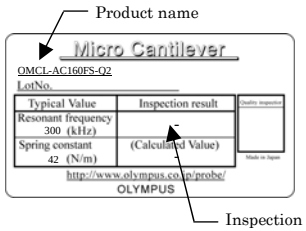
Micro cantilever

Product name

OMCL-AC160FS-Q2

Silicon cantilever with tetrahedral tip



OMCL - AC 160 F S – Q 2

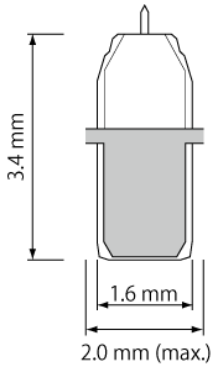
OMCL : Olympus Micro Cantilever
AC : main application is AC mode measurement
160 : Lever length of 160 μm
F : Carbon nano fiber tip
S : Aluminum reflex coating (Single side)
Q : 3 chips / unit
2 : Chip thickness 0.3 mm

Chip

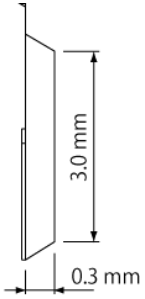
There is a rectangular cantilever on one side of the silicon chip.

Dimensions

tip side view



side view

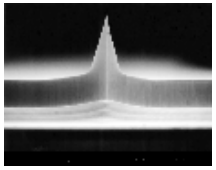


Material

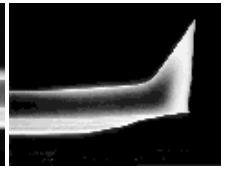
Tip and Lever	Silicon (4 - 6 ohm.cm)
Metal coating (tip side)	Carbon on Silicon cantilever
Metal coating (reflex side)	Aluminum on Silicon cantilever
Chip	Silicon (4 - 6 ohm.cm)

Probe

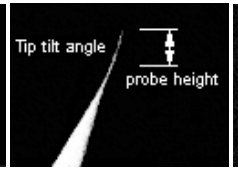
The actual probe is a small fibril of Carbon nano fiber. The probe is fabricated on a tetrahedral probe basement which locates on the exact end of each cantilever.



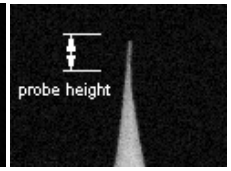
Front



Side



Side (probe apex)



Front (probe apex)

Dimensions

	Typical value	Typical range
Probe length of Carbon fiber (μm)	–	more than 0.2
Tip radius of Carbon fiber (nm)	10	8 - 15
Probe thickness (200 nm)* (nm)	50	40 - 60
Probe tilt angle (tilt compensation) (deg.)	(toward lever end) +12 (side) 0	(+6 - +18) (-6 - +6)

* Diameter of the CNF probe at 200 nm down from the apex

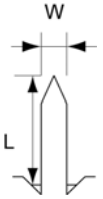
	Typical value	Typical range
Probe support length** (μm)	14	7 - 19
Probe support tip half angle (nm)	(along lever axis) less than 17.5 (side) less than 17.5	

** The support portion of the CNF probe shaped in tetrahedral

Cantilever

Dimensions

Cantilever length L (μm)	160 (±20)
Cantilever width W (μm)	50 (±2)
Cantilever thickness t (μm)	4.6 (±0.8)
Thickness of Metal coat on Reflex side tm (μm)	Aluminum 0.1 (±0.04)



Calculated mechanical properties

	Typical value	Typical range
Resonant frequency (kHz)	300	200 - 400
Spring constant (N/m)	42	12 - 103

OLYMPUS