

65021**HIGH RELIABILITY HALL EFFECT SENSOR
NON-LATCHING OUTPUT**

01/15/04

Features:

- Wide operating temperature range -55 °C to +150°C
- High magnetic sensitivity
- Low current CMOS Technology
- Wide operating voltage range 3.5 to 24 V
- Chopper stabilized amplifier minimizes amplifier offset resulting in improved temperature stability

Applications:

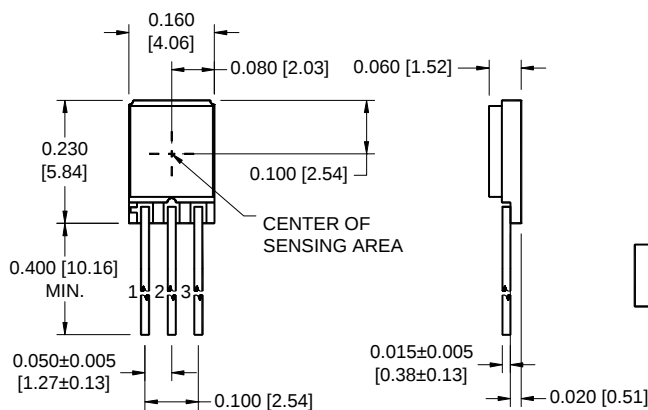
- Solid state switch
- Motor controls
- Speed sensing
- Angular Position sensing
- Linear Position Sensing
- Current Sensing

DESCRIPTION

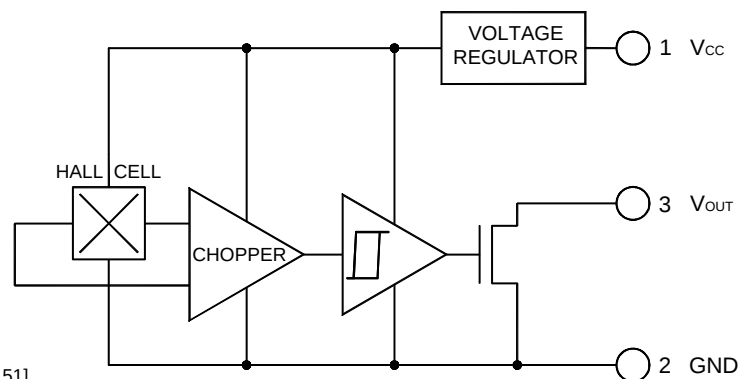
The 65021 Hall effect sensor detects the presence of a magnetic field and provides a switch output. It is packaged in a hermetically sealed three pin ceramic package and can be used in many harsh environments. An internal chopper stabilized amplifier eliminates input offset voltages normally associated with bipolar devices resulting in improved operating point stability. The output transistor will be "Switched ON" in the presence of a sufficiently strong South pole magnetic field facing the marked side of the package that meets or exceeds the operate point (B_{OP}) of the sensor. The output will be "Switched OFF" as the South pole magnetic field is decreased below the release point (B_{RP}) of the sensor.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage Range	3.5 V to 24.0 V
Supply Current (Fault)	50 mA.
Power Dissipation, @ $T_A = 25^\circ\text{C}$ (P_D).....	100 mW
Output Current (Fault).....	50 mA
Storage Temperature.....	-65°C to +150°C
Operating Free-Air Temperature.....	-55°C to +150°C
Lead temperature (10 seconds, 1/16" from case).....	+260°C

Package Dimensions

TOLERANCE: ± 0.010 UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE IN INCHES [MILLIMETERS].

Schematic Diagram

65021**HIGH RELIABILITY HALL EFFECT SENSOR , NON-LATCHING SWITCHING OUTPUT**

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ELECTRICAL CHARACTERISTICS $T_A = 25^{\circ}\text{C}$ unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Supply Current	I_{CC}	0.5	2.5	5.0	mA	$V_{CC}=12\text{ V}$; $B < B_{OP}$
Saturation Voltage	V_{OL}		0.3	0.5	V	$I_{OUT} = 20\text{ mA}$, $B > B_{OP}$
Output Leakage	I_{OFF}		0.01	10.0	μA	$B < B_{OP}$, $V_{OUT} = 12\text{ V}$
Output Rise Time	T_r		100		ns	$V_{CC} = 12\text{ V}$, $R_L = 1.1\text{ K}\Omega$, $C_L = 20\text{ pF}$
Output Fall Time	T_f		180		ns	$V_{CC} = 12\text{ V}$, $R_L = 1.1\text{ K}\Omega$, $C_L = 20\text{ pF}$

MAGNETIC CHARACTERISTICS $T_A = 25^{\circ}\text{C}$

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Operate Point	B_{OP}	70	120	150	Gauss	$V_{CC} = 12\text{ V}$, $R_L = 1\text{ K}\Omega$
Release Point	B_{RP}	35	70	100	Gauss	$V_{CC} = 12\text{ V}$, $R_L = 1\text{ K}\Omega$
Hysteresis	B_{HYS}	20	50	70	Gauss	$V_{CC} = 12\text{ V}$, $R_L = 1\text{ K}\Omega$

ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
65021-001	Commercial
65021-101	Screened