



## SK1812

## LINEAR INTEGRATED CIRCUIT

### BIPOLAR LATCH TYPE HALL - EFFECT FOR HIGH-TEMPERATURE OPERATION

#### DESCRIPTION

**SK1812** 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°C. This Hall IC is suitable for application to various kinds of sensors, contactless switches, and the like.

#### FEATURES

- \* Wide supply voltage range of 2.5V to 20V
- \* Wide temperature operation range of -20°C ~+125°C
- \* Alternating magnetic field operation
- \* TTL and MOS IC are directly drivable by the output
- \* The life is semipermanent because it employs contactless parts

#### APPLICATIONS

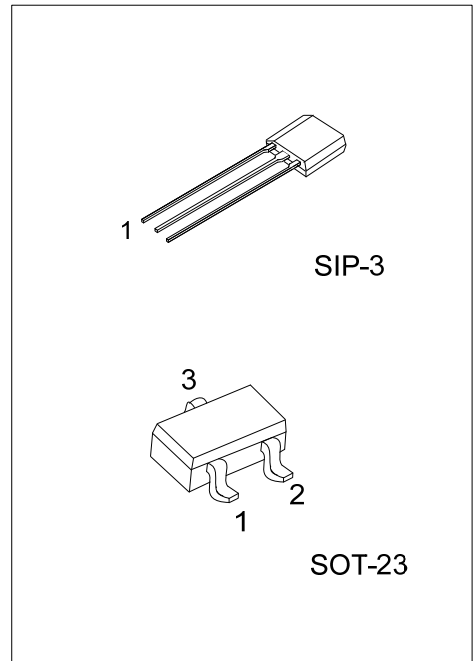
- \* Speed sensor
- \* Position sensor
- \* Rotation sensor
- \* Contact-less sensor
- \* Motor control

#### ORDERING INFORMATION

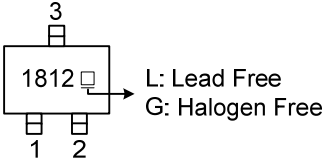
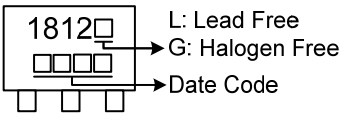
Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
SK1812L-AE3-R	SK1812G-AE3-R	SOT-23	I	O	G	Tape Reel
SK1812L-G03-K	SK1812G-G03-K	SIP-3	I	G	O	Bulk

Note: Pin Assignment: I: V<sub>CC</sub> O: V<sub>OUT</sub> G: GND

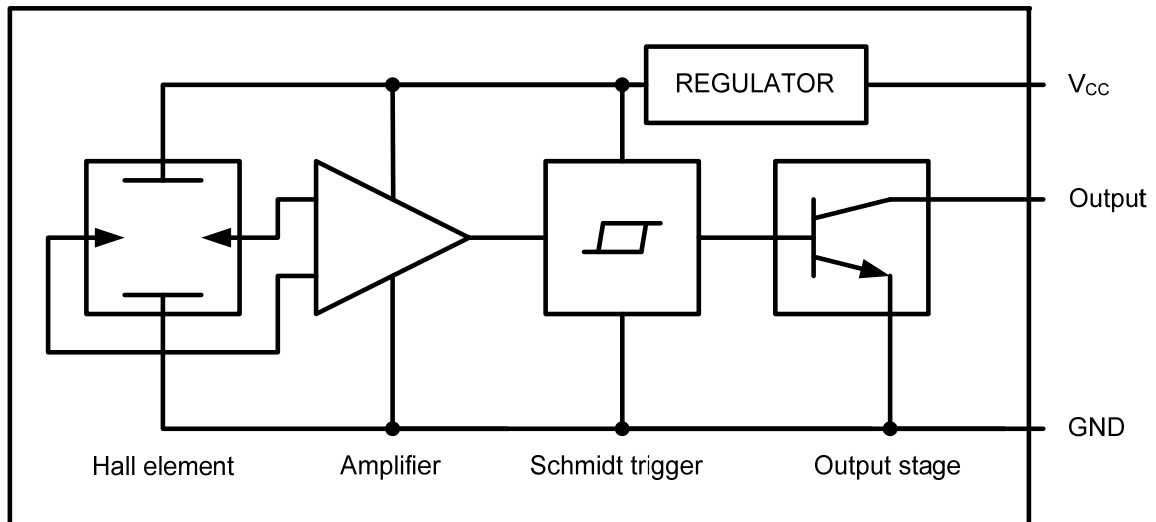
<p>SK1812G-AE3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: R: Tape Reel, K: Bulk</p> <p>(2) AE3: SOT-23, G03: SIP-3</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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### MARKING

SOT-23	SIP-3
 <p>L: Lead Free G: Halogen Free</p>	 <p>L: Lead Free G: Halogen Free Date Code</p>

### BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	2.5~20	V
Supply Current	$I_{CC}$	10	mA
Circuit Current	$I_o$	20	mA
Power Dissipation	SIP-3	400	mW
	SOT-23	200	
Operating Temperature	$T_{OPR}$	-20 ~ +125	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Note: 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.

■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Low-Level Output Voltage	$V_{OL}$	$V_{CC}=16\text{V}, I_{OUT}=12\text{mA}, B=30\text{mT}$			0.7	V
		$V_{CC}=3.6\text{V}, I_{OUT}=12\text{mA}, B=30\text{mT}$			0.7	V
Output Leakage Current	$I_{LEAK}$	$V_{CC}=16\text{V}, B=-30\text{mT}$		1	10	$\mu\text{A}$
Output Short Circuit Current	$-I_{OS}$	$V_{CC}=16\text{V}, V_{OUT}=0\text{V}, B=-30\text{mT}$		0.8		mA
Supply Current	$I_{CC}$	$V_{CC}=16\text{V}$			6	mA
		$V_{CC}=3.6\text{V}$			5.5	mA
<b>MAGNETIC CHARACTERISTICS</b>						
Operate Point	BOP	$T_A=25^\circ\text{C}$			5	mT
Release Point	BRP	$T_A=25^\circ\text{C}$			-5	mT
Hysteresis	BHYS	$T_A=25^\circ\text{C}$			10	mT

Notes: 1. BOP =operate point (output turns ON); BRP =release point (output turns OFF); BHYS =hysteresis(BOP – BRP).

As used here, negative flux densities are defined as less than zero (algebraic convention).

Typical values are at  $T_A=25^\circ\text{C}$  and  $V_{CC} = 12\text{V}$ .

2. 1mT=10 gauss.

## ■ PACKAGE INFORMATION

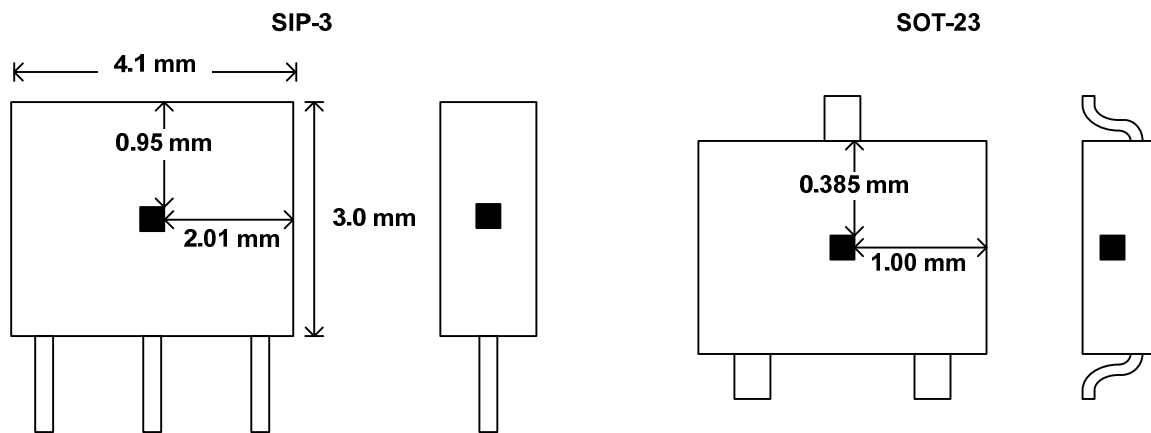


Fig. 1 SENSOR LOCATIONS

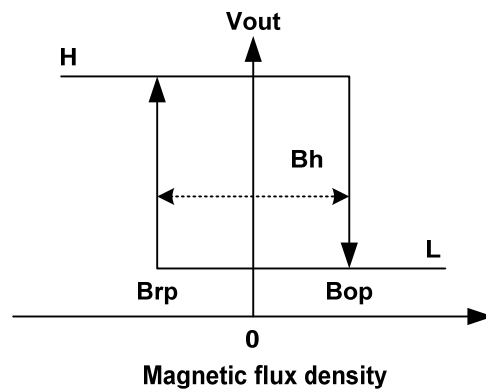
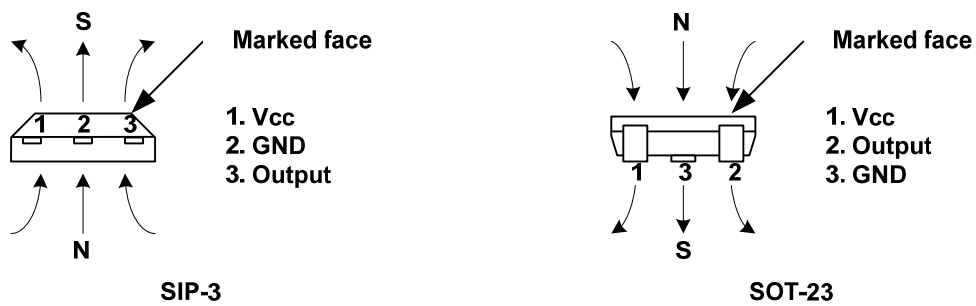
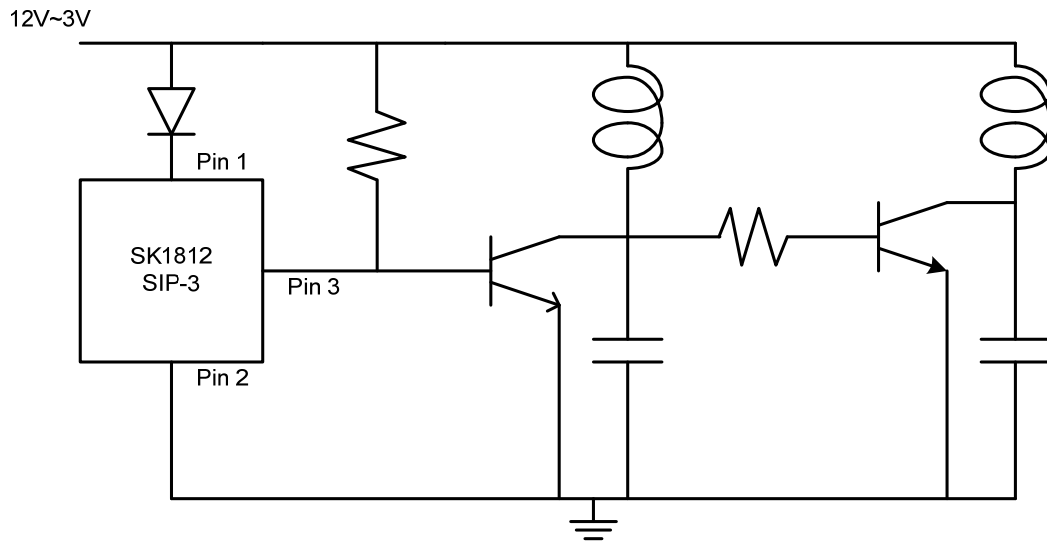
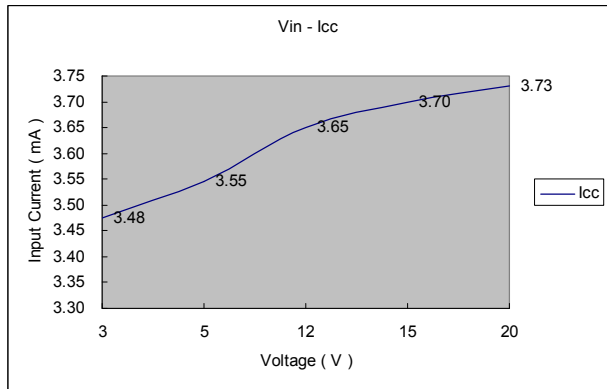
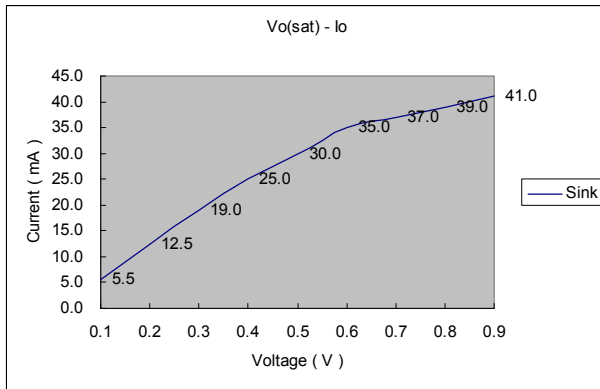
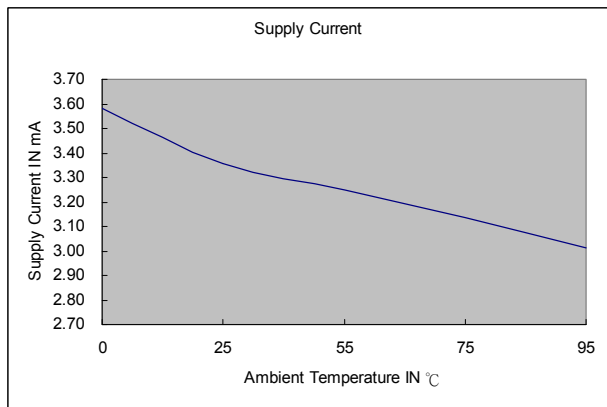
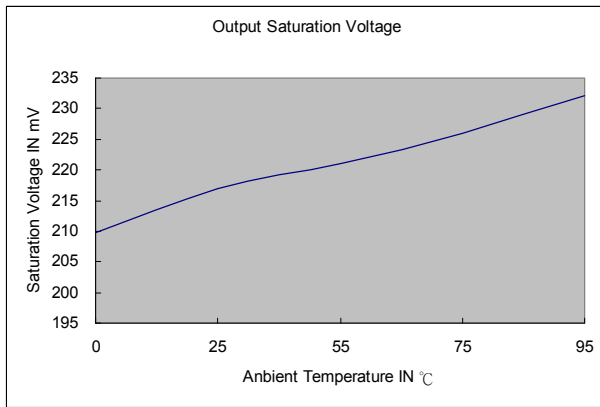
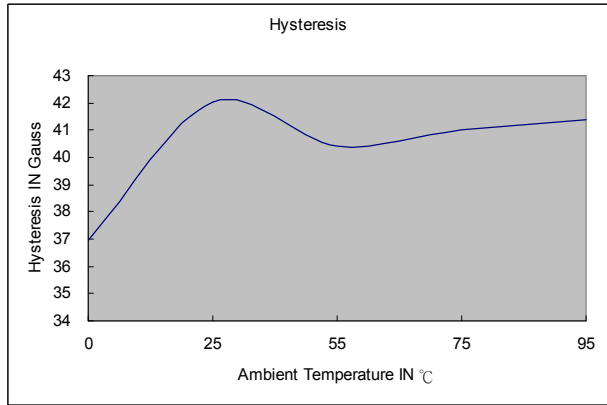
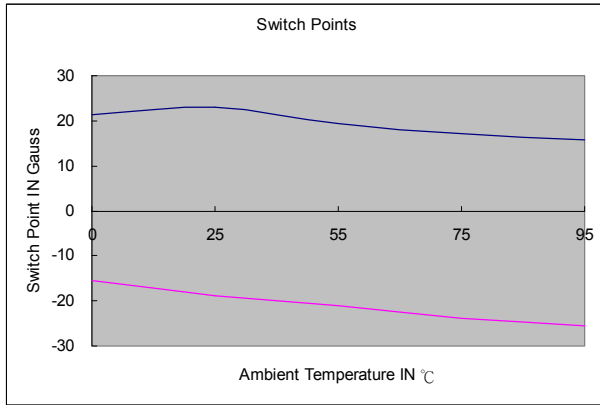


Fig.2 APPLYING DIRECTION OF MAGNETIC FLUX

### ■ TYPICAL APPLICATION CIRCUIT



## TYPICAL CHARACTERISTICS



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