**HW-101A**

- High-sensitivity InSb Hall element.
- Mini-mold SMT package (fits SOT143 land pattern).
- Shipped in tape-reel (3000pcs per reel).

Note: It is requested to read and accept "IMPORTANT NOTICE".

---

### 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 Current</td>
<td>(I_{in})</td>
<td>Constant Current Drive</td>
<td>20 mA</td>
</tr>
<tr>
<td>Operating Temp. Range</td>
<td>(T_{opr})</td>
<td>–40 to +110</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temp. Range</td>
<td>(T_{stg})</td>
<td>–40 to +125</td>
<td>°C</td>
</tr>
</tbody>
</table>

### Electrical Characteristics \((T_{a} = 25^\circ C)\)

<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_H)</td>
<td>Const. Voltage Drive (B=50mT, V_c=IV)</td>
<td>122</td>
<td>370</td>
<td>mV</td>
<td></td>
</tr>
<tr>
<td>Input Resistance</td>
<td>(R_{in})</td>
<td>(B=0mT, I_{in}=0.1mA)</td>
<td>240</td>
<td>550</td>
<td>Ω</td>
<td></td>
</tr>
<tr>
<td>Output Resistance</td>
<td>(R_{out})</td>
<td>(B=0mT, I_{out}=0.1mA)</td>
<td>240</td>
<td>550</td>
<td>Ω</td>
<td></td>
</tr>
<tr>
<td>Offset Voltage</td>
<td>(V_{os})</td>
<td>(B=0mT, V_c=IV)</td>
<td>–7</td>
<td>+7</td>
<td>mV</td>
<td></td>
</tr>
<tr>
<td>Temp. Coefficient of (V_H)</td>
<td>(\alpha_{V_H})</td>
<td>(B=50mT, I_{in}=5mA)</td>
<td>–1.8</td>
<td>%/°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp. Coefficient of (R_{in})</td>
<td>(\alpha_{R_{in}})</td>
<td>(B=0mT, I_{in}=0.1mA)</td>
<td>–1.8</td>
<td>%/°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td>(V_H)</td>
<td>100V D.C</td>
<td>1.0</td>
<td>MΩ</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. \(V_{in} = V_{H} - V_{os}\) \((V/H\) meter indication\)
2. \(\alpha_{V_H} = \frac{1}{\frac{V_H(T)}{V_H(T_1)} - \frac{V_H(T)}{V_H(T_2)}} \times 100\)
3. \(\alpha_{R_{in}} = \frac{1}{\frac{R_{in}(T)}{R_{in}(T_1)} - \frac{R_{in}(T)}{R_{in}(T_2)}} \times 100\)

### Dimensional Drawing (mm)

- **Pinning**
  - Input: \(1(s)\) \(3(y)\)
  - Output: \(2(s)\) \(4(i)\)

---

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.
**Characteristic Curves**

- **$R_{in}$ vs. $T$**
  - $I_C$ constant
  - $V_C$ constant
  - $I_C = 5$ (mA)
  - $V_C = 1$ (V)
  - $T_a = 25$ (°C)

- **$V_H$ vs. $B$**
  - $I_C$ constant
  - $V_C$ constant
  - $I_C = 5$ (mA)
  - $V_C = 1$ (V)
  - $T_a = 25$ (°C)

- **$V_{os}$ vs. $T$**
  - $I_C$ constant
  - $V_C$ constant
  - $I_C = 5$ (mA)
  - $V_C = 1$ (V)
  - $B = 0$ (mT)

- **$V_{os}$ vs. $I_C$**
  - $I_C$ constant
  - $V_C$ constant
  - $B = 0$ (mT)
  - $T_a = 25$ (°C)

- **$V_C$ vs. $I_C$**
  - $I_C$ constant
  - $V_C$ constant
  - $B = 50$ (mT)
  - $T_a = 25$ (°C)

*Magnetic Flux Density $1$ (mT) = $10$ (G*)

---

In this example: $R_{in} = 350$ (Ω), $V_{os} = 4.7$ (mV), $V_C = 1$ (V)