

CYD175 Hall Effect Latch IC Switch for High Temperature

CYD175 is a single-digital-output Hall-effect sensor for high temperature operation. The device includes an on-chip Hall voltage generator for magnetic sensing, an amplifier to amplify Hall voltage, and a comparator to provide switching hysteresis for noise rejection, and an open-collector output pre-driver. An internal band gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.

While the magnetic flux density (B) is larger than threshold B_{op} , the OUT pin turns on (low). If B removed toward B_{rp} , the OUT pin is latched "on" state prior to $B < B_{rp}$. When $B < B_{rp}$, the OUT pin go into "off" state.

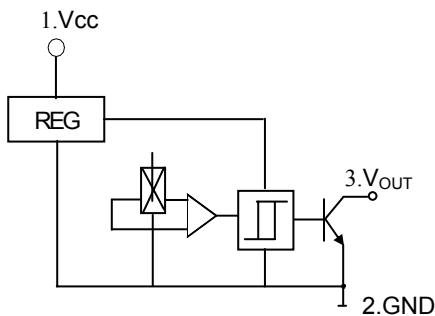
FEATURES

- Bipolar Hall effect latch sensor
- 3.5V to 20V DC operation voltage
- Open collector pre-driver
- 25mA output sink current
- Chip power reverse-connection protection
- Operating temperature: $-40^{\circ}\text{C} \sim 150^{\circ}\text{C}$

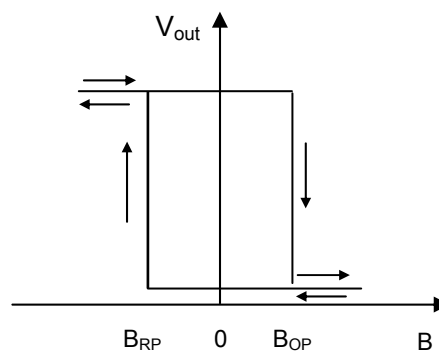
TYPICAL APPLICATION

- Rotor position sensing
- Current switch
- Encoder
- RPM detection

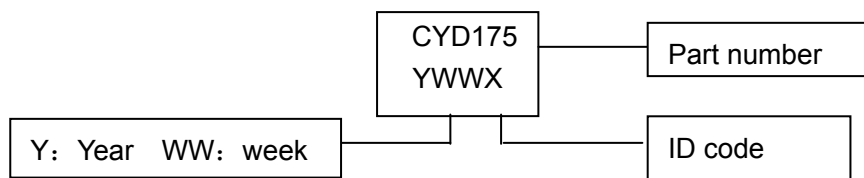
Block Diagram

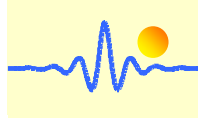


Magnetic-electrical Transfer Characteristics



Marking Information





Absolute Maximum Ratings (At Ta= 25°C)

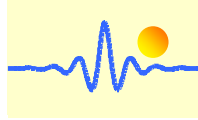
Parameter	Symbol	Value		Unit
		Min	Max	
Supply Voltage	V _{CC}	3.5	20	V
Output "OFF" Voltage	V _{out (off)}	20		V
Output "ON" Current	I _{o (sink)}		25	mA
Operating Temperature Range	T _{op}	-40	150	°C
Storage Temperature Range	T _{stg}	-65	150	°C
Maximum Junction Temperature	T _j		150	°C

Electrical Characteristics (Ta= 25°C)

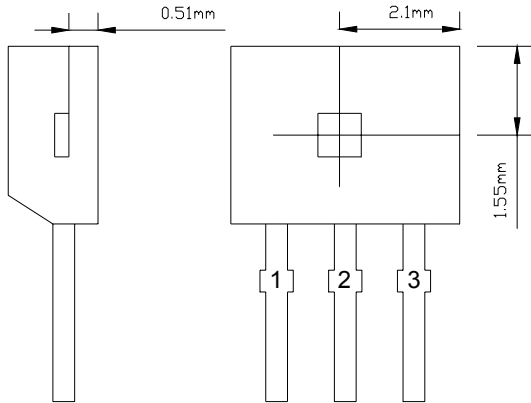
Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Supply Voltage	V _{CC}		3.5	-	20	V
Output Saturation Voltage	V _{out(sat)}	CC=12V, OUT "ON", I _o =10mA		300	400	mV
Supply Current	I _{CC}	VCC=12V, OUT "OFF"		3.5	6.0	mA

Magnetic Characteristics (Ta= 25°C) (1mT = 10 Gauss)

Parameter	Symbol	grade	Value			Unit
			Min	Typ	Max	
Operate Point	B _{OP}	A	1.5	4	6	mT
		B	0.5	4	8	
Release Point	B _{RP}	A	-6	-4	-1.5	mT
		B	-8	-4	-0.5	
Hysteresis	B _H	A	3	8	12	mT
		B	10	8	16	



Package Information



Pin Descriptions

- 1. VCC Input power
- 2. GND Ground
- 3. OUT Output stage

Active Area Depth

Sensor Location

Package Dimension

