

## G177 Single Output Hall Effect Latch IC

### Description

The G177 is an integrated Hall effect latched sensor with output pull-high resistor driver designed for electronic commutation of brushless DC motor applications and contactless switches. 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 output driver with pull-high resistor. 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). The output state is held until a magnetic flux density reversal falls below  $Brp$  causing DO to be turned off (high).

G177 is rated for operation over temperature range from -20 : to 100 : and voltage range from 3.5V to 28V. The devices are available in low cost die forms or rugged 3 pin SIP packages.

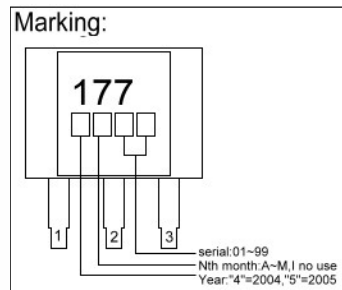
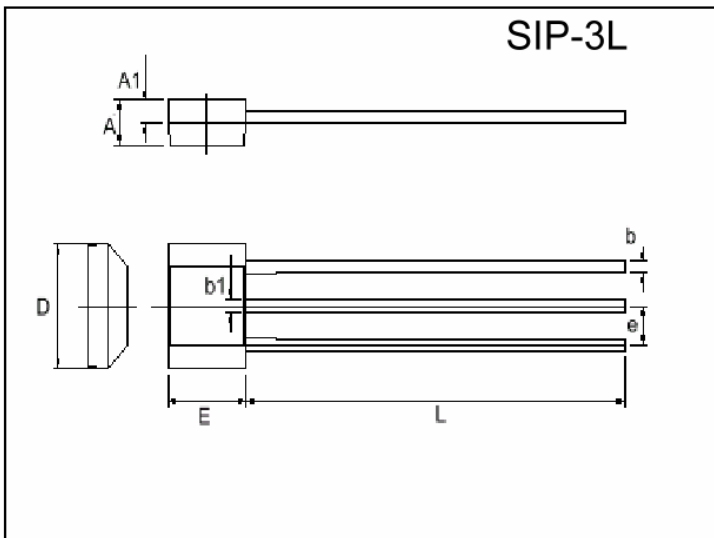
### Features

- \* Wide range of supply voltage: 3.5V to 28V.
- \* Internal bandgap regulator allows temperature compensated operations and a wide operating voltage range.
- \* High sensitivity with a small magnet.
- \* TTL and MOS ICs directly drivable by output.
- \* Build in protection diode for chip reverse power connecting.

### Application

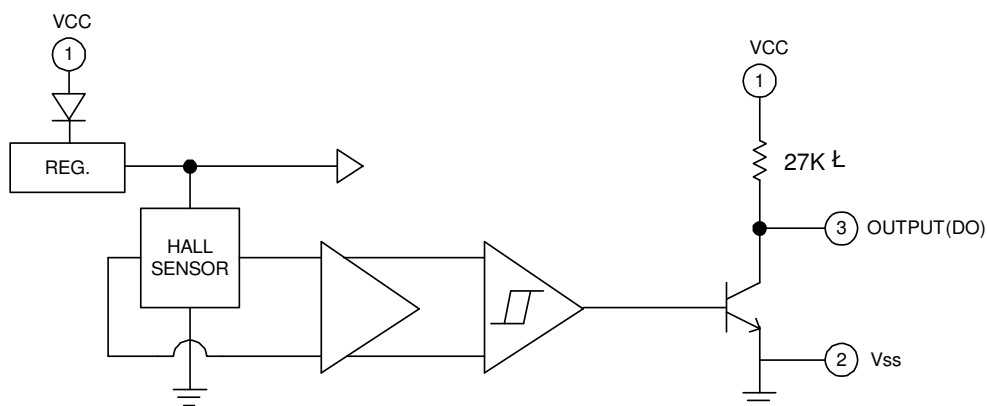
- |                      |                       |
|----------------------|-----------------------|
| 1)Brushless DC Motor | 5)Revolution Counting |
| 2)Brushless DC Fan   | 6)Speed Measurement   |
| 3)Position Sensors   | 7)Keyboard Switches   |
| 4)Rotation Sensors   | 8)Microswitches       |

### Package Dimensions

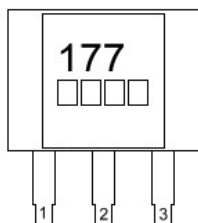


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.245	1.753	D	3.962	4.216
A1	0.750REF.		E	2.870	3.124
b	0.330	0.432	L	13.60	15.60
b1	0.406	0.508	e	1.27 REF.	

## Functional Block Diagrams



## Pin Descriptions



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

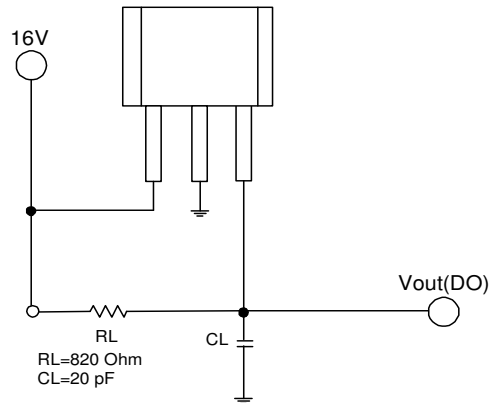
## Absolute Maximum Ratings at Ta = 25

Parameter	Symbol	VALUE	Unit
Supply Voltage	Vcc	28V	V
Reverse Vcc Polarity Voltage	VRCC	-28V	V
Magnetic flux density	B	Unlimited	
Output OFF Voltage	Vce	35	V
Output ON Current	Ic Continuous	25	mA
Operating Temperature Range	Ta	-20~100	
Storage Temperature Range	Ts	-65~150	:
Package Power Dissipation	PD	250	mW
Maximum Junction Temp.	Tj	175	:

## Electrical Characteristics (TA=+25 : )

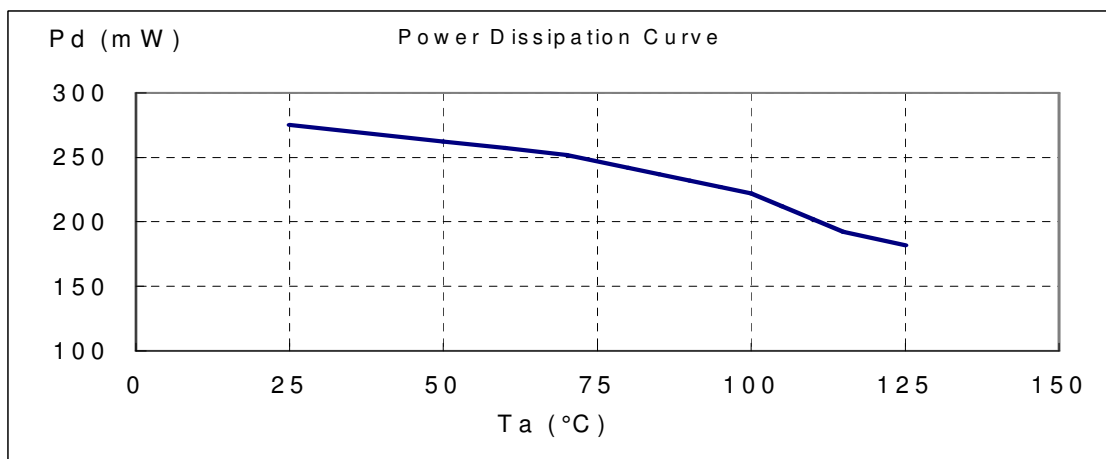
Parameter	SYMBOL	Test Conditions	Min	Typ.	Max.	Unit
Supply Voltage	VCC	-	3.5	-	28	V
Low output voltage	VOL	Vcc=16V, Io=12mA, B=130 Gauss	-	-	0.4	V
		Vcc=3.6V, Io=12mA, B=130 Gauss	-	-	0.4	V
High output voltage	VOH	Vcc=16V, Io=-30μA, B=-130 Gauss	14.6	-	-	V
		Vcc=3.6V, Io=-30μA, B=-130 Gauss	2.2	-	-	V
Output Leakage Current	Icex	Vcc=16V, Vcc=16V	-	<0.1	10	uA
Output Short-circuit Current	-Ios	Vcc=16V, Vo=0V, B=-130 Gauss	0.4	-	0.9	mA
Supply Current	Icc	Vcc=24V, Output Open	-	5	10	mA
Output Rise Time	tr	Vcc=16V, RL=820Ω CL=20pf	-	0.3	1.5	us
Output Falling Time	tf	Vcc=16V, RL=820Ω CL=20pf	-	0.3	1.5	us

## Test Circuit

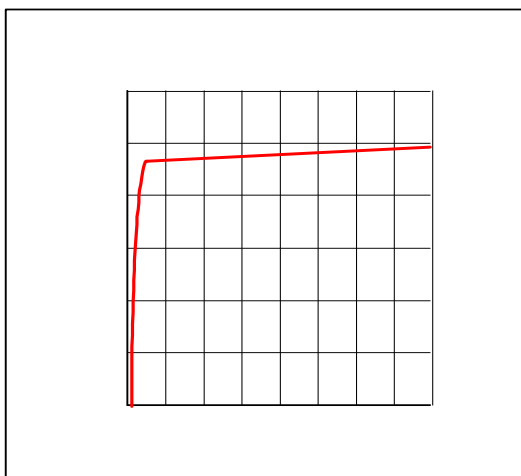


## Power dissipation VS. Environment Temperature

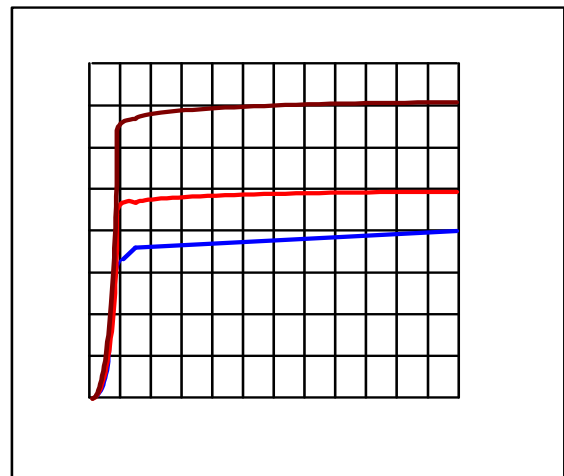
Ta( : )	25	50	60	70	80	85	90	95	100	105	110	115	125
Pd(mW)	275	262	257	252	242	237	232	227	222	212	202	192	182



## Electrical Characteristics Curves



Current capacity vs. supply voltage for DO pin

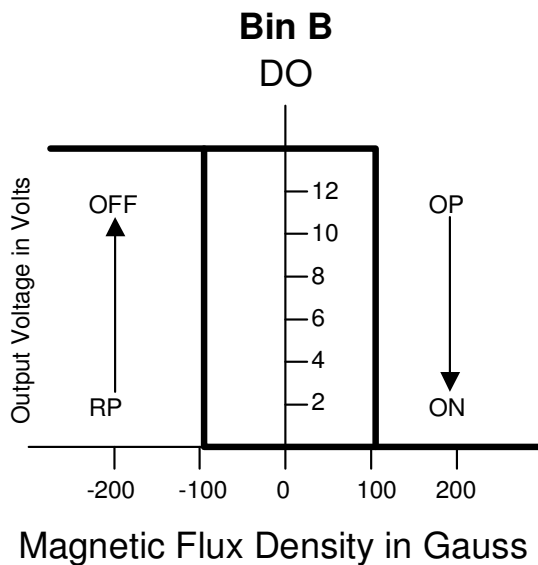
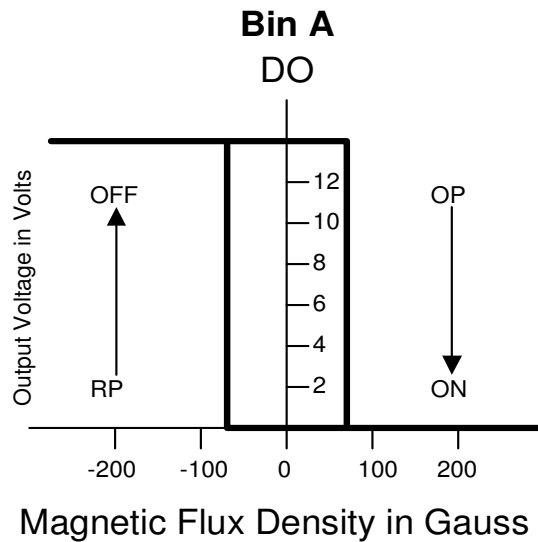


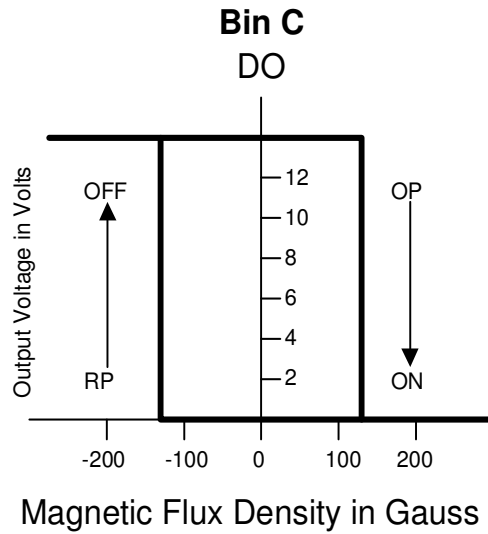
Icc v.s Vcc at Different Temp

## Magnetic Characteristics

Characteristic		Symbol	Ta=+25 :		Ta=-0 : to +70 :		Unit
			Min	Max	Min	Max	
Operate Point	BIN A	Bop	0	70	0	70	Gauss
	BIN B	Bop	-	100	-	100	Gauss
	BIN C	Bop	-	130	-	130	Gauss
Release Point	BIN A	Brp	-70	0	-70	0	Gauss
	BIN B	Brp	-100	-	-100	-	Gauss
	BIN C	Brp	-130	-	-130	-	Gauss
Hysteresis	BIN A	Bhys	40	110	20	140	Gauss
	BIN B	Bhys	50	150	30	200	Gauss
	BIN C	Bhys	60	160	40	220	Gauss

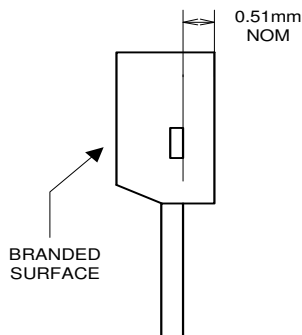
## Hysteresis Characteristics



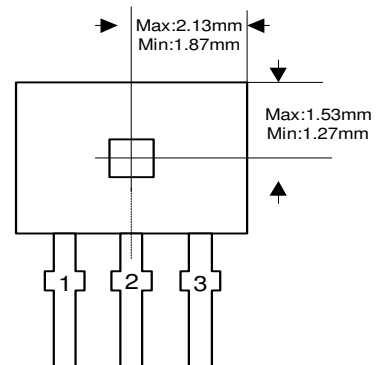


## Package Information

Active Area Depth



Package Sensor Location



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