

DH182 Hall-Effect sensor is a temperature stable, stress-resistant latch. Superior high-temperature performance is made possible through a dynamic offset cancellation that utilizes chopper-stabilization. This method reduces the offset voltage normally caused by device over molding, temperature dependencies, and thermal stress.

DH182 includes the following on a single silicon chip: voltage regulator, Hall voltage generator, small-signal amplifier, chopper stabilization, Schmitt trigger, open-drain output. Advanced CMOS wafer fabrication processing is used to take advantage of low-voltage requirements, component matching, very low input-offset errors, and small component geometries.

This device requires the presence of both south and north polarity magnetic fields for operation. In the presence of a south polarity field of sufficient strength, the device output latches on, and only switches off when a north polarity field of sufficient strength is present.

DH182 is rated for operation between the ambient temperatures  $-40^{\circ}\text{C}$  and  $85^{\circ}\text{C}$  for the E temperature range, and  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$  for the K temperature range. The two package styles available provide magnetically optimized solutions for most applications. Package SO is an SOT-23, a miniature low-profile surface-mount package, while package UA is a three-lead ultra mini SIP for through-hole mounting.

The package type is in a Halogen Free version was verified by third party Lab.

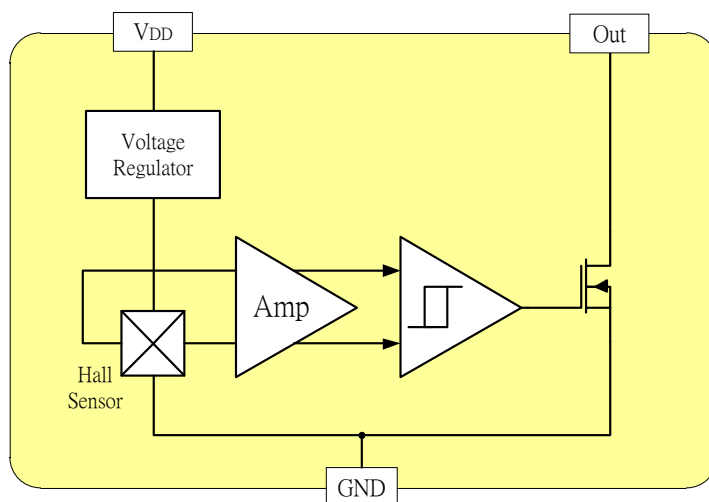
### ***Features and Benefits***

- Chopper stabilized amplifier stage
- Optimized for BLDC motor applications
- New miniature package / thin, high reliability package
- Operation down to 3.0V
- 100% tested at  $125^{\circ}\text{C}$  for K.
- Custom sensitivity / Temperature selection are available.

### ***Applications***

- High temperature Fan motor
- 3 phase BLDC motor application
- Speed sensing
- Position sensing
- Current sensing
- Revolution counting
- Solid-State Switch
- Linear Position Detection
- Angular Position Detection
- Proximity Detection

### ***Functional Diagram***



**Absolute Maximum Ratings At ( $T_a=25^\circ\text{C}$ )**

Characteristics		Values	Unit
Supply voltage, ( $V_{DD}$ )		26	V
Output Voltage, ( $V_{out}$ )		26	V
Reverse voltage, ( $V_{DD}$ ) ( $V_{OUT}$ )		-0.3	V
Magnetic flux density		Unlimited	Gauss
Output current, ( $I_{out}$ )		50	mA
Operating Temperature Range, ( $T_a$ )	“E” version	-40 to +85	$^\circ\text{C}$
	“K” version	-40 to +125	$^\circ\text{C}$
Storage temperature range, ( $T_s$ )		-65 to +150	$^\circ\text{C}$
Maximum Junction Temp, ( $T_j$ )		150	$^\circ\text{C}$
Thermal Resistance	( $\theta_{ja}$ ) UA / SO	206 / 543	$^\circ\text{C}/\text{W}$
	( $\theta_{jc}$ ) UA / SO	148 / 410	$^\circ\text{C}/\text{W}$
Package Power Dissipation, ( $P_D$ ) UA / SO		606 / 230	mW

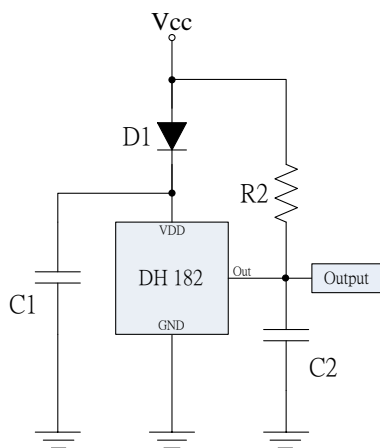
*Note: Do not apply reverse voltage to  $V_{DD}$  and  $V_{OUT}$  Pin, It may be caused for Miss function or damaged device.*

**Electrical Specifications**

DC Operating Parameters :  $T_A=+25^\circ\text{C}$ ,  $V_{DD}=12\text{V}$

Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage, ( $V_{DD}$ )	Operating	3.0		24.0	V
Supply Current, ( $I_{DD}$ )	$B < B_{OP}$			5.0	mA
Output Saturation Voltage, ( $V_{sat}$ )	$I_{OUT} = 10\text{ mA}$ , $B > B_{OP}$			400.0	mV
Output Leakage Current, ( $I_{off}$ )	$I_{OFF} B < B_{RP}$ , $V_{OUT} = 12\text{V}$			15.0	$\mu\text{A}$
Output Rise Time, ( $T_R$ )	$R_L=820\Omega$ , $C_L=20\text{pF}$			0.45	$\mu\text{s}$
Output Fall Time, ( $T_F$ )	$R_L=820\Omega$ ; $C_L=20\text{pF}$			0.45	$\mu\text{s}$
Operate Point, ( $B_{OP}$ )		10		60	Gauss
Release Point, ( $B_{RP}$ )		-60		-10	Gauss
Hysteresis, ( $B_{HYS}$ )			80		Gauss

**Typical application circuit**



D1 : 1N4148 or 100 $\Omega$

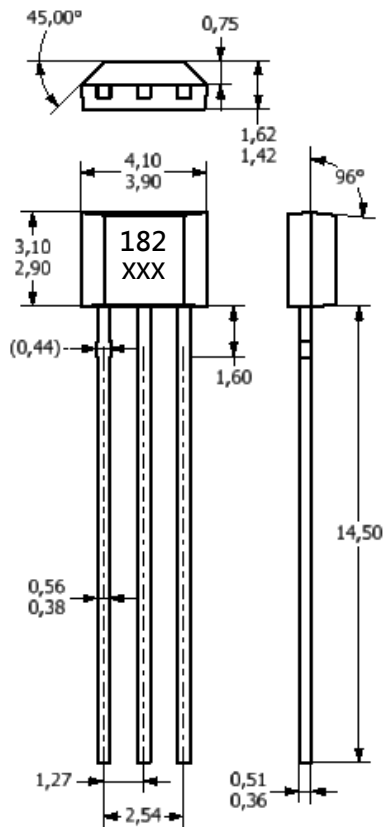
C1 : 1000PF

C2 : 15PF

R2 : 10K $\Omega$

## Sensor Location, Package Dimension and Marking DH182 Package

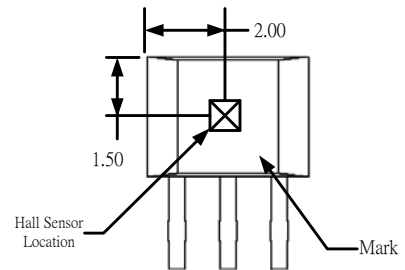
### UA Package



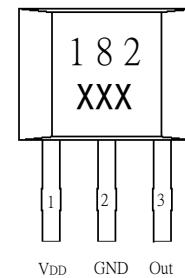
#### NOTES:

- 1).Controlling dimension: mm
- 2).Leads must be free of flash and plating voids
- 3).Do not bend leads within 1 mm of lead to package interface.
- 4).PINOUT:  
Pin 1 V<sub>DD</sub>  
Pin 2 GND  
Pin 3 Output

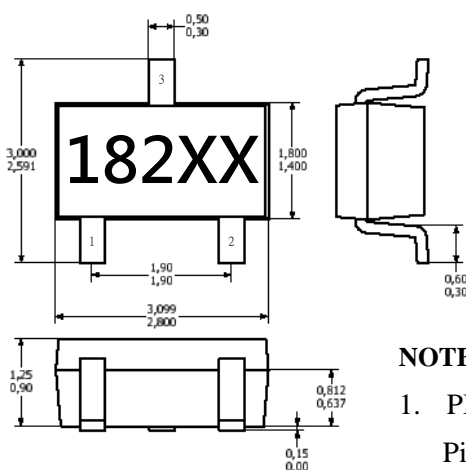
### Hall Chip location



### Output Pin Assignment (Top view)



### Package (SOT-23) (Top View)



#### NOTES:

1. PINOUT (See Top View at left :)  
Pin 1 V<sub>DD</sub>  
Pin 2 Output  
Pin 3 GND
2. Controlling dimension: mm
3. Lead thickness after solder plating will be 0.254mm maximum

### Hall Plate Chip Location (Bottom view)

