65017-001

HIGH RELIABILITY HALL EFFECT SENSOR
LATCHING OUTPUT

Mii

OPTOELECTRONIC PRODUCTS DIVISION

Rev A 12/17/01

Features:

- Wide operating temperature range -55 ºC to +150 ºC
- High magnetic sensitivity
- Low current CMOS Technology
- Wide operating voltage range 3.5 to 15 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

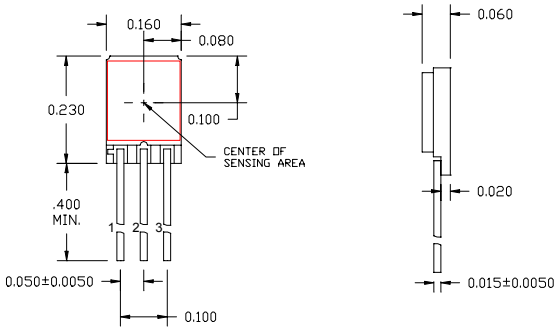
DESCRIPTION

The 65017-001 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 stablized 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

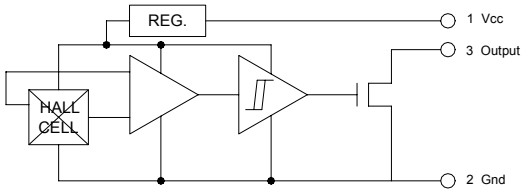
Storage Temperature..... -65°C to +150°C
Operating Free-Air Temperature Range ..... -55°C to +150°C
Lead temperature 1.6 mm (1/16 inch) from case for 10 seconds..... +260°C
Supply Voltage Range ..... 3.5 V to 15.0 V
Supply Current (Fault) ..... 50 mA.
Power Dissipation, @ T_A = 25°C (P_D)..... 500 mW
MagneticFlux Density..... Unlimited Output
ON Current (I_{SINK}) 25mA

Package Dimensions



TOLERANCE: +/- .010 UNLESS OTHERWISE SPECIFIED

Schematic Diagram



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REV A 12/17/01

ELECTRICAL CHARACTERISTICS

T_a = 25°C, V_{CC} = 5V 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}			0.4	V	I_{OUT} = 20 mA, B >B_{OP}
Output Leakage	I_{OFF}		0.01	5	uA	B < B_{OP}, V_{OUT} =15V
Output Rise Time	t_r		100	200	ns	V_{CC} = 12V, R_L = 820 ohm, C_L = 20 pf
Output Fall Time	T_f		180	350	ns	V_{CC} = 12V, R_L = 820 ohm, C_L = 20 pf

MAGNETIC CHARACTERISTICS

T_a = 25°C, V_{CC} = 5V

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

ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
65017-001	Unscreened