



UHC182

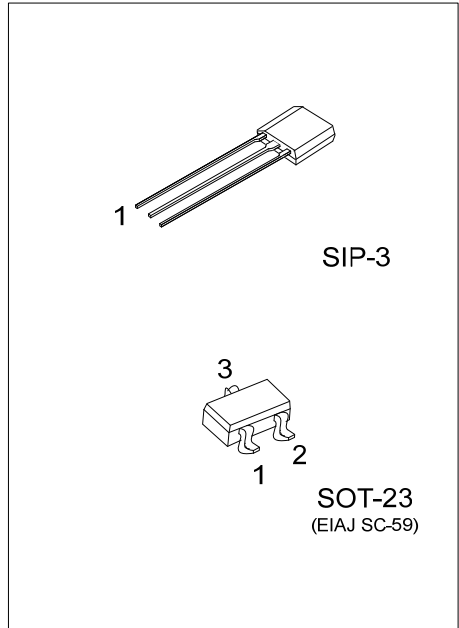
CMOS IC

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~30V DC operation voltage
- * Temperature compensation
- * Wide operating voltage range
- * Open-Drain pre-driver
- * 25mA maximum sinking output current.

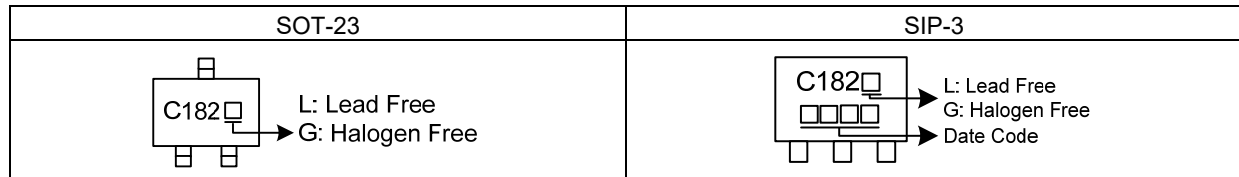
ORDERING INFORMATION

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

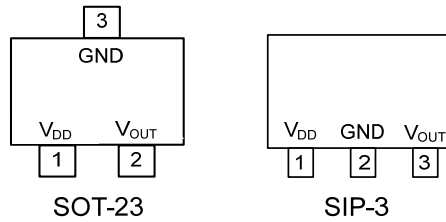
Note: Pin Assignment: I: V_{DD} G: GND O: Output

<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>
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MARKING



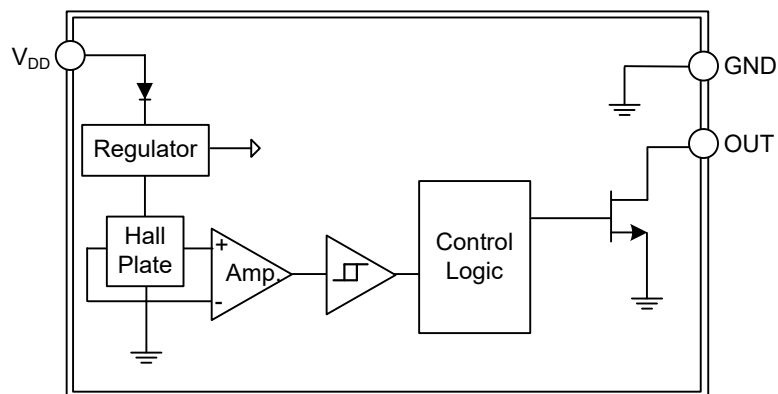
PIN CONFIGURATION



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}	-32	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		30	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

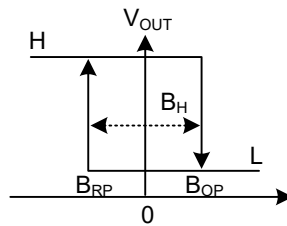
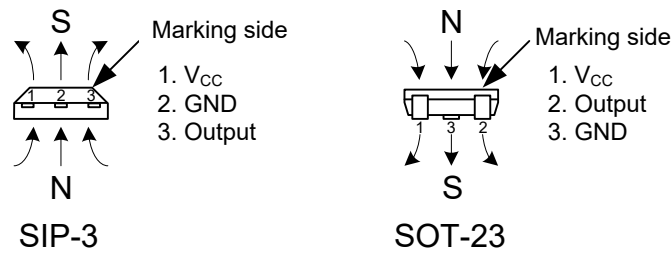
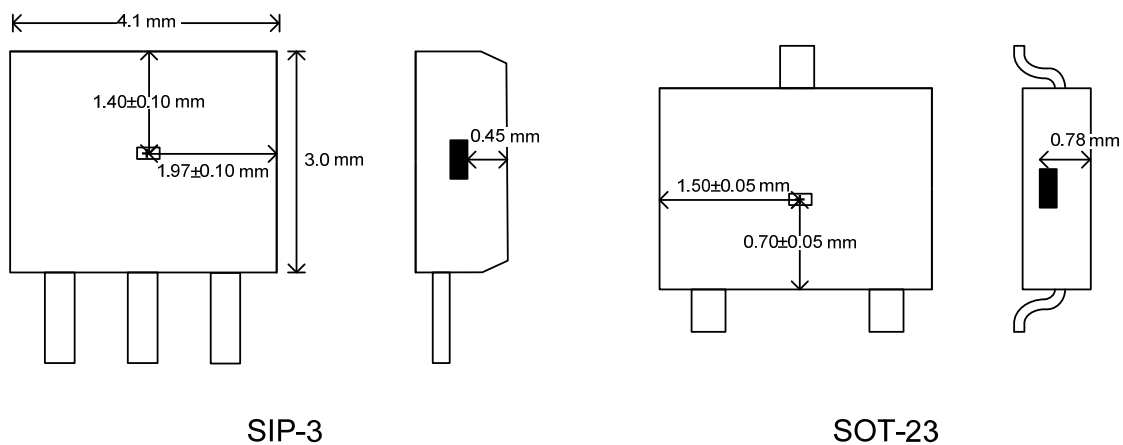
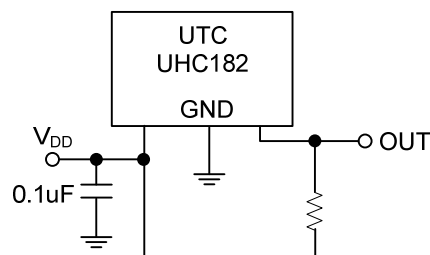


Figure 1. Applying Direction of Magnetic Flux

■ TEST CIRCUIT



■ TYPICAL APPLICATION CIRCUIT



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