



Applications

- Antenna Stabilization Systems
- GPS Augmentation
 - Vehicle Location Systems
 - Navigation Systems
 - Precision Farming
- Factory Automation
- Medical/Orthopedic
- Instrumentation

Description

The BEI GyroChip™ Horizon is a compact, high reliability, solid-state angular rotation sensor designed for use by original equipment manufacturers (OEM). It features a monolithic quartz sensing element, internal power regulation, and a simple interface which provides a high-level 0 to +5 Vdc output signal. Designed to operate from a +12 Vdc power supply, it also provides a +2.5 Vdc reference to allow for differential monitoring of the output.

Features

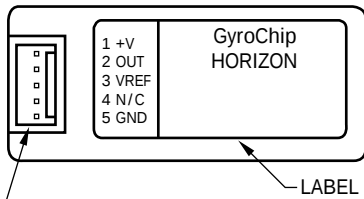
- Micromachined Sensor
- Compact, Lightweight Design
- High Reliability
- Low Cost
- DC Input, DC Output Operation
- Internal Power Regulation
- Low Drift
- Fast Start-Up

Operation

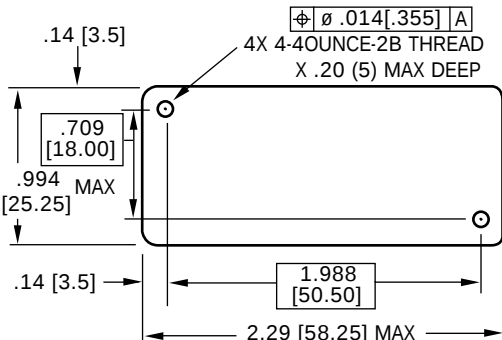
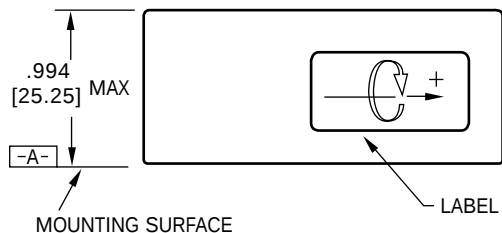
The BEI GyroChip™ Horizon utilizes a one piece, micromachined, vibrating quartz tuning fork sensing element. Applying the Coriolis effect, a rotational motion about the sensor's input axis produces a voltage proportional to the rate of rotation. Use of piezoelectric quartz material simplifies the active element, resulting in exceptional stability over temperature and product life.



Micromachined Angular Rate Sensor



5 PIN SQUARE POST-HEADER .025 [0.63] POSTS
MATES TO AMP MTA-100 CONNECTOR
(OR MOLEX 2695 CONNECTOR)



NOTES:

1. HORIZON IS SUPPLIED WITH A MATING CONNECTOR (AMP MTA-100 OR MOLEX 2695).
2. ANGULAR RATE AS SHOWN WILL PRODUCE A MORE POSITIVE OUTPUT.
3. UNIT OF MEASURE IS IN INCHES/[MM].

Connector Pin	Assignment
1	+VDC Input
2	Rate Output
3	Ref. Voltage +2.5 Vdc
4	No Connection, Leave Open
5	Power and Signal Ground

PARAMETER

Part Number

SUMMARY SPECIFICATION

HZ1-90-100A

Power Requirements

Input Voltage	+8 to +15 Vdc
Input Current	<20 mA

Performance

Standard Range	±90°/sec
Full Range Output (Nominal)	+0.5 to +4.5 Vdc
Scale Factor Calibration (at 22°C)	≤2% of Value
Scale Factor over Temperature (Dev. from 22°C)	≤0.08%/°C
Bias Calibration (at 22°C)	+2.5±0.045 Vdc
Bias Variation over Temperature (Dev. from 22°C)	<4.5°/sec
Short Term Bias Stability (100 sec at const. temp)	≤0.05°/sec
Long Term Bias Stability (1 year)	≤1.0°/sec
G Sensitivity	≤0.06°/sec/g
Start-Up Time	<1.0 sec
Bandwidth (-90°)	>18 Hz
Non-Linearity	≤0.05% of F. R.
Threshold/Resolution	≤0.004°/sec
Output Noise (DC to 100Hz)	≤0.025°/sec/√Hz
Operating Life	10 years, typical

Environments

Operating Temperature	-25 to +70°C
Storage Temperature	-55°C to +100°C
Vibration Operating	2 g _{rms} 20 Hz to 2 kHz random
Vibration Survival	10 g _{rms} 20 Hz to 2 kHz random
Shock	200 g

Weight

≤60 grams

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