# FEELING TECHNOLOGY

FS50

# LINEAR HALL-EFFECT SENSORS

## Features

- Extremely Sensitive
- Flat Response to 23 KHz
- Low-Noise Output
- 2.7V to 7V Operation
- Available in SIP-3L package

Pb Free

## General Description

The FS50 Hall-effect sensors accurately track extremely small changes in magnetic flux density-changes generally too small to operate Hall-effect switches.

As motion detectors, gear tooth sensors, and proximity detectors, they are magnetically driven mirrors of mechanical events. As sensitive monitors of electromagnets, they can effectively measure a system's performance with negligible system loading while providing isolation from contaminated and electrically noisy environments.

Each Hall-effect integrated circuit includes a Hall sensing element, linear amplifier, and emitter-follower output stage. Problems associated with handling tiny analog signals are minimized by having the Hall cell and amplifier on a single chip.

## Block Diagram

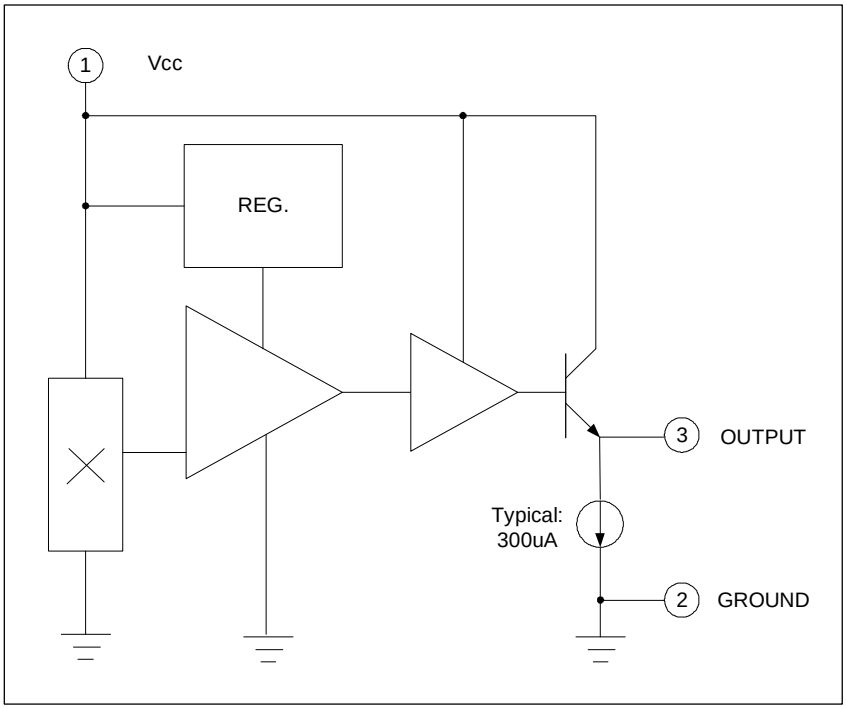



**Figure.1**

## Pin Connection

[Top View]

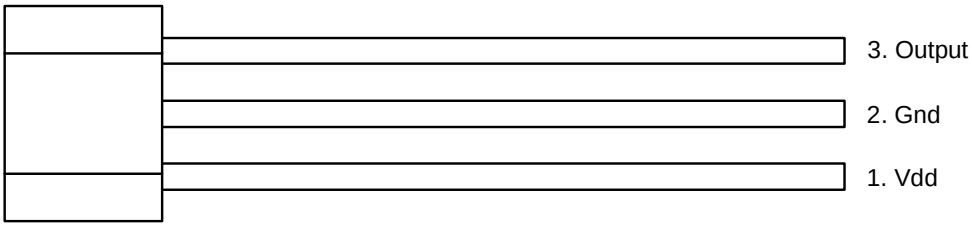



**Figure.2**

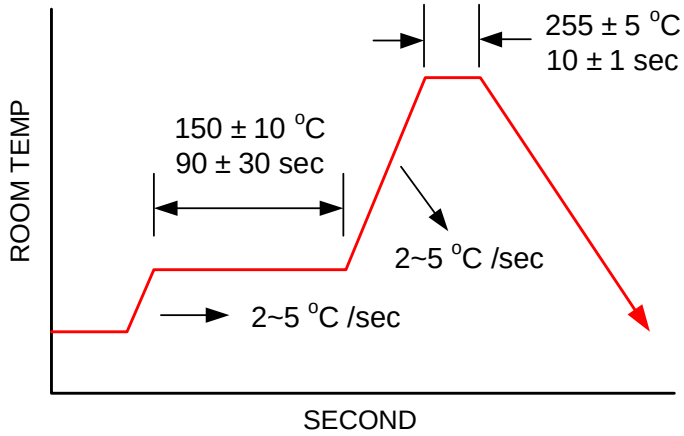
## Pin Descriptions

| Name | I/O | Pin No. | Description |
|---|---|---|---|
| Vdd | P | 1 | Positive power supply |
| Gnd | G | 2 | Ground |
| Output | O | 3 | Driver output |

Legend: I=input, O=output, I/O=input/output, P=power supply, G=ground

## Absolute Maximum Ratings

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Operating Temperature | $T_{OP}$ | - | -20 | | 85 | ℃ |
| Storage Temperature | $T_{ST}$ | - | -55 | | 165 | ℃ |
| DC Supply Voltage | $V_{DD}$ | - | | | 7 | V |
| Supply Current | $I_{DD}$ | - | | | 10 | mA |
| Magnetic Flux Density | B | - | | | Unlimited | G |
| Junction temperature | $T_J$ | | | | 160 | ℃ |
| Lead Temperature | | 10sec | | | 260 | ℃ |




**Soldering Condition**

**Figure.3**

## Recommended Operating Conditions

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Supply Voltage | $V_{DD}$ | - | 2.7 | | 7.0 | V |
| Operating Temperature Range | $T_A$ | - | -20 | | 85 | ℃ |

## Electrical Characteristics $V_{DD}$=5.0V, $T_A$=25℃ (unless otherwise specified)

| Parameter | Symbol | Conditions | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Average Supply Current(no load) | $I_{DD}$ | - | | 6.0 | 10 | mA |
| Quiescent Output Voltage | $V_{OUT}$ | B=0G | 2.35 | 2.50 | 2.65 | V |
| Sensitivity | $\Delta V_{OUT}$ | B=0 G to ±900G | 1.00 | 1.20 | 1.40 | mV/G |
| Linearity (% of Span) | | | | <0.7 | | % |

## Transfer Characteristics ($V_{DD}$=5.0V)

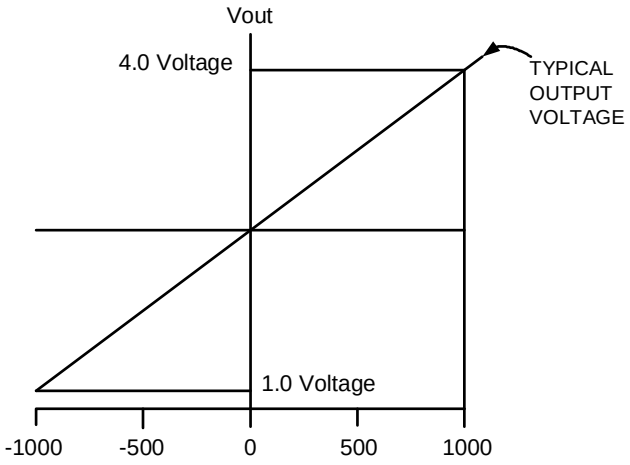



**Figure.4**

**Marking Information**

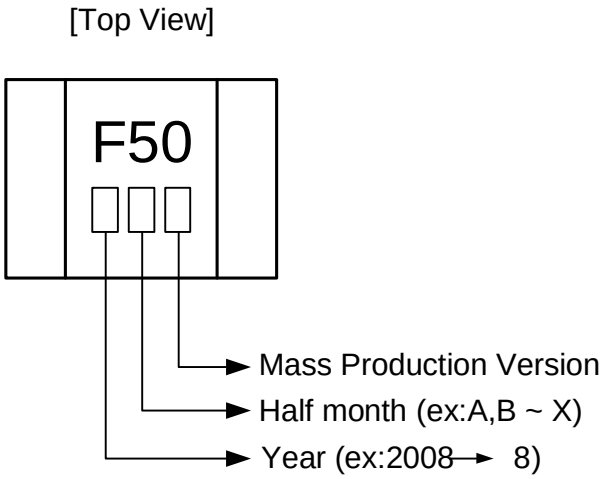
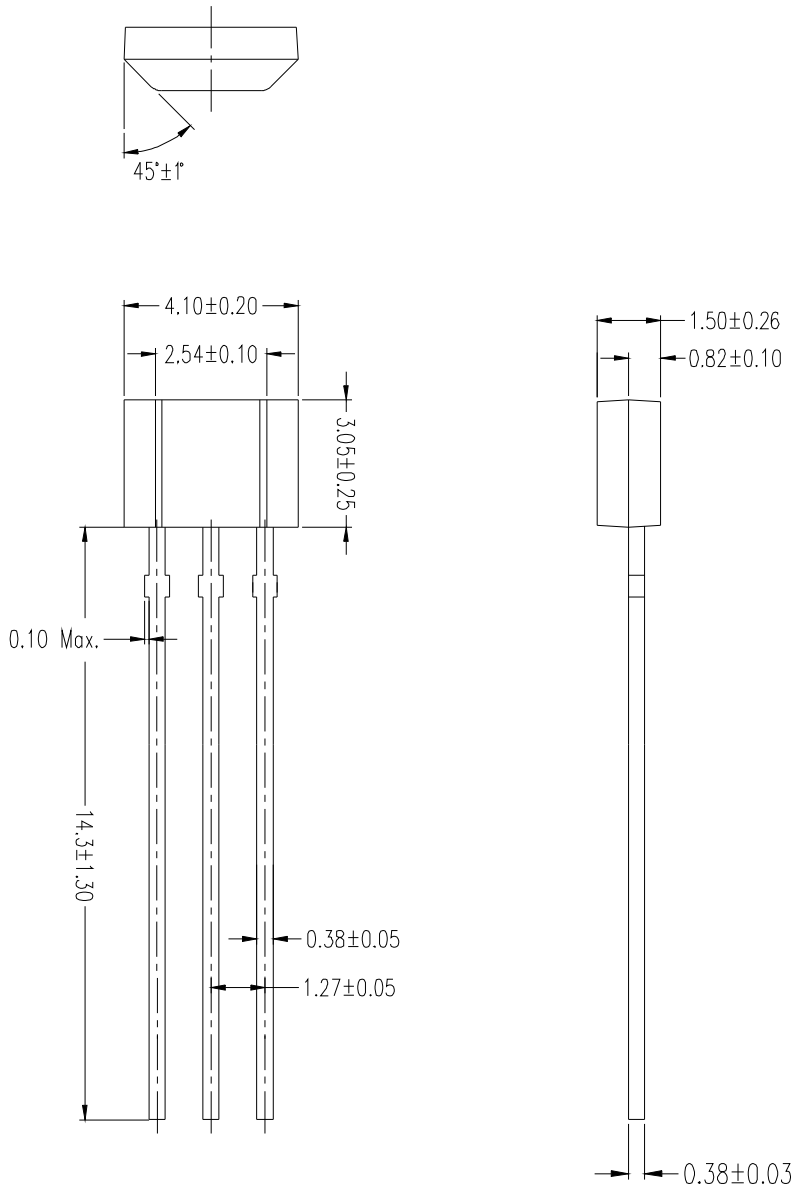



**Figure.5**

**Package Dimension (Unit: mm)**
**SIP-3L(Pb Free)**



## Order Information

| Part Number | Operating Temperature | Package | MOQ |
|---|---|---|---|
| **FS50LF** | -20 ℃ to +85 ℃ | SIP-3L | 1000ea |