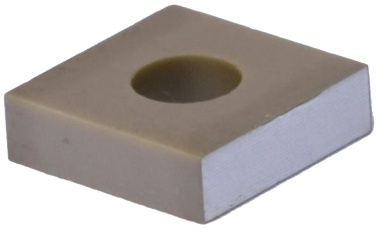
Rectangular Piezoelectric Actuators with Through Holes



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

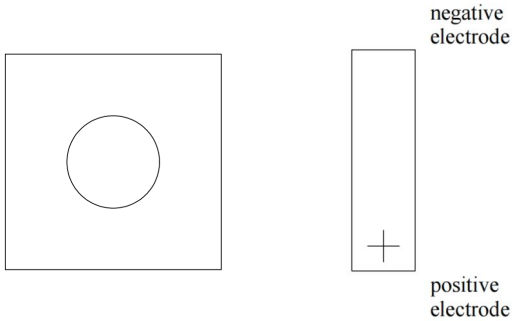
Description

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 ±5μm. 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

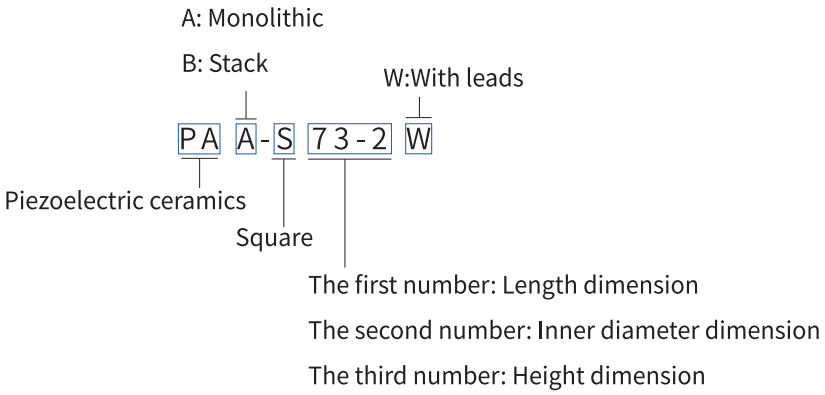
- Laser tuning
- Micro-jetting
- Life science

Interface Definition



General dimension, Unit: mm

Model Interpretation



Technical Specifications

	PAA-S73-2W	Unit	Tolerance
Active axes	Z		
Max. displacement	3.0	μm	±15%
Displacement hysteresis	<15%		
Load capacity	720	N	Max. value
Blocking force (150 V)	1800	N	Max. value
Electrical properties			
Operating voltage	-20~150	V	
Resonant frequency	177	kHz	±15%
Resonant impedance	200	mΩ	±15%
Antiresonant frequency	195	kHz	±15%
Dielectric loss	<2.0%		
Electrical capacitance	520	nF	±15%
Miscellaneous			
Operating temperature range	-25~130	°C	
Electrode	Silver		
Cable length	75	mm	±5 mm
Curie temperature	230	°C	
Dimensions			
Ø	3	mm	±0.1 mm
A	7	mm	±0.1 mm
B	7	mm	±0.1 mm
L	2	mm	±0.1 mm

Customization Information

- **Drive Voltage:** Different drive voltages can meet various displacement requirements. Common standard voltages available include 50V, 75V, 100V, 150V, and 250V.

- **Output Displacement:** The output displacement is related to the device height. Depending on different application scenarios, a maximum displacement of up to 3.5μm can be provided.

- **Operating Frequency:** High-frequency driving may cause damage or heating of the single-piece device. A maximum drive frequency of 50kHz is provided. For special application scenarios, we can also offer an optional frequency of 100kHz.

- **Dimensions:** In terms of length and width, options such as 4mm, 6mm, 8mm, and 10mm are available. In terms of height, the maximum selection is 3mm. For the inner diameter, common sizes such as 1mm, 2mm, 3mm, and 4mm are available. Non-standard sizes can also be customized according to customer requirements.

- **Wiring Harness:** Under the condition of meeting the AWG usage standards, the wiring harness is optional. For convenient connection of the positive and negative electrode wires, the soldering point position can be selected within the allowable error range of performance variation.