65017 HIGH RELIABILITY HALL EFFECT SENSOR, LATCHING OUTPUT

OPTOELECTRONIC PRODUCTS DIVISION

07/22/2009

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

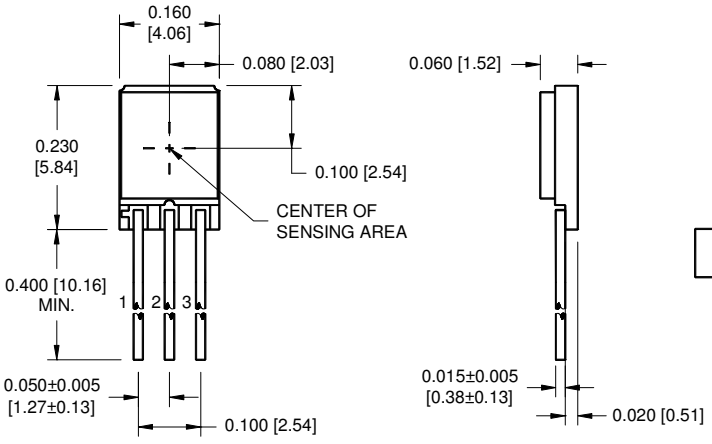
DESCRIPTION

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.

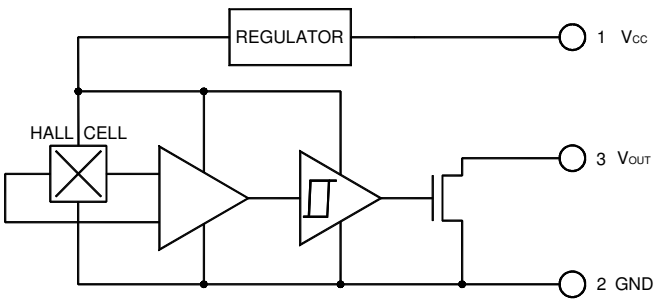
ABSOLUTE MAXIMUM RATINGS

Supply Voltage Range	3.5 V to 20.0 V
Supply Current (Fault)	50 mA
Power Dissipation, @ T_A = 25°C (P_D)	500 mW
Magnetic Flux Density	Unlimited
Output ON Current (I_{SINK})	25 mA
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 Dimensions



Schematic Diagram



TOLERANCE: ±0.010 [±0.25] UNLESS OTHERWISE SPECIFIED

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

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ELECTRICAL CHARACTERISTICS

T_A = 25°C, V_{CC} = 5 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}=15V; B < B_{OP}
Saturation Voltage	V_{OL}			0.5	V	I_{OUT} = 20 mA, B >B_{OP}
Output Leakage	I_{OFF}		0.01	5	µA	B < B_{OP}, V_{OUT} =15 V
Output Rise Time	T_r		0.25	1	µs	V_{CC} = 12V, R_L = 1 KΩ, C_L = 20 pF
Output Fall Time	T_f		0.25	1	µs	V_{CC} = 12V, R_L = 1 KΩ, C_L = 20 pF
Maximum Switching Frequency	F_{SW}			10	KHz	

MAGNETIC CHARACTERISTICS

T_a = 25°C, V_{CC} = 5 V unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Operate Point	B_{OP}	10	75	150	Gauss	Vcc = 5 V, R_L = 1 KΩ
Release Point	B_{RP}	-100	-50	-10	Gauss	Vcc = 5 V, R_L = 1 KΩ
Hysteresis	B_{HYS}	70	100	120	Gauss	Vcc = 5 V, R_L = 1 KΩ

NOTES:

1. Extended temperature performance is obtained with ceramic packaging and assembly processes. High temperature testing is functional switching verification using an applied field of greater than 200 G to latch the output on and an applied field of greater than -200 G to reset output off.

ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
65017-001	Commercial
65017-101	Screened