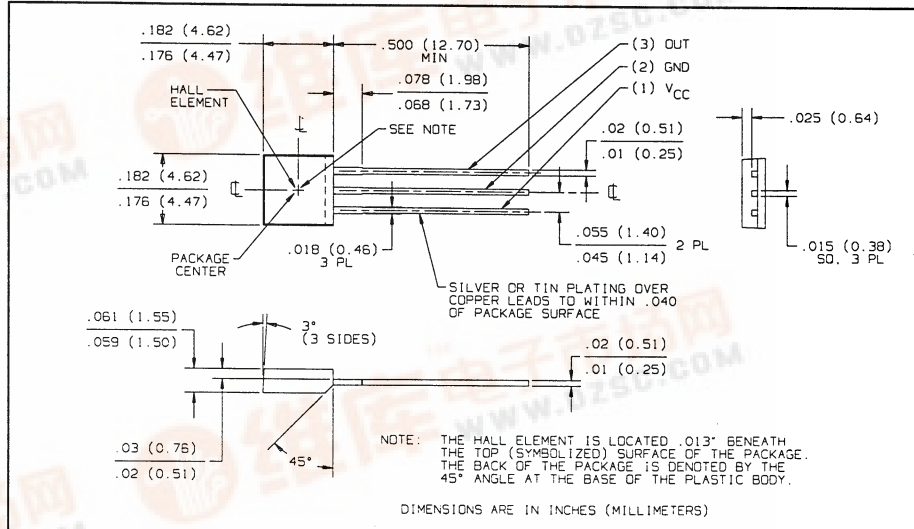
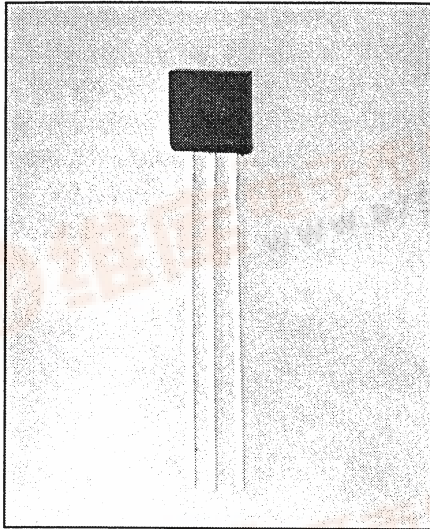


Product Bulletin OHN3075U  
May 1996

# Hallogic® Bipolar Hall Effect Sensors (Latches) Types OHN3075U, OHS3075U



## Features

- Designed for use in brushless DC motors
- Operates over a broad range of supply voltages
- Excellent temperature stability to operate in harsh environments
- Drive capability up to 7 TTL loads

## Description

The OHN3075U and OHS3075U each contain a monolithic integrated circuit which incorporates a Hall element, a linear amplifier, a threshold amplifier, and Schmitt trigger on a single Hallogic® silicon chip. Included on-chip is a bandgap voltage regulator to allow operation with a wide range of supply voltages. The devices feature logic level output and provides up to 21 mA of sink current. This allows direct driving of more than 7 TTL loads or any standard logic family using power supplies ranging from 4.5 to 24 volts. Output amplitude is constant at switching frequencies from DC to over 100 kHz.

These devices turn on (logic level "0") in the presence of a magnetic south pole and turn off (logic level "1") when subjected to a magnetic north pole. Both magnetic poles are necessary for operation so they are referred to as Bipolar or Latching. This feature makes these sensors ideal for applications in brushless DC motors and for use with multiple pole magnets.

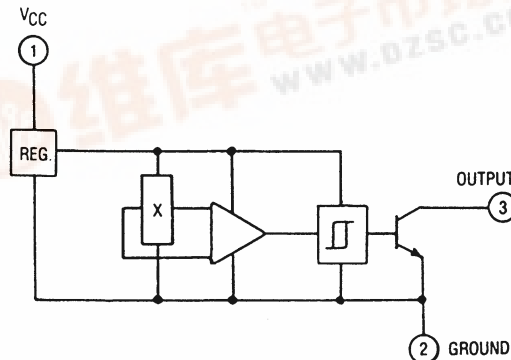
## Absolute Maximum Ratings (T<sub>A</sub> = 25° C unless otherwise noted)

Supply Voltage, V <sub>CC</sub> .....	25 V
Storage Temperature Range, T <sub>S</sub> .....	-65° C to +160° C
Operating Temperature Range, T <sub>A</sub> OHN3075U.....	-20° C to +85° C
OHS3075U.....	-40° C to +150° C
Lead Soldering Temperature [1/8 inch (3.2 mm) from case for 5 sec. with soldering iron].....	260° C <sup>(1)</sup>
Output ON Current, I <sub>SINK</sub> .....	25 mA
Output OFF Voltage, V <sub>OUT</sub> .....	25 V
Magnetic Flux Density, B.....	Unlimited

### Note:

(1) Heat sink leads during hand soldering.

## Functional Block Diagram



# Types OHN3075U, OHS3075U

Electrical Characteristics ( $V_{CC} = 4.5 \text{ V}$  to  $24 \text{ V}$ ,  $T_A = 25^\circ \text{ C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$B_{OP}$	Magnetic Operate Point <sup>(2)</sup>	50	100	250	Gauss	
$B_{RP}$	Magnetic Release Point	-250	-100	-50	Gauss	
$B_H$	Magnetic Hysteresis	100	200	500	Gauss	
$I_{CC}$	Supply Current		4	7	mA	$V_{CC} = 24 \text{ V}$ , Output Off $B \leq -250 \text{ Gauss}$
$V_{OL}$	Output Saturation Voltage		100	400	mV	$V_{CC} = 4.5 \text{ V}$ , $I_{OL} = 20 \text{ mA}$ , $B \geq 250 \text{ Gauss}$
$I_{OH}$	Output Leakage Current		0.1	10.0	$\mu\text{A}$	$V_{CC} = 24 \text{ V}$ , $V_{OUT} = 24 \text{ V}$ , $B \leq -250 \text{ Gauss}$
$t_r$	Output Rise Time		0.05	1.00	$\mu\text{s}$	$R_L = 820 \Omega$ , $C_L = 20 \text{ pF}$ , $V_{CC} = 12 \text{ V}$
$t_f$	Output Fall Time		0.10	1.00	$\mu\text{s}$	

(2) South pole facing symbolized surface.

## Typical Performance Curves

