MG-502: HIGH PRECISION MEMS SINGLE AXIS GYROSCOPE

PRODUCT DESCRIPTION

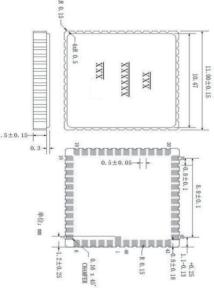


MG-502 single axis gyroscope is a high-precision MEMS single axis gyroscope product launched by MXMW company. Adopting small volume ceramic packaging, it has the characteristics of high precision, wide range, resistance to large impact, wide temperature range, and fully digital output. Mainly used in inertial navigation, integrated navigation, attitude reference system (AHRS), platform stabilization system, unmanned aerial vehicle flight control, etc.

PRODUCT MAIN SPECIFICATION

Parameters	Unit	MG502	Note
Range	°/s	±500	Clockwise rotation is positive
			output, Clamped at ±105% FS
			during over-range
Resolution	bit	24	
Data output rate	Hz	12K	Refresh rate of the output data at
			room temperature
Group delay	ms	<1.5	Time delay between the physical
Dbd-l	-l	400	input and the output signal
Phase delay	deg	≤90	@3DB
Bandwidth (-3dB)	Hz	200	Factor defects
Scale factor@25° C	lsb/deg/s	16000	Factory default
Scale Factor Repeatability (1 σ)	Ppm	<10	day by day at setting Temp (1 σ)
Scale Factor VS Temperature (1 σ)	ppm	<50	Over temperature range (1 σ)
Scale Factor Non-Linearity)(1 º)	ppm	<150	Percentage of dynamic range using a best straight line fit
Bias instability	deg/hr	<0.5	Allan Variance @25° C
Bias stability (1 o ,10s)	deg/hr	<5	
Bias stability (1 o ,1s)	deg/hr	<15	
Angular random walk	°/√h	<0.25	Allan Variance @25° C
Bias error over temperature (1 σ)	deg/hr	<15	Over temperature range (1 $^{ m o}$)
Bias temperature variations,	deg/hr	<5	Over temperature range (1 σ)
calibrated (1 σ)			
Bias Run-to-Run (1 ♂)	deg/hr	<5	day by day at setting Temp (1 σ)
G sensitivity	°/hr/g	<3	Any axis, Tested over ± 1 g
VRE (Vibration rectification error)	°/hr/g(rms)	<3	(12gRMS, 20-2000)
Startup time	S	1	Time to operational output
Sensor Resonant Frequency	Hz	10.5~13.5K	Gyroscope resonance frequency
Shock (operating) @1ms	g	500	
Shock (survival)@10ms	g	10000	
Vibration operating		18grms, (Screening spectrum)	
Operating temperature	° C	-40 ~ +85	
Storage temperature	° C	-55 ~ +125	
Supply voltage	V	5±0.25	

PRODUCT DIMENSION



PRODUCT APPLICATION

- Inertial navigation system

Current consumption

- Platform stabilization
- Unmanned aerial vehicles (UAV)

- Integrated navigation system
- AHRS and IMU

40

mΑ

Satellite solar antenna positioning