

**65025****HIGH RELIABILITY HALL EFFECT SENSOR,  
HIGH TEMP LATCHING OUTPUT**

02/27/04

**Features:**

- Wide operating temperature range -55°C to +200°C
- High magnetic sensitivity
- Low current CMOS Technology
- Wide operating voltage range 3.5 to 20 V
- Chopper stabilized amplifier minimizes amplifier offset resulting in improved temperature stability

**Applications:**

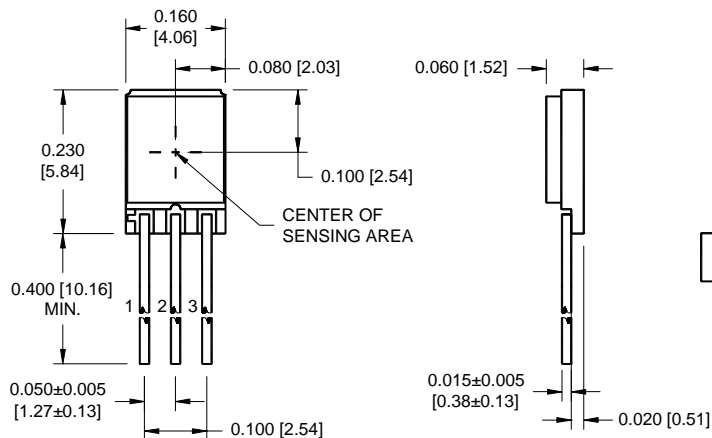
- Solid state switch
- Motor controls
- Speed sensing
- Angular Position sensing
- Linear Position Sensing
- Current Sensing

**DESCRIPTION**

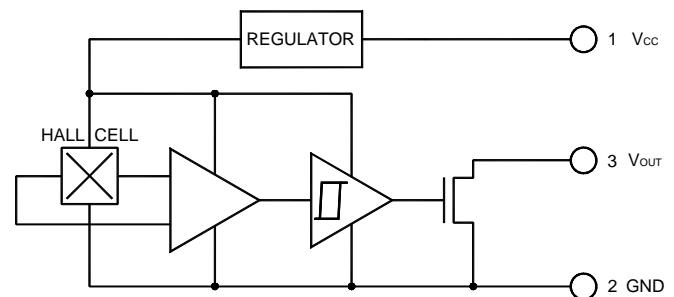
The 65025 Hall effect sensor detects the presence of a magnetic field and provides a switch output. It is packaged in a hermetically sealed three pin ceramic package and can be used in many harsh environments. An internal chopper stabilized amplifier eliminates input offset voltages normally associated with bipolar devices resulting in improved operating point stability. The output transistor will be "latched ON" in the presence of a sufficiently strong South pole magnetic field facing the marked side of the package. The output will be "latched OFF" in the presence of a resetting North pole magnetic field.

**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage Range .....	3.5 V to 20.0 V
Supply Current (Fault) .....	50 mA.
Power Dissipation, @ $T_A = 25^\circ\text{C}$ ( $P_D$ ).....	500 mW
Magnetic Flux Density.....	Unlimited
Output ON Current ( $I_{\text{SINK}}$ ).....	25mA
Storage Temperature.....	-65°C to +200°C
Operating Free-Air Temperature Range.....	-55°C to +200°C
Lead temperature (10 seconds, 1/16" from case).....	+260°C

**Package Dimensions**TOLERANCE:  $\pm 0.010$  [ $\pm 0.25$ ] UNLESS OTHERWISE SPECIFIED

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

**Schematic Diagram**

# 65025

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### ELECTRICAL CHARACTERISTICS

T<sub>A</sub> = 25°C, V<sub>CC</sub> = 5V unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Supply Current	I <sub>CC</sub>	1.5	2.5	7.0	mA	V <sub>CC</sub> =15V; B < B <sub>OP</sub>
Saturation Voltage	V <sub>OL</sub>			0.4	V	I <sub>OUT</sub> = 20 mA, B > B <sub>OP</sub>
Output Leakage	I <sub>OFF</sub>		0.01	5	μA	B < B <sub>OP</sub> , V <sub>OUT</sub> =15V
Output Rise Time	T <sub>r</sub>		100	200	ns	V <sub>CC</sub> = 12V, R <sub>L</sub> = 820 Ω, C <sub>L</sub> = 20 pF
Output Fall Time	T <sub>f</sub>		180	350	ns	V <sub>CC</sub> = 12V, R <sub>L</sub> = 820 Ω, C <sub>L</sub> = 20 pF

### MAGNETIC CHARACTERISTICS

T<sub>a</sub> = 25°C, V<sub>CC</sub> = 5V

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Operate Point	B <sub>OP</sub>	10	75	150	Gauss	V <sub>CC</sub> = 5 V, R <sub>L</sub> = 1 KΩ
Release Point	B <sub>RP</sub>	-100	-50	-10	Gauss	V <sub>CC</sub> = 5 V, R <sub>L</sub> = 1 KΩ
Hysteresis	B <sub>hys</sub>	70	100	120	Gauss	V <sub>CC</sub> = 5 V, R <sub>L</sub> = 1 KΩ

### ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
65025-001	Commercial
65025-101	Screened