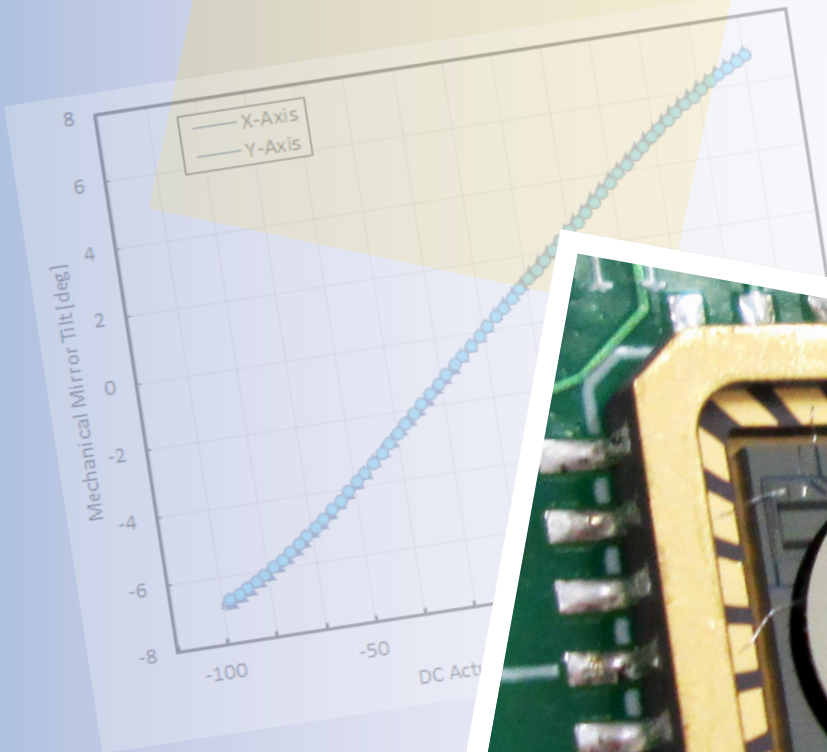




## Gimbal-Less Two-Axis Scanning MEMS Micromirrors

Device Datasheet  
S89120



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# Device Parameters Summary

**Device ID** : S89120

**Actuator Type**: A7M8.1

**Actuator Mode** : Gimbal-less Dual-Axis Quasistatic

**Mirror Type and Size** : Integrated mirror of 800um diameter

**Mirror Coating** : Aluminum

**Maximum Mech. Angle - X Axis [degrees]** : 5.1838

**Maximum Mech. Angle - Y Axis [degrees]** : 5.1589

**Maximum Vdifference - X Axis [V]** : 144

**Maximum Vdifference - Y Axis [V]** : 144

**Driver Bias Voltage (Vbias) [V]** : 90

**Maximum Mech. Angle - Coupled Axes [degrees]** : 6.6021

**Resonant Frequency - X Axis [Hz]** : 5835

**Resonant Frequency - Y Axis [Hz]** : 5864

**Quality Factor - X Axis** : 82.6000

**Quality Factor - Y Axis** : 77.5000

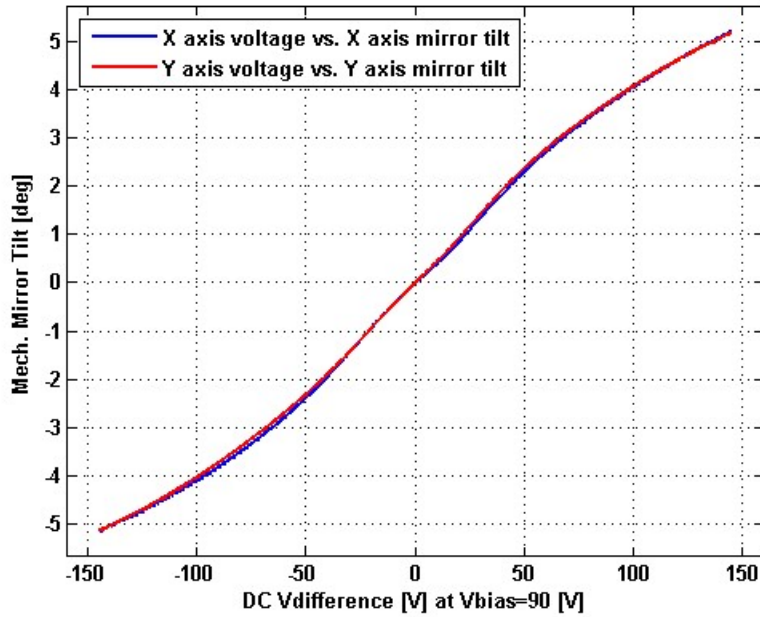
**Recommended LPF Cutoff Frequency (6th Order Bessel) [Hz]** : 2400

**Date and Time Report was Created**: 07-May-2024 at 11:11:21

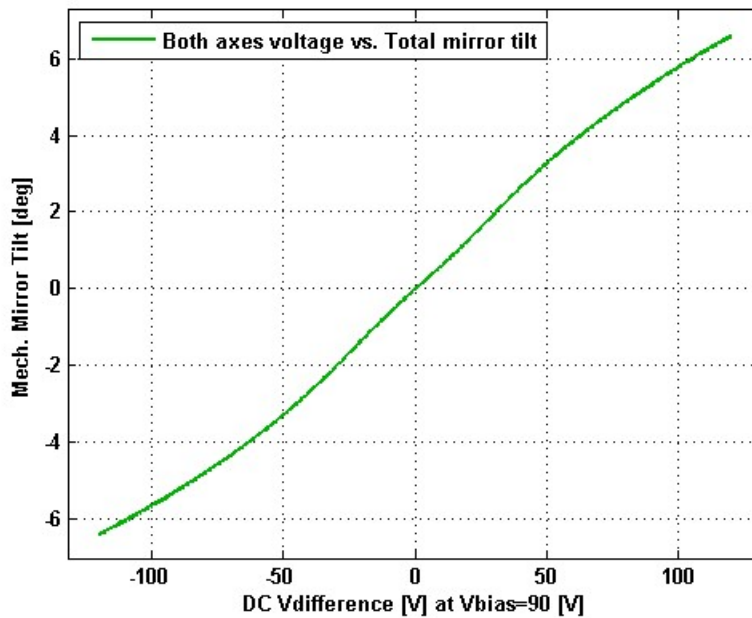
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# Static Response

## Voltage vs. Mech. Angle - Individual Axes



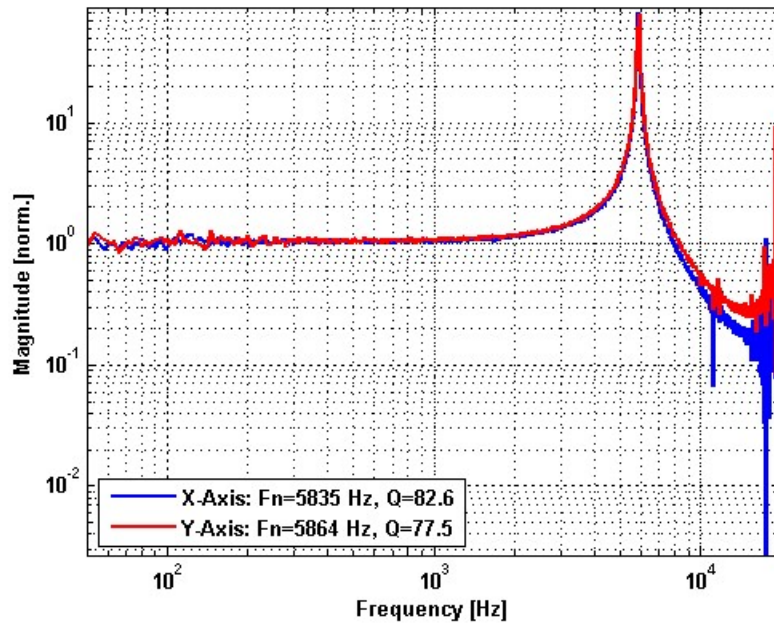
## Voltage vs. Mech. Angle - Coupled Axes



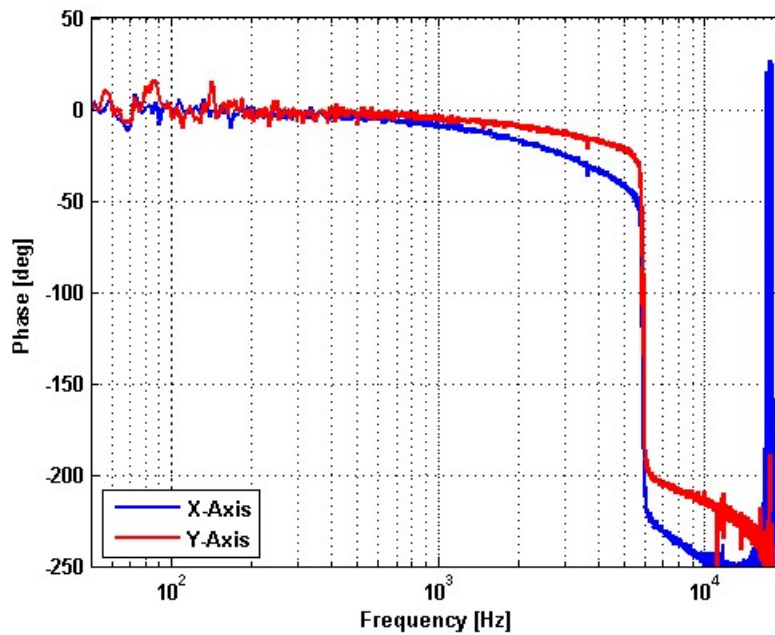
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# Frequency Response

## Small Signal Frequency Response - Magnitude



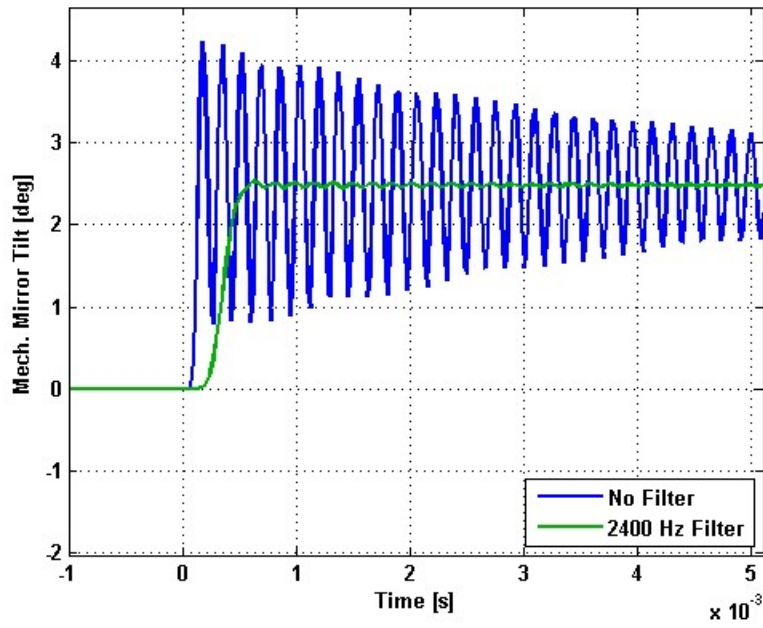
## Small Signal Frequency Response - Phase



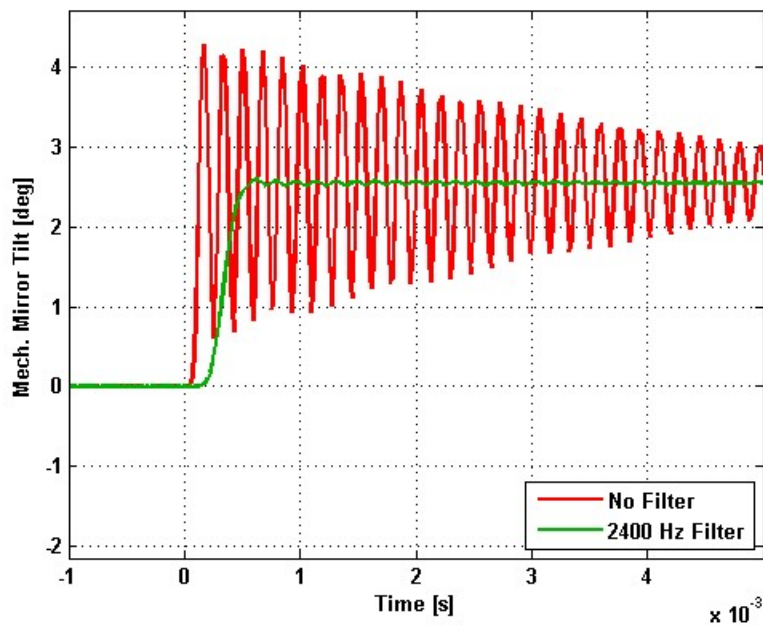
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# Step Response

## X-Axis Step Response



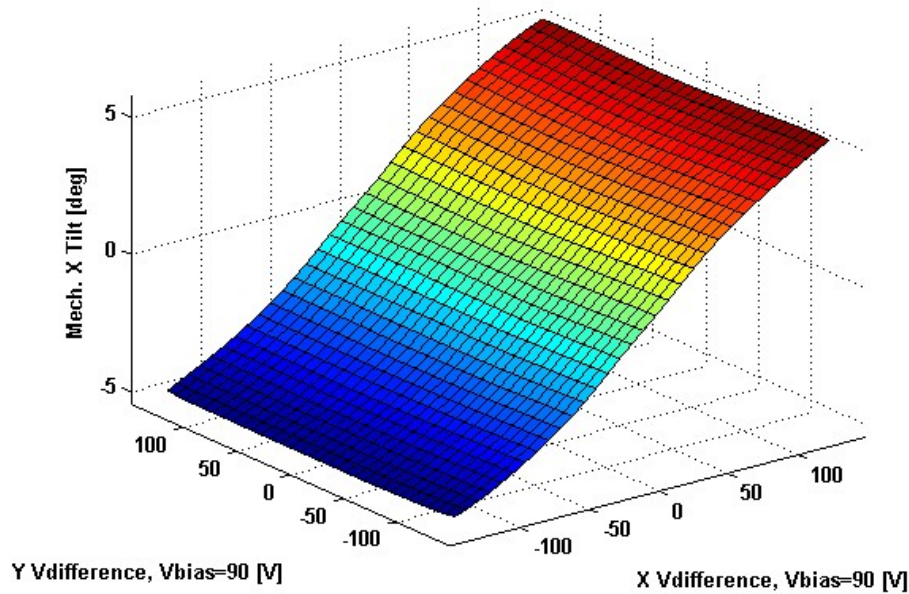
## Y-Axis Step Response



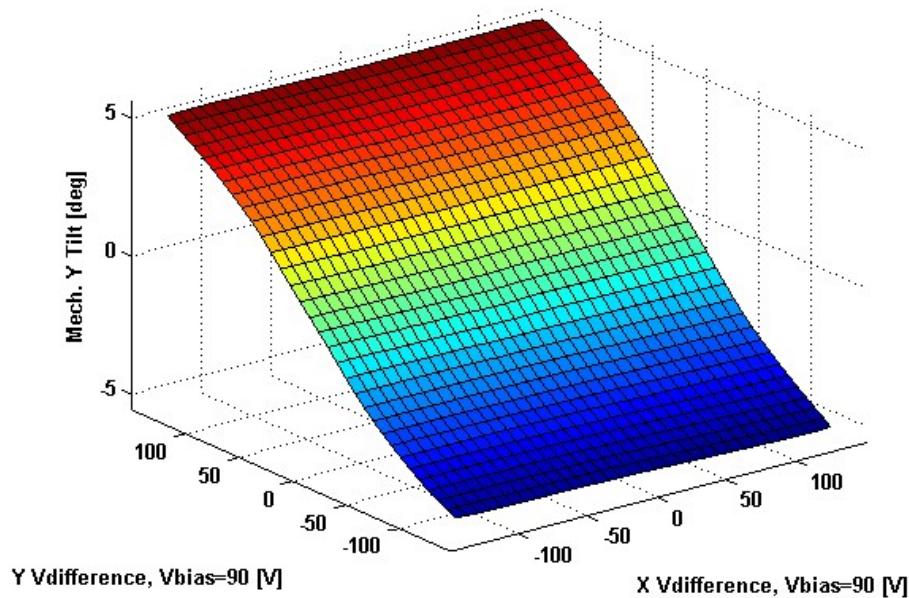
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# 2D Lookup Tables

## Voltage vs. X Mech. Angle - Lookup Table



## Voltage vs. Y Mech. Angle - Lookup Table



# Y vs. X Tilt - Addressable Mech. Angles

