

HX6573 Hall-Effect sensor is a larger output load capacity and the most competitive latch Hall IC. This device also has wide operating voltage range and temperature range. The high sensitivity Hall-Effect for wide application scopes to common condition.

HX6573 includes the following on a single silicon chip: voltage regulator, Hall voltage generator, small-signal amplifier, chopper stabilization, Schmitt trigger, open-drain output, Thermal shutdown protection and high ESD protection.

This device requires the presence of both south and north polarity magnetic fields for operation. In the presence of a south polarity field of sufficient strength, the device output latches on, and only switches off when a north polarity field of sufficient strength is present.

HX6573 is rated for operation between the ambient temperatures -40°C and 85°C for the E temperature range, and -40°C to 125°C for the K temperature range. Package SO is a SOT-23, a miniature low-profile surface-mount package.

The package type is in a Halogen Free version was verified by third party Lab.


Features and Benefits

- Wide operating voltage range: 3.5V to 24V
- Maximum output sink current 100mA
- Open-Drain output.
- 100% tested at 125°C for K.
- Custom temperature selection is available.
- V_{DD} reverse protection
- Good ESD Protection

Applications

- Fan motor application
- 3 phase BLDC motor application in “K” Spec
- Speed sensing
- Revolution counting

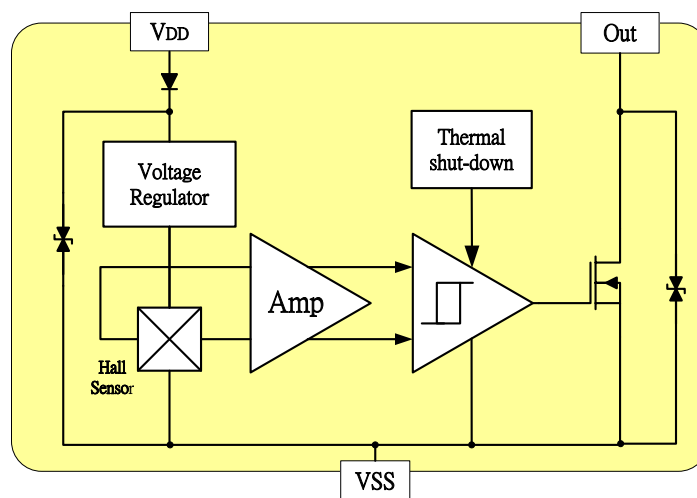
Ordering Information

| | |
|---|--|
|  <p>Sorting Code</p> <p>Package type</p> <p>Temperature Code</p> <p>Part number</p> <p>Company Name and product Category</p> | <p>Company Name and Product Category HX:HX Hall Effect/MP:HX Power IC</p> <p>Part number 6286,6275,6278,6287,6383,6474,6571,6572,6573,6574... If part # is just 3 digits, the fourth digit will be omitted.</p> <p>Temperature range E: 85 °C, I: 105 °C, K: 125 °C, L: 150 °C</p> <p>Package type UA:TO-92S,VK:TO-92S(4pin),VF:TO-92S(5pin),SO:SOT-23, SQ:QFN-3,ST:TSOT-23,SN:SOT-553,SF:SOT-89(5pin), SS:TSOT-26,SD:DFN-6</p> <p>Sorting α, β, Blank.....</p> |
|---|--|

| Part No. | Temperature Suffix | Package Type |
|-----------|---------------------|--------------|
| HX6573ESO | E (-40°C to +85°C) | SO (SOT-23) |
| HX6573KSO | K (-40°C to +125°C) | SO (SOT-23) |

Custom sensitivity selection is available by HX sorting technology

Functional Diagram



Absolute Maximum Ratings At ($T_A=25^{\circ}\text{C}$)

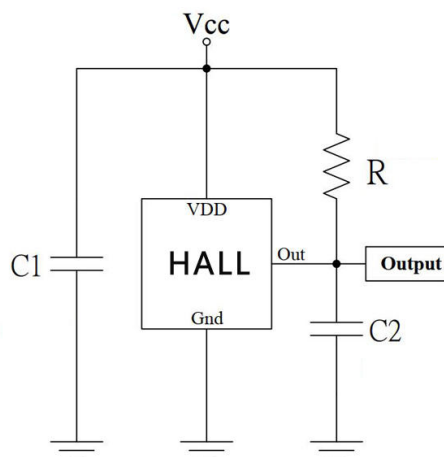
| Characteristics | | Values | Unit |
|---|----------------------|------------|-----------------------------|
| Supply Voltage, (V_{DD}) | | 28 | V |
| Output Voltage, (V_{out}) | | 28 | V |
| Reverse Voltage, (V_{DD} / V_{out}) | | -28/-0.3 | V |
| Output current, (I_{SINK}) | | 100 | mA |
| Operating Temperature Range, (T_A) | “E” Class | -40 ~ +85 | $^{\circ}\text{C}$ |
| | “K” Class | -40 ~ +125 | $^{\circ}\text{C}$ |
| Storage temperature Range, (T_s) | | -65 ~ +150 | $^{\circ}\text{C}$ |
| Maximum Junction Temp, (T_j) | | 150 | $^{\circ}\text{C}$ |
| Thermal Resistance | (θ_{JA}) SO | 543 | $^{\circ}\text{C}/\text{W}$ |
| | (θ_{JC}) SO | 410 | $^{\circ}\text{C}/\text{W}$ |
| Package Power Dissipation, (P_D) | | 230 | mW |

Note: Exceeding the absolute maximum ratings may cause permanent damage. Exposure to absolute maximum-rated conditions for extended periods may affect device reliability.

Electrical Specifications

DC Operating Parameters: $T_A=+25^{\circ}\text{C}$, $V_{DD}=12\text{V}$

| Parameters | Test Conditions | Min | Typ | Max | Units |
|---|--|-----|-----|-------|--------------------|
| Supply Voltage, (V_{DD}) | Operating | 3.5 | | 24.0 | V |
| Supply Current, (I_{DD}) | $B < B_{OP}$ | | 3.5 | 8.0 | mA |
| Output Saturation Voltage, ($V_{DS(ON)}$) | $I_{out}=80\text{mA}, B > B_{OP}$ | | | 200.0 | mV |
| Output Leakage Current, (I_{off}) | $I_{OFF} B < B_{RP}, V_{OUT} = 12\text{V}$ | | | 10.0 | μA |
| Output Rise Time, (T_R) | $R_L=1\text{K}\Omega, C_L=20\text{pF}$ | | | 0.5 | μs |
| Output Fall Time, (T_F) | $R_L=1\text{K}\Omega; C_L=20\text{pF}$ | | | 0.5 | μs |
| Thermal shut-down Temp | | 150 | | | $^{\circ}\text{C}$ |
| Thermal shut-down Hysteresis | | | 30 | | $^{\circ}\text{C}$ |
| Electro-Static Discharge | HBM | 4 | | | KV |
| Operate Point, (B_{OP}) | SO | 0 | | 60 | Gauss |
| Release Point, (B_{RP}) | SO | -60 | | 0 | Gauss |
| Hysteresis, (B_{HYS}) | $ B_{OP} - B_{RP} $ | | 60 | | Gauss |

Typical Application circuit


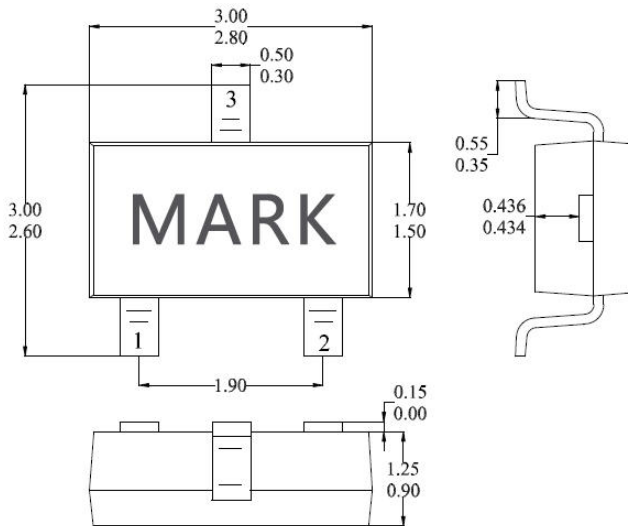
C1: 10nF
 C2: 1nF
 R1: 1K Ω

Sensor Location, package dimension and marking

HX6573 Package

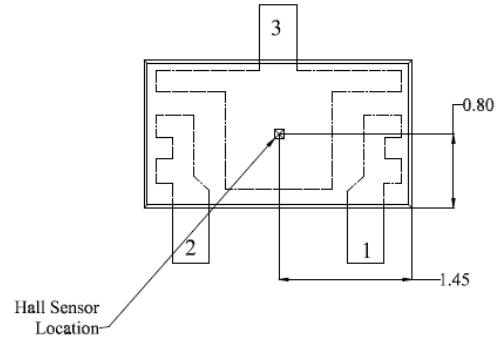
SO Package

(Top View)

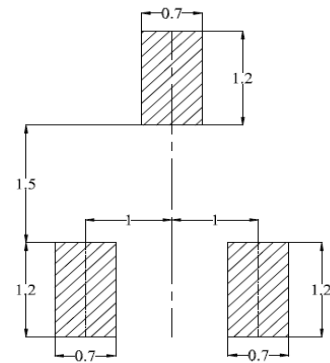


Hall Plate Chip Location

(Bottom View)



(For reference only) Land Pattern



NOTES:

1. PINOUT (See Top View at left :)
 - Pin 1 V_{DD}
 - Pin 2 Output
 - Pin 3 GND
2. Controlling dimension: mm
3. Lead thickness after solder plating will be 0.254mm maximum