

P-249

Miniature Open-Loop Piezo Actuators (HVPZT)

>> Click <http://www.pi.ws/fwd/Piezo-Actuator> for the Latest Specs on these Products



P-249 PZTs, paper clip for size comparison

- Displacement to 10 μm
- Sub-msec Response
- Sub-nm Resolution
- Options: UHV, High- & Low-Temperature

P-249 miniature piezo actuators are high-resolution linear actuators for static and dynamic applications. They provide sub-millisecond response and sub-nanometer resolution.

Due to their high resonant frequency, these translators are ideal for dynamic operation of very light parts. For dynamic operation with larger loads, an external preload is recommended. PI offers a variety of preloaded translators for applications with larger tensile forces (see the "Selection Guide", p. 1-8).

Application Examples

- Laser tuning
- Static and dynamic positioning of small parts
- Fiber alignment, etc

For more examples see page 1-5

Care must be taken during mounting (e.g. with epoxy) and operation because the translators are not protected by a case or preload (see the mounting guidelines, p. 1-48).

Technical Data

Models	P-249.10	P-249.20	Units	Notes see page 1-46
Open-loop travel @ 0 to -1000 V	5	10	$\mu\text{m} \pm 20\%$	A4
* Open-loop resolution	0.05	0.1	nm	C2
** Static large-signal stiffness	50	30	$\text{N}/\mu\text{m} \pm 20\%$	D1
Push/pull force capacity	150 / 3	150 / 3	N	D3
Max. operating voltage range	0 to -1000	0 to -1000	V	A7
Electrical capacitance	6	12	$\text{nF} \pm 20\%$	F1
Dynamic operating current coefficient (DOCC)	1.5	1.5	$\mu\text{A}/(\text{Hz} \times \mu\text{m})$	F2
Unloaded resonant frequency (f_0)	35	18	$\text{kHz} \pm 20\%$	G2
Standard operating temperature range	-40 to +80	-40 to +80	$^{\circ}\text{C}$	
Voltage connection	PT	PT		J1
Weight	2.5	3	$\text{g} \pm 5\%$	K
Recommended amplifier (codes explained p. 1-3)	B, I	B, I		
Length L	6.5	10.5	$\text{mm} \pm 0.3$	

Recommended preload for dynamic operation 15 to 30 MPa

* Resolution of piezo actuators is not limited by friction or stiction. Noise equivalent motion with E-507 amplifier

** Dynamic small-signal stiffness ~50% higher

Accessories

Extension cables & connectors: see page 6-56 in the "Piezo Drivers & Nanopositioning Controllers" section.

Factory Installed Options*

P-702.10

High-Temperature Option (see page 1-44)

P-702.20

Low-Temperature Option (see page 1-44)

P-703.10

High-Vacuum Option (see page 1-44)

*When ordering these options, change the last digit to 7, e.g. P-249.10 to P-249.17, and list options separately.

Notes

See "Piezo Drivers & Nanopositioning Controllers" section for our comprehensive line of low-noise modular and OEM control electronics for computer and manual control.

For mounting guidelines see page 1-48.

Ordering Information

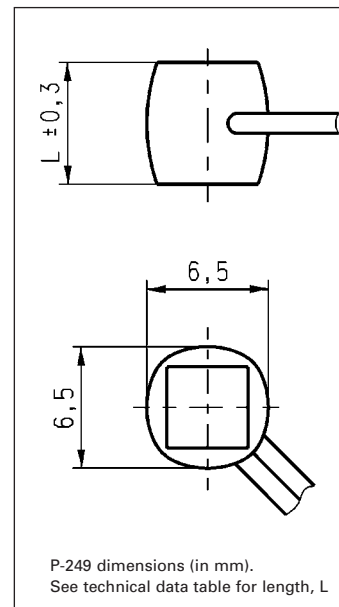
P-249.10

Miniature HVPZT Actuator, 5 μm

P-249.20

Miniature HVPZT Actuator, 10 μm

Ask about custom designs!



P-249 dimensions (in mm). See technical data table for length, L