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

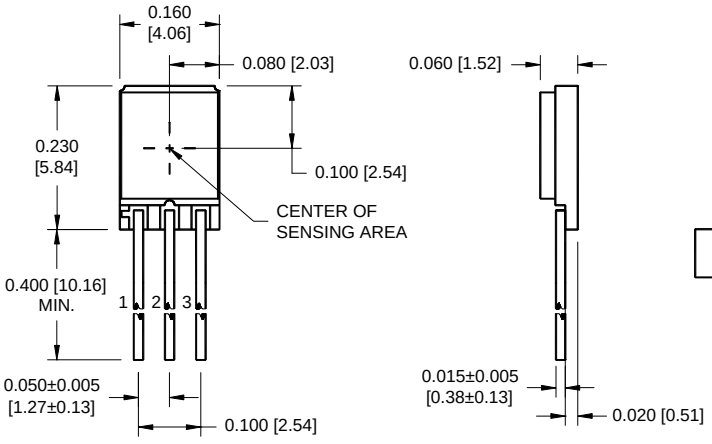
DESCRIPTION

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 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.

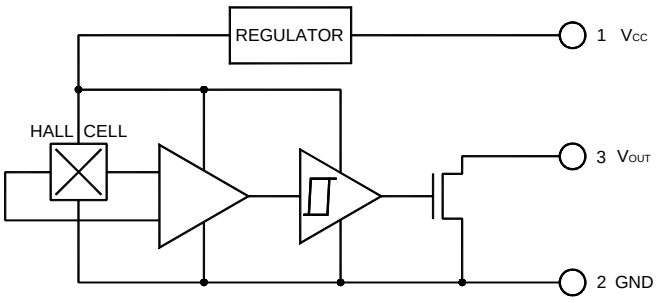
ABSOLUTE MAXIMUM RATINGS

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})	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



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} = 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	µA	B < B_{OP}, V_{OUT} =15V
Output Rise Time	Tr		100	200	ns	V_{CC} = 12V, R_L = 820 Ω, C_L = 20 pF
Output Fall Time	T_f		180	350	ns	V_{CC} = 12V, R_L = 820 Ω, 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 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

ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
65025-001	Commercial
65025-101	Screened