

#### **Features**

- 3.5V to 20V DC operation voltage
- Temperature compensation
- · Wide operating voltage range
- Open-Collector pre-driver
- . 25mA maximum sinking output current.
- Reverse polarity protection
- Lead Free Finish/RoHS Compliant for Lead Free products (Note 1)
- Package: SIP-3L

## **General Description**

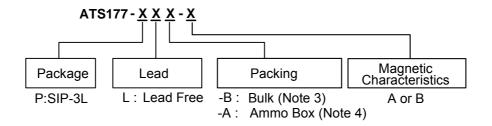
ATS177 is an integrated Hall effect latched sensor designed for electronic commutation of brush-less DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a schmitt trigger to provide switching hysteresis for noise rejection, and open-collector output. 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 Bop, DO is turned on(low). The output state is held until a magnetic flux density reversal falls below Brp causing DO to be turned off (high).

## **Applications**

- Brush-less DC Motor
- Brush-less DC Fan
- Revolution counting
- Speed measurement

## **Ordering Information**



Note: 1. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see EU Directive Annex Notes 5 and 7.

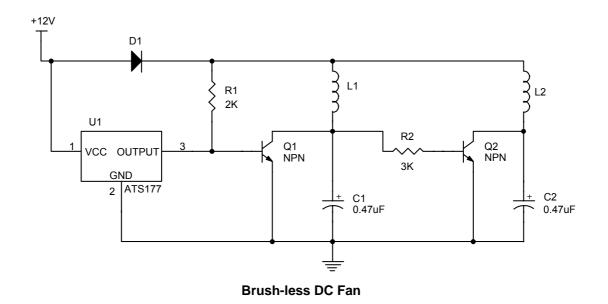
[	Device	. Package Packagi		Tube/Bulk		7" Tape a	and Reel	Ammo Box	
		Code	Packaging (Note 2)	Quantity	Part Number Suffix	Quantity	Part Number Suffix	Quantity	Part Number Suffix
<b>Pb</b>	ATS177-P	Р	SIP-3L	1000	-B	NA	NA	4000/Box	-A

Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

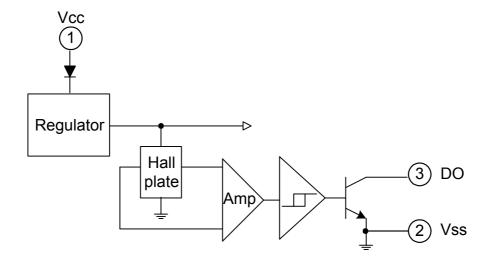
- 3. Bulk is for SIP-3L Straight Lead.
- Ammo Box is for SIP-3L Spread Lead.



# **Typical Circuit**

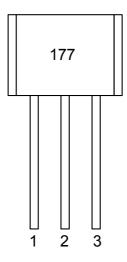


# **Functional Block Diagrams**





# **Pin Descriptions**



SIP-3L

Name	P/I/O	Pin#	Description
Vcc	Р	1	Positive power supply
Vss	Р	2	Ground
DO	0	3	Digital output

## **Absolute Maximum Ratings** (at TA=25°C)

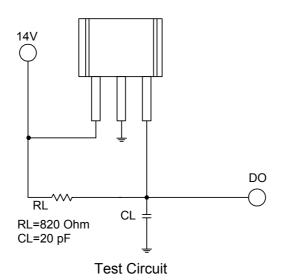
Characteristic	Symbol	Values	Unit		
Supply Voltage	y Voltage		20	V	
Reverse Vcc Polarity Voltage		$V_{RCC}$	-20	V	
Magnetic Flux Density		В	Unlimited		
Output OFF Voltage		Vce	30	V	
Output "ON" Current	Continuous	lc	25	mA	
Operating Temperature Range		TA	-20~+85	°C	
Storage Temperature Range		Ts	-65~+150	°C	
Maximum Junction Temp.		Tj	150	°C	
Package Power Dissipation	$P_D$	550	mW		



## **Electrical Characteristics** (TA=+ 25°C)

Characteristic	Test Conditions	Min	Тур	Max	Units	
Supply Voltage	Vcc	_	3.5	-	20	V
Output Saturation Voltage	Vce(sat)	Vcc=14V, Ic=20mA	ı	300	700	mV
Output Leakage Current	Icex	Vce=14V, Vcc=14V	-	<0.1	10	uA
Supply Current	Icc	Vcc=20V, Output Open	-	5	10	mA
Output Rise Time	tr	Vcc=14V, RL=820Ω, CL=20pF	-	0.3	1.5	us
Output Falling Time	tf	Vcc=14V, RL=820Ω, CL=20pF	-	0.3	1.5	us

## **Test Circuit**





## **Magnetic Characteristics** (TA=25°C)

1mT=10Gauss)

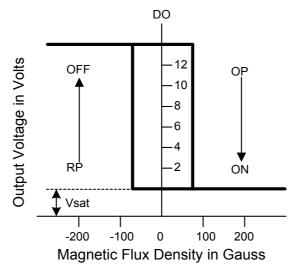
#### A grade

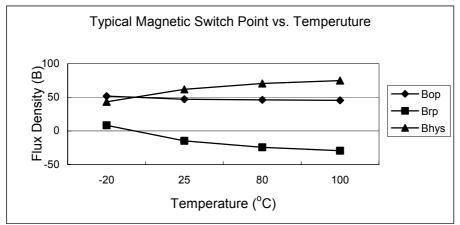
Parameter	Symbol	Min.	Тур.	Max.	Unit
Operate Point	Вор	5	-	70	Gauss
Release Point	Brp	-70	-	-5	Gauss
Hysteresis	Bhys	-	80	-	Gauss

#### B grade

Parameter	Symbol	Min.	Тур.	Max.	Unit
Operate Point	Вор	-	-	100	Gauss
Release Point	Brp	-100	-	-	Gauss
Hysteresis	Bhys	-	80	-	Gauss

<sup>\*</sup>B grade is for SIP-3L package only.

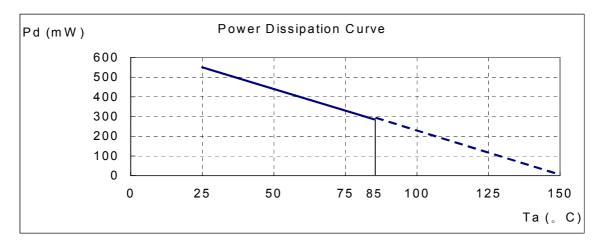






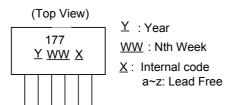
# **Performance Characteristics (SIP-3L)**

Ta (°C)	25	50	60	70	80	85	90	95	100
Pd (mW)	550	440	396	352	308	286	264	242	220
Ta (°C)	105	110	115	120	125	130	135	140	150
Pd (mW)	198	176	154	132	110	88	66	44	0



# **Marking Information**

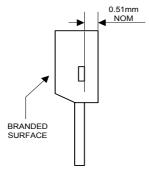
SIP-3L



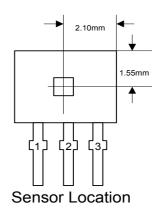


# Package Information (unit: mm)

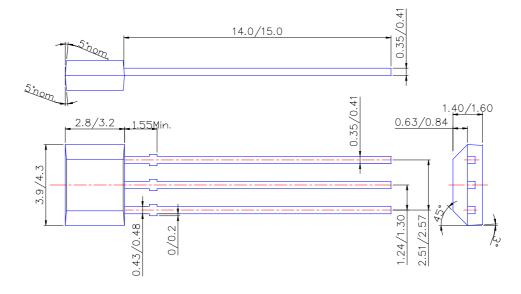
#### (1) Package Type: SIP-3L for Bulk Pack



Active Area Depth



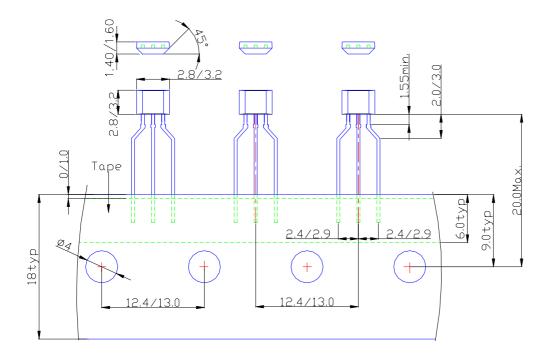
#### **Package Dimension**





## Package Information (Continued)

#### (2) Package Type: SIP-3L for Ammo Pack-only



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