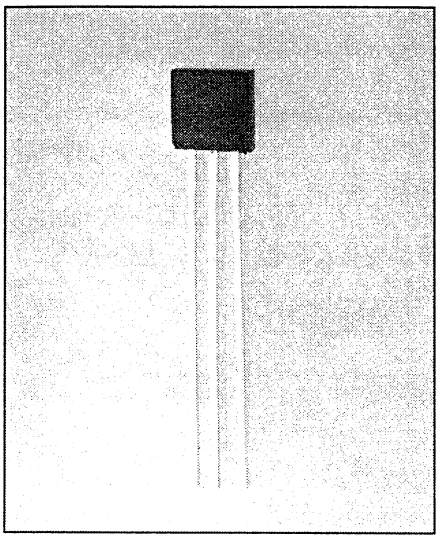
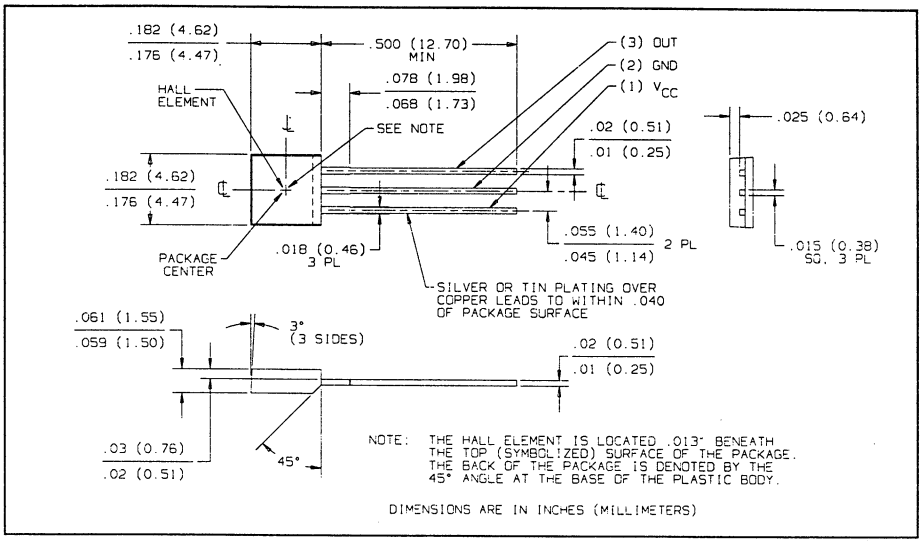
# Hallogic® Hall Effect Sensors
## Types OHN3030U, OHS3030U






### 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 OHN3030U and OHS3030U 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.

Stability of the magnetic operate and release points is excellent over this entire temperature range.

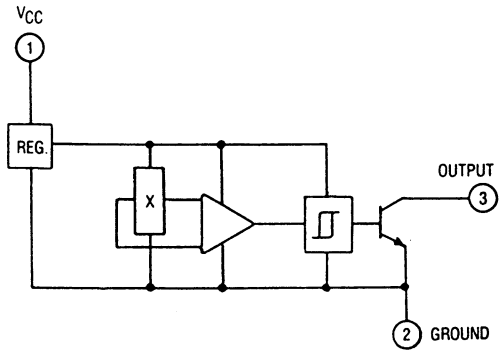
Package size has been kept to minimum, providing an advantage in applications where space is limited.

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

| | |
|---|---|
| Supply Voltage, $V_{CC}$ | 25 V |
| Storage Temperature Range, $T_S$ | -65° C to +160° C |
| Operating Temperature Range, $T_A$ OHN3030U | -20° C to +85° C |
| OHS3030U | -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 OHN3030U, OHS3030U

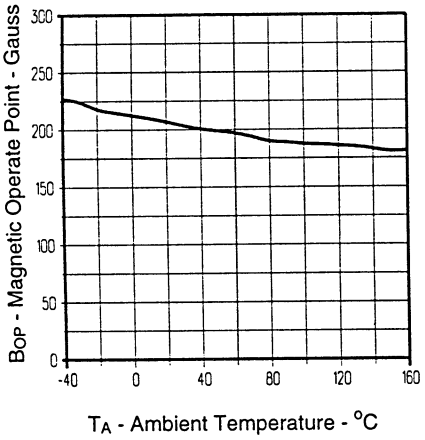
**Electrical Characteristics** ($V_{CC}$ = 4.5 V to 24 V, $T_A$ = 25° C unless otherwise noted)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|---|
| $B_{OP}$ | Magnetic Operate Point(2) | | 205 | 250 | Gauss | |
| $B_{RP}$ | Magnetic Release Point | 0 | 160 | | Gauss | |
| $B_H$ | Magnetic Hysteresis | 20 | 45 | | Gauss | |
| $I_{CC}$ | Supply Current | | 4 | 7 | mA | $V_{CC}$ = 24 V, Output Off |
| $V_{OL}$ | Output Saturation Voltage | | 100 | 400 | mV | $V_{CC}$ = 4.5 V, $I_{OL}$ = 20 mA, B ≥ 200 Gauss |
| $I_{OH}$ | Output Leakage Current | | 0.1 | 10.0 | µA | $V_{CC}$ = 24 V, $V_{OUT}$ = 24 V, B ≤ 50 Gauss |
| $t_r$ | Output Rise Time | | 0.21 | 1.00 | µs | $R_L$ = 820 Ω, $C_L$ = 20 pF |
| $t_f$ | Output Fall Time | | 0.25 | 1.00 | µs | |

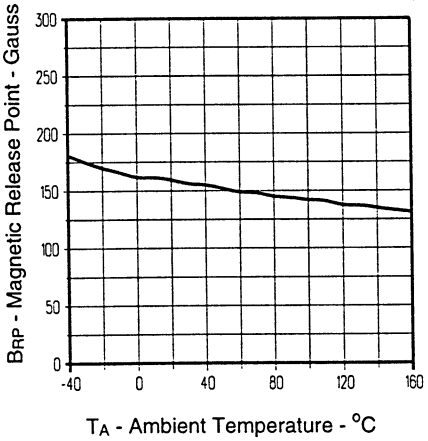
(2) South pole facing symbolized surface.

### Typical Performance Curves

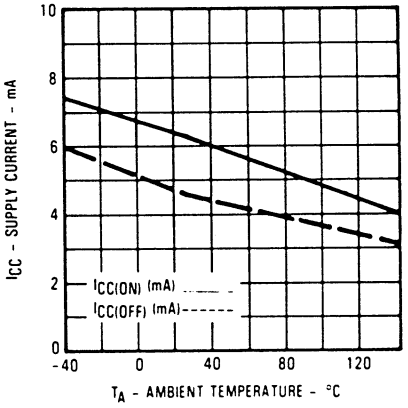
**Magnetic Operate Point vs Ambient Temperature**



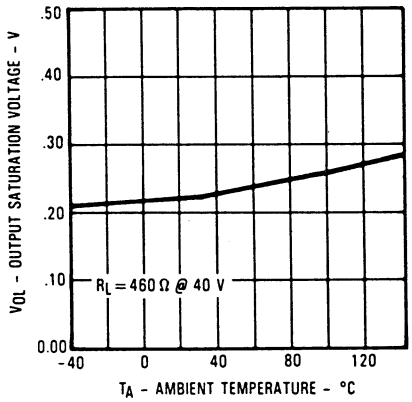

**Magnetic Release Point vs Ambient Temperature**



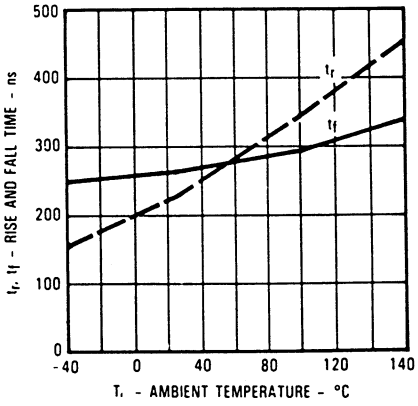

**Supply Current vs Ambient Temperature**



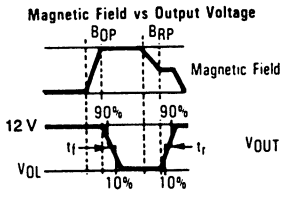

**Output Saturation Voltage vs Ambient Temperature**



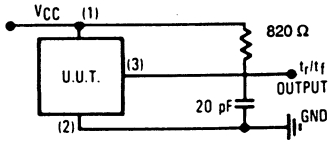

**Rise and Fall Time vs Ambient Temperature**




**Rise and Fall Time Tests**




**Rise and Fall Time Test Circuit**




HALL EFFECT SENSORS