

# SuperSharpSilicon™ - Force Modulation Mode

## - Reflex Coating

NANOSENSORS™ SSS-FMR AFM probes are designed for force modulation mode.

For enhanced resolution of nanostructures and microroughness we offer our SuperSharpSilicon™ AFM tip with unrivalled sharpness.

The FM type is offered for force modulation microscopy. The force constant of this AFM probe spans the gap between contact and non-contact mode and is specially tailored for the force modulation mode. The SSS-FMR tip serves also as a basis for high resolution AFM tips with magnetic coating ([SSS-MFMR](#)). Furthermore non-contact or tapping mode operation is possible with the FM tip but with reduced operation stability.

**The AFM probe offers unique features:**

- guaranteed AFM tip radius of curvature < 5 nm
- typical AFM tip radius of curvature of 2 nm
- typical aspect ratio at 200 nm from tip apex in the order of 4:1
- half cone angle at 200 nm from apex < 10°
- monolithic material
- highly doped to dissipate static charge
- chemically inert
- high mechanical Q-factor for high sensitivity

The reflective coating is an approximately 30 nm thick aluminum coating on the detector side of the AFM cantilever which enhances the reflectivity of the laser beam by a factor of about 2.5. Furthermore it prevents light from interfering within the AFM cantilever. As the coating is nearly stress-free the bending of the AFM cantilever due to stress is less than 2 degrees.

This AFM probe features alignment grooves on the back side of the holder chip. These grooves fit to the NANOSENSORS Alignment Chip.

### Cantilever data:

Property	Nominal Value	Specified Range
Resonance Frequency [kHz]	75	45 - 115
Force Constant [N/m]	2.8	0.5 - 9.5
Length [ $\mu\text{m}$ ]	225	215 - 235
Mean Width [ $\mu\text{m}$ ]	30	20 - 35
Thickness [ $\mu\text{m}$ ]	3	2 - 4

### Order codes and shipping units:

Order Code	AFM probes per pack	Data sheet
SSS-FMR-10	10	of all probes
SSS-FMR-20	20	of all probes
SSS-FMR-50	50	.....