PIEZOELECTRIC VIBRATING GYROSCOPE
ENV-05D SERIES

Murata Electronics' new rotational angular velocity sensor combines Murata's equilateral triangle prism vibrating unit with a revolutionary mounting technology for the piezo-electric ceramic element that produces 100 times the precision of other vibration gyroscopes.

APPLICATIONS

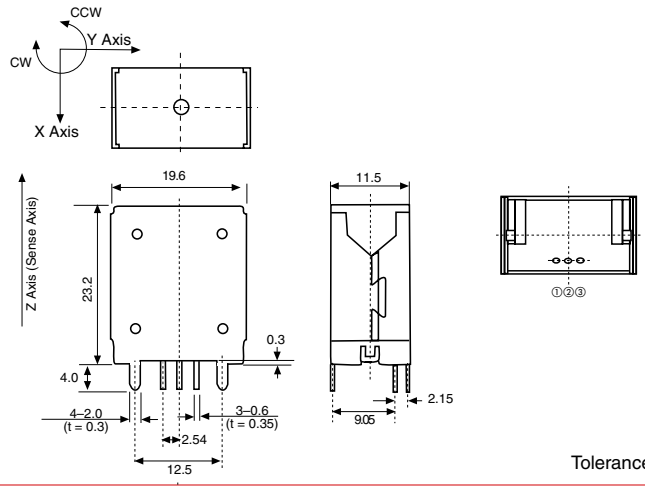
- Navigation systems
- Platform positioning and stabilizing
- Car electronics: accident history recorder, dead reckoning, theft retrieval, unmanned vehicles
- Satellite antenna positioning
- Office automation
- Factory automation
- Mayday system
- Construction equipment

Note: This product is not approved for military and avionics.

BENEFITS

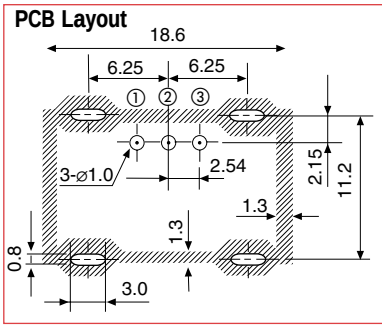
- Low price
- Low drift
- Low noise
- Compact
- Fast response
- Precision detection

DIMENSIONS: mm



Tolerance : ±0.5

PCB Layout



Terminal	Description
①	+Supply (input)
②	Ground (common)
③	Sensor Output (output)

SPECIFICATIONS

Characteristics	Symbol	Condition	Min.	Std.	Max.	Unit
Supply voltage	Vcc		+4.5	+5.0	+5.5	VDC
Current consumption	Icc	at Vcc = 5.0VDC	—	—	15	mA
Maximum angular velocity	Omax.		–60	—	+60	deg/s
Output	Vo	Angular velocity = 0 at –30 ~ 80°C	2.100	2.500	2.900	VDC
Scale factor	Sv	at –10 ~ 60°C	23.0	25.0	27.0	mV/deg/s
		at –30 ~ 80°C	21.7	25.0	28.3	
Asymmetry CW & CCW			—	—	3	deg/s
Temperature coefficient Scale factor		–10 ~ 60°C	—	—	±5	%FS
		–30 ~ 80°C	—	—	±10	
Drift		–30 ~ 80°C	—	—	9	deg/s
Start up		Measure Vo after 5 seconds	—	—	±1	deg/s/10 min.
Noise level		12kHz noise	—	—	10	mVp-p
Linearity		in the maximum angular velocity range	—	—	0.5	%FS
Response		Phase delay: 90deg	—	10	—	Hz
Dependence on Supply Voltage Output			0.8	—	1.2	
Scale factor			0.8	—	1.2	
Operating Temperature Range	Topr		–30	—	80	°C
Storage Temperature Range	Tstg		–40	—	85	°C
Weight			—	—	20	g
Dimension			11.5(D) x 19.6(W) x 23.2(H) mm			

Unless otherwise specified, ambient temperature TA = 25 ± 5°C, Vcc = 5.0VDC. Use a sensor output load resistance of 100k ohm or more.

OLD PART NUMBERING SYSTEM

ENV-05	Model Name	F	XX	643	MURATA	JAPAN
		FB: with wires pigtail F: PCB mount	SUFFIX 52=Standard	LOT NUMBER	MANUFACTURING NUMBER	COUNTRY COMPANY OF ORIGIN

NEW PART NUMBERING SYSTEM

EN	C-03JA	-02	□
PRODUCT ID	TYPE	INDIVIDUAL SPECIFICATION CODE	PACKAGING

*Global Part Number shows only an example which might be different from actual part number.
*Any other definitions than "Product ID" might have different digit number from actual Global Part Number.

For more detailed information regarding this product line in North America, contact us. To receive additional information on Murata Products call 1-800-831-9172.

PIEZOELECTRIC VIBRATING GYROSCOPE
ENC SERIES

This angular velocity sensor employs the principle that a Coriolis force results if an angular velocity is applied to a vibrating object. Murata's unique ceramic bimorph vibrating unit is used as the sensor element unit, thereby enabling piezoelectric ceramics to be used for both excitation and detection. The use of this unit simplifies equipment structure and circuit configuration, thus making it possible to provide outstanding performance.

This sensor can be used for positional control and posture control of a moving object requiring high-precision measurements.

FEATURES

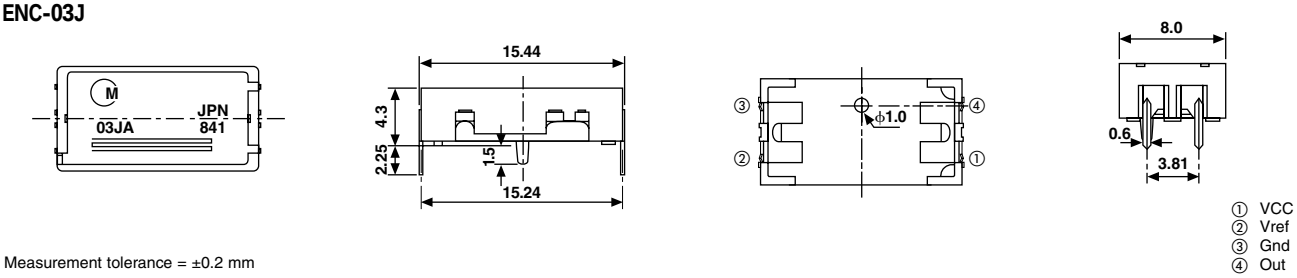
- Ultra small and ultra lightweight
- Quick response
- Low driving voltage, low current consumption
- Reliable feature achieved by a built in AGC circuit

APPLICATIONS

- Detecting hand movement involved in video and still camera
- Detecting vibrations in various vibration free table and isolators
- Detecting the own movement

DIMENSIONS: mm

ENC-03J



Measurement tolerance = ±0.2 mm

SPECIFICATIONS

Characteristics	Symbol	Condition	Min.	Std.	Max.	Unit
Supply voltage	Vcc		+2.7	+3.0	+5.5	VDC
Current consumption	Isup	at Vcc = +3.0V	2.5	3.2	4.5	mA
Comparative voltage	Vref	at –5 ~ +75°C	+1.25	+1.35	+1.45	VDC
Static output (Bias)	V0	angular velocity = 0 at –5 ~ +75°C	Vref –0.55	Vref	Vref + 0.55	VDC
Angular velocity range	ω max.			+300		deg/s
Scale factor	Sv		–20%	0.67	+20%	mV/deg/s
Temperature coefficient of Scale factor		Reference: Ta at –5 ~ +75°C	–20	—	+10	%FS
Resonance frequency – version ENC-03JA – version ENC-03JB – version ENC-03JC	 fa fb fc		 — — —	 22 24 23	 — — —	 kHz kHz kHz
Resonance frequency disparity	fa – fb	at –5 ~ +75°C	500	—	—	kHz
Linearity		in the maximum angular velocity range	–5	—	+5	%FS
Response		Phase delay: 90deg		DC p 50		Hz
Operating Temperature Range	Topr		–5	—	+75	°C
Storage Temperature Range	Tstg		–30	—	+85	°C
Weight			—	—	1.0	g

All typical values.
Unless otherwise specified, ambient temperature Ta = 25 ± 5°C, Vcc = 3.0VDC. Use a sensor output load resistance of 50kV or more. Comparative voltage (Vref) is grounded with condenser of 4.7mF.

OLD PART NUMBERING SYSTEM

ENC – 03 JA

- ENC: SERIES
- 03: MODEL
- JA: RESONANCE FREQUENCY
  - JA – 22kHz
  - JB – 24kHz
  - JC – 23kHz

NEW PART NUMBERING SYSTEM

EN C-03JA -02 □

- EN: PRODUCT ID
- C-03JA: TYPE
- -02: INDIVIDUAL SPECIFICATION CODE
- □: PACKAGING

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