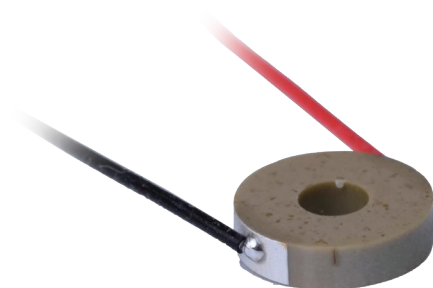


Piezo Chip Actuator - Ring



Features

- AC lifetime: 10^9 cycles
- Compact structure
- Microsecond-level response
- Vacuum compatible up to 10^{-6} Pa
- Sub-nanometer resolution
- Curie temperature: 230°C
- Operating voltage: -20 to +150V

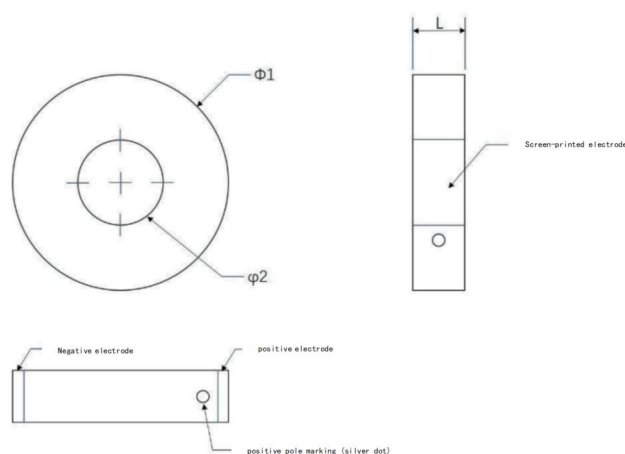
Description

The Piezo Chip Actuator consists of multiple ceramic layers and electrode layers stacked and intersected internally, with external electrodes printed on both sides to lead out the internal electrodes. Through precision grinding processes, the height tolerance of each piezoelectric ceramic is controlled to be smaller than $\pm 5\mu\text{m}$. The company has achieved seamless integration from piezoelectric ceramic powder to the finished actuator, and mass production has been implemented. Currently, the products are applied in the fields of nanoscale positioning, precision manufacturing, and dispensing valve technology.

Applications

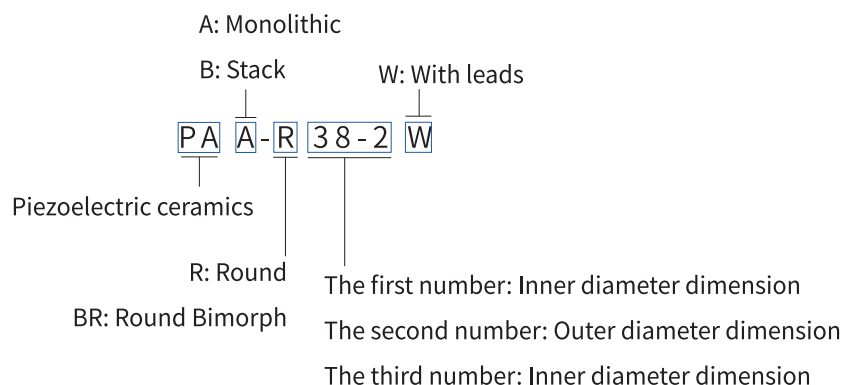
- Laser tuning
- Life science
- Micro-jetting

Interface Definition



General dimension, Unit: mm

Model Interpretation



Technical Specifications

	PAA-R38-2W	Unit	Tolerance
Active axes	Z		
Max. displacement	2.6	μm	±15%
Displacement hysteresis	<15%		
Load capacity	72	N	Max. value
Blocking force (150 V)	1800	N	Max. value
Electrical properties			
Operating voltage	150	V	
Resonant frequency	515	kHz	Max. value
Resonant impedance	150	mΩ	±15%
Antiresonant frequency	670	kHz	Max. value
Dielectric loss	<2.0%		
Electrical capacitance	550	nF	±15%
Miscellaneous			
Operating temperature range	-25~130	°C	
Electrode	Silver		
Cable length	75	mm	±5 mm
Curie temperature	230	°C	
Dimensions			
Φ1	8.3	mm	±0.1 mm
Φ2	3	mm	±0.1 mm
L	2	mm	±5 μm
MTTF	8.53	year	

* MTTF test conditions: 300V, 85% humidity, 85°C environment

Optional soldering of standard wiring harness available, length 75mm, AWG32, PTFE insulation, followed by 'W' in the product code

Other specifications can be customized on request.

Customization Information

- **Drive Voltage:** YiNGUAN can flexibly customize the maximum drive voltage of the device. The common available options for the maximum drive voltage we provide are 50V, 75V, 100V, 120V, and 150V. Other special maximum drive voltages can also be customized flexibly according to customer requirements.
- **Output Displacement:** The output displacement mainly depends on the length of the device. Monolithic annular actuators offer a maximum displacement range of up to 3.5 μ m.
- **Operating Frequency:** The long-term operating frequency of monolithic actuators depends on factors such as the resonant frequency of the device and the drive voltage. YiNGUAN can flexibly design according to customer requirements. The maximum drive frequency for stacks can reach up to 50kHz.
- **Dimensions:** The inner diameter, outer diameter, and height of the annular stack can be customized flexibly according to customer needs. For the outer diameter, the minimum available size is 3mm, and the maximum is 20mm. For the inner diameter, the minimum available size is 1mm, and the maximum is 10mm. In terms of height, customization up to 3 mm is supported.
- **Wiring Harness:** A wiring harness can be optionally equipped while meeting the AWG usage standards. The standard length of the harness is 7.5cm of tinned wire, and both the length and orientation of the harness can be customized flexibly according to customer requirements. To facilitate the connection of positive and negative electrode wires, the soldering point position can be selected within the allowable error range of performance variation.