



UHC182

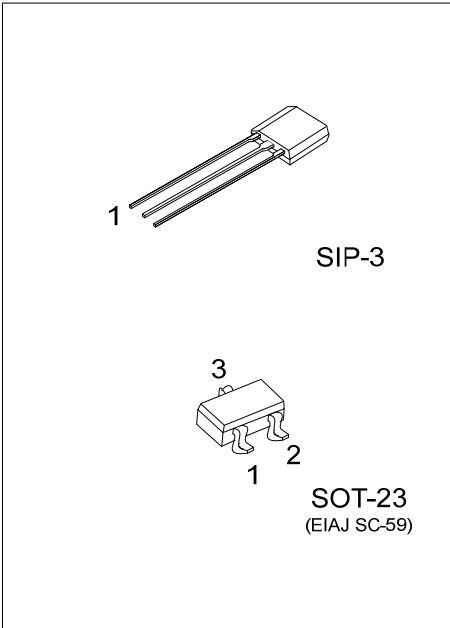
CMOS IC

SINGLE OUTPUT HALL EFFECT LATCH

DESCRIPTION

UTC **UHC182** is an integrated Hall effect latched sensor designed for electronic commutation of brush-less DC motor applications. The device using HVCMOS process includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and open-collector output. An internal band-gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.

If a magnetic flux density larger than threshold B_{op} , OUT is turned on (low). The output state is held until a magnetic flux density reversal falls below B_{rp} causing OUT to be turned off (high).



FEATURES

- * 2.8V ~ 27V DC operation voltage
- * Temperature compensation
- * Wide operating voltage range
- * Open-Drain pre-driver
- * 25mA maximum sinking output current.

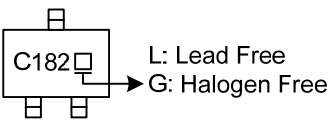
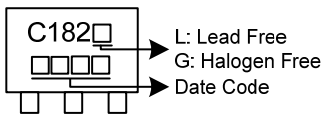
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UHC182L-AE3-R	UHC182G-AE3-R	SOT-23	I	O	G	Tape Reel
UHC182L-G03-B	UHC182G-G03-B	SIP-3	I	G	O	Tape Box
UHC182L-G03-K	UHC182G-G03-K	SIP-3	I	G	O	Bulk

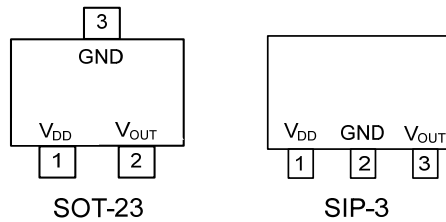
Note: Pin Assignment: I: V_{DD} G: GND O: Output

<p>UHC182G-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel, B: Tape Box, K: Bulk (2) AE3: SOT-23, G03: SIP-3 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
---	---

■ MARKING

SOT-23	SIP-3
	

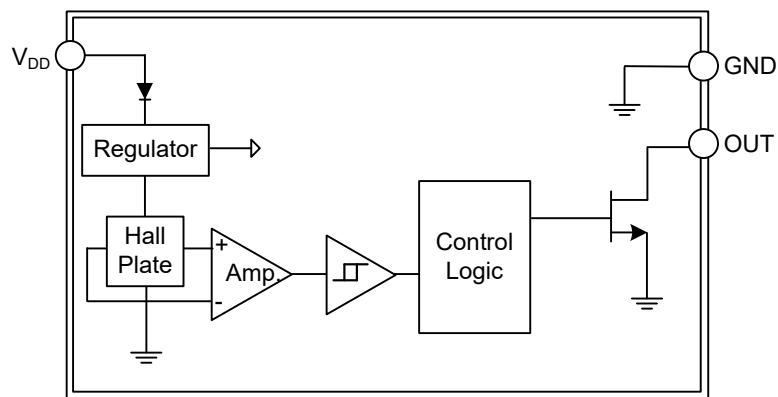
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NAME	DESCRIPTION
V _{DD}	Supply voltage
GND	Ground
Output	Output voltage

■ BLOCK DIAGRAM



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

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V _{CC}	32	V
Reverse V _{CC} Polarity Voltage		V _{RCC}	-22	V
Magnetic Flux Density		B	Unlimited	Gauss
Output Current	Continuous	I _O	25	mA
Power Dissipation	SOT-23	P _D	200	mW
	SIP-3		400	mW
Ambient Temperature		T _A	-40 ~ +125	°C
Storage Temperature Range		T _{STG}	-65 ~ +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 (V_{DD}=12V, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V _{DD}	Operating	2.8		27	V
Supply Current	I _{DD}	Operating		3.0	4.5	mA
Output Leakage Current	I _{OFF}	V _{OUT} = 12V		< 0.1	10	uA
Output Saturation Voltage	V _{DS(SAT)}	I _{OUT} =20mA		0.3		V

■ MAGNETIC CHARACTERISTICS (V_{DD}=12V, T_A=25°C, unless otherwise specified)

For UHC182-A

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operate Point, BOP	B _{OP}	B > B _{OP} , V _{OUT} On	5	20	40	Gauss
Release Point, BRP	B _{RP}	B < B _{RP} , V _{OUT} Off	-40	-20	-5	Gauss
Hysteresis	B _{HY}	B _{OP} - B _{RP}		40		Gauss

For UHC182-B

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operate Point, BOP	B _{OP}	B > B _{OP} , V _{OUT} On	5	35	60	Gauss
Release Point, BRP	B _{RP}	B < B _{RP} , V _{OUT} Off	-60	-35	-5	Gauss
Hysteresis	B _{HY}	B _{OP} - B _{RP}		70		Gauss

Note: 1mT=10 Gauss.

■ DRIVER OUTPUT VS. MAGNETIC POLE

For SIP3

PARAMETER	TEST CONDITIONS	DO
North Pole	B < Brp	High
South Pole	B > Bop	Low

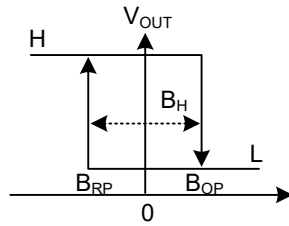
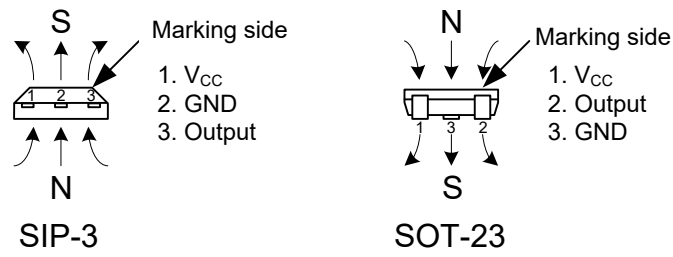
Note: The magnetic pole is applied facing the branded side of the SIP-3 package.

For SOT-23

PARAMETER	TEST CONDITIONS	DO
North Pole	B > Bop	Low
South Pole	B < Brp	High

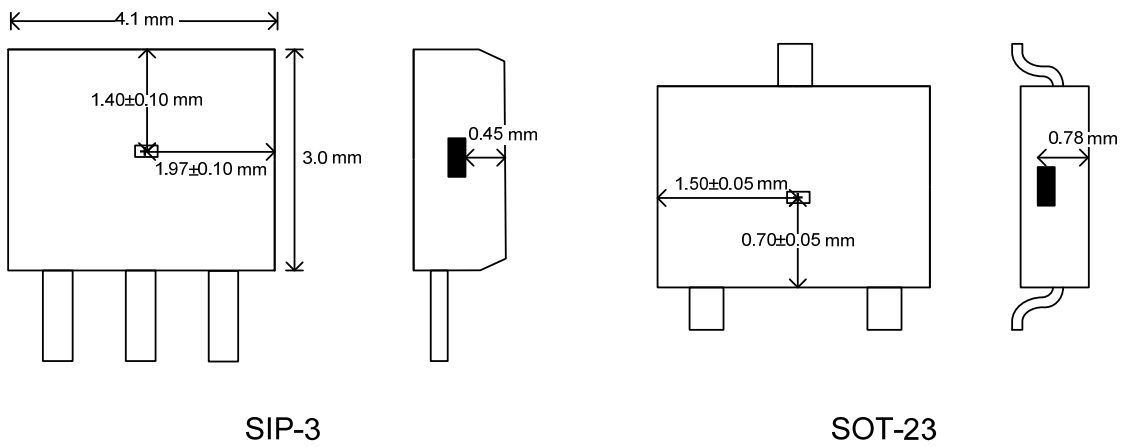
Note: The magnetic pole is applied facing the branded side of the SOT-23 package.

■ CHYSTERESIS CHARACTERISTICS

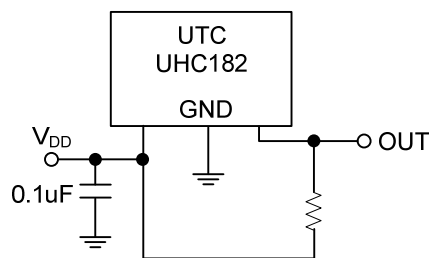


Magnetic Flux Density
Figure 1. Applying Direction of Magnetic Flux

■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.