</td>
</tr>
</tbody>
</table>

Notes:
1. $V_{th}=V_{HM}-V_{os}(V_c)$ (VHM: meter indication)
2. $a_{V_{th}} = \frac{1}{100} \times \frac{V_{th}(T_2) - V_{th}(T_1)}{V_c(T_2) - V_c(T_1)} \times 100$
3. $a_{R_{in}} = \frac{1}{100} \times \frac{R_{in}(T_2) - R_{in}(T_1)}{R_{in}(T_1)} \times 100$
4. $\Delta K = \frac{1}{100} \times \frac{K(B_1) - K(B_2)}{K(B_1)} \times 100$

$T_1 = 25\text{°C}, T_2 = 125\text{°C}$

### Characteristic Curves

**Allowable Package Power Dissipation**

![Power Dissipation Graph](graph.png)
Please be aware that AKE products are not intended for use in life support equipment, devices, or systems. Use of AKE products in such applications requires the advance written approval of the appropriate AKE officer. Certain applications using semiconductor devices may involve potential risks of personal injury, property damage, or loss of life. In order to minimize these risks, adequate design and operating safeguards should be provided by the customer to minimize inherent or procedural hazards. Inclusion of AKE products in such applications is understood to be fully at the risk of the customer using AKE devices or systems.

Handling precautions required for preventing electrostatic discharge.

This product contains gallium arsenide (GaAs). Handling and discarding precautions required.

Characteristic Curves

- **$R_{in}$ vs. $T_a$**
  - Graph showing $R_{in}$ vs. $T_a$ with a linear trend.

- **$V_H$ vs. $B$**
  - Graph showing $V_H$ vs. $B$ with a linear trend.

- **$V_H$ vs. $T_a$**
  - Graph showing $V_H$ vs. $T_a$ with a linear trend.

- **$V_{os}(V_u)$ vs. $T_a$**
  - Graph showing $V_{os}(V_u)$ vs. $T_a$ with a linear trend.

- **$V_{os}(V_u)$ vs. $I_C$**
  - Graph showing $V_{os}(V_u)$ vs. $I_C$ with a linear trend.

Magnetic Flux Density $1\text{[mT]}=10\text{[G]}$
IMPORTANT NOTICE

- These products and their specifications are subject to change without notice.
- When you consider any use or application of these products, please make inquiries the sales office of Asahi Kasei EMD Corporation (AKEMD) or authorized distributors as to current status of the products.
- AKEMD assumes no liability for infringement of any patent, intellectual property, or other rights in the application or use of any information contained herein.
- Any export of these products, or devices or systems containing them, may require an export license or other official approval under the law and regulations of the country of export pertaining to customs and tariffs, currency exchange, or strategic materials.
- AKEMD products are neither intended nor authorized for use as critical components(Note1) in any safety, life support, or other related device or system(Note2), and AKEMD assumes no responsibility for such use, except for the use approved with the express written consent by AKEMD. As used here:
  Note1) A critical component is one whose failure to function or perform may reasonably be expected to result, whether directly or indirectly, in the loss of the safety or effectiveness of the device or system containing it, and which must therefore meet very high standards of performance and reliability.
  Note2) A hazard related device or system is one designed or intended for life support or maintenance of safety or for applications in medicine, aerospace, nuclear energy, or other fields, in which its failure to function or perform may reasonably be expected to result in loss of life or in significant injury or damage to person or property.
- It is the responsibility of the buyer or distributor of AKEMD products, who distributes, disposes of, or otherwise places the product with a third party, to notify such third party in advance of the above content and conditions, and the buyer or distributor agrees to assume any and all responsibility and liability for and hold AKEMD harmless from any and all claims arising from the use of said product in the absence of such notification.

ASAHI KASEI EMD CORPORATION

Headquarters
1-23-7 Nishi-Shinjuku, Shinjuku-ku, Tokyo 160-0023, Japan
TEL: +81-3-6911-2800  FAX: +81-3-6911-2815

Osaka Office
1-2-6 Dojima-hama Kita-ku, Osaka 530-8205, Japan
TEL: +81-6-6347-3133  FAX: +81-3-6911-2815

Europe Office
Market House, 19/21 Market Place, Wokingham, Berkshire, RG40 1AP, U.K.
TEL: +44-118-979-5777  FAX: +44-118-979-7885

Shanghai Office
Room 2321, Shanghai Central Plaza, 381 Huaihai Zhong Road, Shanghai 200020, China
TEL: +86-21-6391-6111  FAX: +86-21-6391-6686

Seoul Office
8th fl., KTP B/D, 27-2 Yoido-dong, Youngdungpo-gu, Seoul 150-742, Korea
TEL: +82-2-3775-0990  FAX: +82-2-3775-1991

AKM Semiconductor, Inc

Western US Sales
1731 Technology Dr Suito 500 San Jose, CA 95110, USA
TEL: +1-408-436-8580  FAX: +1-408-436-7591

Eastern US Sales
629 Bamford Road Cherry Hill, NJ 08003, USA
TEL: +1-856-424-7211  FAX: +1-856-424-7344

URL
http://www.akemd.com

North American Distributor: GMW Associates
955 Industrial Rd, San Carlos, CA 94070, USA
TEL: +1-650-802-8292  FAX: +1-650-802-8298
EMAIL sales@gmw.com  WEB www.gmw.com