

65017**HIGH RELIABILITY HALL EFFECT SENSOR,
LATCHING OUTPUT**

12/3/03

Features:

- Wide operating temperature range -55°C to +150°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:

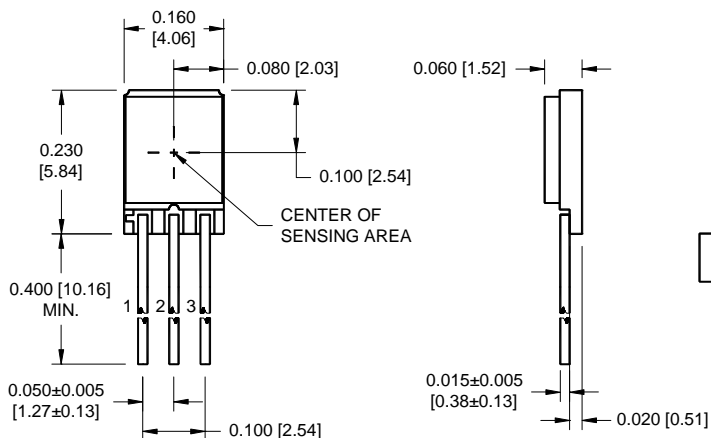
- Solid state switch
- Motor controls
- Speed sensing
- Angular Position sensing
- Linear Position Sensing
- Current Sensing

DESCRIPTION

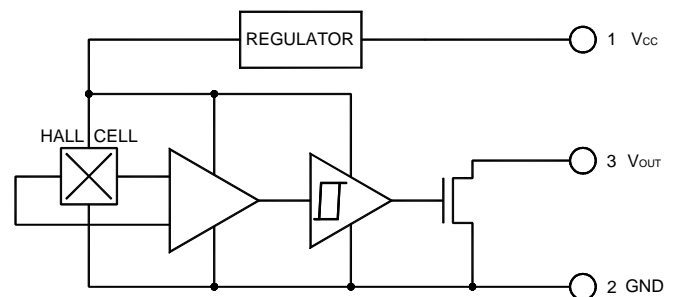
The 65017 Hall effect sensor detects the presence of a magnetic field and provides a switch output. It is packaged in a hermetically sealed three pin ceramic package and can be used in many harsh environments. An internal chopper stabilized amplifier eliminates input offset voltages normally associated 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_{SINK}).....	25mA
Storage Temperature.....	-65°C to +150°C
Operating Free-Air Temperature Range.....	-55°C to +150°C
Lead temperature (10 seconds, 1/16" from case).....	+260°C

Package DimensionsTOLERANCE: ± 0.010 [± 0.25] UNLESS OTHERWISE SPECIFIED

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

Schematic Diagram

65017

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HIGH RELIABILITY HALL EFFECT SENSOR, LATCHING OUTPUT

ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$ unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Supply Current	I_{CC}	1.5	2.5	7.0	mA	$V_{CC}=15\text{V}$; $B < B_{OP}$
Saturation Voltage	V_{OL}			0.4	V	$I_{OUT} = 20\text{ mA}$, $B > B_{OP}$
Output Leakage	I_{OFF}		0.01	5	μA	$B < B_{OP}$, $V_{OUT}=15\text{V}$
Output Rise Time	T_r		100	200	ns	$V_{CC} = 12\text{V}$, $R_L = 820\ \Omega$, $C_L = 20\ \text{pF}$
Output Fall Time	T_f		180	350	ns	$V_{CC} = 12\text{V}$, $R_L = 820\ \Omega$, $C_L = 20\ \text{pF}$

MAGNETIC CHARACTERISTICS

$T_a = 25^\circ\text{C}$, $V_{CC} = 5\text{V}$

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Operate Point	B_{OP}	10	75	150	Gauss	$V_{CC} = 5\ \text{V}$, $R_L = 1\ \text{K}\Omega$
Release Point	B_{RP}	-100	-50	-10	Gauss	$V_{CC} = 5\ \text{V}$, $R_L = 1\ \text{K}\Omega$
Hysteresis	B_{hys}	70	100	120	Gauss	$V_{CC} = 5\ \text{V}$, $R_L = 1\ \text{K}\Omega$

ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
65017-001	Commercial
65017-101	Screened