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**ATS276
ATS277**

Complementary Output Hall Effect Latched Sink Driver

Features

- On-chip Hall sensor with two different sensitivity and hysteresis settings for ATS276/277.
- Internal bandgap regulator allows temperature compensated operations and a wide operating voltage range.
- High output sinking capability up to 300mA for driving large load.
- Lower current change rate reduces the peak output voltages during switching.
- Build in protection diode for chip reverse power connecting.(Note 1)
- Available in die form or rugged low profile 4 pin SIP packages.

GENERAL DESCRIPTION

ATS276/277 are integrated Hall sensors with output drivers designed for electronic commutation of brushless DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and complementary open-collector drivers for sinking large current loads. An internal bandgap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.

If a magnetic flux density larger than threshold B_{op} , DO is turned on(low) and DOB is turned off (high). The output state is held until a magnetic flux density reversal falls below B_{rp} causing DO to be turned off and DOB turned on.

ATS276/277 are rated for operation over temperature range from -20°C to 85°C and voltage range from 3V to 20V. The devices are available in low cost die forms or rugged 4 pin SIP packages.

Note 1. For ATS 276F parts.

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Rev. A2 November 30, 2000



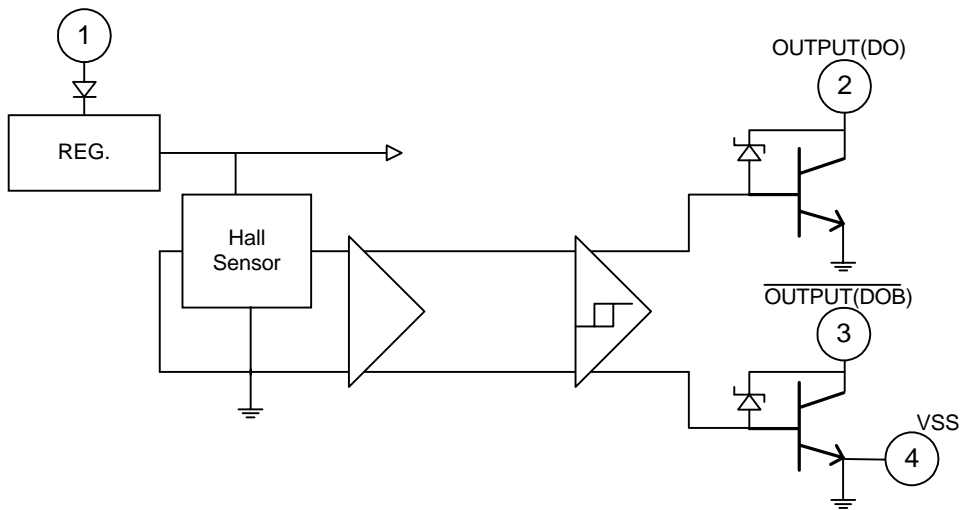
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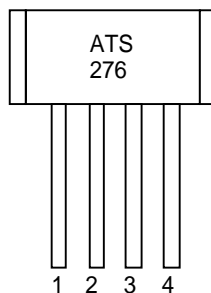
Applications

- Brushless DC Motor
- Brushless DC Fan
- Revolution Counting
- Speed Measurement

FUNCTIONAL BLOCK DIAGRAM



Pin Description



- 1 : VCC
- 2 : DO
- 3 : DOB
- 4 : VSS

Name	P/I/O	Pin #	Description
Vcc	P	1	Positive Power Supply
DO	O	2	Output Pin
DOB	O	3	Output Pin
Vss	P	4	Ground



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ABSOLUTE MAXIMUM RATING (at Ta=25°C)

Supply Voltage, Vcc	-----	20V
Reverse V _{CC} Polarity Voltage, V _{RCC}	-----	-35V
Magnetic flux density, B	-----	Unlimited
Output OFF Voltage, Vce	-----	50V(Note 1)
Output ON Current, Ic		
Continuous	-----	0.3A
Hold	-----	0.4A
Peak (Start Up)	-----	0.7A
Operating Temperature Range,		
Ta	-----	(-20°C to +85°C)
Storage Temperature Range,		
Ts	-----	(-65°C to +150°C)
Package Power Dissipation,		
Pd	-----	500mW
Maximum Junction Temp , Tj	-----	175°C

(Note1) Output Zener protection voltage.

ELECTRICAL CHARACTERISTICS

(T=+25°C Vcc=4.0V to 20V)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Low Supply Voltage	Vce	Vcc=3.5V, IL=100mA		0.4		V
Supply Voltage	Vcc	----	3.5	----	20	V
Output Saturation Voltage	Vce(sat)	Vcc=14V, IL=300mA	----	300	600	mV
Output Leakage Current	Icex	Vce=14V, Vcc=14V	----	<0.1	10	uA
Supply Current	Icc	Vcc=20V, Output Open	----	16	25	mA
Output Rise Time	tr	Vcc=14V, RL=820Ω, CL=20pF	----	3.0	10	us
Output Falling Time	tf	Vcc=14V, RL=820Ω, CL=20pF	----	0.3	1.5	us
Switch Time Differential	Δt	Vcc=14V, RL=820Ω, CL=20pF	----	3.0	10	us

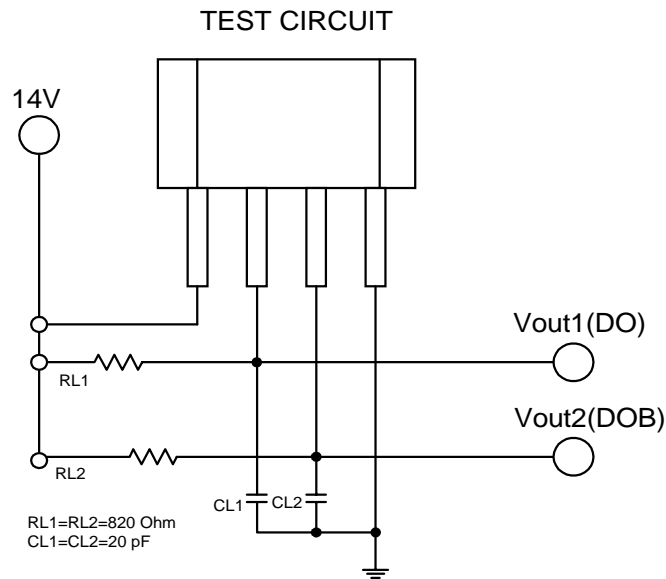


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MAGNETIC CHARACTERISTICS

Characteristic	Symbol	Ta=+25°C		Ta=0°C to 70°C		Units
		Min	Max	Min	Max	
Operate Point	ATS276	Bop	— 100	— 100	G	
	ATS277	Bop	— 70	— 70	G	
Release Point	ATS276	Brp	-100 —	-100 —	G	
	ATS277	Brp	-70 —	-70 —	G	
Hysteresis	ATS276	Bhys	50 200	30 200	G	
	ATS277	Bhys	20 140	10 140	G	

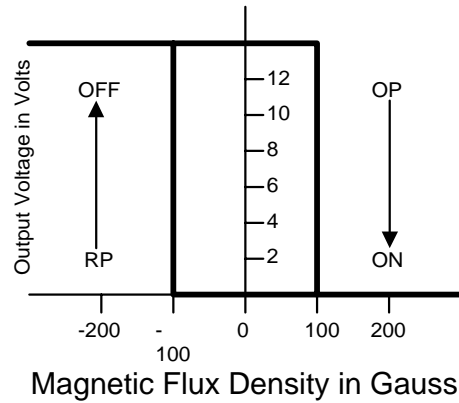
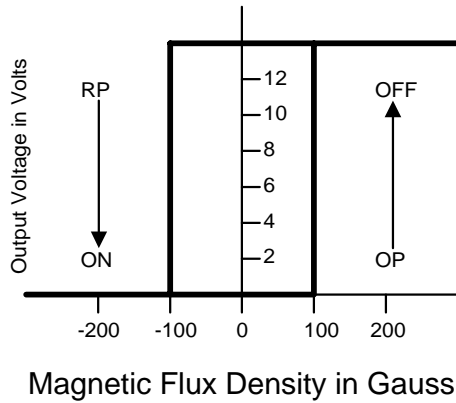




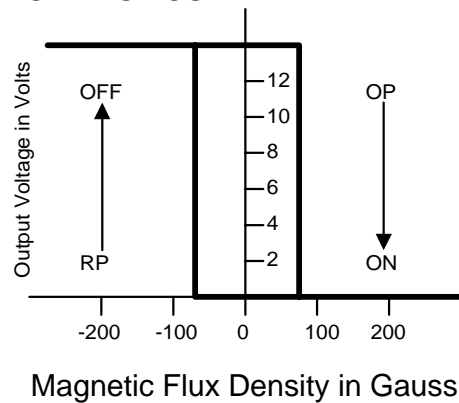
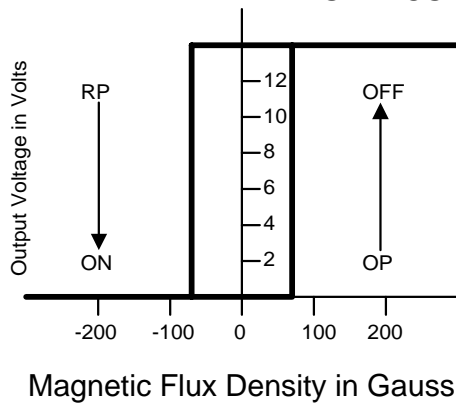
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HYSTERESIS CHARACTERISTICS**



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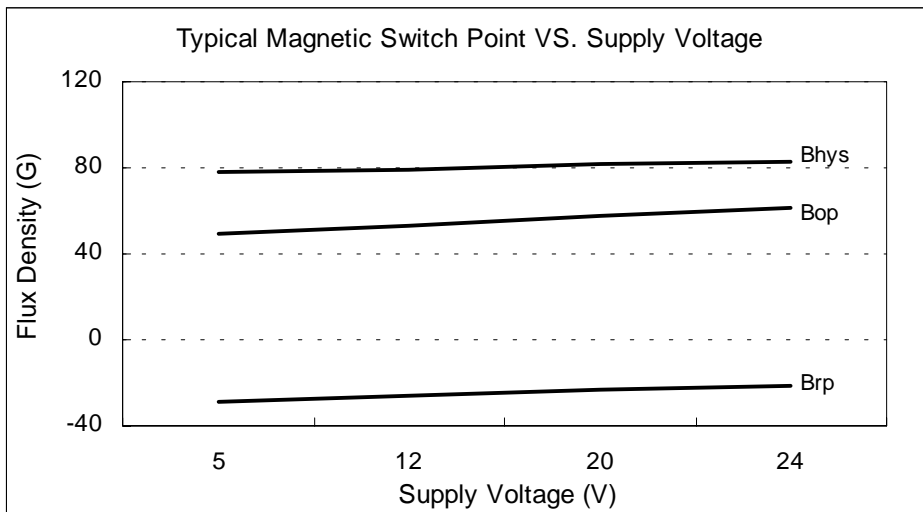
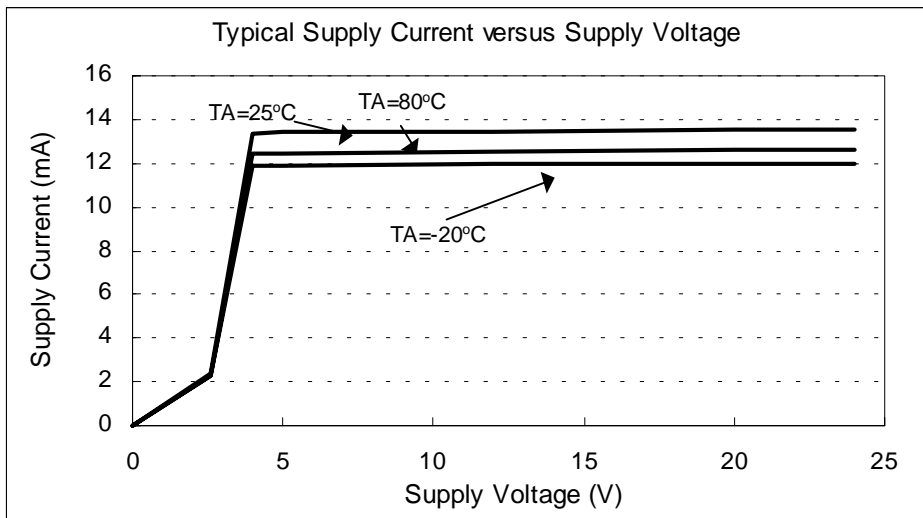
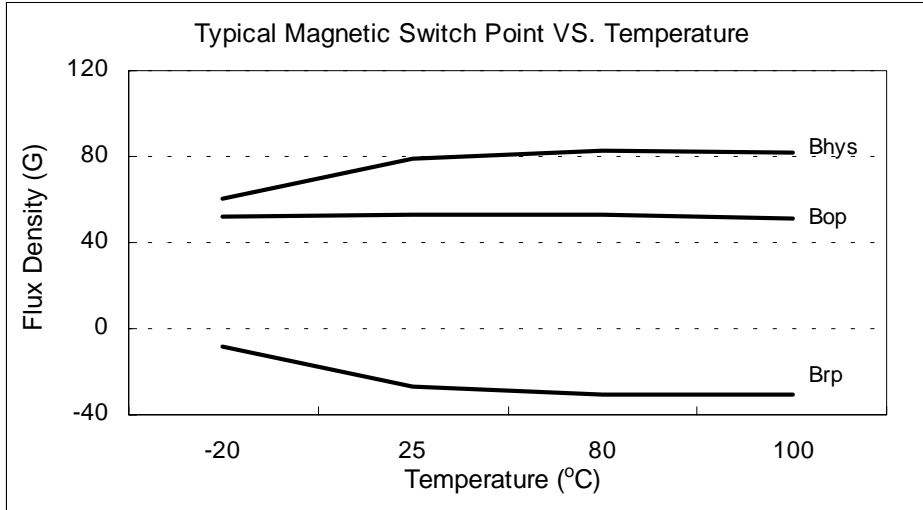




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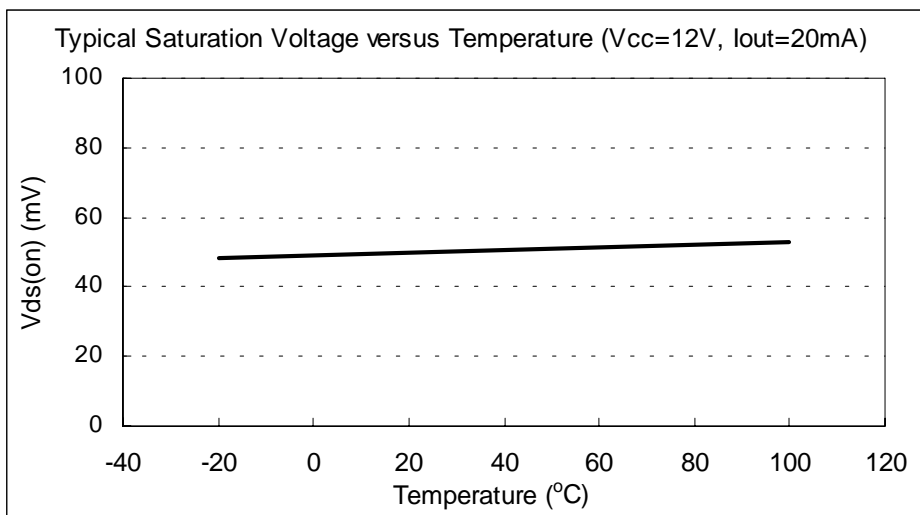
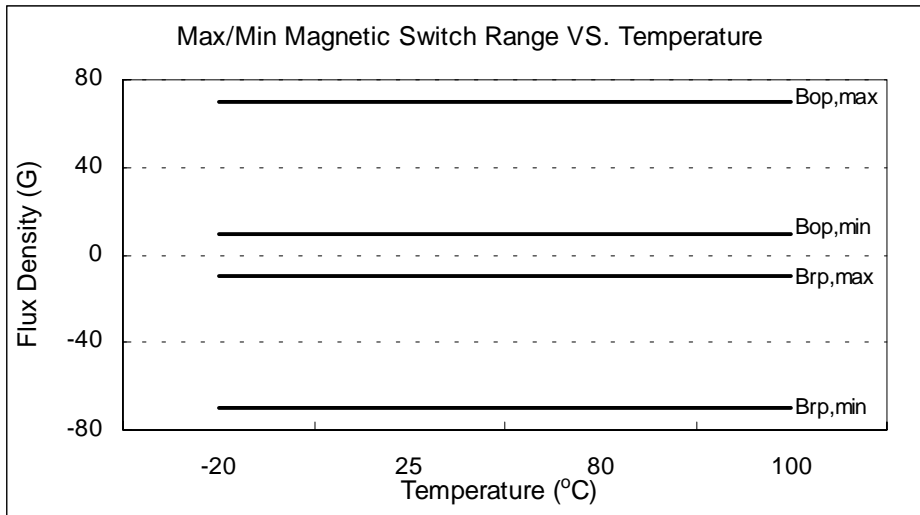
Performance Graphs





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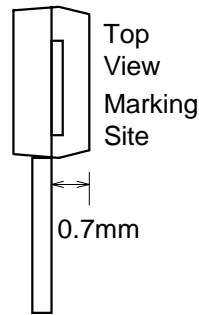


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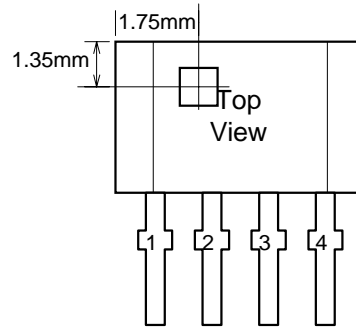
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PACKAGE ATS27X-03

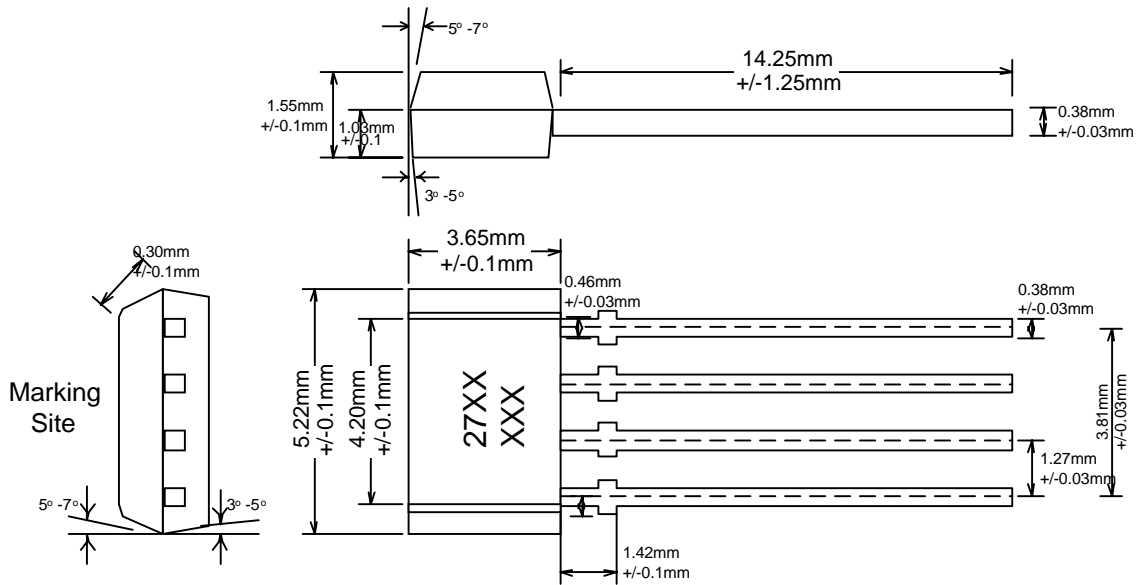
Active Area Depth



Package Sensor Location



Package Dimension



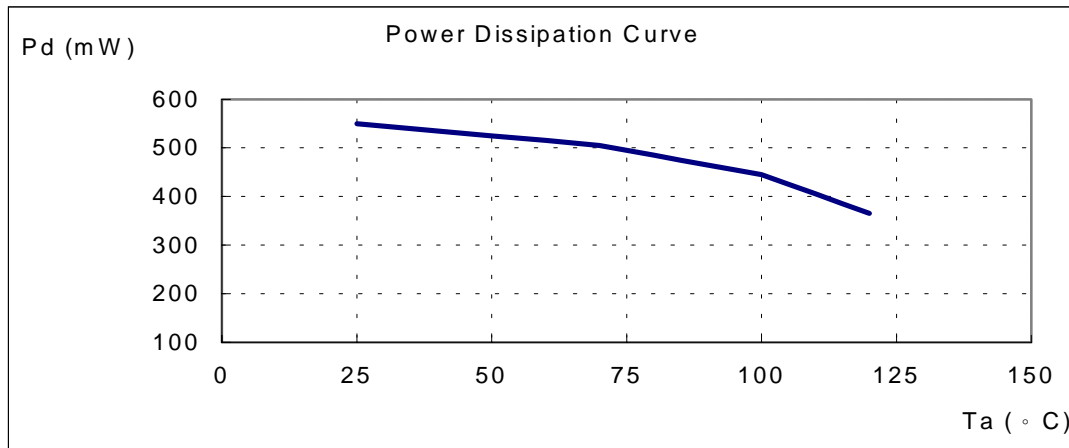


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Power Dissipation VS. Environment Temperature

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



Note : TO92 4 pin package.

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