EQ-411L

EQ-411L is composed of a InAs Quantum Well Hall Element and a signal processing IC chip in a package.

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

Operational Characteristics

Absolute Maximum Ratings (Ta=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Limit</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>Vcc</td>
<td>6</td>
<td>V</td>
</tr>
<tr>
<td>Output Current</td>
<td>Iout</td>
<td>±1.2mA</td>
<td>mA</td>
</tr>
<tr>
<td>Operational Temperature</td>
<td>Topr</td>
<td>−30 ~ 100°C</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>Tsg</td>
<td>−40 ~ 125°C</td>
<td></td>
</tr>
</tbody>
</table>

(∗) Vcc=5V

Magnetic and Electrical Characteristics (Ta=25°C Vcc=5V)

<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>Supply Voltage</td>
<td>Vcc</td>
<td></td>
<td>3</td>
<td>5</td>
<td>5.5</td>
<td>V</td>
</tr>
<tr>
<td>Supply Current</td>
<td>Icc</td>
<td></td>
<td>9</td>
<td>12</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>Offset Voltage</td>
<td>Vout0</td>
<td></td>
<td>2.35</td>
<td>2.5</td>
<td>2.65</td>
<td>V</td>
</tr>
<tr>
<td>Magnetic Sensitivity</td>
<td>VH</td>
<td>B=25mT</td>
<td>50</td>
<td>65</td>
<td>80</td>
<td>mV/mT</td>
</tr>
<tr>
<td>Output Saturation Voltage 1</td>
<td>VsatH</td>
<td>Iout=0.5mA</td>
<td>Vcc-0.3</td>
<td>Vcc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Saturation Voltage 2</td>
<td>VsatL</td>
<td>Iout=0.5mA</td>
<td>0</td>
<td>0.3</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Output Bandwidth</td>
<td>fT</td>
<td>10% decrease frequency</td>
<td>50</td>
<td></td>
<td>kHz</td>
<td></td>
</tr>
<tr>
<td>Response Time</td>
<td>Tr</td>
<td>90% arrival</td>
<td>5</td>
<td>7</td>
<td>μsec</td>
<td></td>
</tr>
<tr>
<td>Temp. coefficient of VH</td>
<td>αVH</td>
<td>The maximum error from room temperature</td>
<td>-5</td>
<td>0</td>
<td>5</td>
<td>%</td>
</tr>
<tr>
<td>Temp. coefficient of Vout0</td>
<td>αVout</td>
<td>Ta=30~100°C least squares approximation</td>
<td>-0.5</td>
<td>0</td>
<td>0.5</td>
<td>mV/C</td>
</tr>
</tbody>
</table>

(∗) : design targets
(∗∗) : for reference only

Functional Block Diagram

Hall Element Amplifier

1:Vcc
2:GND
3:OUT
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• This product contains gallium arsenide (GaAs). Handling and discarding precautions required.

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**Package (Unit:mm)**

- Sensor center diameter: 0.3 mm
- Package dimensions: 4.4 x 3.0 x 0.2 mm
- Pin configuration:
  - Pin 1: Vcc
  - Pin 2: GND
  - Pin 3: OUT

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**Operational Characteristics**

- Output Voltage (V) vs. Magnetic Flux Density (mT)
- Curves for Vcc = 5V, 4V, 3V at Ta = 25°C

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**Temperature dependence of VH**

- Magnetic Sensitivity (mV/mT) vs. Ambient Temperature (°C)
- Curves for Vcc = 5V, 4V, 3V at B = 25mT

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**Temperature dependence of Vout0**

- Offset Voltage (V) vs. Ambient Temperature (°C)
- Curves for Vcc = 5V, 4V, 3V at B = 0mT

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*The sensor center is located within the 0.3mm circle.*
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