## ◆ Product Description

The GH1120 is a Hall-effect latch designed in CMOS technology. The IC internally includes a voltage regulator, Hall sensor with dynamic offset cancellation system, Schmitt trigger and an open-drain output driver. With no magnetic field present, the output is in the "on" state(Low). While the magnetic flux density(B) is larger than operate point(Bop),the output will be turned off(High) and the output is latched "off" state until the magnetic flux density (B) is lower than release point(Brp),then turn on(Low). It has wide operating voltage range and extended choice of temperature range, it is quite suitable for use in automotive, industrial and consumer applications.

## ◆ Features

- 3.5V to 24V DC Operation Voltage
- CMOS Technology
- Chopper-stabilized amplifier stage
- 25mA Output Sink Current
- Operating Temperature: −40~ +125℃
- High Magnetic Sensitivity: Bhys=60Gauss(Typ.)
- Lead Free Package: SIP-3L and SC59
(Commonly known as TO-92S and SOT-23-3L in Asia)
- Lead Free Finish/RoHS Compliant

## ◆ Application

- Rotor Position Sensing
- Current Switch
- Encoder
- RPM Detection

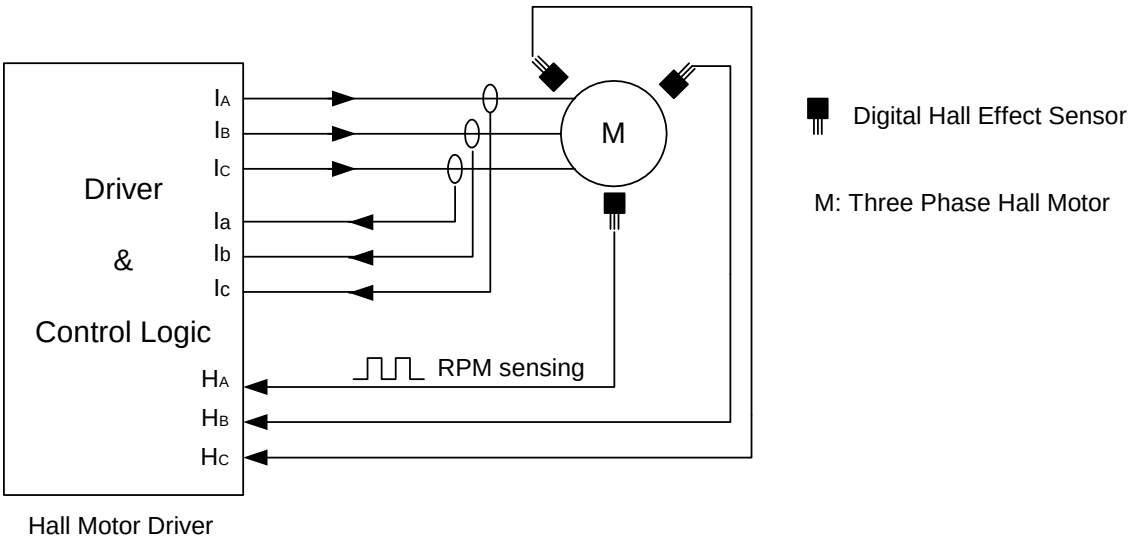



Fig.1 Functional Application Circuit in 3-Phase Hall Motor

## ◆ Pin Description

Table 1-1 Pin definition and description for SIP-3L(TO-92S)

| PIN # | NAME | P/I/O | FUNCTION DESCRIPTION |
|---|---|---|---|
| 1 | VDD | P | Input Power Supply |
| 2 | GND | P | Ground |
| 3 | OUT | O | Output Stage of Open Drain |

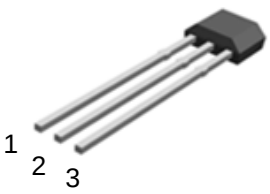
Table 1-2 Pin definition and description for SC59(SOT-23-3L)

| PIN # | NAME | P/I/O | FUNCTION DESCRIPTION |
|---|---|---|---|
| 1 | VDD | P | Input Power Supply |
| 2 | OUT | O | Output Stage of Open Drain |
| 3 | GND | P | Ground |

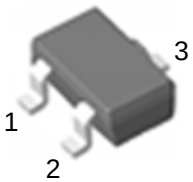
## ◆ Pin Configuration

**(Top View)**

SIP-3L(TO-92S)




SC59(SOT-23-3L)



## ◆ Absolute Maximum Rating (Note 1)

| SYMBOL | PARAMETER | RATING |
|---|---|---|
| VDD | Supply Voltage | +28VDC |
| Vout (off) | Voltage externally applied to output | +28VDC max, OFF condition only<br>-0.5 V min., OFF or ON condition |
| Io (sink) | Output "ON" Current | 50 mA |
| PD | Power Dissipation | 450mW(SIP-3L);230mW(SC59) |
| Top | Operation Temperature Range | -40 to +125 ℃ |
| Tst | Storage Temperature Range | -65 to +150 ℃ |
| B | Magnetic Flux | No limit. |

**Note 1:** Absolute Maximum Ratings are those values beyond which the life of a device may be impaired.

## ◆ Electrical Characteristics ($T_A$ = 25℃)

| SYMBOL | PARAMETER | | CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| VDD | Supply Voltage | | Operating | 3.5 | | 24 | V |
| $V_{O\ (SAT)}$ | Output Saturation Voltage | | VDD = 12V, OUT "ON", Io = 10mA | | | 300 | mV |
| | | | VDD = 12V, OUT "ON", Io = 20mA | | | 500 | mV |
| IDD | Supply Current | | VDD =3.5~24V, OUT "OFF" | | 2.0 | 5.0 | mA |
| $I_{LE}$ | Output Leakage Current (Leakage into sensor output) | | Released | | | 10 | μA |
| Tr | Output Switching Time | Rise Time | RL=820Ω, CL=20pF | | | 0.45 | μS |
| Tf | | Fall Time | RL=820Ω, CL=20pF | | | 0.45 | μS |
| $F_{SW}$ | Maximum Switching Frequency | | | | 10 | | KHz |

## ◆ Magnetic Characteristics ($T_A$ = 25℃, VDD=12V)

| SYMBOL | PARAMETER | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|
| Bop | Operation Point | 5 | 30 | 80 | Gauss |
| Brp | Release Point | -80 | -30 | -5 | Gauss |
| Bhy | Hysteresis | 30 | 60 | 90 | Gauss |

## Functional Block Diagram

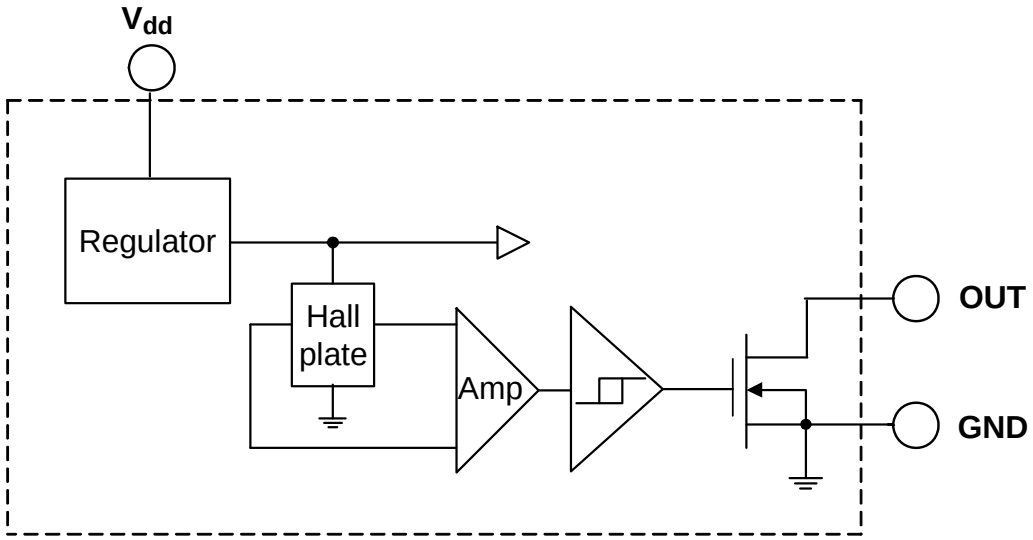



Figure 1. Function Block Diagram of GH1120

## Operating Characteristics

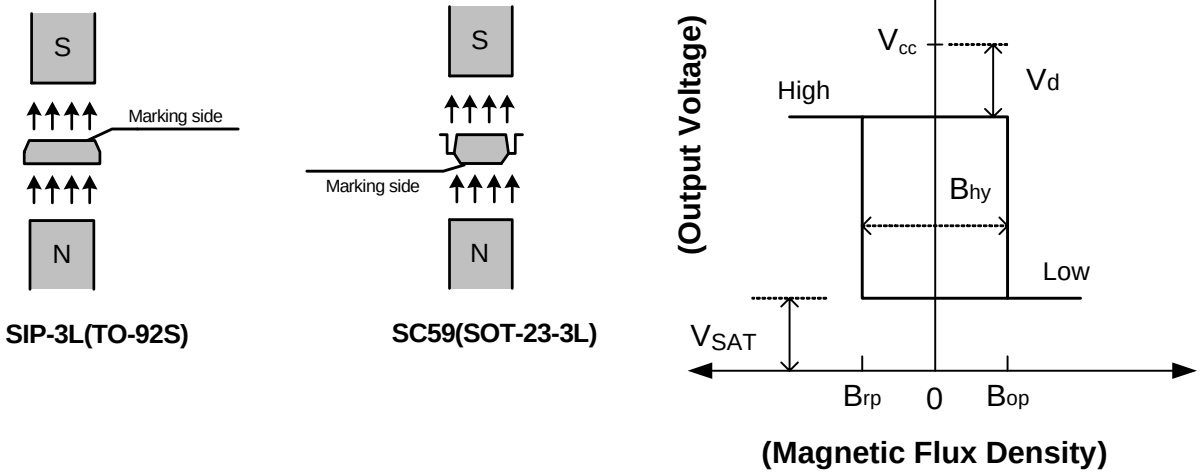



Figure 2. Operating Characteristics of GH1120

Table 2: Switching Function

| Parameter | Pole | OUT | Pole | OUT |
|---|---|---|---|---|
| | (SC59/SOT-23-3L) | | (SIP-3L/TO-92S) | |
| South Pole | $B<B_{RP}$ | High | $B>B_{OP}$ | Low |
| North Pole | $B>B_{OP}$ | Low | $B<B_{RP}$ | High |

## ◆ Typical Characteristics

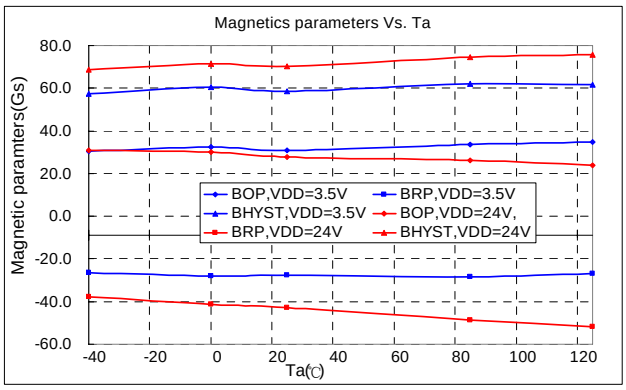



Figure 3-1. Magnetic parameters Vs. Ta

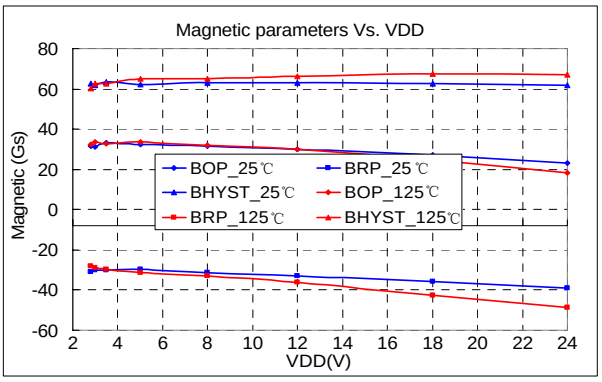



Figure 3-2. Magnetic parameters Vs. VDD

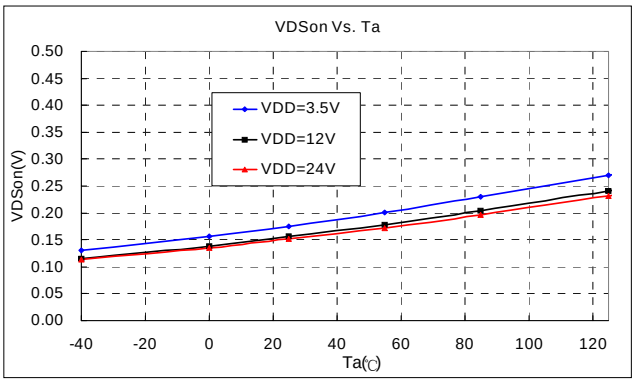



Figure 3-3. VDSon Vs. Ta

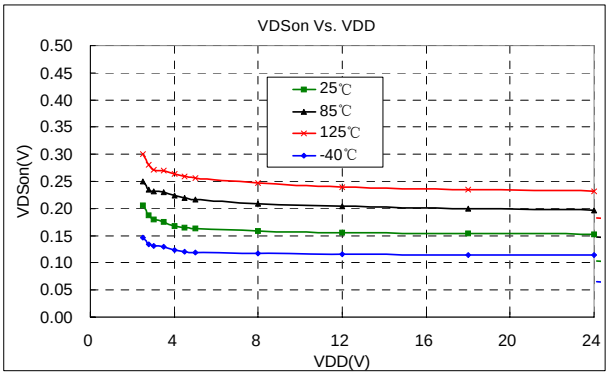



Figure 3-4. VDSon Vs. VDD

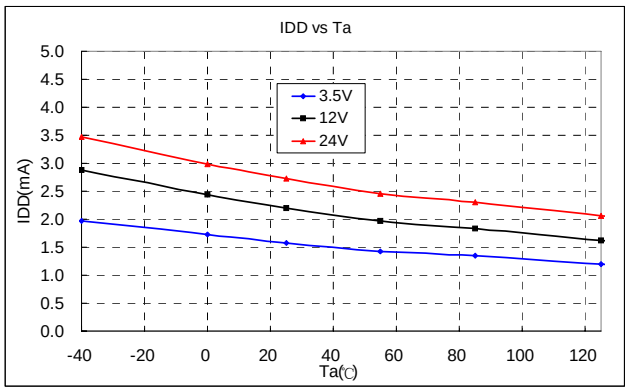



Figure 3-5. IDD Vs. Ta

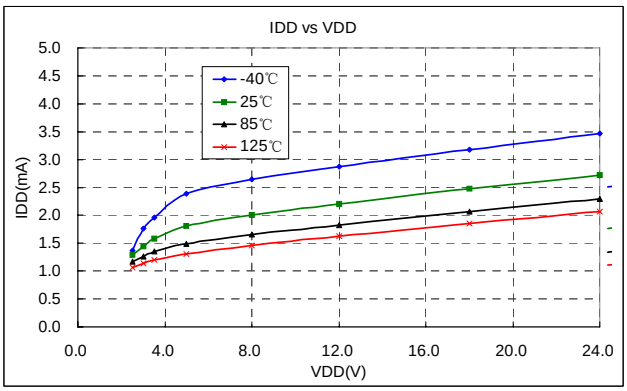



Figure 3-6. IDD Vs. VDD

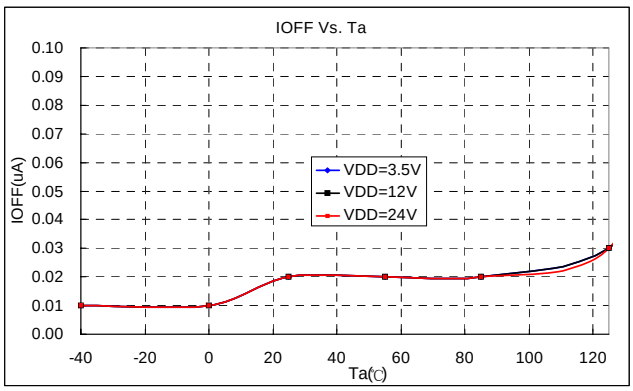



Figure 3-7. IOFF Vs. Ta

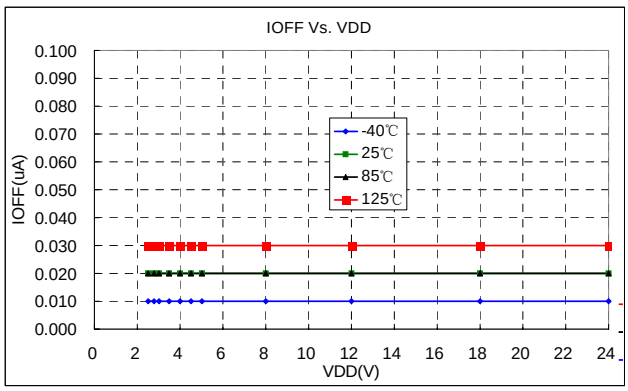
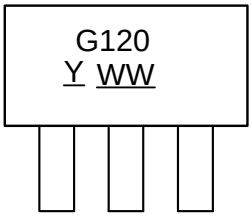



Figure 3-8. IOFF Vs. VDD

## ◆ Marking Information

**(1) SIP-3L(TO-92S)**

**( Top View )**

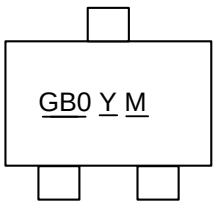



Y : Year :"1"= 2011

WW : Nth Week 01~52

**(2) SC59 (SOT-23-3L)**

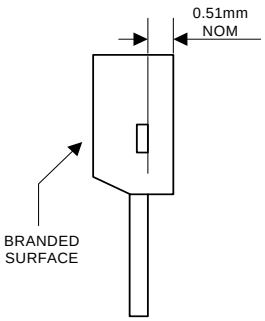
**( Top View )**



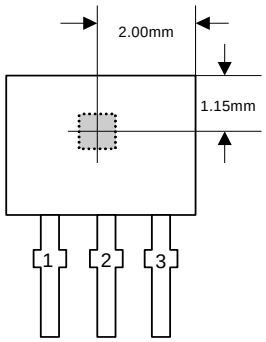

GB0: Part No. GH1120
Y : Year 0~9
M : Month A~L

## ◆ Package Information (unit: mm)

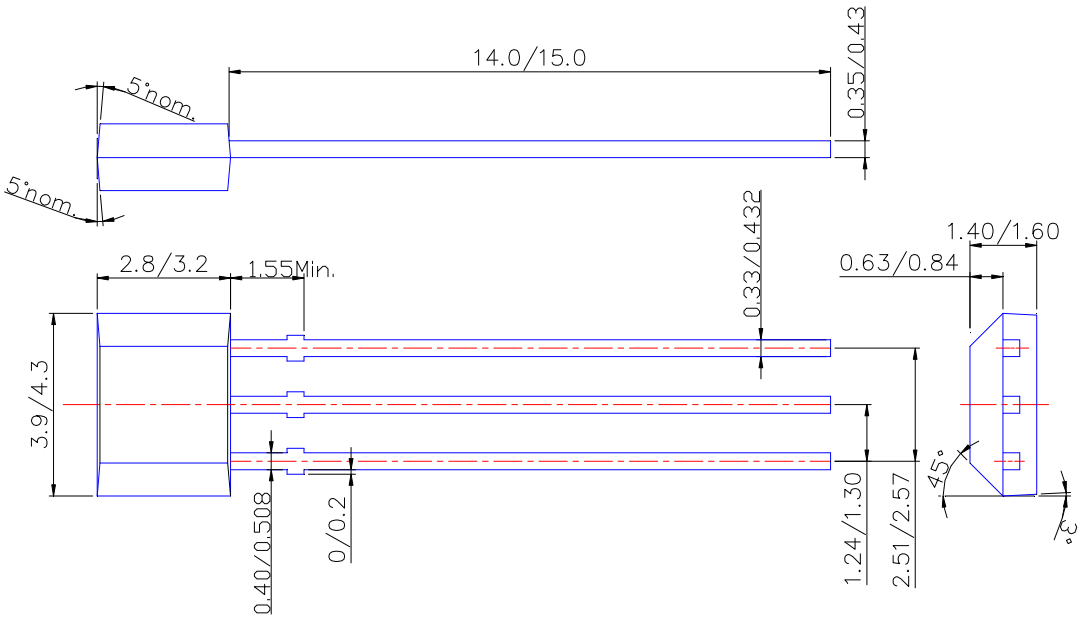
### (1) Package Type: SIP-3L(TO-92S) for Bulk only



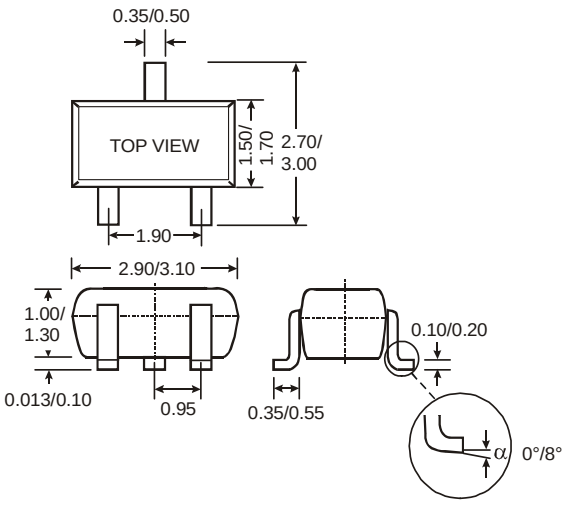

Active Area Depth

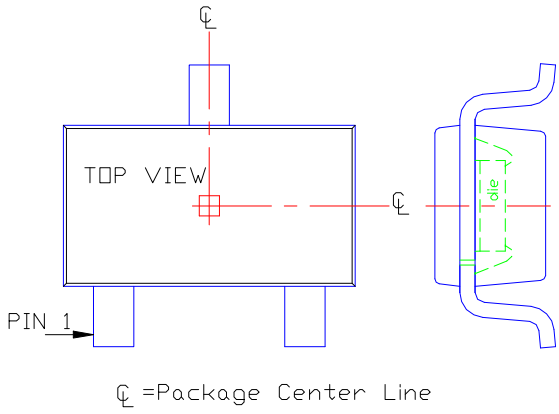



Sensor Location




### (2) SC59 (SOT-23-3L)



# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

***Click to view similar products for*** Industrial Hall Effect/Magnetic Sensors ***category:***

***Click to view products by*** GoChip Elec Tech ***manufacturer:***

Other Similar products are found below :

GT-14114 GT-14123 GTN2C15C GT-12076 GT-14049 GT-14067 GT-14132 GT-18030 MZ07A108 PST360G2-1S-C0000-ERA360-05K MZC1-2V2PS-KP0 PSC360G2-F1P-C0000-ERA360-05K-200 115L 9E 502 W06017 115L 5,2E 502 W06017 115L 14E 502 W06017 103SR14A-1 55100-3H-04-A MZT7-03VPS-KW0 MZT8-03VPS-KW0 A1326LLHLT-T ACS770LCB-100U-PFF-T 55505-00-02-B GN 55.2-ND-15-3 GN 55.2-ND-18-3 GN 55.2-ND-4-3 GN 55.2-ND-8-3 GN 55.2-SC-10-3 GN 55.4-ND-10-7,5-2 GN 55.4-ND-12-9,5-2,5 GN 55.4-ND-26-20,3-5 GN 55.4-ND-7,5-4-1,5 101MG7-BP 103SR18-1 A1324LUA-T MXM1120KIT MXM1120SOKIT AA006-02E 55140-3H-03-A 55100-2M-02-A MM12-60APS-ZUK ACX04-F99-I-V15 GN 55.1-SC-24-11.5-4 MZA70155 MZR40158 PW520000 MZT7-03VPS-KP0 MZT8-03VPS-KR0 MZT8-03VPS-KP0 RZT7-03ZRS-KP0 RZT7-03ZRS-KW0