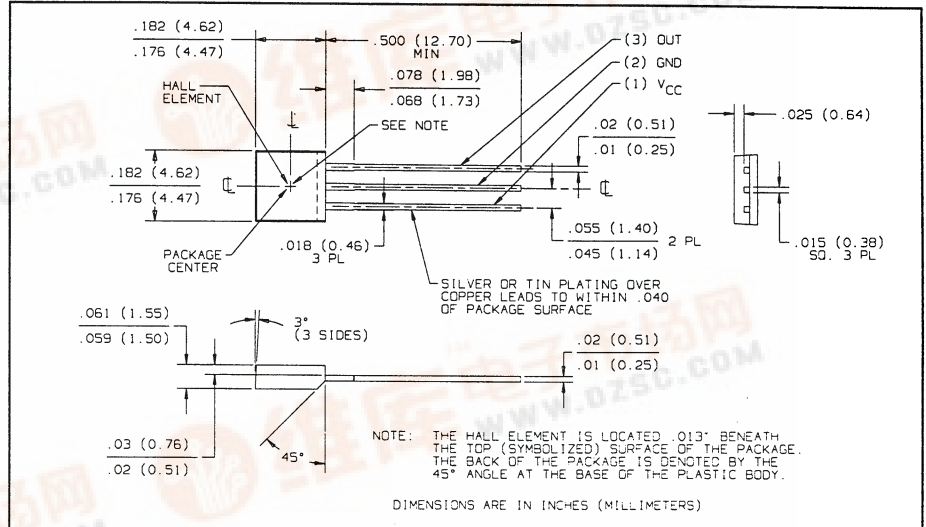
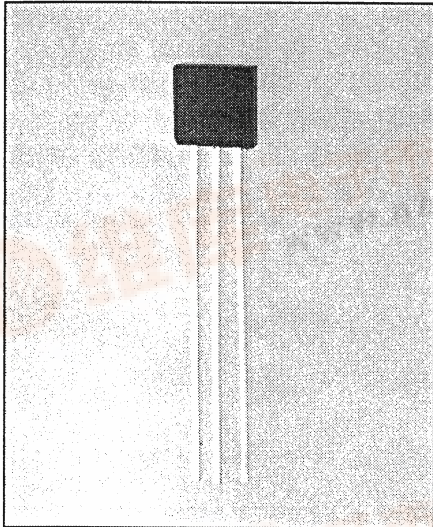


Product Bulletin OH180U
May 1996

Hallogic® Hall Effect Sensors Type OH180U



Features

- Operates over a broad range of supply voltages
- Excellent temperature stability to operate in harsh environments
- Drive capability up to 10 TTL loads
- Hall element, linear amplifier, and Schmitt trigger on a single Hallogic® silicon chip

Description

The OH180U contains 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 30 mA of sink current. This allows direct driving of more than 10 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.

The OH180U is a high performance device capable of operation from -40° C to +150° C. 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.

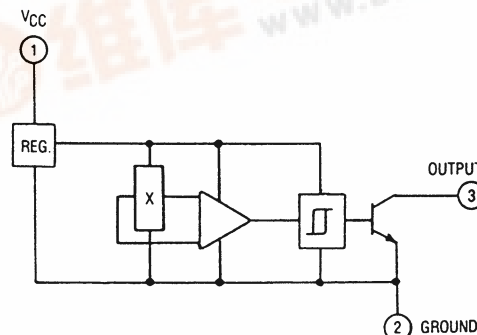
Absolute Maximum Ratings (TA = 25° C unless otherwise noted)

| | |
|---|-------------------|
| Supply Voltage, VCC | 25 V |
| Storage Temperature Range, TS | -65° C to +160° C |
| Operating Temperature Range, TA | -40° C to +150° C |
| Lead Soldering Temperature [1/8 inch (3.2 mm) from case for 5 sec. with soldering iron] | 260° C |
| Output ON Current, ISINK | 50 mA |
| Output OFF Voltage, VOUT | 25 V |
| Magnetic Flux Density, B | Unlimited |

Note:

- (1) Heat sink leads during hand soldering.

Functional Block Diagram



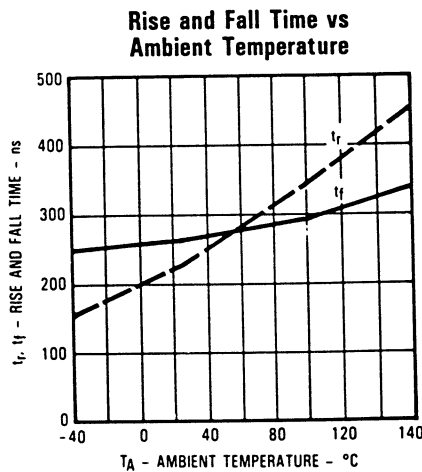
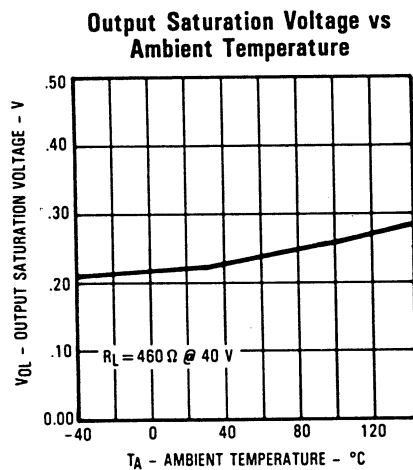
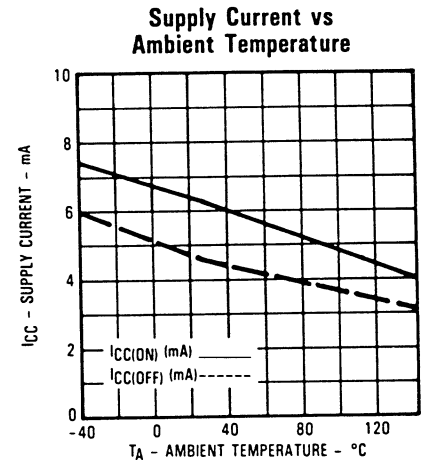
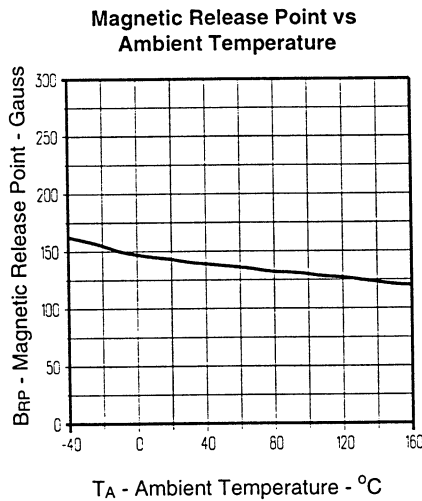
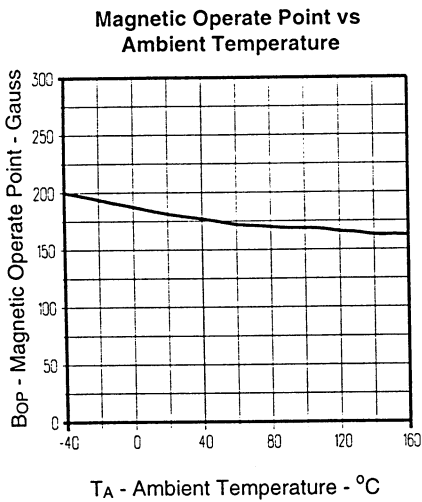
Type OH180U

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

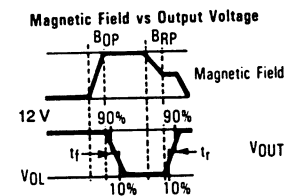
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|-----------------|---------------------------------------|-----|------|------|-------|--|
| BOP | Magnetic Operate Point ⁽²⁾ | 70 | 180 | 290 | Gauss | |
| BRP | Magnetic Release Point | 0 | 140 | 230 | Gauss | |
| BH | Magnetic Hysteresis | 20 | 40 | 120 | Gauss | |
| I _{CC} | Supply Current | | 6 | 9 | mA | $V_{CC} = 24 \text{ V}$, Output On |
| V _{OL} | Output Saturation Voltage | | 100 | 300 | mV | $V_{CC} = 4.5 \text{ V}$, I _{OL} = 30 mA |
| I _{OH} | Output Leakage Current | | 0.50 | 10.0 | μA | $V_{CC} = 24 \text{ V}$, V _{OUT} = 24 V |
| t _r | Output Rise Time | | 0.30 | 1.00 | μs | R _L = 820 Ω, C _L = 20 pF |
| t _f | Output Fall Time | | 0.30 | 1.00 | μs | |

(2) South pole facing symbolized surface.

Typical Performance Curves



Rise and Fall Time Tests



Rise and Fall Time Test Circuit

