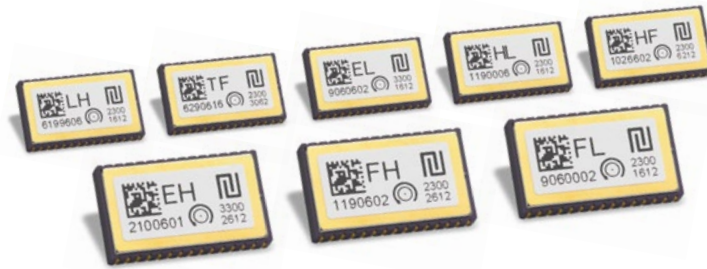




High-Performance MEMS Angular Rate Sensor GYPRO® PRODUCT LINE



KEY FEATURES

- Angular rate measurement around Z-axis (yaw)
- Excellent bias instability of 0.8°/hour
- Ultra-low noise of 0.1°/√h
- 24 bit angular rate output with digital SPI interface
- Embedded temperature sensor and continuous self-test function
- 25mA current with single 5V power supply
- Hermetic ceramic package: 0.5 cm³, 3 grams

GENERAL DESCRIPTION

The GYPRO® PRODUCT LINE is a new generation of Micro-Electro-Mechanical Systems (MEMS) angular rate sensor specifically designed for applications that are more demanding than automotive, while not requiring 'tactical grade' FOG or DTG.

GYPRO® sensors consist of a MEMS transducer and an integrated circuit (IC) packaged in a 30-Pin Ceramic Leadless Chip Carrier (CLCC) package.

The MEMS transducer is manufactured using Tronics' vacuum wafer-level packaging technology based on micro-machined thick single crystal silicon.

The IC provides a stable vibration of the "drive" proof masses, thanks to electrostatic comb drives. When the sensor is subjected to a rotation, the Coriolis force acts on the "sense" proof masses and forces them into a secondary movement perpendicular to the direction of drive vibration, which is itself counterbalanced by electrostatic forces (sense closed-loop operation).

GYPRO® sensors are factory calibrated and compensated for temperature effects to provide high-accuracy digital output over a broad temperature range.

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GYPRO® PRODUCT FAMILY

Part number	Description	Data rate (Hz)	Operating vibrations
GYPRO2300	Standard configuration	200	20Hz - 1 kHz, 4 g rms
GYPRO2300LD	Low-delay configuration	1600	20Hz - 1 kHz, 4 g rms
GYPRO3300	Improved vibration tolerance	1800	20 Hz - 2 kHz, 8 g rms

PERFORMANCE

Parameter	Conditions	Typical	Max	Unit
Input range		±300		°/s
Bias instability	Allan variance at 22°C	0.8		°/h
Bias variation over temperature	1σ, post-processed raw output	20		°/h
Bias G-sensitivity		18		°/h/g
Bias rectification	Under operating vibrations	10		°/h/g ² rms
RMS Noise	[1-100Hz]	0.025	0.05	°/s
Angular Random Walk	Allan variance at 22°C	0.14		°/√h
Scale Factor variation over temperature	1σ, post-processed raw output	300		ppm
Scale Factor non-linearity		230	500	ppm
Bandwidth (*)	At -3dB	100 / 200		Hz
Data Rate (*)		200 / 1 600		Hz
Latency (*)		40 / 2		ms
Start-up time		0.8		s

(*) corresponding to GYPRO2300 / GYPRO2300LD & GYPRO3300

ENVIRONMENT

Parameter	Conditions	Typical	Unit
Operating temperature		-40 to +85	°C
Survival vibration	20Hz – 2kHz during 10 min	20	g rms
Survival shock	0.3 ms	2000	g
Recovery time after shock	50g shock during 6 ms	<10	ms

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