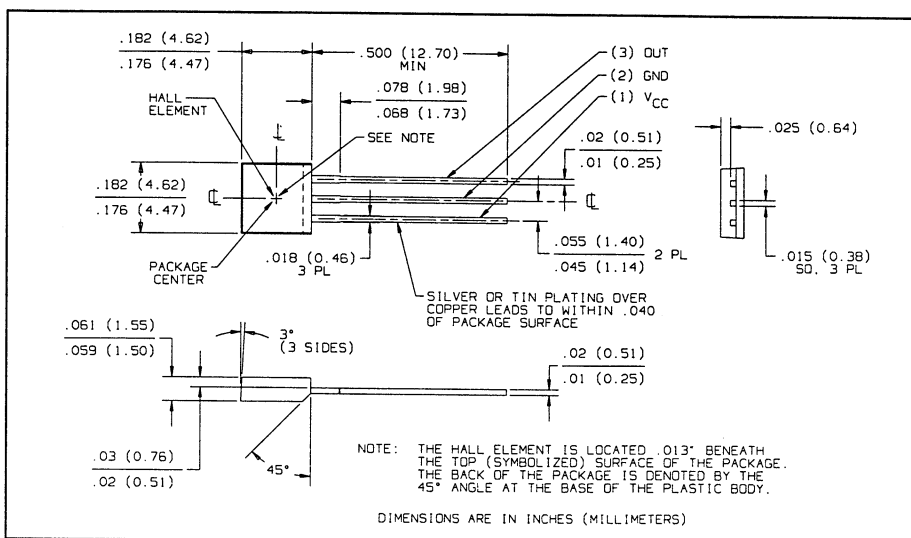
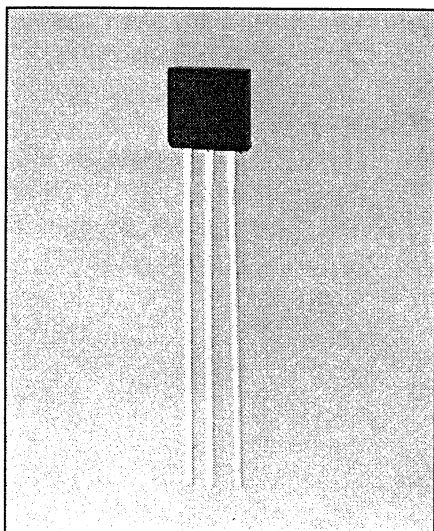


Ultra Sensitive Halloglic[®] Hall Effect Sensors

Types OHN3131U, OHS3131U



Features

- Operates over a broad range of supply voltages
- Excellent temperature stability to operate in harsh environments
- Drive capability up to 7 TTL loads
- Hall element, linear amplifier, and Schmitt trigger on a single Hallogic® silicon chip

Description

The OHN3131U and OHS3131U each contain a monolithic integrated circuit which incorporates a Hall element, a linear amplifier, and Schmitt trigger on a single 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 200 kHz.

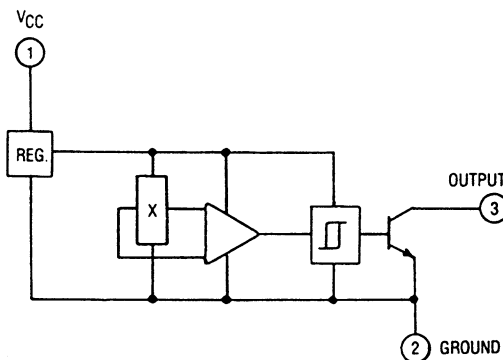
Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Supply Voltage, V_{CC}	25 V
Storage Temperature Range, T_S	-65° C to +150° C
Operating Temperature Range, T_A OHN3131U.....	-20° C to +85° C
OHS3131U	-40° C to +125° C
Lead Soldering Temperature [1/8 inch (3.2 mm) from case for 5 sec. with soldering iron].....	260° C ⁽¹⁾
Output ON Current, I_{SINK}	25 mA
Output OFF Voltage, V_{OUT}	25 V
Magnetic Flux Density, B	Unlimited

Note:

(1) Heat sink leads during hand soldering.

Functional Block Diagram



Types OHN3131U, OHS3131U

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

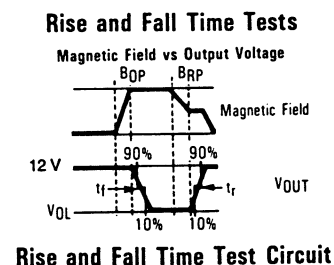
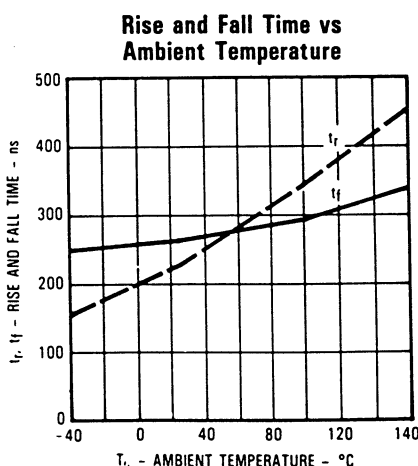
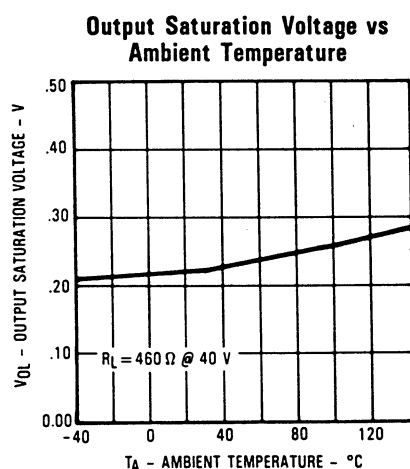
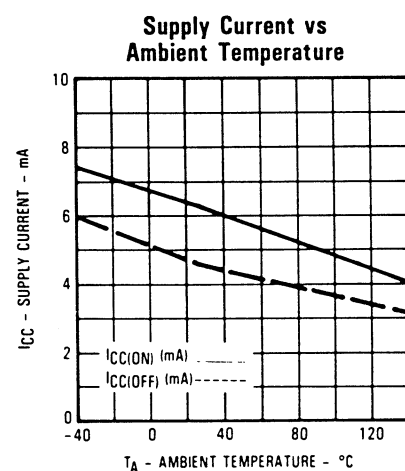
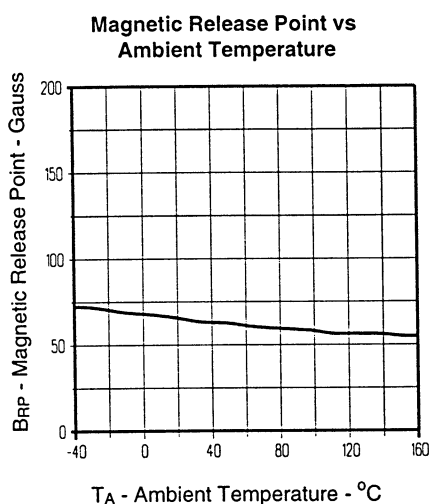
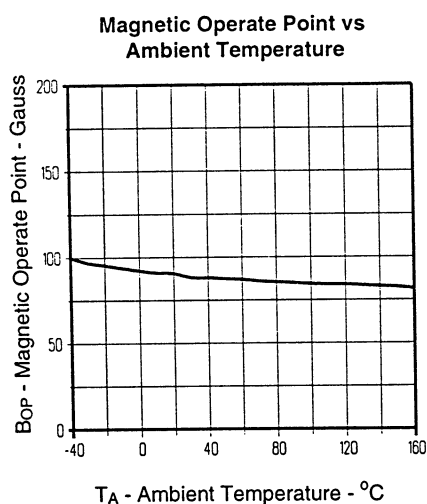
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_{CC}	Supply Current		4.0	7.0	mA	$V_{CC} = 24 \text{ V}$, Output Off
V_{OL}	Output Saturation Voltage		100	400	mV	$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 20 \text{ mA}$, $B \geq 95 \text{ Gauss}$
I_{OH}	Output Leakage Current		0.1	10.0	μA	$V_{CC} = 24 \text{ V}$, $V_{OUT} = 24 \text{ V}$, $B \leq -95 \text{ Gauss}$
t_r	Output Rise Time		0.21	1.00	μs	$R_L = 820 \Omega$, $C_L = 20 \text{ pF}$, $V_{CC} = 12.0 \text{ V}$
t_f	Output Fall Time		0.25	1.00	μs	

Magnetic Characteristics

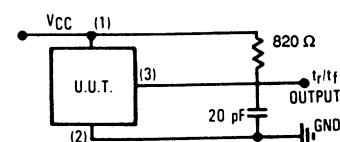
		$T_A = 25^\circ \text{ C}$		$T_A = -20^\circ \text{ C to } 85^\circ \text{ C}$		$T_A = -40^\circ \text{ C to } 125^\circ \text{ C}$		
CHARACTERISTICS	SYMBOL	MIN	MAX	MIN	MAX	MIN	MAX	UNITS
Operate Point ⁽²⁾	B_{OP}	-75	95	-75	95	-115	135	G
Release Point	B_{RP}	-95	85	-95	85	-135	125	G
Hysteresis	B_H	10		10		10		G

(2) South pole facing symbolized surface.

Typical Performance Curves



Rise and Fall Time Test Circuit



HALL EFFECT
SENSORS

Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

Optek Technology, Inc. 1215 W. Crosby Road Carrollton, Texas 75006 (972)323-2200 Fax (972)323-2396