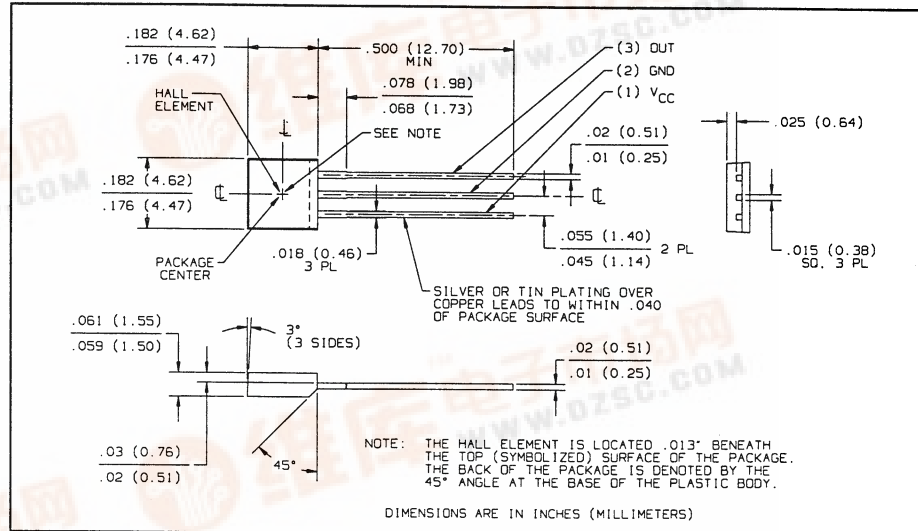
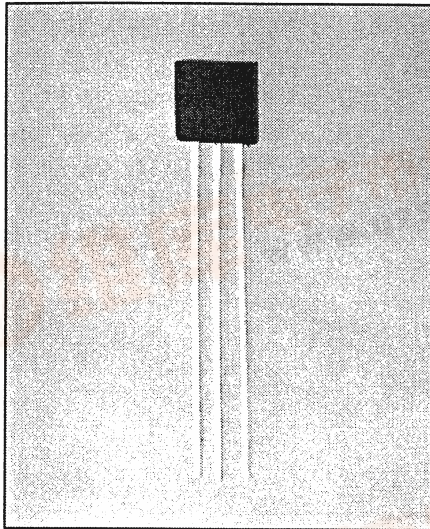


Product Bulletin OHN3120U
May 1996

Hallogic® Hall Effect Sensors Types OHN3120U, OHS3120U



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 OHN3120U and OHS3120U 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 device features 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.

Package size has been kept to minimum, providing an advantage in applications where space is limited.

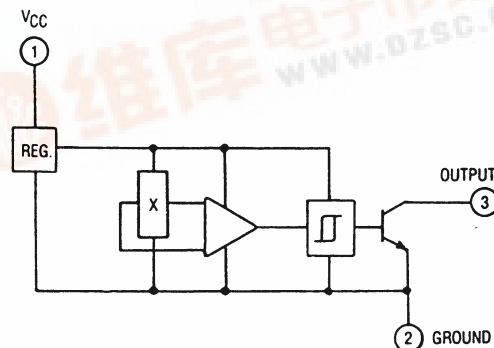
Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Supply Voltage, V_{CC}	25 V
Storage Temperature Range, T_S	-65°C to $+150^\circ\text{C}$
Operating Temperature Range, T_A OHN3120U	-20°C to $+85^\circ\text{C}$
OHS3120U	-40°C to $+125^\circ\text{C}$
Lead Soldering Temperature [1/8 inch (3.2 mm) from case for 5 sec. with soldering iron]	$260^\circ\text{C}^{(1)}$
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 OHN3120U, OHS3120U

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

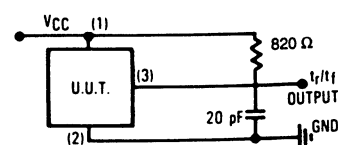
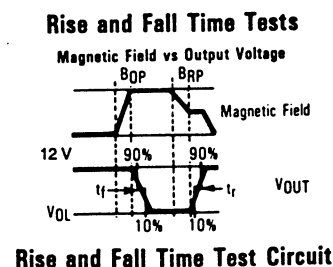
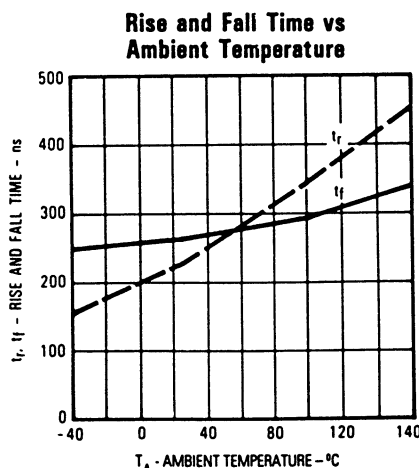
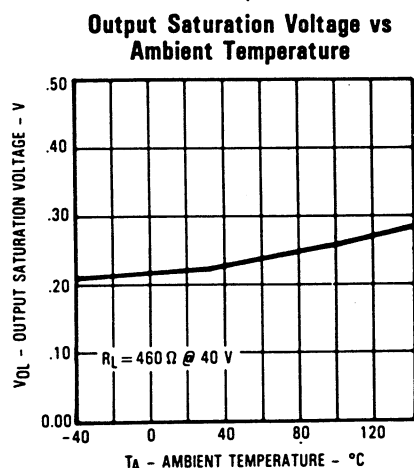
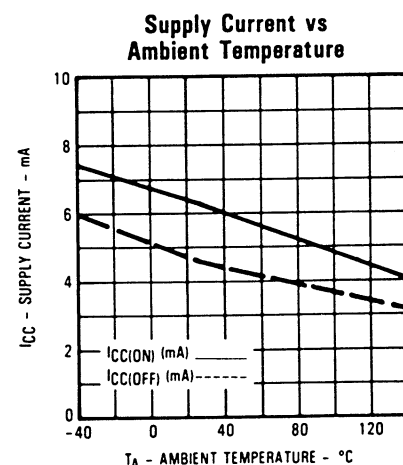
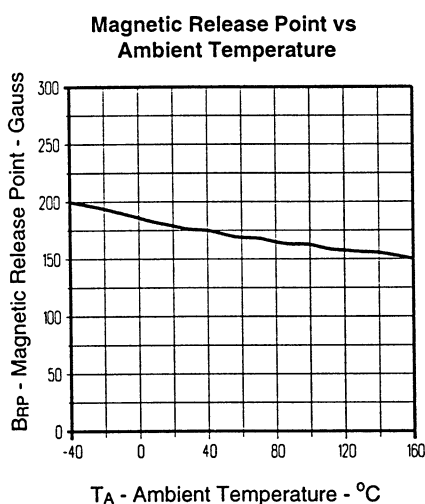
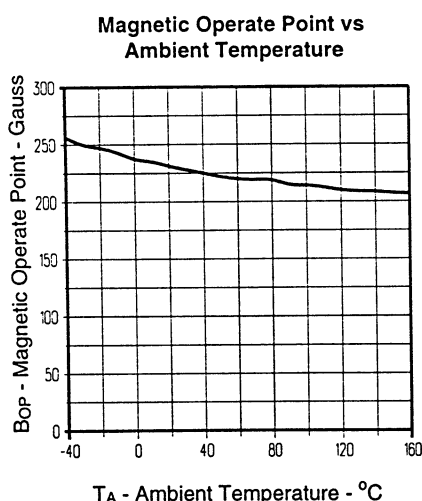
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_{CC}	Supply Current		4	7	mA	$V_{CC} = 24 \text{ V}$, Output Off
V_{OL}	Output Saturation Voltage		100	400	mV	$V_{CC} = 4.5 \text{ V}$, $I_{OL} = 20 \text{ mA}$, $B \geq 350 \text{ Gauss}$
I_{OH}	Output Leakage Current		0.1	10.0	μA	$V_{CC} = 4.5 \text{ V}$, $V_{OUT} = 24 \text{ V}$, $B \leq 50 \text{ Gauss}$
t_r	Output Rise Time		0.21	1.00	μs	$R_L = 820 \Omega$, $C_L = 20 \text{ pF}$
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}	70	350	70	425	35	450	G
Release Point	B_{RP}	50	330	50	405	25	430	G
Hysteresis	B_H	20		20		20		G

(2) South pole facing symbolized surface.

Typical Performance Curves



HALL EFFECT
SENSORS