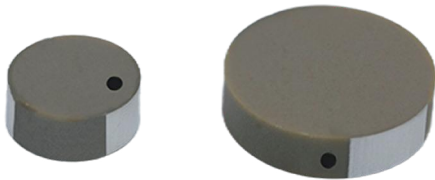


Piezo Chip Actuator - Round



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 $+150\text{V}$

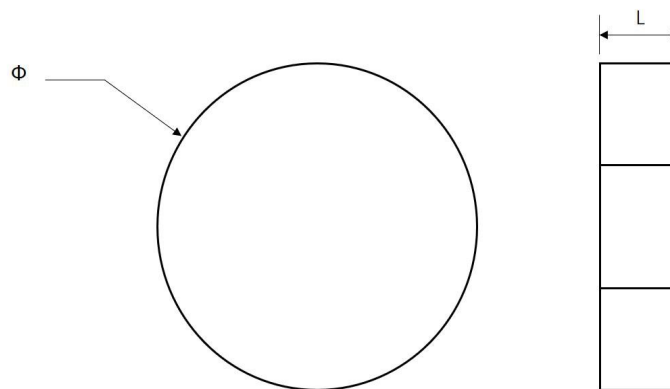
Description

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

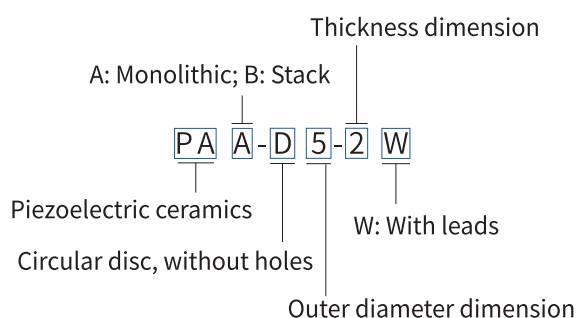
- Industrial automation
- Life science
- Scientific research
- Micro-jetting
- Laser tuning

Interface Definition



General dimension, Unit: mm

Model Interpretation



Technical Specifications

	PAA-D5-2W	PAA-D8-2W	Unit	Tolerance
Active axes	Z	Z		
Max. displacement	2.5	3.3	μm	
Displacement hysteresis	<15%	<15%		Max. value
Blocking force (150V)	780	1800	N	
Electrical properties				
Operating voltage	-20~150	-20~150	V	±15%
Resonant frequency	360	220	kHz	Max. value
Resonant impedance	150	100	mΩ	±15%
Antiresonant frequency	470	300	kHz	Max. value
Dielectric loss	<2.0%	<2.0%	%	
Electrical capacitance	150	800	nF	±15%
Miscellaneous				
Operating temperature range	-25~130	-25~130	°C	
Electrode	Silver	Silver		
Cable length	75	75	mm	±5 mm
Curie temperature	230	230	°C	
Dimensions				
Ø	5	8	mm	±0.1 mm
L	2	2	mm	±5 μm
MTTF	26.3	11.58	year	

*Displacement test: drive voltage range 0 to 150V, tolerance ±20%

**Blocking force test: The force that compresses the ceramic elongation to zero at a driving voltage of 150V

***Capacitance test conditions: ambient temperature environment, 1Vpp, 1kHz, tolerance ±20%

**** 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. For consumer electronics, YiNGUAN has specifically developed products with ultra-low drive voltage, with drive voltages as low as 3V, 10V, and 24V.
- **Output Displacement:** YiNGUAN utilizes specially developed piezoelectric ceramic materials, enabling the monolithic actuators to achieve a maximum displacement of up to 3.5 μ m.
- **Operating Frequency:** YiNGUAN can flexibly design according to customer requirements, with the monolithic actuator capable of achieving a maximum drive frequency of up to 50kHz.
- **Dimensions:** The dimensions of monolithic actuators can be customized flexibly. In terms of outer diameter, customization is available from a minimum of 1mm to a maximum of 20mm. In terms of height, customization is available from a minimum of 0.5mm to a maximum of 3mm.
- **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.