



## SK8552

## LINEAR INTEGRATED CIRCUIT

### LOW VOLTAGE OPERATION HALL IC

#### DESCRIPTION

SK8552 is a semiconductor integrated circuit utilizing the Hall effect. It has been so designed as to operate in the alternating magnetic field especially at low supply voltage and operation over extended temperature ranges to +125 .This Hall IC is suitable for application to various kinds of sensors, contact-less switches, and the like.

#### FEATURES

- \* Wide supply voltage range of 3V to 20V
- \* Wide temperature operation range of -20 ~+125
- \* TTL and MOS IC are directly drivable by the output
- \* The life is semipermanent because it employs contactless parts
- \* SIP-3 , SOT-25 package
- \* Equipped with an output pull-up resistor ( typical 20kΩ)

#### APPLICATION

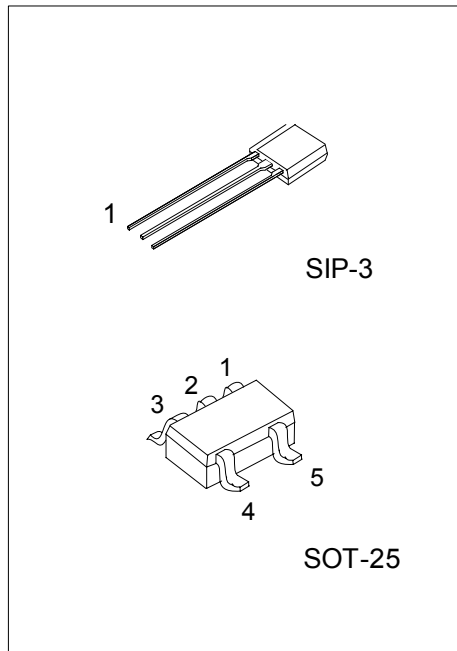
- \* Position sensor
- \* Contact-less sensor
- \* Detection of cover (open/close)

#### ORDERING INFORMATION

| Order Number |                   | Package | Pin Assignment |   |   |   |   | Packing   |
|--------------|-------------------|---------|----------------|---|---|---|---|-----------|
| Normal       | Lead Free Plating |         | 1              | 2 | 3 | 4 | 5 |           |
| SK8552-AF5-R | SK8552L-AF5-R     | SOT-25  | G              | G | O | I | N | Tape Reel |
| SK8552-G03-K | SK8552L-G03-K     | SIP-3   | I              | G | O | - | - | Bulk      |

Note: Pin Assignment: I:V<sub>CC</sub> O:V<sub>OUT</sub> G:GND N: No Connection

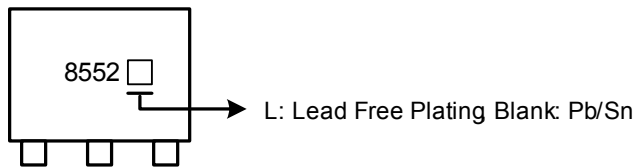
|   |   |
|---|---|
| <p>SK8552L-AF5-R</p> <p>(1)Packing Type<br/>(2)Package Type<br/>(3)Lead Plating</p> | <p>(1) K: Bulk, R: Tape Reel<br/>(2) AF5: SOT-25, G03: SIP-3<br/>(3) L: Lead Free Plating, Blank: Pb/Sn</p> |
|---|---|



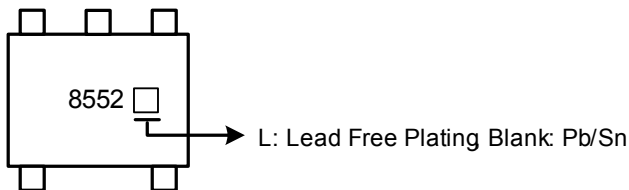
\*Pb-free plating product number: SK8552L

## MARK INFORMATION

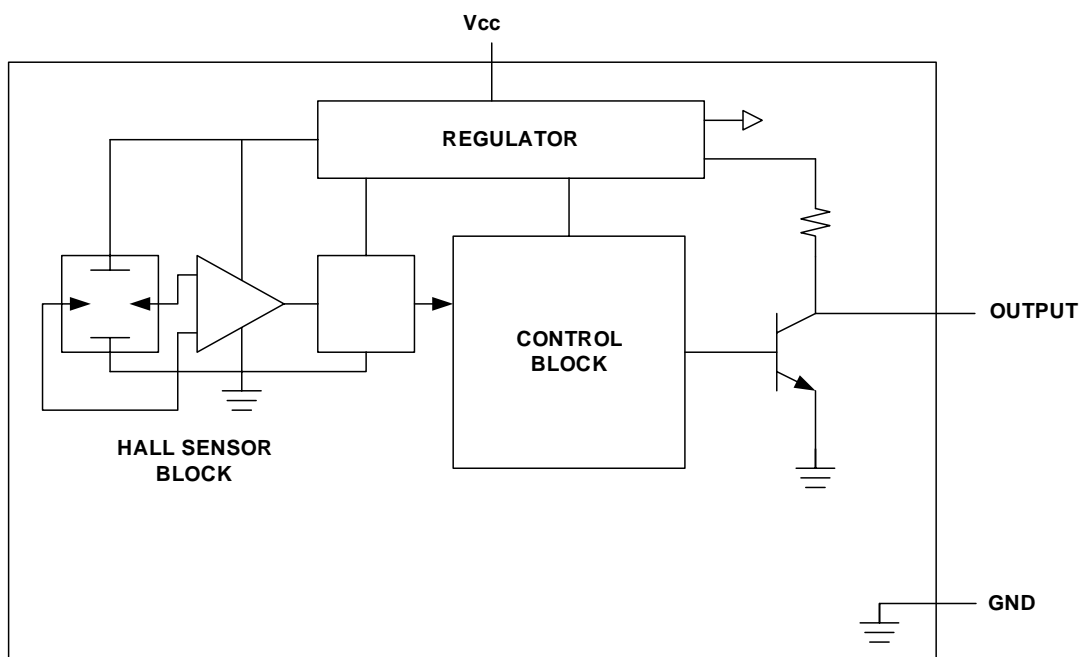
SIP-3



SOT-25



## BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25 )

| PARAMETER             | SYMBOL           | RATINGS   | UNIT |
|-----------------------|------------------|-----------|------|
| Supply Voltage        | V <sub>CC</sub>  | 3~20      | V    |
| Supply Current        | I <sub>CC</sub>  | 10        | mA   |
| Output Current        | I <sub>OUT</sub> | 10        | mA   |
| Power Dissipation     | SIP              | 400       | mW   |
|                       | SOT              | 200       | mW   |
| Junction Temperature  | T <sub>J</sub>   | +125      | °C   |
| Operating Temperature | T <sub>OPR</sub> | -20~ +125 | °C   |
| Storage Temperature   | T <sub>STG</sub> | -55~+150  | °C   |

Note 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. The device is guaranteed to meet performance specification within 0 ~+70 operating temperature range and assured by design from -20 ~+125 .

■ ELECTRICAL CHARACTERISTICS (Ta = 25 )

| PARAMETER   | SYMBOL           | CONDITIONS  | MIN | TYP | MAX  | UNIT |
|---|------------------|---|-----|-----|------|------|
| Output voltage SH   | V <sub>OHS</sub> | V <sub>CC</sub> =3V, I <sub>OUT</sub> =-10μA, B=100G  |     | 2.8 | 3    | V    |
| Output voltage NH   | V <sub>OHN</sub> | V <sub>CC</sub> =3V, I <sub>OUT</sub> =-10μA, B=-100G |     | 2.8 | 3    | V    |
| Output voltage SL   | V <sub>OLS</sub> | V <sub>CC</sub> =3V, I <sub>OUT</sub> =1mA, B=5G      |     |     | 0.7  | V    |
| Output voltage NL   | V <sub>OLN</sub> | V <sub>CC</sub> =3V, I <sub>OUT</sub> =1mA, B=-5G     |     |     | 0.7  | V    |
| Output current 1  | I <sub>OHS</sub> | V <sub>CC</sub> =3V, V <sub>OUT</sub> =3V , B=100G    |     | 10  |      | mA   |
| Output current 2  | I <sub>OHN</sub> | V <sub>CC</sub> =3V, V <sub>OUT</sub> =3V , B=-100G   |     | 10  |      | mA   |
| Supply current  | I <sub>CC</sub>  | V <sub>CC</sub> =3V, B=5G                             |     | 5   |      | mA   |
| Output switching time   | T <sub>R</sub>   |   |     | 5   |      | μS   |
|   | T <sub>F</sub>   |   |     | 1   |      | μS   |
| <b>MAGNETIC CHARACTERISTICS (over operating supply voltage range)</b> |                  |   |     |     |      |      |
| Operating magnetic flux density                                       | BHLS             | V <sub>CC</sub> =3V                                   | -20 |     |      | G    |
| Operating magnetic flux density                                       | BHLN             | V <sub>CC</sub> =3V                                   | 20  |     |      | G    |
| Operating magnetic flux density                                       | BLHS             | V <sub>CC</sub> =3V                                   |     |     | -100 | G    |
| Operating magnetic flux density                                       | BLHN             | V <sub>CC</sub> =3V                                   |     |     | 100  | G    |

■ PACKAGE INFORMATION

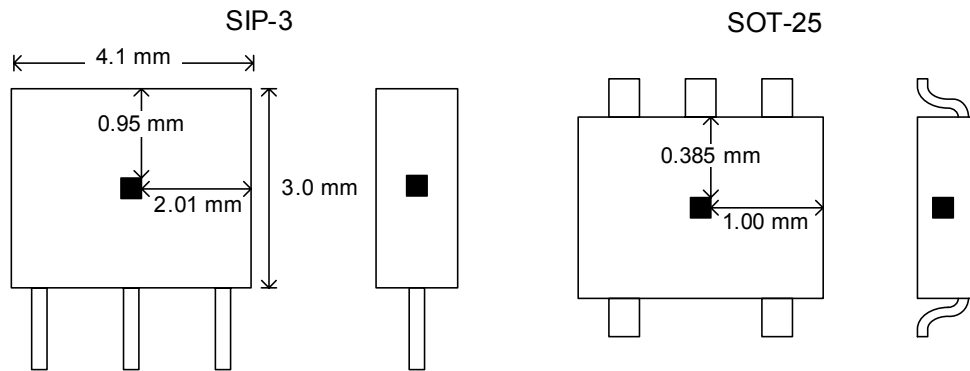


Fig. 1 SENSOR LOCATIONS

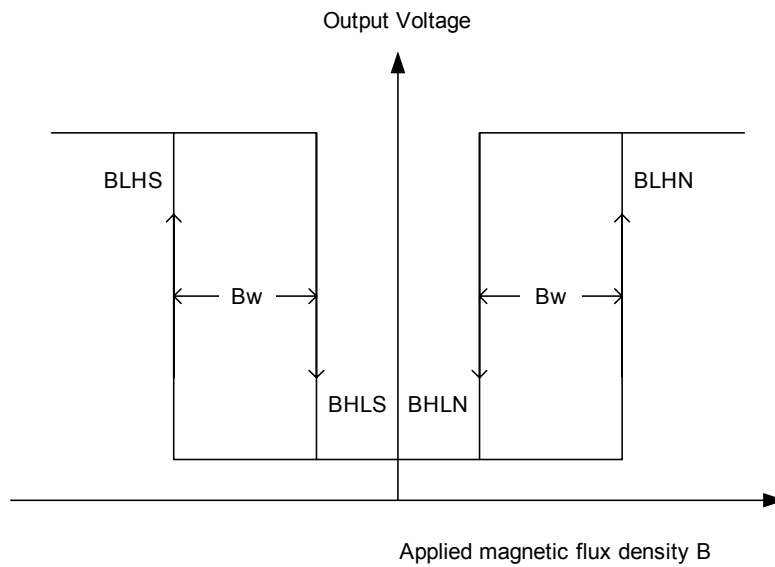
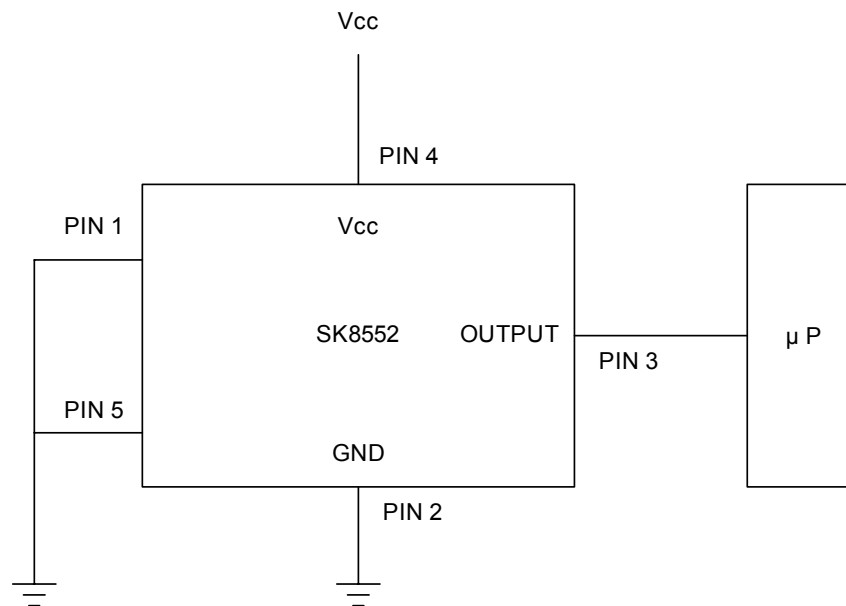


Fig. 2 OPERATING MAGNETIC FLUX DENSITY

### ■ TYPICAL APPLICATION CIRCUIT



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