



## UH277

## LINEAR INTEGRATED CIRCUIT

### COMPLEMENTARY OUTPUTS HALL EFFECT LATCH IC

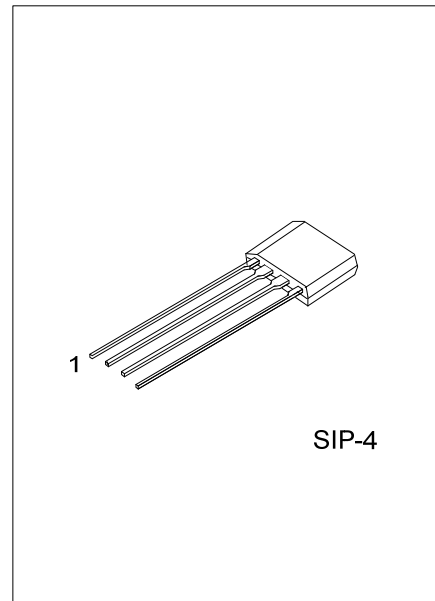
#### DESCRIPTION

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.



Lead-free: UH277L  
Halogen-free: UH277G

#### ORDERING INFORMATION

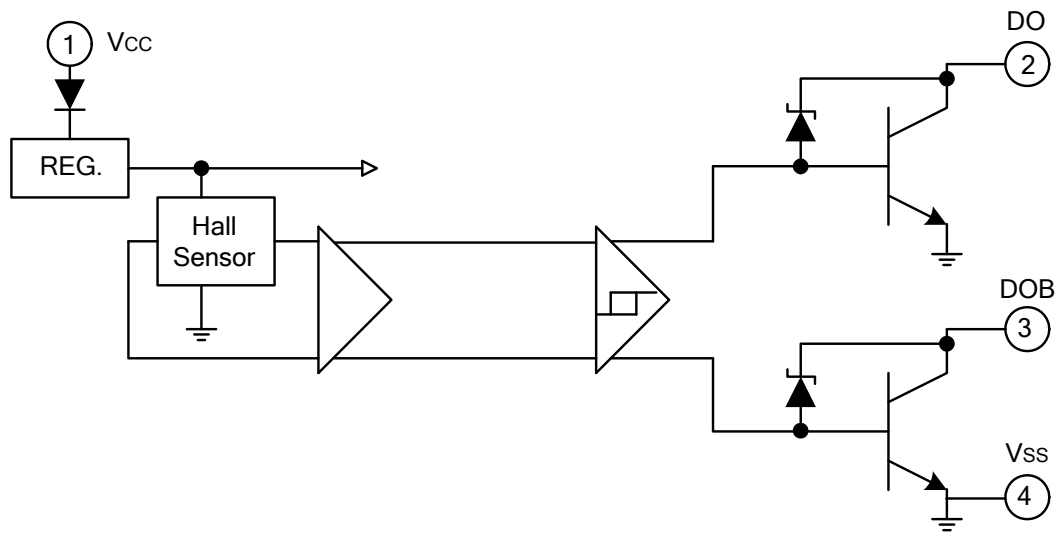
Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen Free		
UH277-G04-K	UH277L-G04-K	UH277G-G04-K	SIP-4	Bulk

<p>UH277L-G04-K</p> <p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) B: Bulk (2) G04: SIP-4 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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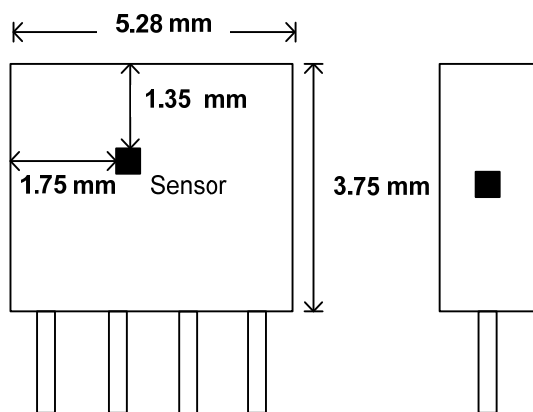
#### PIN DESCRIPTION

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 (Ta=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V <sub>CC</sub>	20	V
Reverse V <sub>CC</sub> Polarity Voltage		V <sub>RCC</sub>	-25	V
Output OFF Voltage		V <sub>CE</sub>	32	V
Magnetic flux density		B	Unlimited	
Output ON Current	Continuous	I <sub>c</sub>	0.3	A
	Hold		0.4	
	Peak (Start Up)		0.7	
Power Dissipation		P <sub>D</sub>	500	mW
Junction Temperature		T <sub>J</sub>	+150	°C
Operating Temperature		T <sub>OPR</sub>	-20 ~ +85	°C
Storage Temperature		T <sub>STG</sub>	-65 ~ +150	°C

Note 1: Output Zener protection voltage

■ ELECTRICAL CHARACTERISTICS (Ta =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Low Supply Voltage	V <sub>CE</sub>	V <sub>CC</sub> =3.5V, I <sub>L</sub> =100mA			0.6	V
Supply Voltage	V <sub>CC</sub>		3		20	V
Output Saturation Voltage	V <sub>CE(SAT)</sub>	V <sub>CC</sub> =14V, I <sub>L</sub> =300mA		0.3	0.6	V
Output Leakage Current	I <sub>CEX</sub>	V <sub>CE</sub> =14V, V <sub>CC</sub> =14V		<0.1	10	μA
Supply Current	I <sub>CC</sub>	V <sub>CC</sub> =20V, Output Open		15	25	mA
Output Rise Time	t <sub>R</sub>	V <sub>CC</sub> =14V, R <sub>L</sub> =820Ω, C <sub>L</sub> =20pF		0.3	3	μS
Output Falling Time	t <sub>F</sub>	V <sub>CC</sub> =14V, R <sub>L</sub> =820Ω, C <sub>L</sub> =20pF		0.04	1	μS
Switch Time Differential	Δt	V <sub>CC</sub> =14V, R <sub>L</sub> =820Ω, C <sub>L</sub> =20pF		0.3	3	μS

■ MAGNETIC CHARACTERISTICS

A grade

PARAMETR	SYMBOL	MIN	TYP	MAX	UNIT
Operate Point	B <sub>OP</sub>	5		50	G
Release Point	B <sub>RP</sub>	-50		-5	G
Hysteresis	B <sub>HYS</sub>	20		100	G

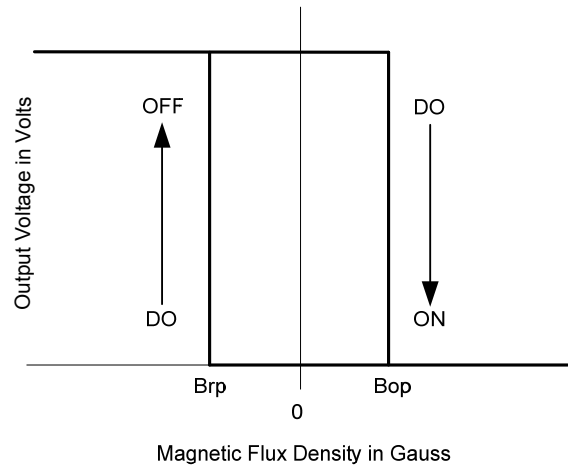
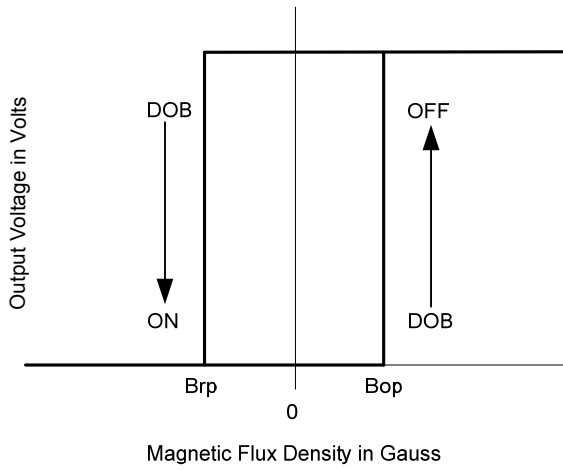
B grade

PARAMETR	SYMBOL	MIN	TYP	MAX	UNIT
Operate Point	B <sub>OP</sub>	5		70	G
Release Point	B <sub>RP</sub>	-70		-5	G
Hysteresis	B <sub>HYS</sub>	20		140	G

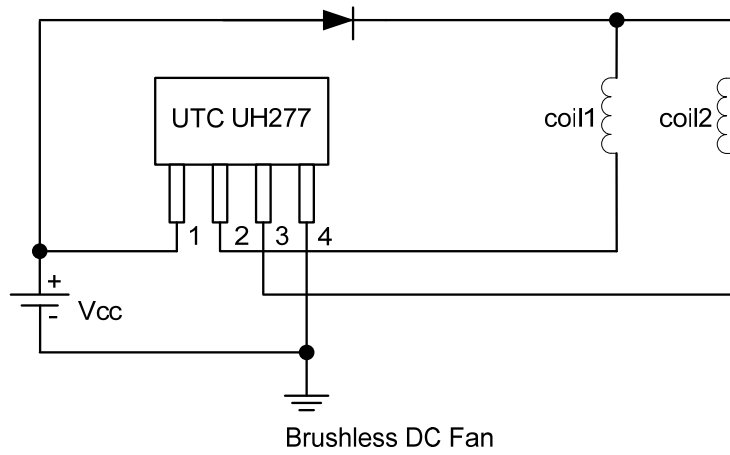
C grade

PARAMETR	SYMBOL	MIN	TYP	MAX	UNIT
Operate Point	B <sub>OP</sub>			100	G
Release Point	B <sub>RP</sub>	-100			G
Hysteresis	B <sub>HYS</sub>	20		200	G

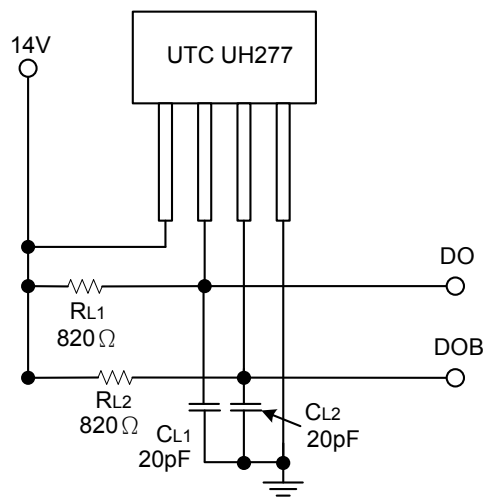
■ CHYSTERESIS CHARACTERISTICS



## ■ TYPICAL APPLICATION CIRCUIT

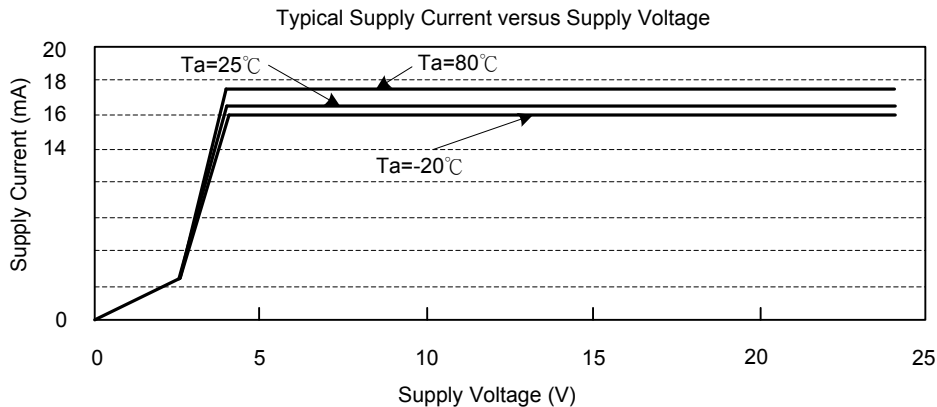
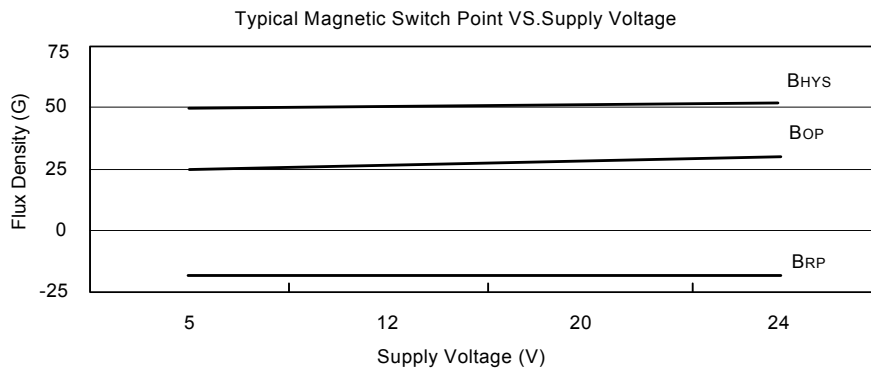
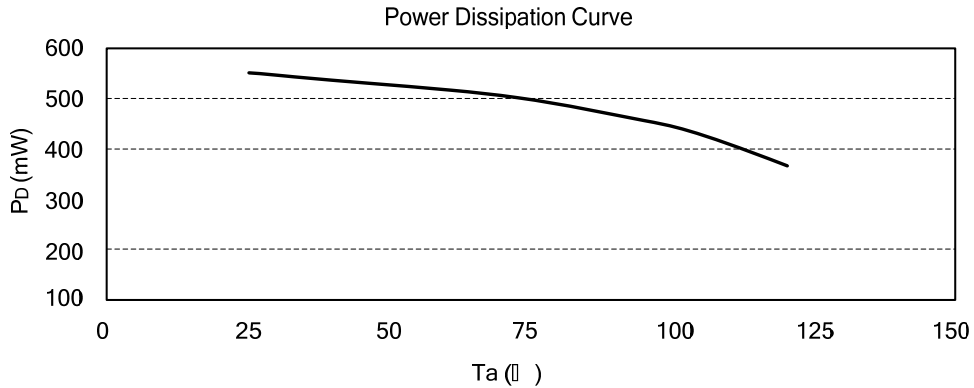


## ■ TEST CIRCUIT



## ■ PERFORMANCE CHARACTERISTICS

Ta(°C)	25	50	60	70	80	85	90	95	100	105	110	115	120
P <sub>D</sub> (mW)	550	525	515	505	485	475	465	455	445	425	405	385	365



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