Experiment #2

LDT0 as Flexible Switch - using a charge amplifier to obtain "open-circuit" voltage sensitivity, the output was measured for controlled tip deflections applied to the sensor (supported by its crimped contacts as described above). 2 mm deflection was sufficient to generate about 7 V. Voltages above 70V could be generated by bending the tip of the sensor through 90° (see Table 2, Fig. 2).

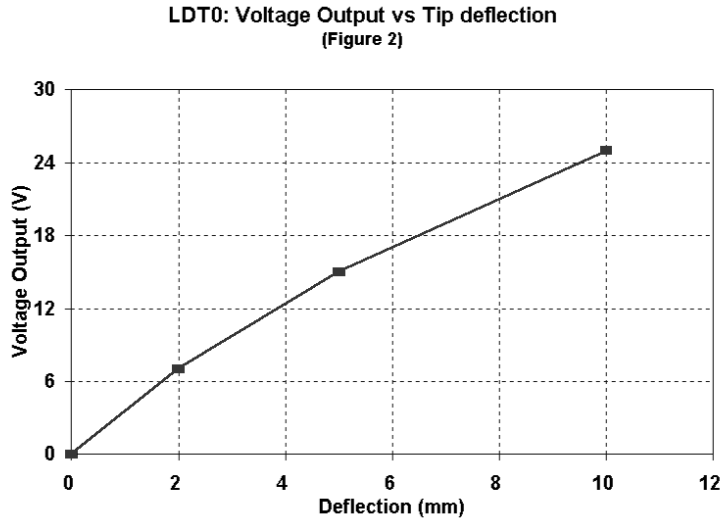

TABLE 2: LDT0 as Flexible Switch (see Fig 2)

Tip Deflection	Charge Output	o/c Voltage Output
2 mm	3.4 nC	7 V
5 mm	7.2 nC	15 V
10 mm	10 - 12 nC	20 - 25 V
max (90°)	> 30 nC	> 70 V

Experiment #3

LDT0 Electrical Frequency Response - when a source capacitance of around 480 pF is connected to a resistive input load, a high-pass filter characteristic results. Using an electronic noise source to generate broad-band signals, the effect of various load resistances was measured and the -3 dB point of the R-C filter determined (see Table 3, Fig. 3).

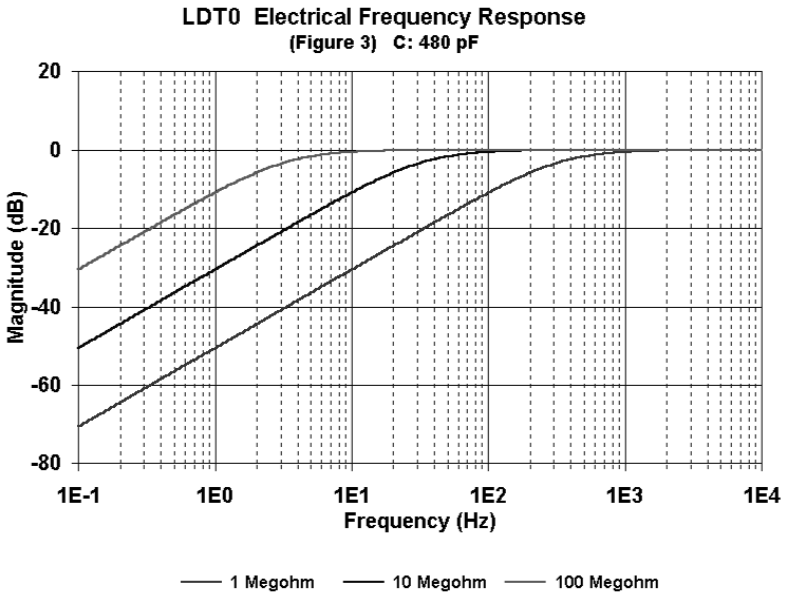

TABLE 3: LDT0 Electrical Frequency Response (see Fig 3) (480 pF source capacitance)

Load Resistance	-3 db Frequency
1 Megohm	330 Hz
10 Megohm	33 Hz
100 Megohm	3.3 Hz

Experiment #4

LDT0 Clamped at Different Lengths - using simple clamping fixture, the vibration sensitivity was measured (as in (1) above) as the clamp was moved to allow different "free" lengths to vibrate. The sensor may be "tuned" to suit specific frequency response requirements (see Table 4, Fig. 4).

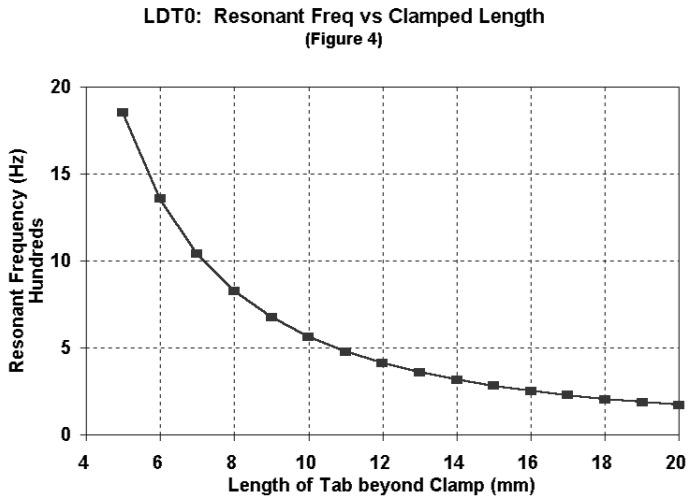

TABLE 4: LDT0 Clamped at Different Lengths (See Fig. 4)

Length Beyond Clamp	Resonant Frequency	Settling Time (5 cyc)
20 mm (no clamp)	180 Hz	28 msec
16 mm	250 Hz	20 msec
11 mm	500 Hz	10 msec
7 mm	1000 Hz	5 msec