



UH277

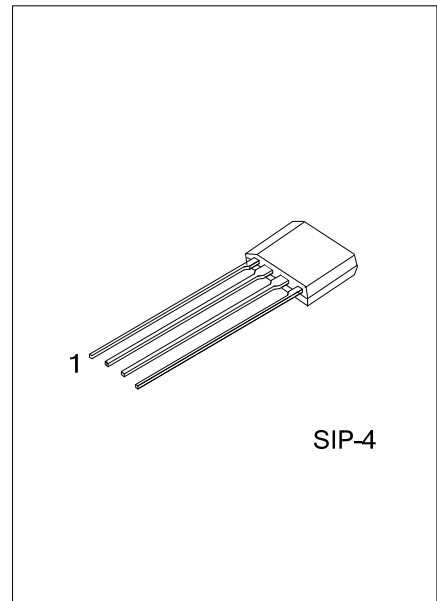
LINEAR INTEGRATED CIRCUIT

COMPLEMENTARY OUTPUTS HALL EFFECT LATCH IC

DESCRIPTION

The UTC **UH277** is a Latch-Type Hall Effect sensor with built-in complementary output drivers. It's designed with internal temperature compensation circuit and built-in protection diode prevent reverse power fault. The application is aimed for brush-less DC Fan

The **UH277** Outputs operate as the Hysteresis Characteristics. The Outputs alternately ON and OFF when either the magnetic flux density larger than threshold B_{OP} or the magnetic flux density lower than B_{RP} .



FEATURES

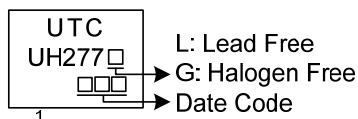
- * Widen Power Supply range from 3V ~ 20V.
- * On-chip Hall sensor with excellent hysteresis.
- * Open Collector outputs had the sinking capability up to 300mA.
- * Output Clamping Diodes reduce the peak output voltages during switching.
- * Build-in reverse protection diode.

ORDERING INFORMATION

| Ordering Number | | Package | Packing |
|-----------------|--------------|---------|---------|
| Lead Free | Halogen Free | | |
| UH277L-G04-K | UH277G-G04-K | SIP-4 | Bulk |

| | |
|--|---|
| <p>UH277G-G04-K</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p> | <p>(1) K: Bulk (2) G04: SIP-4 (3) G: Halogen Free and Lead Free, L: Lead Free</p> |
|--|---|

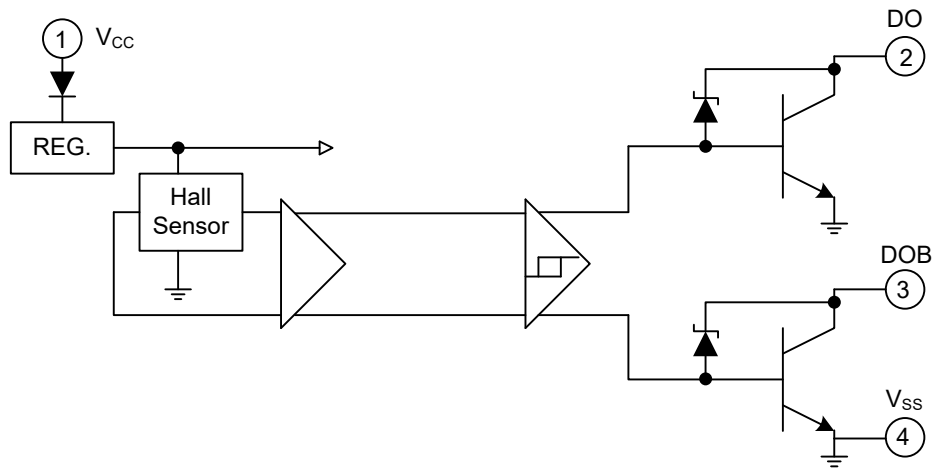
MARKING



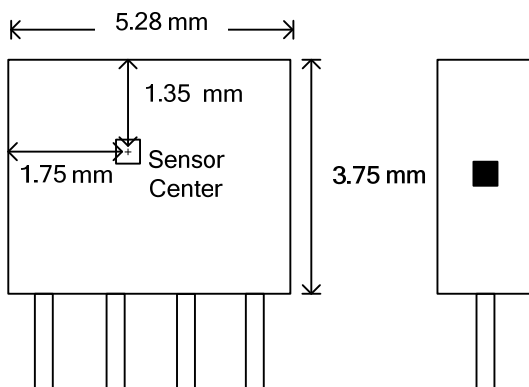
■ PIN DESCRIPTION

| PIN NO. | PIN NAME | P/I/O | DESCRIPTION |
|---------|-----------------|-------|-----------------------|
| 1 | V _{CC} | P | Positive Power Supply |
| 2 | DO | O | Output Pin |
| 3 | DOB | O | Output Pin |
| 4 | V _{SS} | P | Ground |

■ BLOCK DIAGRAM



■ SENSOR LOCATIONS



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|-----------------------------------|-----------------|-----------|------------|--------------------|
| Supply Voltage | | V_{CC} | 20 | V |
| Reverse V_{CC} Polarity Voltage | | V_{RCC} | -25 | V |
| Output OFF Voltage (Note 2) | | V_{CE} | 27 | V |
| Magnetic flux density | | B | Unlimited | |
| Output ON Current | Continuous | I_c | 0.3 | A |
| | Hold | | 0.4 | A |
| | Peak (Start Up) | | 0.7 | A |
| Power Dissipation | | P_D | 500 | mW |
| Junction Temperature | | T_J | +150 | $^{\circ}\text{C}$ |
| Operating Temperature | | T_{OPR} | -20 ~ +85 | $^{\circ}\text{C}$ |
| Storage Temperature | | T_{STG} | -65 ~ +150 | $^{\circ}\text{C}$ |

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Output Zener protection voltage.

■ ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---------------------------|---------------|---|-----|------|-----|---------------|
| Low Supply Voltage | V_{CE} | $V_{CC}=3.5\text{V}$, $I_L=100\text{mA}$ | | | 0.6 | V |
| Supply Voltage | V_{CC} | | 3 | | 20 | V |
| Output Saturation Voltage | $V_{CE(SAT)}$ | $V_{CC}=14\text{V}$, $I_L=300\text{mA}$ | | 0.3 | 0.6 | V |
| Output Leakage Current | I_{CEX} | $V_{CE}=14\text{V}$, $V_{CC}=14\text{V}$ | | <0.1 | 10 | μA |
| Supply Current | I_{CC} | $V_{CC}=20\text{V}$, Output Open | | 15 | 25 | mA |
| Output Rise Time | t_R | $V_{CC}=14\text{V}$, $R_L=820\Omega$, $C_L=20\text{pF}$ | | 0.3 | 3 | μS |
| Output Falling Time | t_F | $V_{CC}=14\text{V}$, $R_L=820\Omega$, $C_L=20\text{pF}$ | | 0.04 | 1 | μS |
| Switch Time Differential | Δt | $V_{CC}=14\text{V}$, $R_L=820\Omega$, $C_L=20\text{pF}$ | | 0.3 | 3 | μS |

■ MAGNETIC CHARACTERISTICS

A grade

| PARAMETR | SYMBOL | MIN | TYP | MAX | UNIT |
|---------------|-----------|-----|-----|-----|------|
| Operate Point | B_{OP} | 5 | | 50 | G |
| Release Point | B_{RP} | -50 | | -5 | G |
| Hysteresis | B_{HYS} | 20 | | 100 | G |

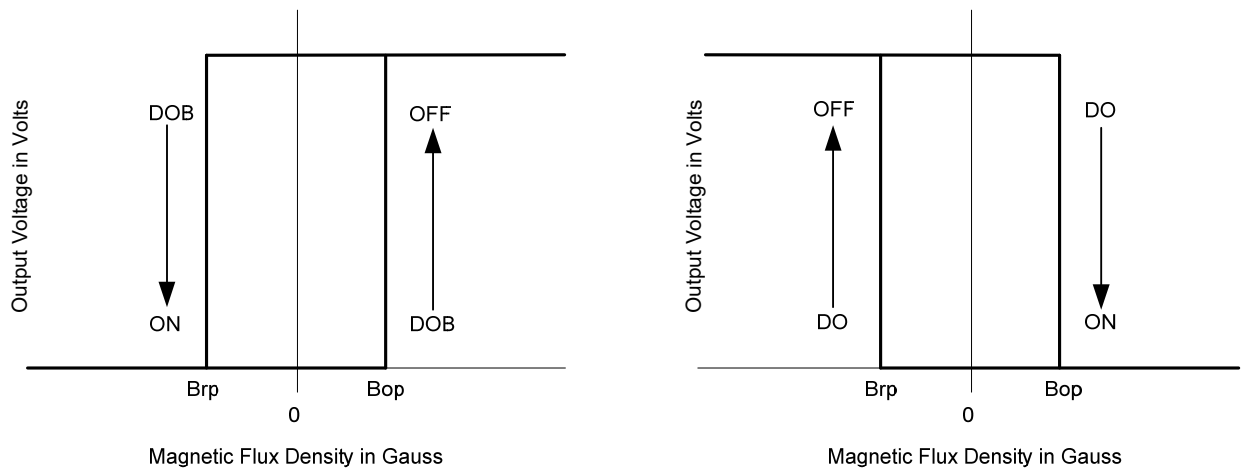
B grade

| PARAMETR | SYMBOL | MIN | TYP | MAX | UNIT |
|---------------|-----------|-----|-----|-----|------|
| Operate Point | B_{OP} | 5 | | 70 | G |
| Release Point | B_{RP} | -70 | | -5 | G |
| Hysteresis | B_{HYS} | 20 | | 140 | G |

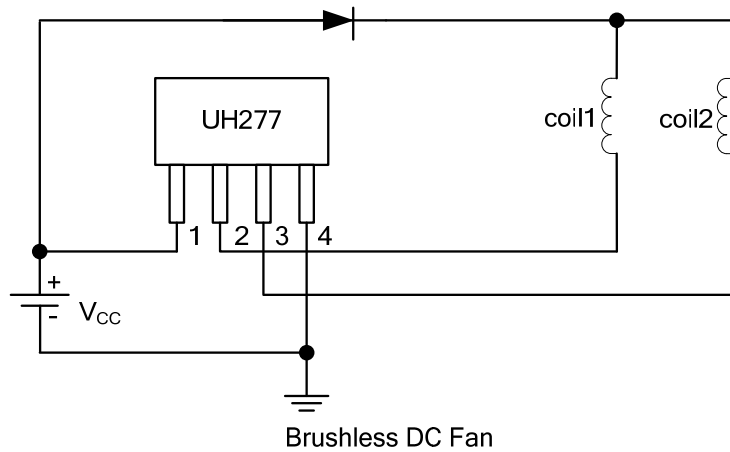
C grade

| PARAMETR | SYMBOL | MIN | TYP | MAX | UNIT |
|---------------|-----------|------|-----|-----|------|
| Operate Point | B_{OP} | | | 100 | G |
| Release Point | B_{RP} | -100 | | | G |
| Hysteresis | B_{HYS} | 20 | | 200 | G |

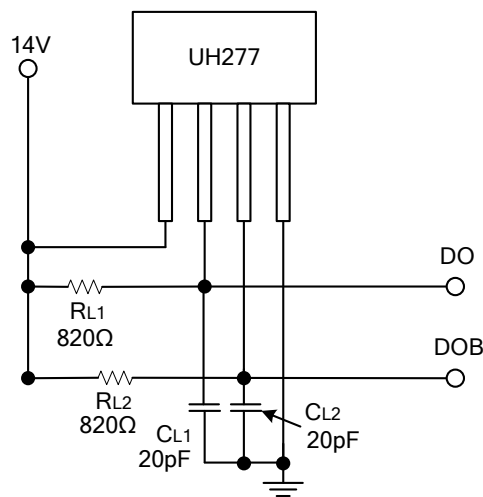
■ CHYSTERESIS CHARACTERISTICS



■ TYPICAL APPLICATION CIRCUIT



■ TEST CIRCUIT



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