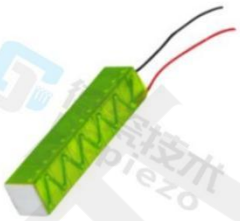
Product specification

The **DCS3-050509** piezoelectric stack consists of multiple chips which are bonded via epoxy. It offers a maximum displacement of 10.5 μm. The red wire of the electrode serves as the positive terminal (+), and the black wire is the negative terminal (-).



DCS3-050509

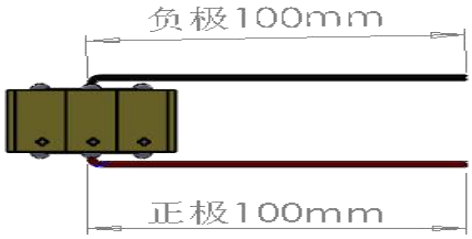
Performance Parameters

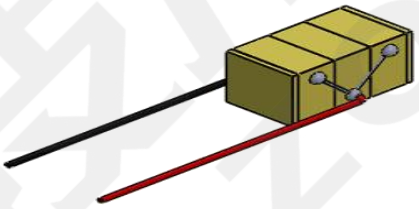
Drive Voltage Range	-30~150 V	**Capacitance**	700nF ± 15%
Displacement (Free Stroke) at 150 V	10.5 μm ± 15%	**Dissipation Factor**	<2.3%
Hysteresis	<15%	**Resonant Frequency**	110kHZ
Stiffness	95 N/μm	**Blocking Force at 150 V**	1000N
Curie Temperature	230 °C	**Operating Temperature**	-25 ~ 130 °C
Product Size	L：5.0mm	**Outer Dimensions**	L: 5.2 ± 0.2mm
	W：5.0mm		W: 7.1 ± 0.2mm
	H：9.0mm		H: 9.0 ± 0.1mm

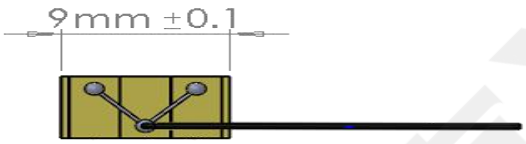
- All specifications are quoted at 25°C, unless otherwise stated.
- The displacement may vary slightly for different loads, and the maximum displacement occurs when used with the recommended load.

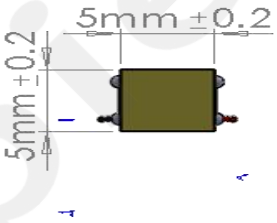
Product specification

Product Size

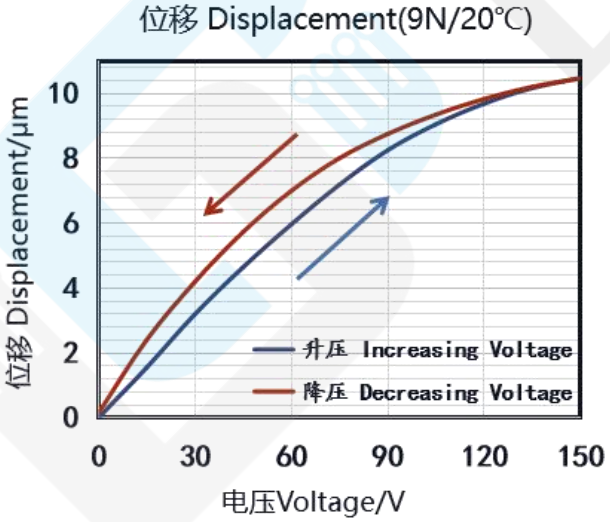


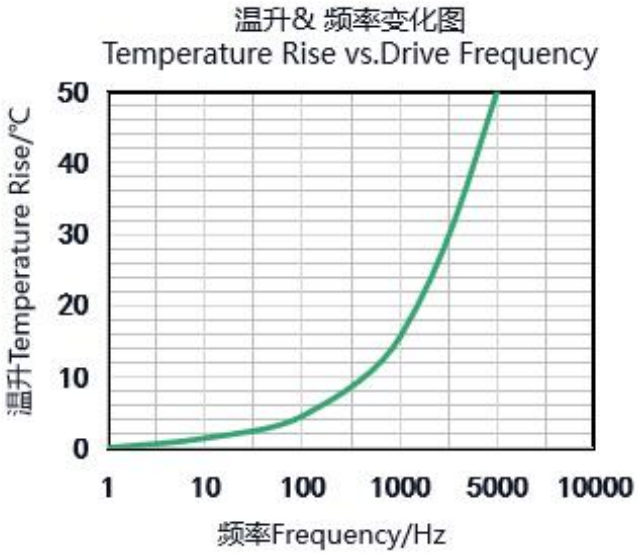






Performance Curve





- These temperature rises were measured after applying a sine-wave drive voltage ranging from 0 to 150V at the specified frequency for 10 minutes.

Product specification

Matters Needing Attention

1. Storage Conditions & Precautions:

Temperature: <50℃, Humidity: <40%Rh. Avoid impact and compression. Store in vacuum-sealed bags for long-term preservation. When not in use, connect to a resistive discharge (≥100kΩ) or short-circuit (for low-capacitance ceramics).

2. Operating Conditions & Precautions:

Temperature: Maximum operating temperature ≤130℃ (preferably <60℃). Add heat dissipation measures if temperature exceeds 80℃.

Humidity: <50%Rh. In high-humidity environments, preheat at low voltage before use to avoid creepage discharge.

Dust Avoidance: Dust adhesion on ceramic surfaces may reduce insulation resistance.

Clearance: Maintain a gap >1.6mm between ceramics and other conductors.

Safety: Do not immerse piezoelectric stacks in organic solvents or expose to flammable gases/liquids.

3. Assembly Precautions:

Polarity: Red wire = positive (+), black wire = negative (-). Reverse polarity may cause mechanical failure.

Handling: Handle with care to avoid impact. Wear gloves to prevent oil contamination.

Fit Tolerance: Assemble with clearance fit first, then tighten. Avoid interference fit to prevent ceramic compression.

Electrostatic Protection: Maintain >1.6mm gap between ceramics and metal parts to avoid static discharge.

Adhesive Bonding: Ensure flat bonding surfaces and remove excess glue to minimize contamination.

Soldering: Limit contact time under high temperature to <1 second to protect ceramics and coatings.

High-Temperature Assembly: Control temperature <120℃ to prevent depolarization, adhesive failure, or coating damage.

4. **Preload Instructions:**

Load Application: Apply external load to the center of the stack or distribute uniformly on the

Product specification

mounting surface. Ensure contact surfaces are flat and smooth.

Force Direction: Piezoelectric stacks can only withstand axial forces. Shear or torsional forces may cause mechanical failure.

Preload Force: Preload should not exceed 40% of maximum blocking force, and its direction must align with the motion axis to minimize shear stress.