



SK1816

LINEAR INTEGRATED CIRCUIT

BIPOLAR LATCH TYPE HALL EFFECT FOR HIGH-TEMPERATURE OPERATION

DESCRIPTION

The UTC **SK1816** is a semiconductor integrated circuit utilizing the Hall effect. It designed 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, contact-less switches, such as Speed sensor, Position sensor, Rotation sensor, Contact-less sensor, and Motor control.

FEATURES

- * Wide Temperature Operation Range of -30°C ~+125°C
- * Alternating Magnetic Field Operation
- * Built-in Protection Diode
- * TTL and MOS IC are Directly Drivable by the Output
- * The life is Semi Permanent because it Employs Contact-Less Parts

ORDERING INFORMATION

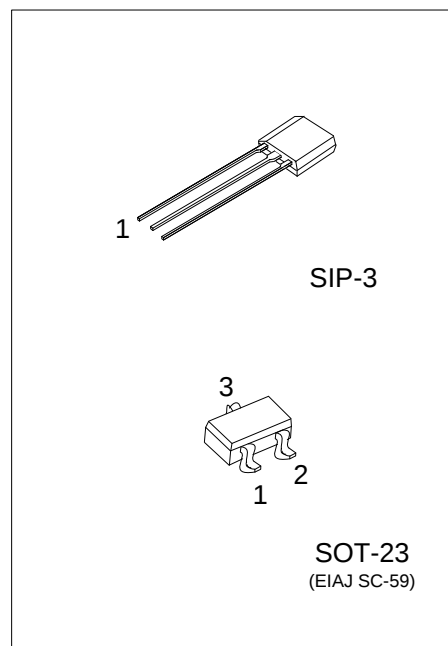
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
SK1816L-AE3-R	SK1816G-AE3-R	SOT-23	I	O	G	Tape Reel
SK1816L-G03-B	SK1816G-G03-B	SIP-3	I	G	O	Tape Box
SK1816L-G03-K	SK1816G-G03-K	SIP-3	I	G	O	Bulk

Note: Pin Assignment: I: V_{CC} O: V_{OUT} G: GND

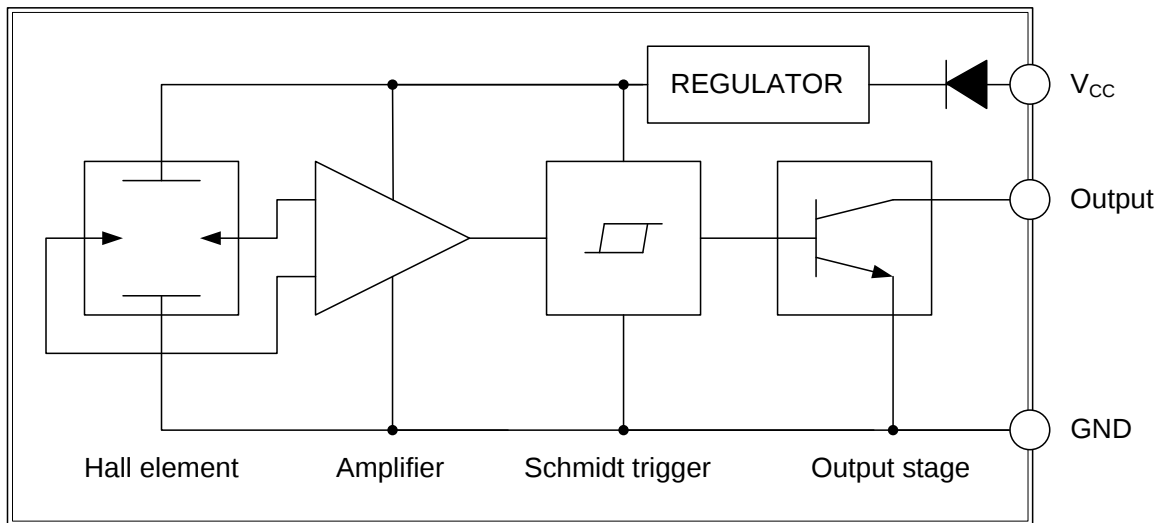
SK1816G-AE3-R (1) Packing Type (2) Package Type (3) Green Package	(1) B: Tape Box, K: Bulk, R: Tape Reel (2) AE3: SOT-23, G03: SIP-3 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

SIP-3	SOT-23
L: Lead Free G: Halogen Free Date Code	L: Lead Free G: Halogen Free



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V _{CC}	20	V
Supply Current		I _{CC}	10	mA
Circuit Current		I _O	20	mA
Power Dissipation	SIP-3	P _D	400	mW
	SOT-23		200	mW
Operating Temperature		T _{OPR}	-30 ~ +125	°C
Storage Temperature		T _{STG}	-40 ~ +150	°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°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Low-Level Output Voltage	V _{OL}	V _{CC} = 16V, I _{OUT} =12mA, B=30 mT		0.2	0.7	V
		V _{CC} =3.6V, I _{OUT} =12mA, B=30 mT		0.3	0.7	V
Output Leakage Current	I _{LEAK}	V _{CC} =16V, B=-30 mT		1	10	μA
Supply Current	I _{CC}	V _{CC} =16V		6	10	mA
		V _{CC} =3.6V		5.5	10	mA
Output Switching Time	T _R	V _{CC} =16V, R _L =10KΩ, C _L =10pF			5	μS
	T _F	V _{CC} =16V, R _L =10KΩ, C _L =10pF			1	μS
MAGNETIC CHARACTERISTICS						
Operate Point	B _{OP}	At T _A =25°C			5	mT
Release Point	B _{RP}	At T _A =25°C			-5	mT
Hysteresis	B _{HYS}	At T _A =25°C		5.5	10	mT

Notes: 1. B_{OP}=operate point (output turns ON); B_{RP} =release point (output turns OFF); B_{HYS} =hysteresis(B_{OP} – B_{RP}).

As used here, negative flux densities are defined as less than zero (algebraic convention). Typical values are at T_A=25°C and V_{CC} =12V.

2. 1mT=10 gauss.

■ PACKAGE INFORMATION

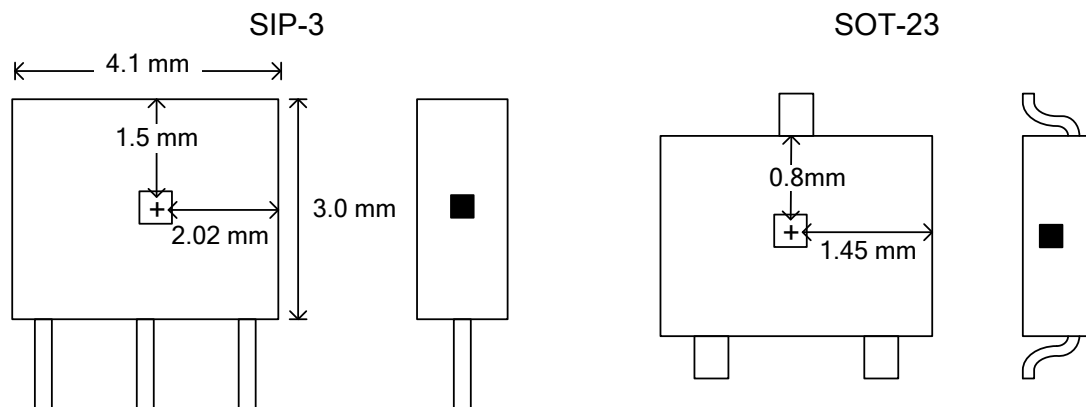


Fig. 1 SENSOR LOCATIONS

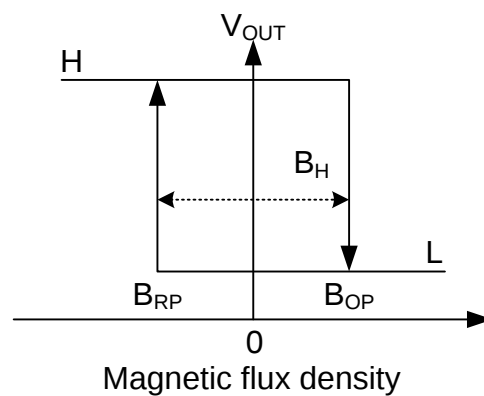
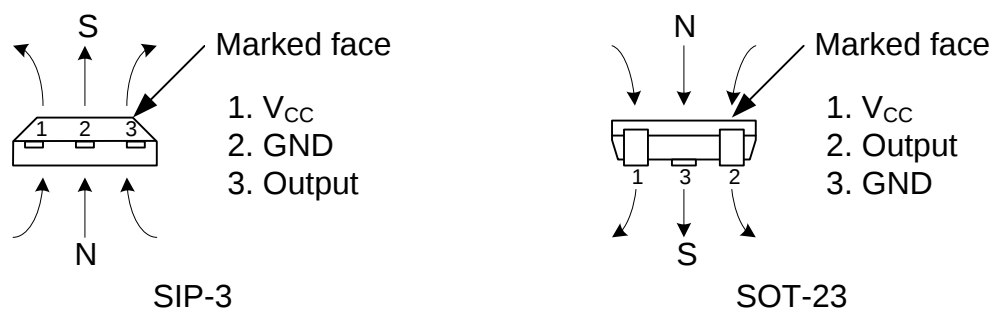
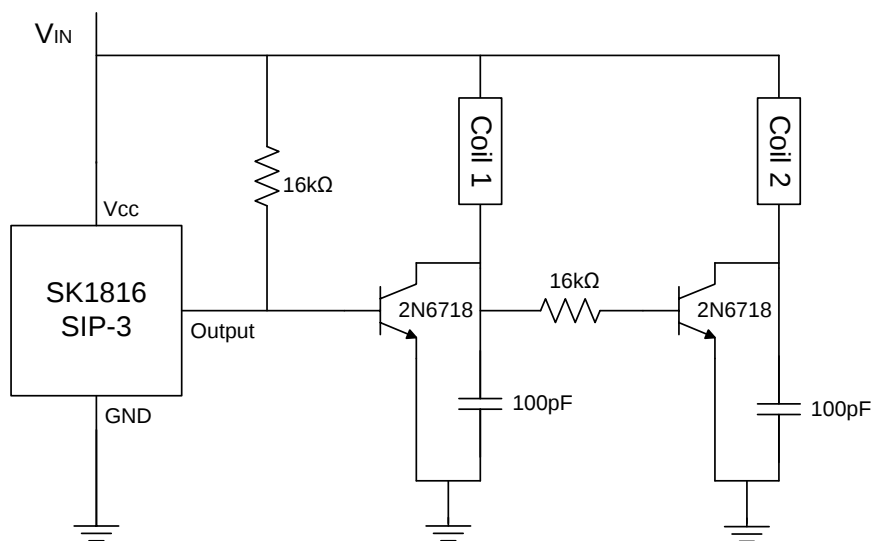
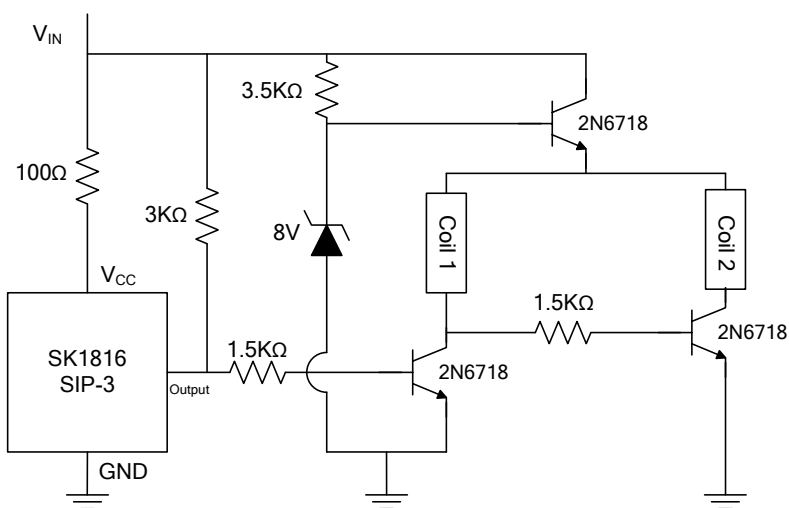


Fig. 2 APPLYING DIRECTION OF MAGNETIC FLUX

■ TYPICAL APPLICATION CIRCUIT

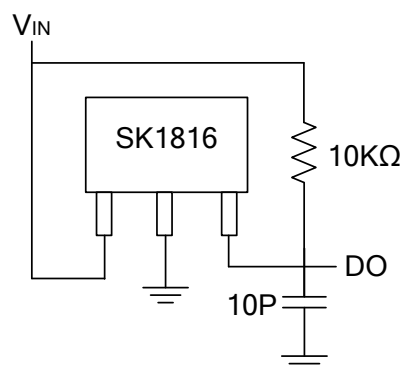


FOR DC FAN 1

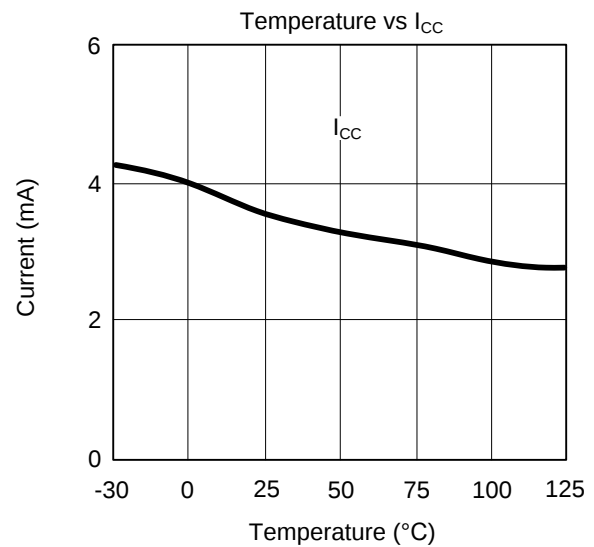
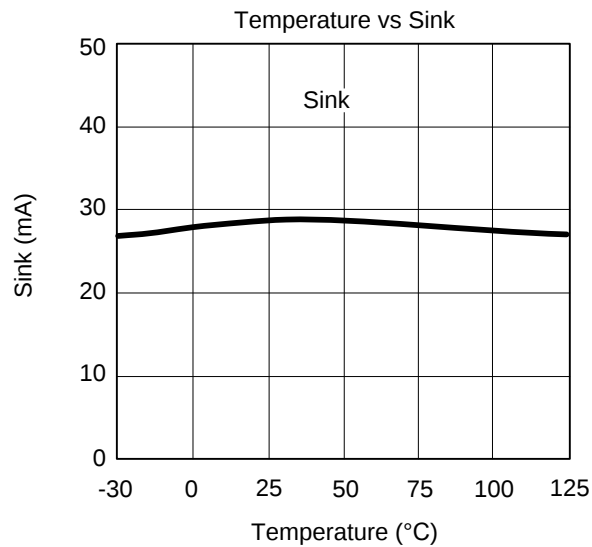


FOR DC FAN 2

■ TEST CIRCUIT



■ TYPICAL CHARACTERISTICS



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