65041 HIGH RELIABILITY HALL EFFECT STUD, NON-LATCHING OUTPUT INTEGRAL CONNECTOR

MICROPAC
OPTOELECTRONIC PRODUCTS
DIVISION

09/05/06

Features:

- Wide operating temperature range -55 ºC to +150ºC
- High magnetic sensitivity
- Wide operating voltage range 18 to 32 V
- Chopper stabilized amplifier minimizes amplifier offset resulting in improved temperature stability
- MIL-STD-202 and MIL-STD-461E Qualified

Applications:

- Proximity sensing
- Gear tooth sensing
- Speed sensing
- Angular Position sensing

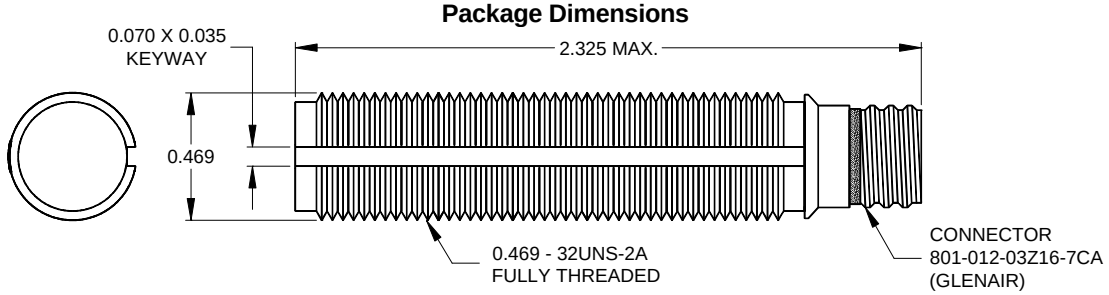
DESCRIPTION

The 65041 Hall effect stud sensor switches when exposed to the minimum specified magnetic field level. The sensor switches LOW when sensing the minimum required magnetic field and switches HIGH when the magnetic field is removed. The sensor is built into a threaded stainless steel tube and contains a single element Hall effect IC. Additional circuitry is added to expand the operating supply voltage range and provide surge protection against outside induced transcients.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage Range. ..... 18.0 V to 32.0 V
Input Supply Current ..... 25 mA
Power Dissipation, @ T_A = 25°C (P_D) ..... 100 mW
Output Current ..... 20 mA
Storage Temperature ..... -65°C to +150°C
Operating Free-Air Temperature Range ..... -55°C to +150°C

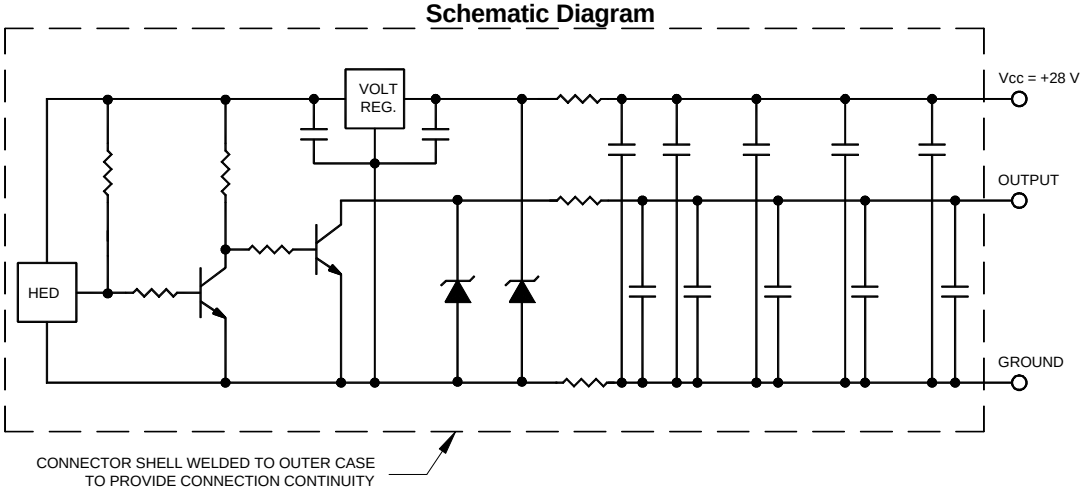
Package Dimensions



HARDWARE SUPPLIED SEPARATELY,
NOT ASSEMBLED TO THE PART.
TOLERANCE: ±0.010 UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE IN INCHES.

PIN 1 - Vcc
PIN 2 - GROUND
PIN 3 - OUTPUT

Schematic Diagram



ELECTRICAL CHARACTERISTICS

T_A = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Supply Voltage	V_{CC}	18.0		32.0	V	Continuous Operating
Supply Current	I_{CC}			25	mA	V_{CC} = 28.0 V
Output Saturation Voltage	V_{OL}			1.0	V	V_{CC} = 28 V , I_{OL} = 20 mA, B = 250 G
Output Leakage Current	I_{OH}			100	µA	V_{CC} = 28 V , B = 0 G, Output High
Power on Response Time	t_{ON}			20	ms	V_{CC} > 18 V

MAGNETIC CHARACTERISTICS

T_A = 25°C

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Magnetic Operate Point	B_{OP}			200	G	V_{CC} = 28 V , I_{OL} = 20 mA
Magnetic Release Point	B_{RP}	60			G	V_{CC} = 28 V , I_{OL} = 20 mA
Polarity	P		Low High			B > B_{OP} B < B_{RP}

Qualified to the following requirements:

Environmental

- MIL-STD-202 METHOD 105C — Altitude, Test Condition B
- MIL-STD-202 METHOD 214A — Random Vibration, 3 Hrs/Axis
- 3 Impact Shocks, 6 Orthogonal Axis — Mechanical Shock, 20 G's for 11 seconds
- MIL-STD-202 METHOD 103B — Humidity, Condition B, 96 Hours
- MIL-STD-202 METHOD 109C — Explosive Atmosphere
- MIL-STD-202 METHOD 110A — Sand and Dust
- ASTM G85.A4 — Salt Spray, SO_2, 336 Hours
- MIL-STD-202 METHOD 112 — Helium Leak Test, < 1 X 10^{-6} Torr, Condition D
- MIL-STD-202 METHOD 107G — Thermal Shock, -65°C to +125°C

EMI / EMC

- MIL-STD-461E RS103 — Radiated Susceptability, 200 V/m (30 MHz to 18 GHz)
- MIL-STD-461E CS114 — Conducted Susceptability, Limit Curve 5
- MIL-STD-461E CS115 — Conducted Susceptability, I_{MAX} 5 A
- MIL-STD-461E CS116 — Conducted Susceptability, I_{MAX} 10 A

Lightning Strike

- RTCA DO-160 Section 22, Waveform A — Induced Indirect Differential Transient, 70 V or 5 A

ORDERING INFORMATION:

PART NUMBER	DESCRIPTION
65041-001	Commercial
65041-101	Screened

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