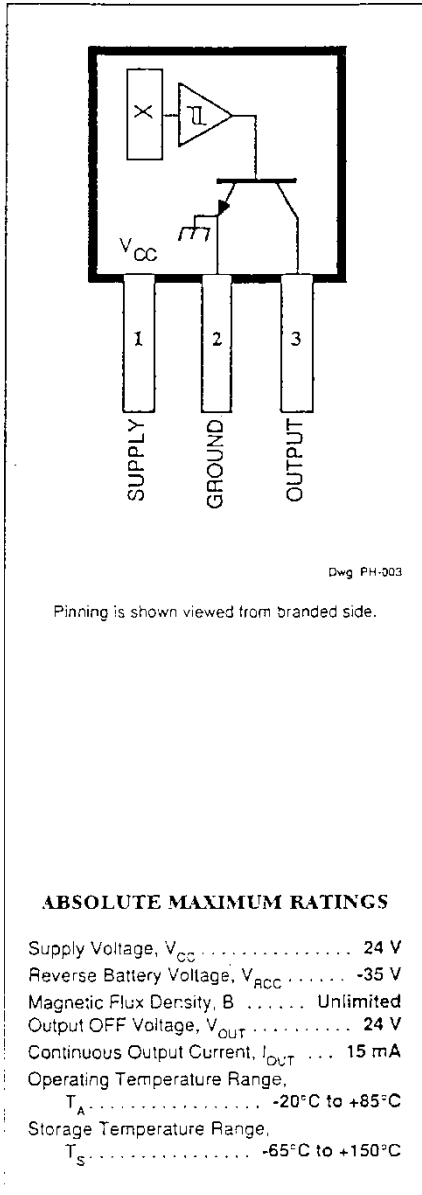


Capteurs à effet Hall



These Hall effect latches are temperature-stable and stress-resistant sensors especially suited for electronic commutation in brushless dc motors using multipole ring magnets. Each device includes a voltage regulator, quadratic Hall voltage generator, temperature compensation circuit, signal amplifier, Schmitt trigger, and an open-collector output on a single silicon chip. The on-board regulator permits operation with supply voltages of 4.5 to 24 volts. The switch output can sink 10 mA. With suitable output pull up, they can be used directly with bipolar or MOS logic circuits.

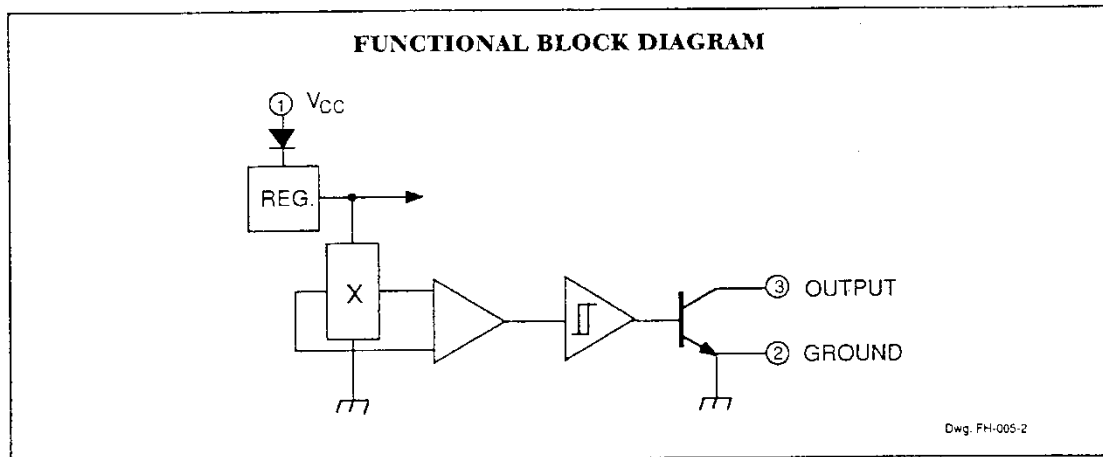
The four package styles available provide a magnetically optimized package for most applications. Suffix LT is a surface-mount SOT 89 (TO-243AA) package; suffixes LL, U, and UA feature wire leads for through-hole mounting.

FEATURES

- Symmetrical Response
- 4.5 V to 24 V Operation
- Open-Collector Output
- Reverse Battery Protection
- Activate With Small, Commercially Available Permanent Magnets
- Solid-State Reliability ... No Moving Parts
- Small Size
- Superior Temperature Stability
- Resistant to Physical Stress

NEWTEK
 8, rue de l'Estérel
 Silic 583
 94663 RUNGIS CEDEX
 Tél. : 46.87.22.00
 Télax : 263046
 Fax : 46.87.80.49

Always order by complete part number, e.g., UGN3175LL.
 See Magnetic Characteristics table for differences between devices.



**ELECTRICAL CHARACTERISTICS at $T_A = +25^\circ\text{C}$, $V_{CC} = 4.5\text{ V to }24\text{ V}$
(unless otherwise noted).**

| Characteristic | Symbol | Test Conditions | Limits | | | |
|---------------------------|----------------|--|--------|------|------|---------------|
| | | | Min. | Typ. | Max. | Units |
| Supply Voltage | V_{CC} | Operating | 4.5 | — | 24 | V |
| Output Saturation Voltage | $V_{OUT(SAT)}$ | $V_{CC} = 24\text{ V}$, $I_{OUT} = 10\text{ mA}$, $B > B_{OP}$ | — | 200 | 300 | mV |
| Output Leakage Current | I_{OFF} | $V_{OUT} = 24\text{ V}$, $B < B_{RP}$ | — | 0.05 | 5.0 | μA |
| Supply Current | I_{CC} | $V_{CC} = 4.5\text{ V}$, Output Open | — | 5.0 | 10 | mA |
| Output Rise Time | t_r | $V_{CC} = 12\text{ V}$, $R_L = 1.1\text{ k}\Omega$, $C_L = 20\text{ pF}$ | — | 0.04 | 2.0 | μs |
| Output Fall Time | t_f | $V_{CC} = 12\text{ V}$, $R_L = 1.1\text{ k}\Omega$, $C_L = 20\text{ pF}$ | — | 0.18 | 2.0 | μs |

MAGNETIC CHARACTERISTICS in gauss; $V_{CC} = 4.5\text{ V to }24\text{ V}$.

| Characteristic | Part Number* | $T_A = +25^\circ\text{C}$ | | | $T_A = -20^\circ\text{C to }+85^\circ\text{C}$ | | |
|-------------------------|--------------|---------------------------|------|------|--|------|------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. |
| Operate Point, B_{OP} | UGN3175 | 25 | — | 170 | 15 | — | 180 |
| | UGN3177 | 50 | — | 150 | 25 | — | 150 |
| Release Point, B_{RP} | UGN3175 | -170 | — | -25 | -180 | — | -15 |
| | UGN3177 | -150 | — | -50 | -150 | — | -25 |
| Hysteresis, B_{hys} | UGN3175 | 100 | 200 | — | 80 | 180 | — |
| | UGN3177 | 100 | 200 | — | 50 | 180 | — |

NOTE: As used here, negative flux densities are defined as less than zero (algebraic convention)
* Complete part number includes a suffix denoting package type (LL, LT, U, or UA).